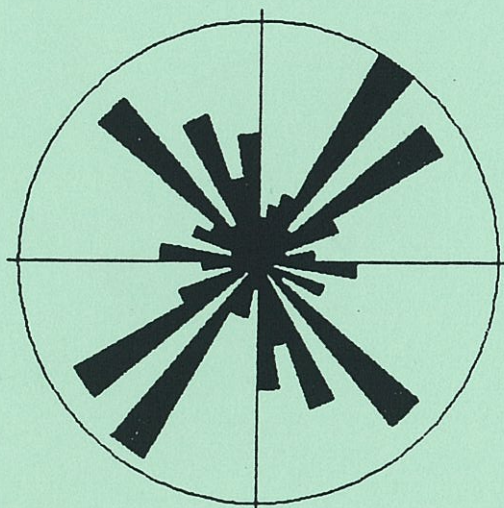


VICTORIA UNIVERSITY OF WELLINGTON



**PALEOCURRENT DATA FROM THE BEACON  
SUPERGROUP AT ALLAN HILLS AND OTHER  
LOCALITIES IN SOUTHERN VICTORIA LAND  
AND THE DARWIN MOUNTAINS**

**ANTARCTIC DATA SERIES No. 16**



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232

K. J. Woolfe

ANTARCTIC RESEARCH CENTRE  
RESEARCH SCHOOL OF EARTH SCIENCES  
FACULTY OF SCIENCE  
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1992

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1992

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## SECTION 1 - INTRODUCTION

This report presents uninterpreted paleocurrent data collected from the Beacon Supergroup by members of Victoria University's Antarctic Expeditions; VUWAE 33, VUWAE 34 and VUWAE 36, along with some data collected during 1987-88. The bulk of the data was collected from an exceptionally well exposed Permian sequence (Weller Coal Measures) at Allan Hills during the 1990-91 Austral summer. This data set contains nearly 10,000 measurements and represents one of the most comprehensive paleocurrent data sets collected so far.

Paleocurrent measurements were made solely from platform exposures, eliminating the problems associated with apparent dips. Data was collected separately from a number of different sedimentary structures, including ripples, decimetre- and metre-scale trough crossbed axes, hummock axes, swale axes, parting lineations, channel margins and logs. Where present, the orientations of large scale epsilon crossbeds were also recorded.

The measurements are presented as two dimensional vectors on rose diagrams, and in tabular format on facing pages. Although no interpretations of the measurements are offered in this report a number selected composite rose and circular diagrams are presented.

Data files are named using the following format:

AnnnSSL.XXX

where:

A is the principle collector of the data

D = D. P. Zwartz

J = J. E. Francis

K = K. J. Woolfe

P = P. J. Barrett

nnn is the collector's site number. In the case of data from localities other than Allan Hills the number is arbitrary and were assigned during data entry.

SS is the type of feature measured where:

bs = bar surface (epsilon crossbeds)

cm = strike of channel margin

dc = decimetre-scale trough crossbed axes

dh = axes of decimetre-scale linear hummocks (two dimensional HCS)

ds = axes of decimetre-scale linear swales (two dimensional SCS)

mc = metre-scale trough crossbed axes

mh = axes of metre-scale linear hummocks (two dimensional HCS)

ms = axes of metre-scale linear swales (two dimensional SCS)  
lo = logs  
pl = parting lineation  
rr = ripples

LL is the location, for Allan Hills this represents a grid location.

.XXX represents the stratigraphic interval using either Group-Formation-(Member) or Formation-Member-Unit notation.

Rose and circular diagrams along with the standard deviation and vector mean were obtained using PC 1.2 a paleocurrent presentation and analysis programme written for Victoria University's Antarctic Research Centre by D. P. Zwartz<sup>1</sup>. Release notes accompanying this package are included as section seven of this report.

PC 1.2 is copyright to the Antarctic Research Centre, Victoria University of Wellington, New Zealand, and to Dan Zwartz. Permission to copy and distribute the program is freely granted provided that the programme is not modified in any manner. PC 1.2 (and its updates as they become available) is in the first instance obtainable from the author.

All data files are stored in ASCII format. Enquiries regarding their availability either on disk or via ftp should be addressed to Ken Woolfe<sup>2</sup>.

## ACKNOWLEDGMENTS

The collection and publication of this data set has been made possible through the efforts of a large group of people and organisations. Logistic support within Antarctica was provided by DSIR Antarctic (New Zealand) and the United States Navy Antarctic detachment (VXE-6). Tony Teeling and Grant Gillespie provided valuable field assistance under often difficult conditions. Detailed stratigraphic control of the Allan Hills sequence was provided by Malcom Arnot who measured over 90 detailed sections during the 1990-91 field season (Antarctic Data Series No. 17 (planned)).

The continued efforts of Dan Zwartz ensured that bugs in the computer software (PC) were quickly addressed and in most cases solved the same day. Dan Bishop stepped in at very short notice (while Dan Zwartz was in Antarctica) to write a programme to convert magnetic directions to true directions while retaining the required data format for PC. Julian Dirou and Heather Campbell pasted up much of the copy and Peter Barrett along with Lisa Crossland proofed the final draft.

Technical advise and assistance with expedition planning was provided by Alex Pyne and Peter Barrett. The Internal Grants Committee (Victoria University of Wellington) funded expedition expenses, geological assistance and the development of the paleocurrent programme (PC).

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## SECTION 2

### PALEOCURRENT DATA FROM ALLAN HILLS

Collected by M. J. Arnot<sup>1</sup>, P. J. Barrett<sup>2</sup>, J. E. Francis<sup>3</sup>, N. D. Smith<sup>4</sup> and K. J. Woolfe<sup>5</sup>  
during 1990-91 (Event K047).

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<sup>3</sup> Department of Earth Sciences, The University of Leeds, Leeds LS2 9JT, United Kingdom.

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<sup>4</sup> Department of Geological Sciences, University of Illinois, Chicago 60680, USA.

<sup>5</sup> Geology Dept, James Cook University, Townsville, Queensland 4811, Australia.

Email: K\_WOOLFE@trout.jcu.edu.au

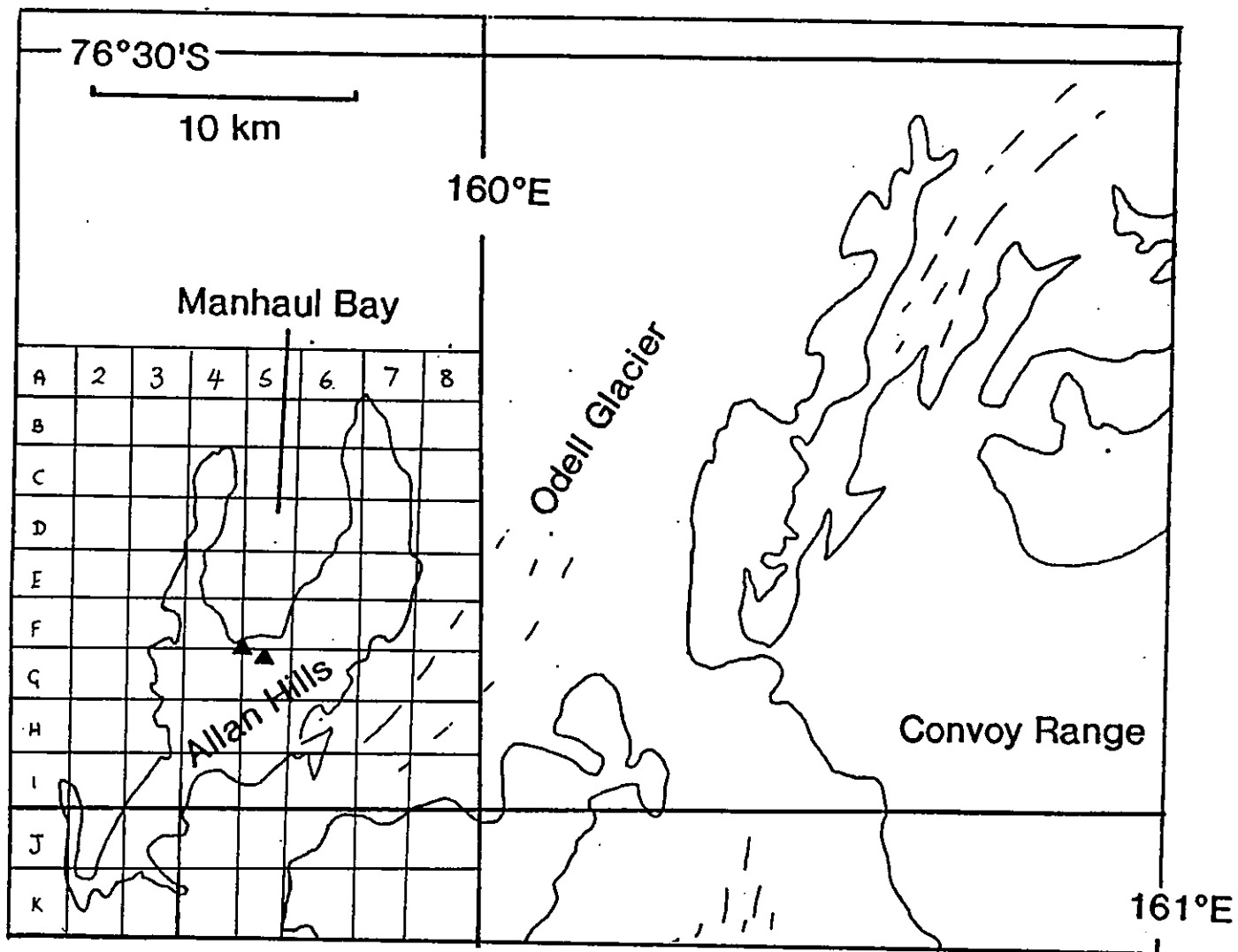


Figure 1 Sketch map of the Allan Hills area showing grid used in this data series. More detailed geological maps are included as figures 2-6 in this report.



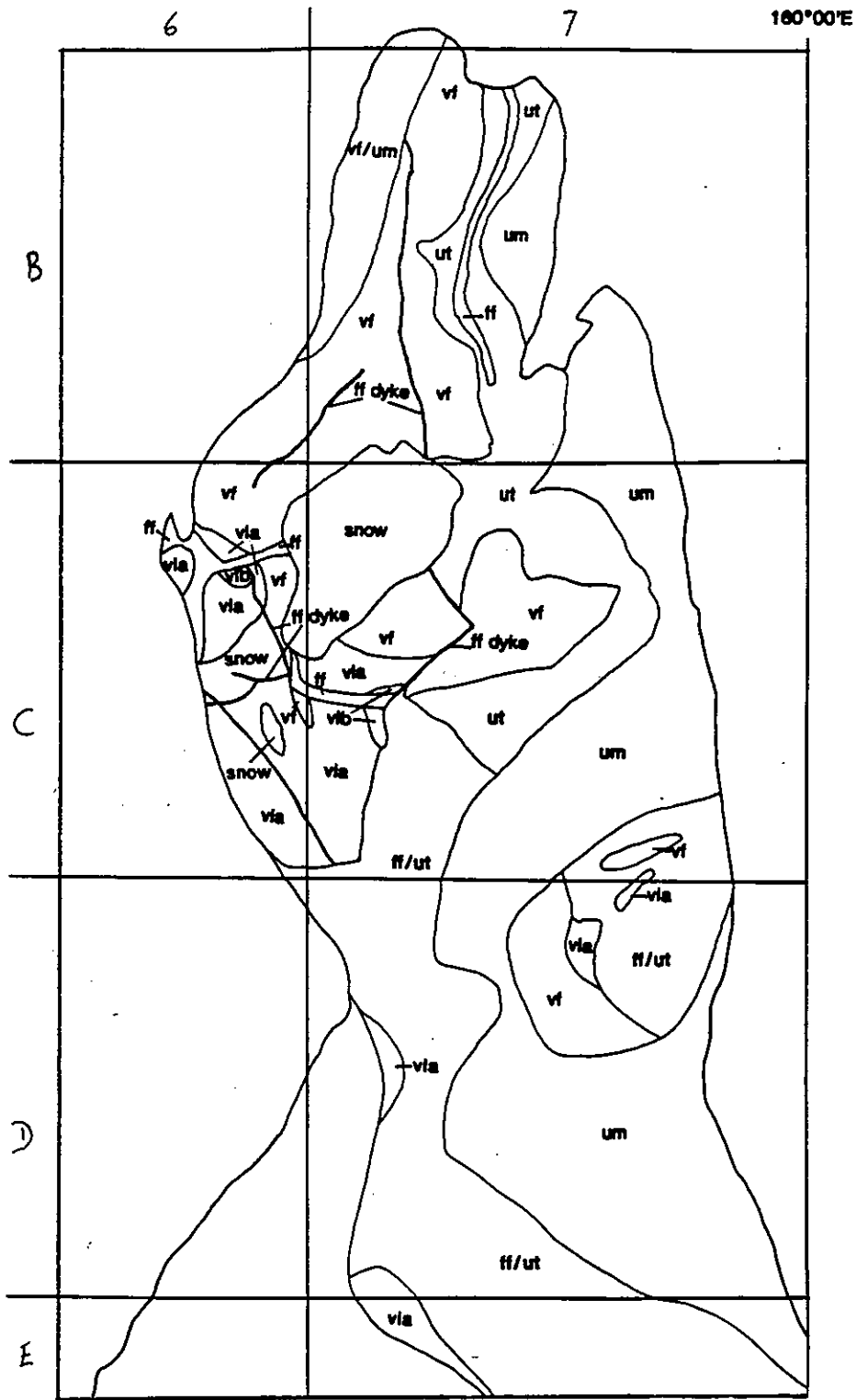


Figure 2 Part geological map of Allan Hills (modified from Woolfe *et al.* in prep.<sup>1</sup>). See figure 1 for location map. Symbols on this and the maps that follow refer to: ff - Ferrar Dolerite, fk - Kirkpatrick Basalt, fm(a,b) - Mawson Formation (Member a,b), si - Sirius Group, um - moraine, ut - talus, vf - Feather Conglomerate, vl(a,b,c,d) Lashly Formation (Member a, b, c, d), vw(b,c) - Weller Coal Measures (Member b, c).

<sup>1</sup> Woolfe, K. J.; Arnot, M. J.; Barrett, P. J.; Francis, J. E. in prep: Geology of Allan Hills, southern Victoria Land Antarctica - with special reference to the Beacon Supergroup.

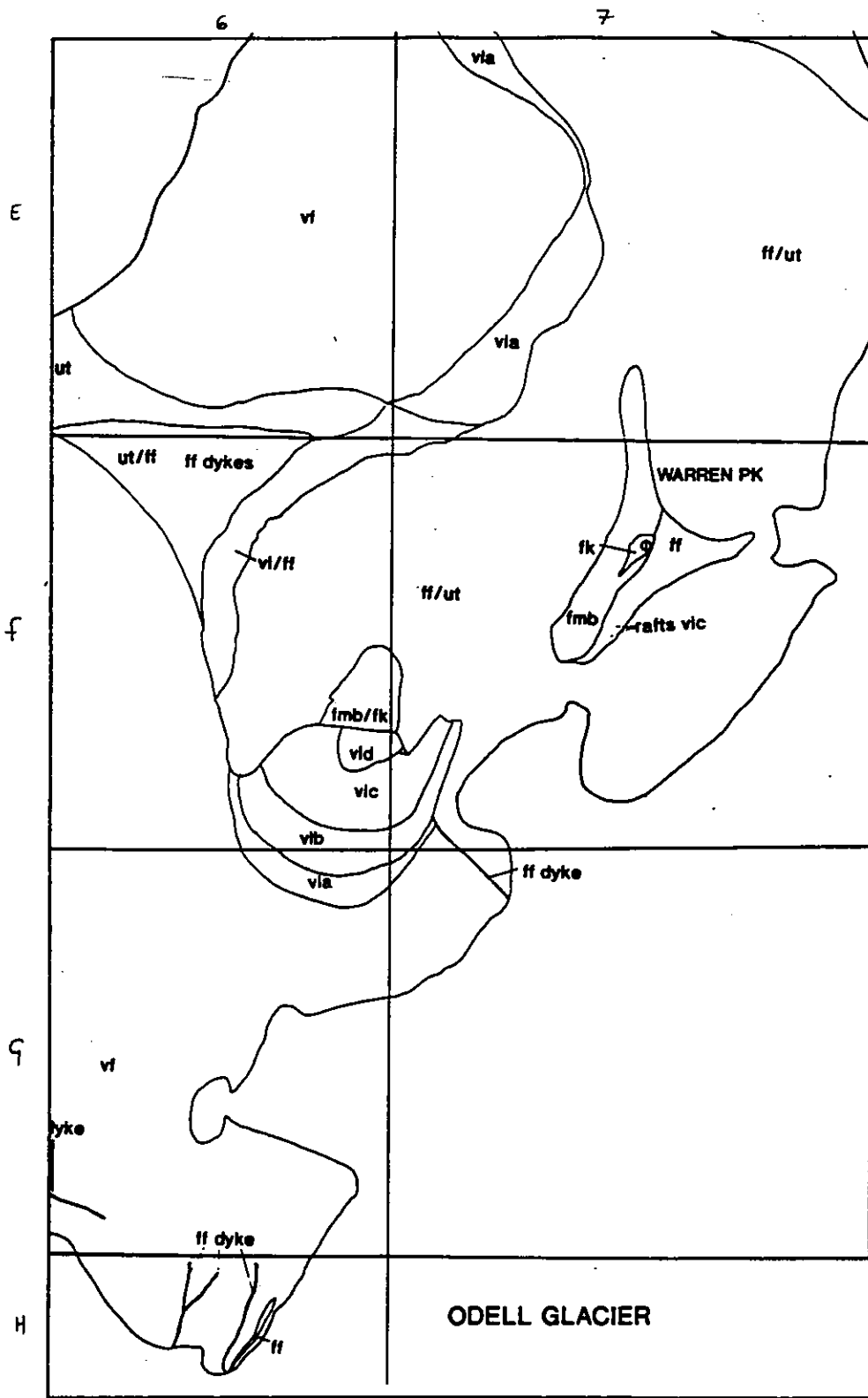


Figure 3 Part geological map of Allan Hills. See figure 2 for explanation.

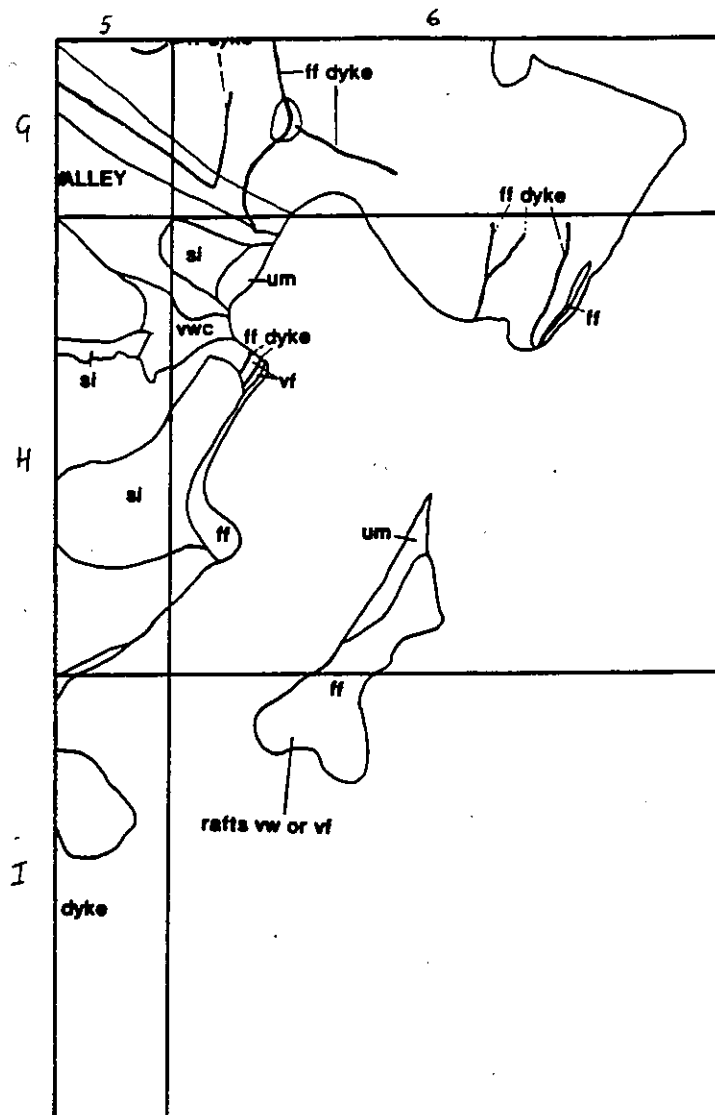


Figure 4 Part geological map of Allan Hills. See figure 2 for explanation.

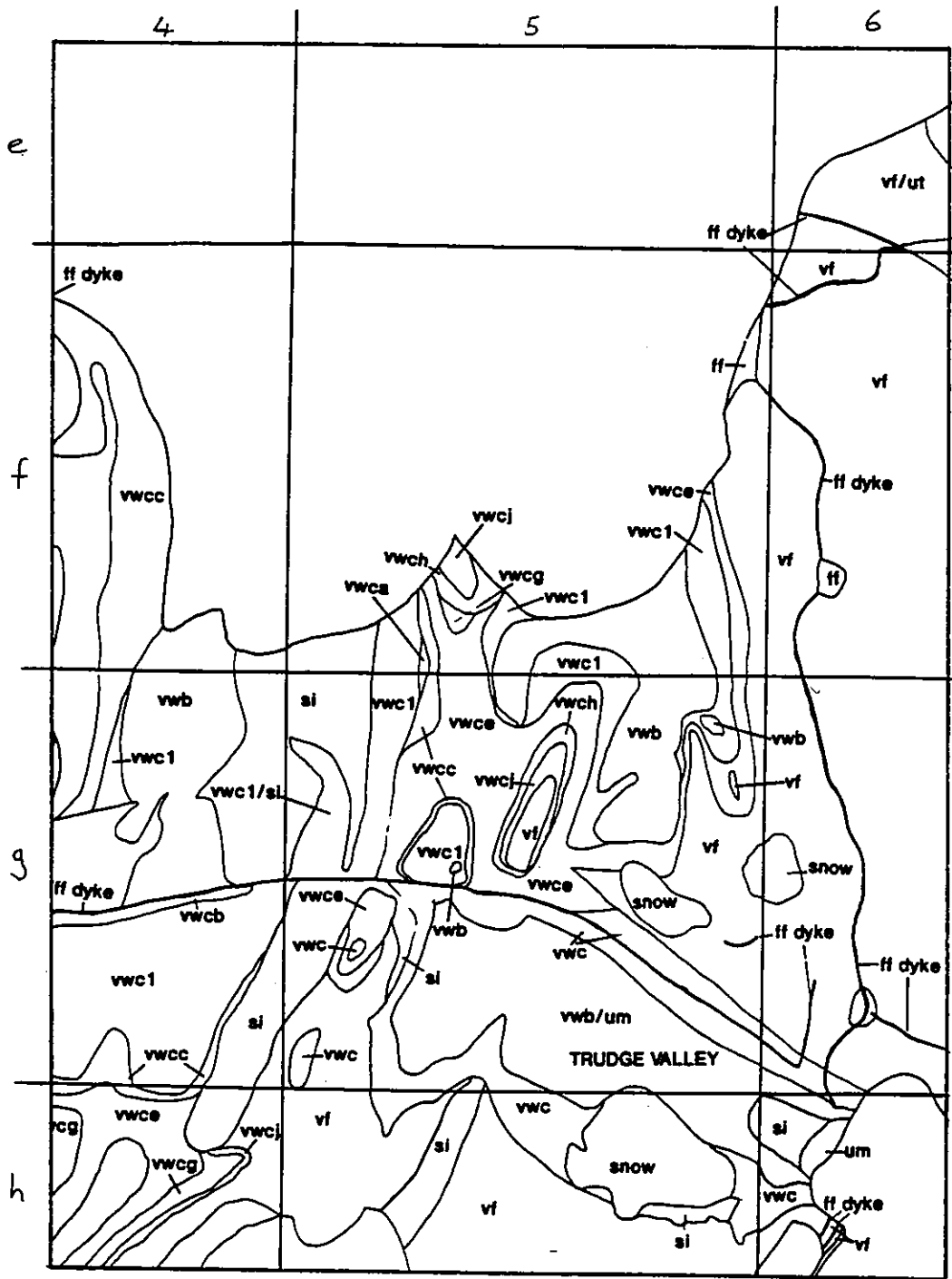


Figure 5 Part geological map of Allan Hills. See figure 2 for explanation. Forth letter in abbreviation indicates unit number (1, a-j) in Member C of the Weller Coal Measures.

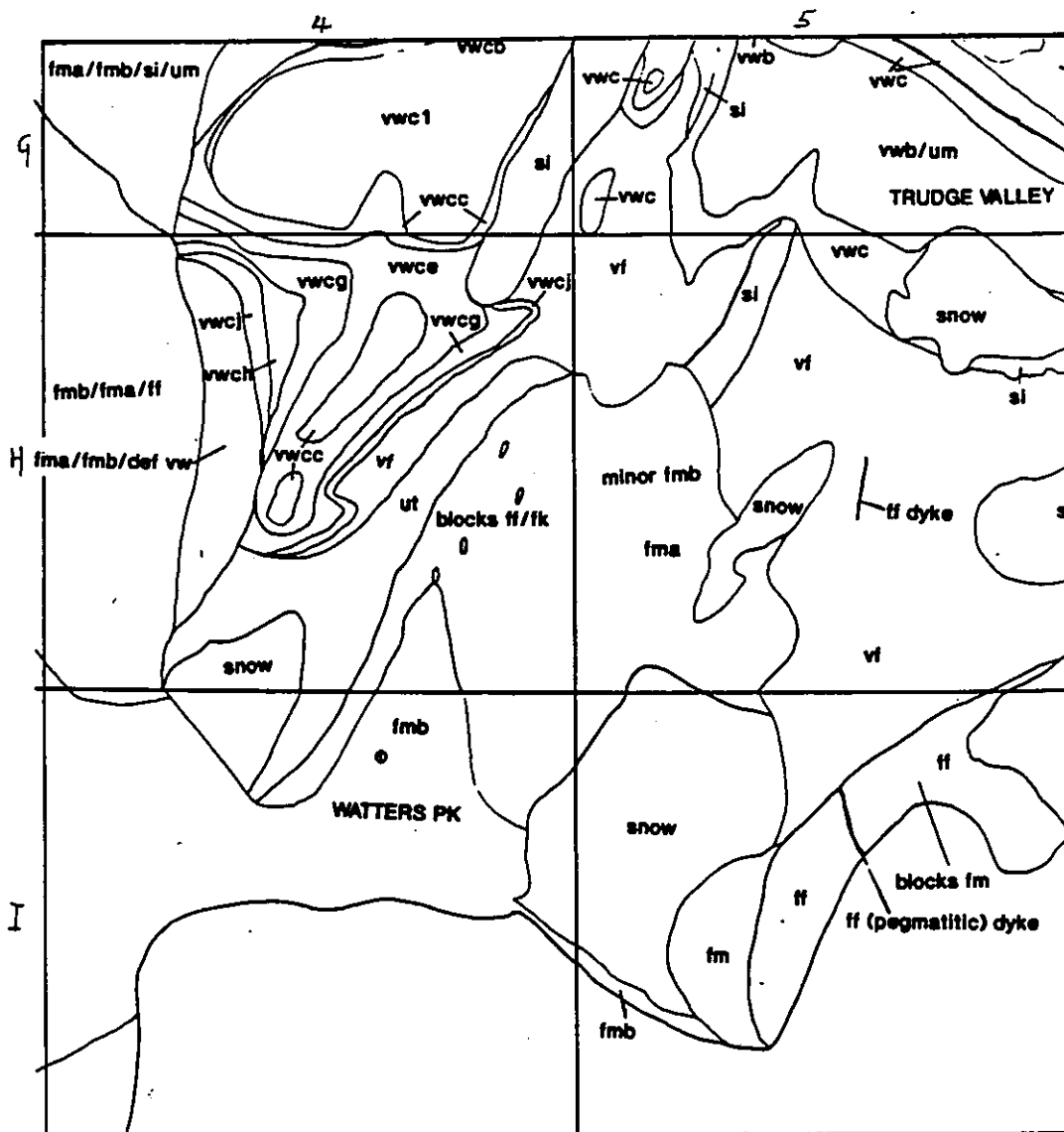


Figure 6 Part geological map of Allan Hills. See figures 2 and 5 for explanation.

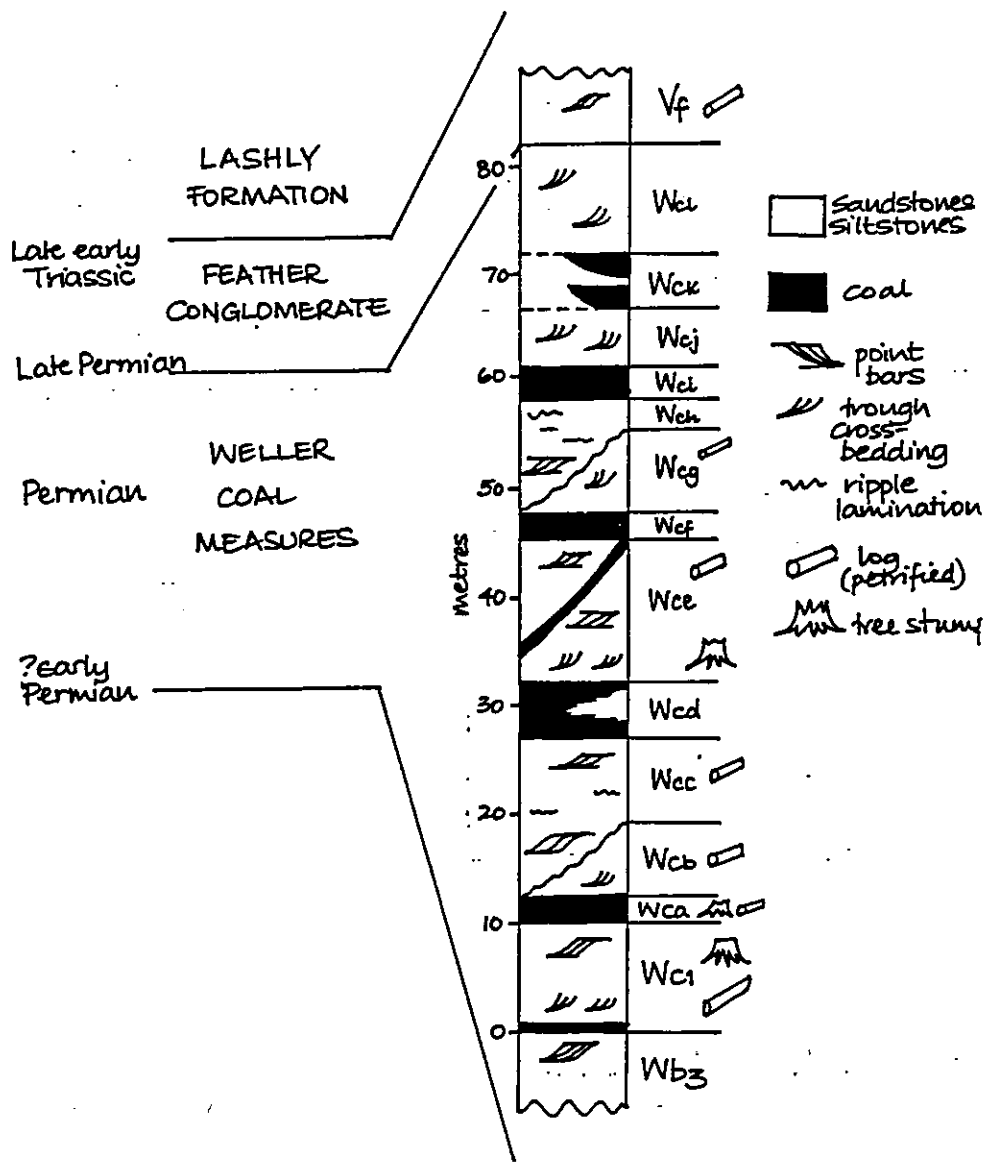


Figure 7 Generalised stratigraphic column for Allan Hills after Francis et al. (submitted)<sup>1</sup>.

<sup>1</sup> Draft from: Francis, J. E.; Woolfe, K. J.; Arnot, M. J.; Barrett, P. J. submitted: Permian fossil forests of Allan Hills, Antarctica. Proceedings of the 8<sup>th</sup> International Gondwana Symposium, Hobart 1991.

wcl	< 8 m	Unit L differs from wcj only in so far as it overlies Unit K. The two units are laterally continuous correlatives.
wck	<10 m	Locally developed unit containing thin discontinuous coal seams and carbonaceous shale.
wcj	<20 m	Complex and swaley bedding similar to that developed in Unit E.
wci	2-4 m	Highest, laterally continuous coal seam exposed in the Weller Coal Measures at Allan Hills.
wch	1-6 m	Brown ripple laminated sandstone which contrasts markedly with both the underlying overlying units.
wcg	1-4 m	Pale clean trough crossbedded sandstone.
wcf	2-3 m	A conspicuous, 2-3 m thick laterally continuous coal seam.
wce	5-15 m	Fine, irregularly bedded sandstone containing abundant hummocks, swales and logs.
wcd	1-8 m	One or more thin, discontinuous coal seams interbedded with strongly carbonaceous shale.
wcc	<10 m	Ripple laminated fine sandstone and interbedded mudstone.
wcb	0-8 m	Clean, swaley bedded, discontinuous sandstone directly overlying the coal of Unit A.
wca	1-3 m	Regionally continuous coal seam which, except where split by wc1, forms the base of Member C.
wc1	<6 m	Basal coal seam, overlain by a clean trough crossbedded sandstone (and granule conglomerate) and a single set of lateral accretion surfaces.
wbz	<20 m	Greenish grey, fine carbonaceous sandstone comprising conspicuous inclined lateral accretion surfaces.

**Figure 8** Stratigraphic summary of the Weller Coal Measures at Allan Hills as used in this report. Formal descriptions of this stratigraphy are in preparation<sup>1</sup>.

<sup>1</sup> Woolfe, K. J.; Arnot, M. J.; Barrett, P. J.; Francis, J. E. in prep: Geology of Allan Hills, southern Victoria Land Antarctica - with special reference to the Beacon Supergroup.

DATA FROM J001DLXX.WCE

LOCATION : SECTION : j001dlxx.wce  
FORMATION : wce FEATURE : logs (dip directn)  
N : 8 VECTOR MEAN : 221.0 STANDARD DEVIATION : 146.6  
217 163 310 248 270 130 262 150

DATA FROM J001LO4F.WCE

LOCATION : 4f SECTION : j001lo4f.wce  
FORMATION : wce FEATURE : logs some directed  
N : 34 VECTOR MEAN : 348.4 STANDARD DEVIATION : 107.6  
217 037 318 138 163 343 310 130 000 180 179 359 290 110 248 068 270 090  
164 344 130 310 262 082 054 234 150 330 320 140 330 150 210 030

DATA FROM J001LOXX.WCE

LOCATION : SECTION : j001loxx.wce  
FORMATION : wce FEATURE : logs (undirected)  
N : 34 VECTOR MEAN : 358.9 STANDARD DEVIATION : 103.4  
217 037 318 038 163 343 310 130 180 000 179 359 290 110 248 068 270 090  
164 344 310 130 262 082 234 054 330 150 320 040 330 150 210 030

DATA FROM J003LOXX.VF

LOCATION : feather bay SECTION : j003loxx.vf  
FORMATION : vf FEATURE : logs  
N : 16 VECTOR MEAN : 326.9 STANDARD DEVIATION : 102.4  
290 110 290 110 180 000 270 090 220 040 166 346 278 098 190 010

DATA FROM J004LOXX.WCE

LOCATION : SECTION : j004loxx.wce  
FORMATION : wce FEATURE : logs  
N : 44 VECTOR MEAN : 320.6 STANDARD DEVIATION : 98.8  
216 038 216 038 330 150 230 050 240 060 314 134 170 350 226 046 254 074  
218 038 218 038 244 064 244 064 310 130 238 058 230 050 200 020 280 000  
290 110 310 130 290 110 230 050

DATA FROM J008LOXX.WCE

LOCATION : j008 SECTION : j008loxx.wce  
FORMATION : wce FEATURE : logs  
N : 60 VECTOR MEAN : 349.9 STANDARD DEVIATION : 102.1  
310 130 330 150 310 130 196 016 310 130 314 134 190 010 170 350 216 036  
250 070 310 130 330 150 260 080 200 020 330 150 290 110 270 090 240 060  
210 030 230 050 270 090 200 020 210 030 210 030 300 020 330 150 210 030  
170 350 200 020 320 040



Figure 9

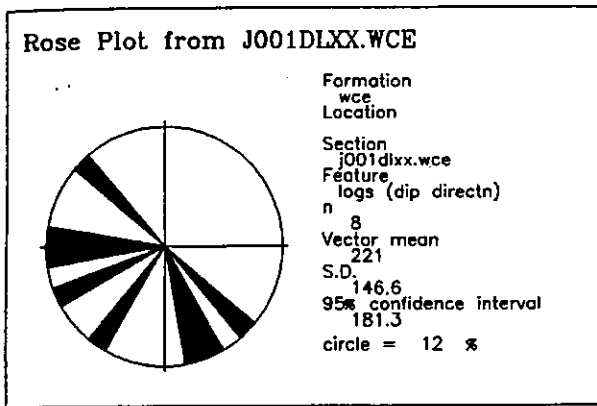


Figure 10

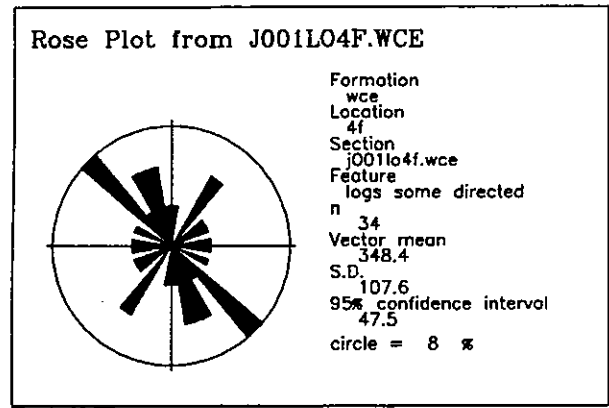


Figure 11

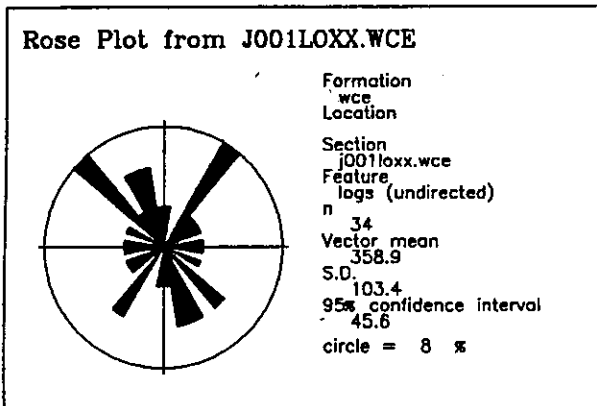


Figure 12

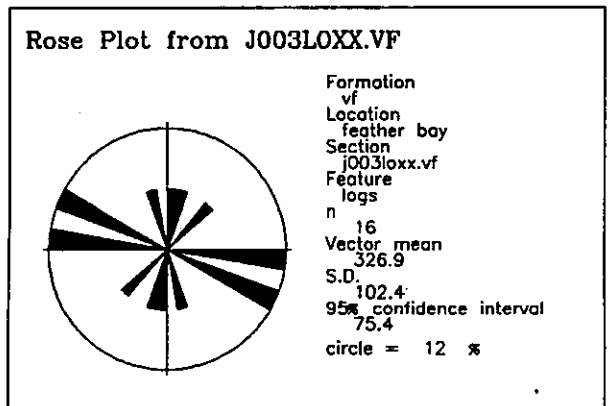


Figure 13

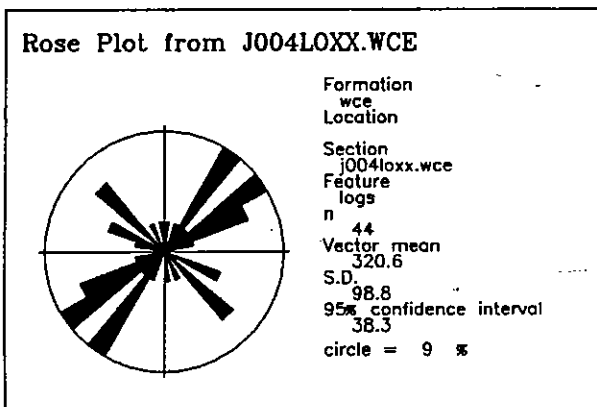
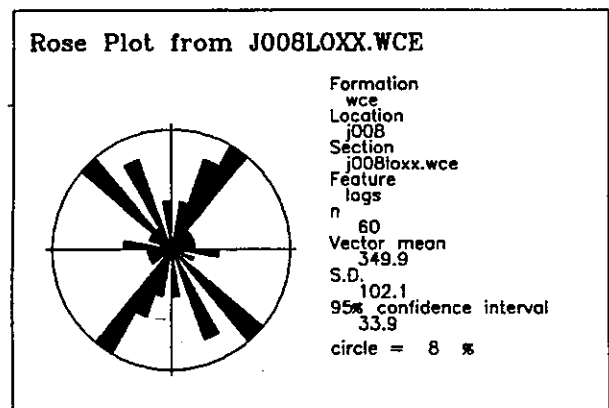


Figure 14



DATA FROM J009LOXX.WCE

LOCATION : j009 SECTION : j009loxx.wce  
FORMATION : wce FEATURE : logs  
N : 16 VECTOR MEAN : 328.8 STANDARD DEVIATION : 104.5  
260 080 170 350 330 150 280 100 230 050 270 090 210 030 164 344

DATA FROM J010LOXX.WCE

LOCATION : j010 SECTION : j010loxx.wce  
FORMATION : wce FEATURE : logs  
N : 6 VECTOR MEAN : 309.5 STANDARD DEVIATION : 102.9  
230 150 330 050 270 090

DATA FROM J011LOXX.WCG

LOCATION : j011 SECTION : j011loxx.wcg  
FORMATION : wcg FEATURE : log  
N : 2 VECTOR MEAN : 0.4 STANDARD DEVIATION : 90.0  
270 090

DATA FROM J016LOXX.WCE

LOCATION : j016 SECTION : j016loxx.wce  
FORMATION : wce FEATURE : logs  
N : 8 VECTOR MEAN : 328.6 STANDARD DEVIATION : 106.6  
160 340 310 130 210 030 270 090

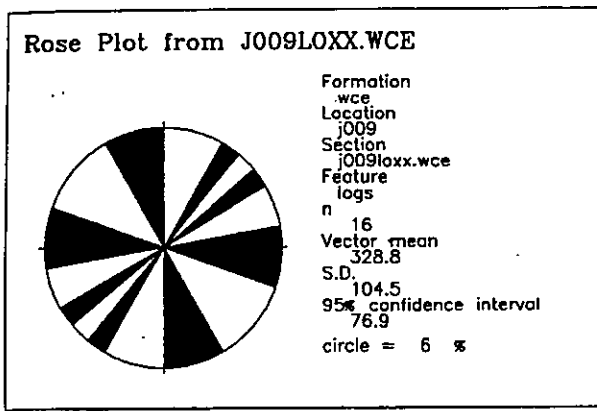
DATA FROM J017LOXX.WCE

LOCATION : j017 SECTION : j017loxx.wce  
FORMATION : wce FEATURE : logs  
N : 28 VECTOR MEAN : 215.0 STANDARD DEVIATION : 144.3  
300 120 190 010 230 050 230 050 230 050 230 050 230 050 170 350 170 350  
230 050 300 130 170 350 300 120 210 030

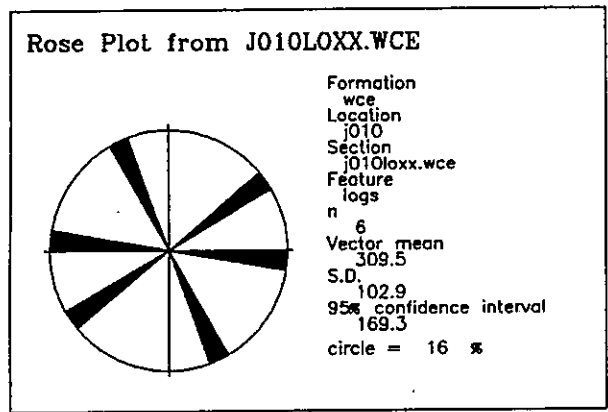
DATA FROM J018LOXX.WCE

LOCATION : j018 SECTION : j018loxx.wce  
FORMATION : wce FEATURE : log  
N : 2 VECTOR MEAN : 280.4 STANDARD DEVIATION : 90.0  
190 010

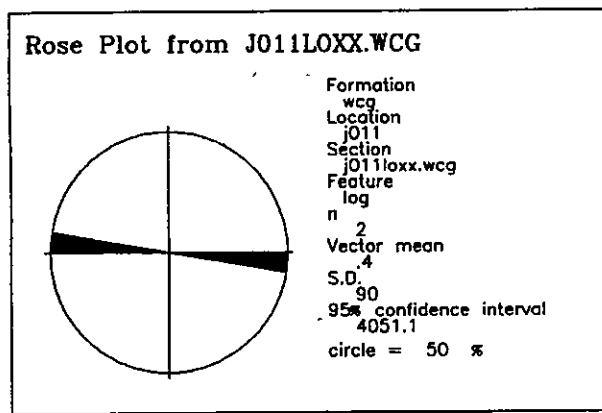
**Figure 15**



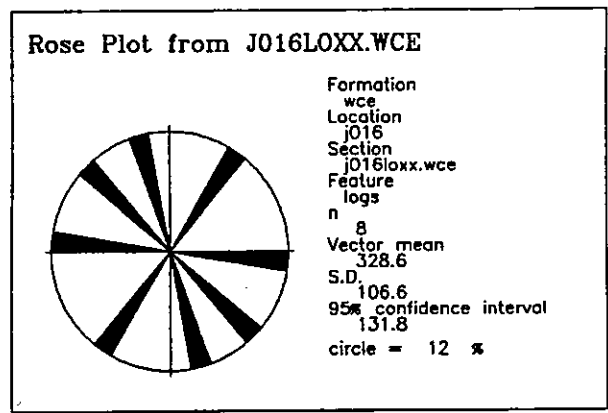
**Figure 16**



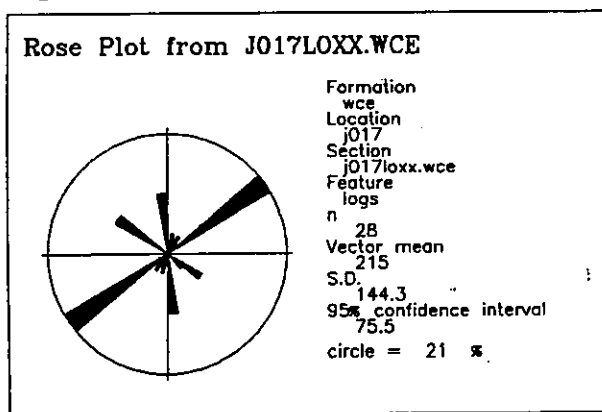
**Figure 17**



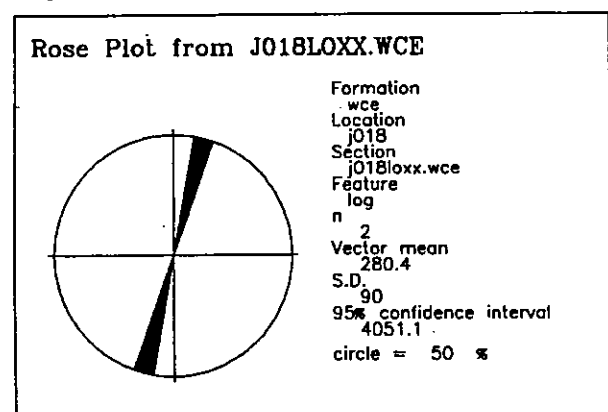
**Figure 18**



**Figure 19**



**Figure 20**



DATA FROM J020LO6F.VLC

LOCATION : 6f roscolln tor  
FORMATION : vlc

SECTION : j020lo6f.vlc  
FEATURE : logs

N : 48 VECTOR MEAN : 350.2 STANDARD DEVIATION : 102.2

270 090 210 030 330 150 170 350 270 090 230 050 330 150 300 120 280 100  
270 090 310 130 310 130 270 090 310 130 250 070 310 130 230 050 230 050  
230 050 240 060 290 110 160 340 200 020 190 010

DATA FROM K001RR5F.WBZ

LOCATION : 5f-5g  
FORMATION : wbz

SECTION : k001rr5f.wbz  
FEATURE : ripples

N : 273 VECTOR MEAN : 222.2 STANDARD DEVIATION : 14.5

240 246 232 236 235 239 240 239 221 215 215 224 220 218 210 223 231 224  
230 234 226 232 234 231 228 225 224 246 240 245 247 235 238 239 248 244  
220 231 208 205 213 204 210 204 203 199 200 206 204 223 226 213 220 240  
225 227 224 178 170 188 221 218 211 224 217 209 217 204 208 218 221 220  
228 217 205 202 211 214 221 207 219 216 218 228 219 202 213 215 208 206  
224 246 230 216 224 208 197 201 214 213 205 210 214 208 200 214 201 200  
222 215 212 221 214 220 218 209 221 214 217 215 217 218 228 216 218 193  
185 207 212 210 229 214 227 211 209 220 223 221 215 235 232 242 234 240  
231 215 218 248 231 227 226 227 217 210 211 226 212 219 226 220 229 219  
243 228 217 214 209 225 229 235 240 227 245 219 218 224 218 229 243 233  
241 245 235 255 251 253 242 244 231 234 267 242 245 252 240 241 234 236  
240 250 238 232 239 242 247 220 228 233 227 194 199 206 221 219 224 206  
208 214 205 206 222 231 214 226 223 211 220 219 206 226 225 222 197 228  
246 231 209 235 220 207 199 206 204 200 221 229 219 208 236 249 243 212  
219 215 244 249 241 236 241 220 229 230 237 221 199 202 215 231 213 220  
221 230 222

DATA FROM K002BS4F.WBZ

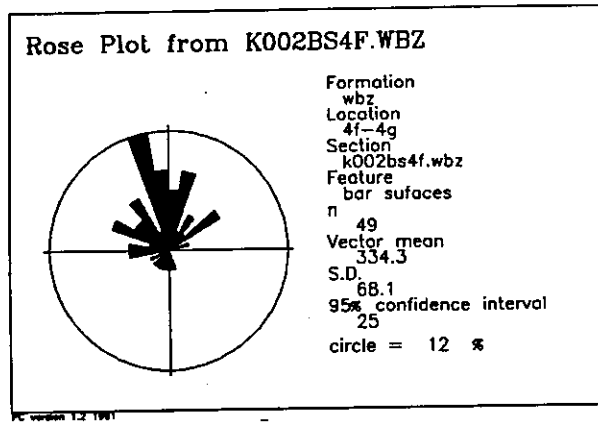
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FORMATION : wbz

SECTION : k002bs4f.wbz  
FEATURE : bar surfaces

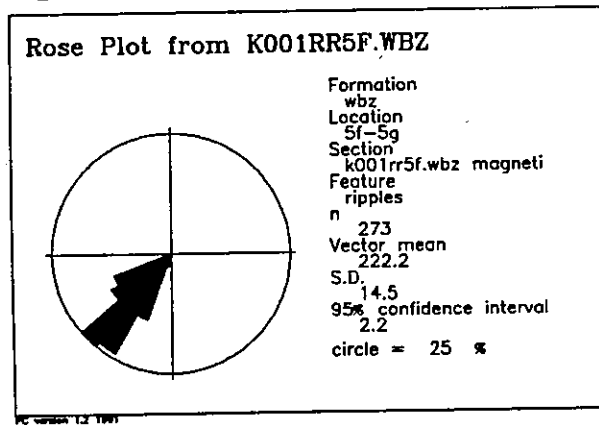
N : 49 VECTOR MEAN : 334.3 STANDARD DEVIATION : 68.1

358 334 010 345 302 008 340 344 200 010 312 265 328 196 225 038 070 348  
176 028 295 357 168 015 031 295 359 302 245 310 276 218 045 267 008 279  
185 341 297 320 055 344 323 355 280 006 010 058 052

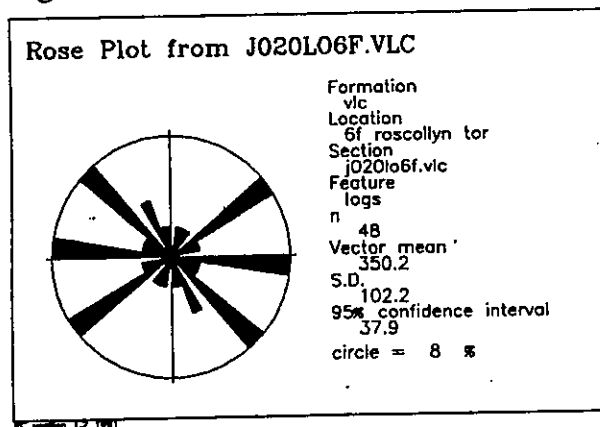
**Figure 21**



**Figure 22**



**Figure 23**



DATA FROM K002RR4F.WBZ

LOCATION : 4f-4g

SECTION : k002rr4f.wbz

FORMATION : wbz

FEATURE : ripples

N : 254 VECTOR MEAN : 21.2 STANDARD DEVIATION : 34.3

026 058 030 022 053 035 038 036 034 046 037 031 024 025 038 029 020 356  
014 012 019 352 351 038 034 066 044 043 047 030 043 033 018 027 045 026  
044 029 042 352 016 015 003 014 352 028 044 050 042 058 173 034 042 030  
048 039 018 040 030 042 039 348 343 007 004 338 010 036 039 052 044 032  
022 034 032 052 036 021 024 021 042 026 027 010 007 003 354 007 013 040  
033 052 032 034 040 028 034 030 041 036 025 029 030 038 336 340 359 019  
011 358 008 275 352 008 355 352 008 009 000 350 022 000 002 010 006 008  
345 014 017 343 010 024 024 015 019 007 358 024 035 003 150 017 027 011  
022 002 030 022 010 010 003 010 008 034 015 026 033 026 002 030 003 011  
016 010 030 355 020 019 032 048 027 000 014 020 013 019 017 022 350 016  
030 006 024 024 020 019 357 018 008 008 022 022 017 032 030 043 355 011  
021 047 028 051 055 075 355 347 191 013 006 000 009 237 042 046 057 047  
000 019 350 203 007 354 002 028 254 050 042 049 048 008 346 002 000 008  
012 017 026 031 041 043 042 003 352 346 011 026 023 014 056 045 043 058  
036 010

DATA FROM K003BS4F.WCE

LOCATION : 4f

SECTION : k003bs4f.wce

FORMATION : wce

FEATURE : bar surface

N : 1 VECTOR MEAN : 261.9 STANDARD DEVIATION : 0.0  
262

DATA FROM K003RR4F.WCE

LOCATION : 4f

SECTION : k003rr4f.wce

FORMATION : wce

FEATURE : ripples on bar surface

N : 10 VECTOR MEAN : 340.7 STANDARD DEVIATION : 13.5  
346 313 340 325 358 353 341 355 330 346

DATA FROM K004BS4F.WCE

LOCATION : 4f

SECTION : k004bs4f.wce

FORMATION : wce

FEATURE : bar surface

N : 1 VECTOR MEAN : 51.9 STANDARD DEVIATION : 0.1  
052

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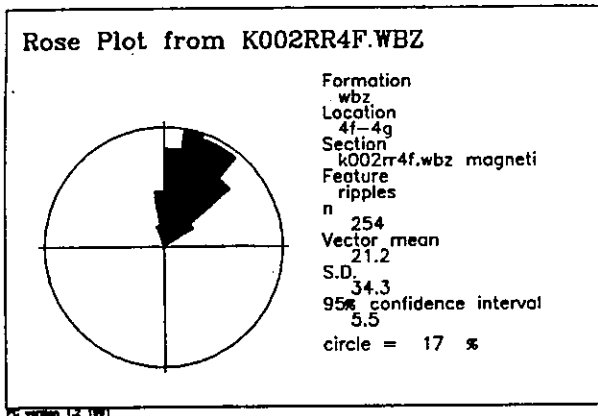
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FORMATION : wce

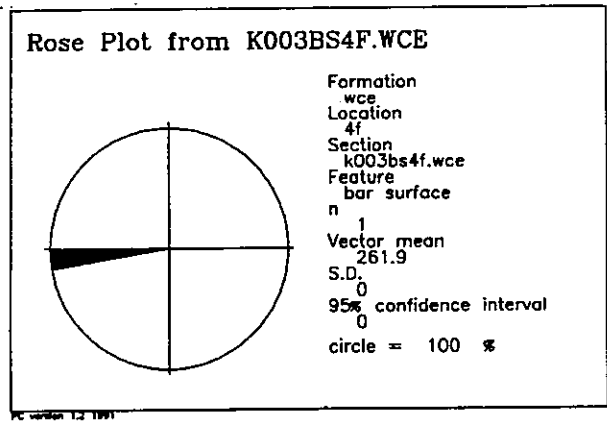
FEATURE : ripples on bar surface

N : 10 VECTOR MEAN : 332.3 STANDARD DEVIATION : 9.1  
325 318 348 327 339 322 343 337 330 335

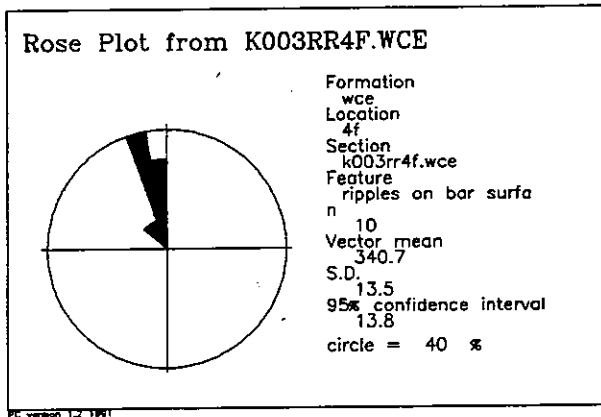
**Figure 24**



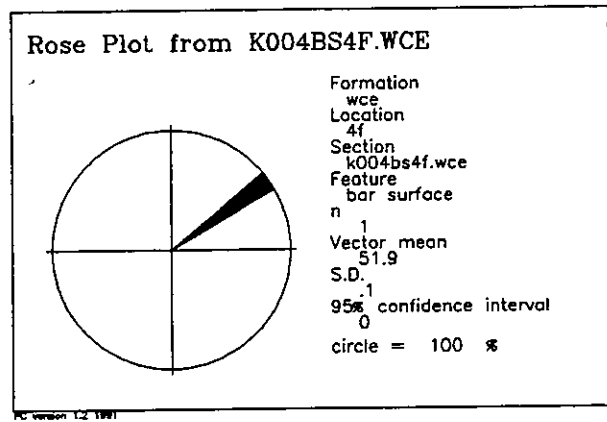
**Figure 25**



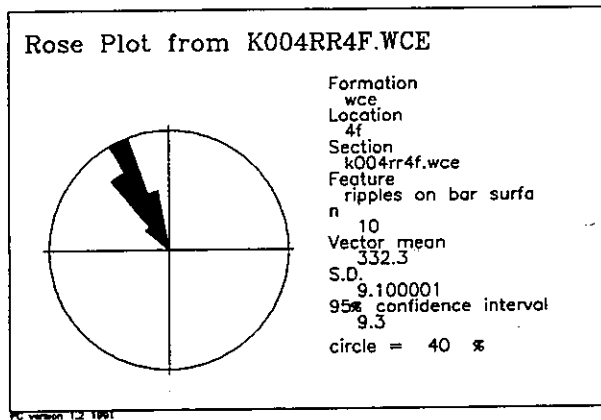
**Figure 26**



**Figure 27**



**Figure 28**



DATA FROM K005BS4F.WCE  
LOCATION : 4f SECTION : k005bs4f.wce  
FORMATION : wce FEATURE : bar surface  
N : 1 VECTOR MEAN : 63.9 STANDARD DEVIATION : 0.1  
064

DATA FROM K005RR4F.WCE  
LOCATION : 4f SECTION : k005rr4f.wce  
FORMATION : wce FEATURE : ripples on bar surface  
N : 20 VECTOR MEAN : 338.2 STANDARD DEVIATION : 9.7  
342 347 351 322 332 353 346 341 334 337 330 339 345 352 328 332 338 349  
326 320

DATA FROM K040RR4H.WCE  
LOCATION : 4h SECTION : k040rr4h.wce  
FORMATION : wce FEATURE : ripples  
N : 51 VECTOR MEAN : 263.1 STANDARD DEVIATION : 60.2  
297 303 300 295 297 306 292 313 301 306 313 310 307 314 345 329 311 292  
304 302 333 311 324 309 302 283 288 299 316 303 210 247 241 257 229 225  
222 216 221 213 152 234 236 213 207 231 223 238 214 254 244

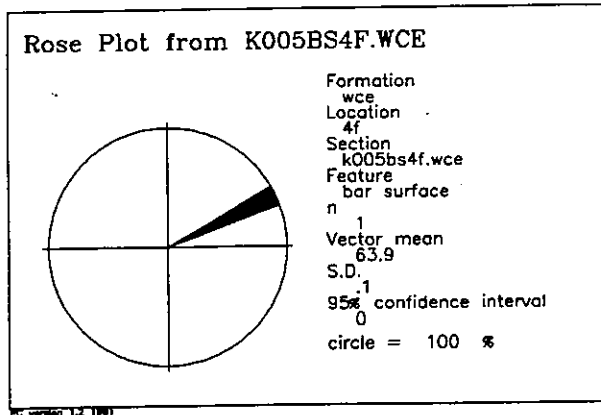
DATA FROM K006BS4F.WCE  
LOCATION : 4f SECTION : k0064f.wce  
FORMATION : wce FEATURE : bar surface  
N : 1 VECTOR MEAN : 274.9 STANDARD DEVIATION : 0.0  
275

DATA FROM K006RR4F.WCE  
LOCATION : 4f SECTION : k006rr4f.wce  
FORMATION : wce FEATURE : ripples on bar surface  
N : 22 VECTOR MEAN : 324.5 STANDARD DEVIATION : 8.5  
343 323 324 317 339 331 308 332 314 329 314 317 317 323 326 331 317 327  
319 333 324 333

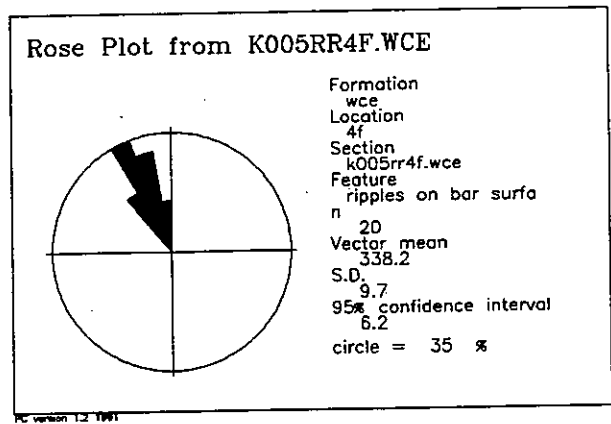
DATA FROM K007BS4F.WCE  
LOCATION : 4f SECTION : k007bs4f.wce  
FORMATION : wce FEATURE : bar surface  
N : 1 VECTOR MEAN : 239.9 STANDARD DEVIATION : 0.0  
240



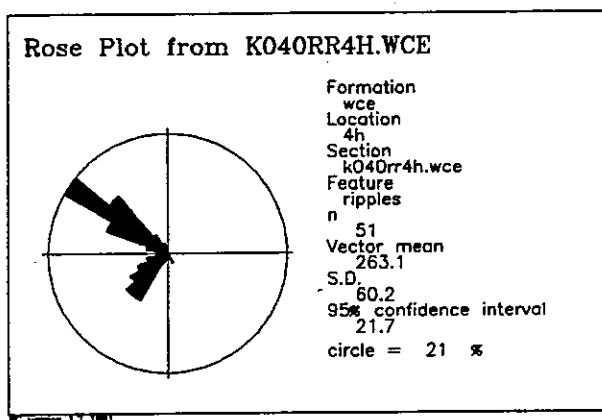
**Figure 29**



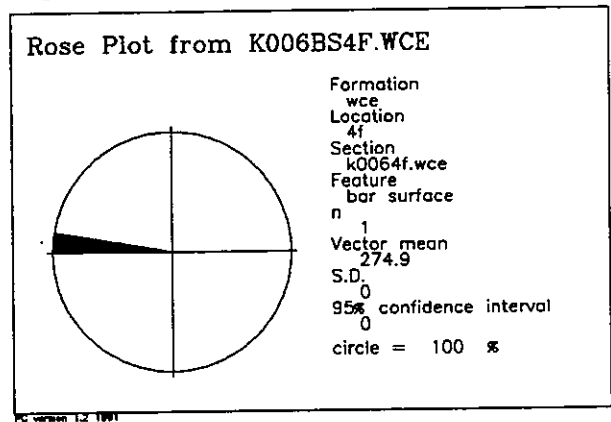
**Figure 30**



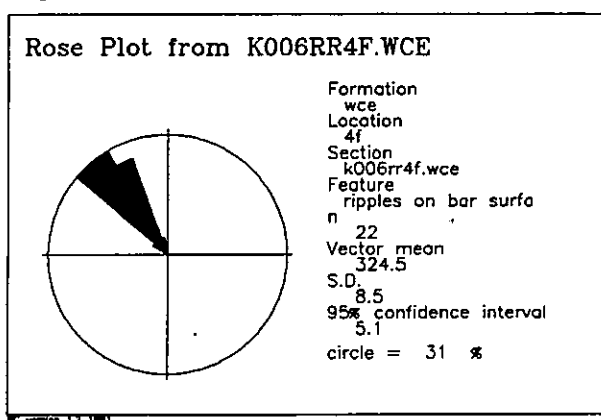
**Figure 31**



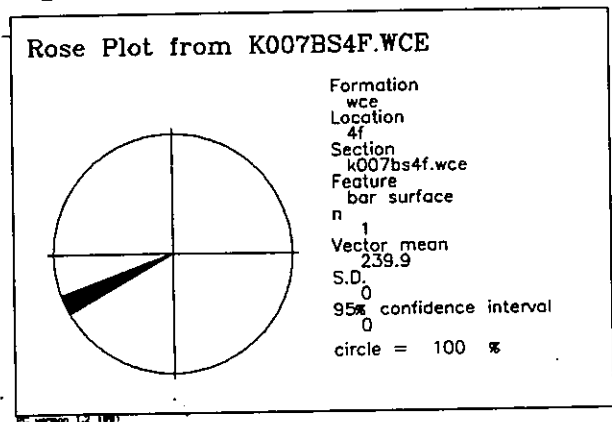
**Figure 32**



**Figure 33**



**Figure 34**



DATA FROM K007RR4F.WCE

LOCATION : 4f SECTION : k007rr4f.wce  
FORMATION : wce FEATURE : ripples on bar surface  
N : 20 VECTOR MEAN : 314.6 STANDARD DEVIATION : 7.1  
326 311 305 321 325 305 314 312 323 301 312 316 315 306 327 316 314 309  
318 317

DATA FROM K008BS4F.WCE

LOCATION : 4f SECTION : k008bs4f.wce  
FORMATION : wce FEATURE : bar surface  
N : 1 VECTOR MEAN : 9.9 STANDARD DEVIATION : 0.1  
010

DATA FROM K008RR4F.WCE

LOCATION : 4f SECTION : k008rr4f.wce  
FORMATION : wce FEATURE : ripples on bar surface  
N : 10 VECTOR MEAN : 316.9 STANDARD DEVIATION : 6.6  
315 326 309 314 308 317 313 325 315 328

DATA FROM K009BS4F.WCE

LOCATION : 4f SECTION : k009bs4f.wce  
FORMATION : wce FEATURE : bar surface  
N : 1 VECTOR MEAN : 29.9 STANDARD DEVIATION : 0.1  
030

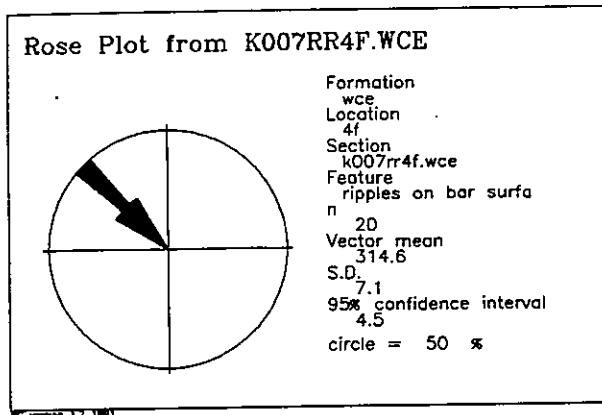
DATA FROM K009RR4F.WCE

LOCATION : 4f SECTION : k009rr4f.wce  
FORMATION : wce FEATURE : ripples on bar surface  
N : 10 VECTOR MEAN : 300.7 STANDARD DEVIATION : 8.2  
302 305 303 299 309 300 309 308 290 282

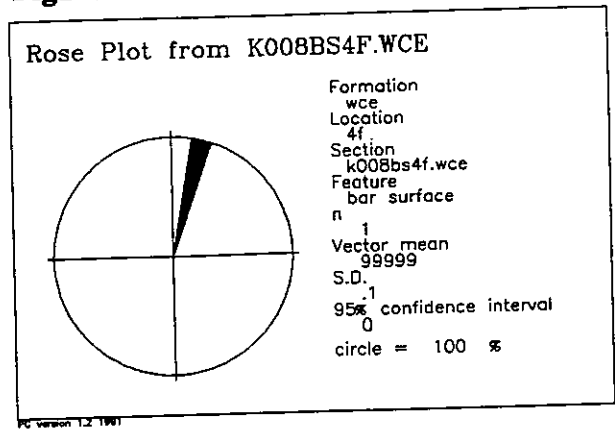
DATA FROM K010BS4F.WCE

LOCATION : 4f SECTION : k010bs4f.wce  
FORMATION : wce FEATURE : bar surface  
N : 1 VECTOR MEAN : 211.9 STANDARD DEVIATION : 0.0  
212

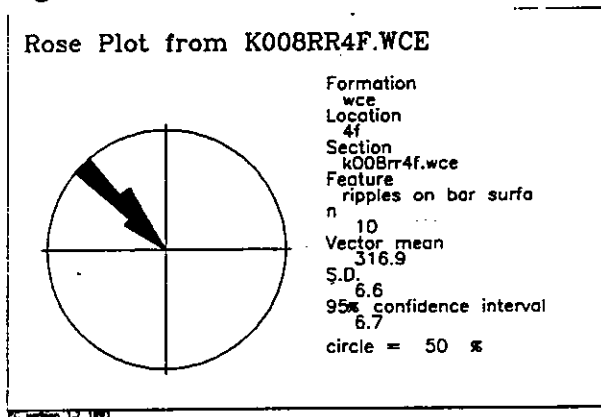
**Figure 35**



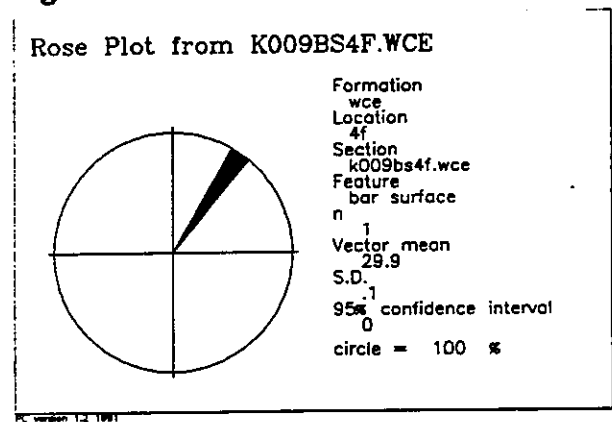
**Figure 36**



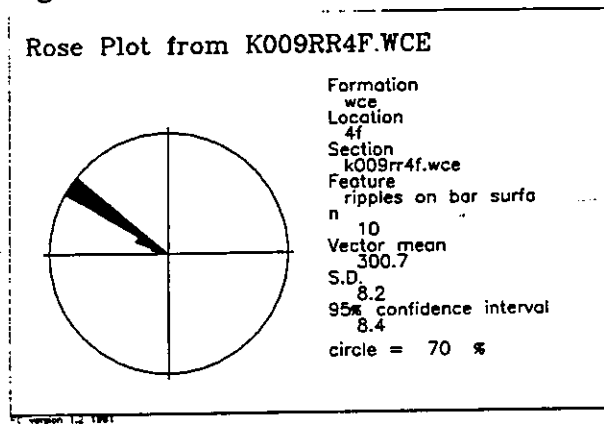
**Figure 37**



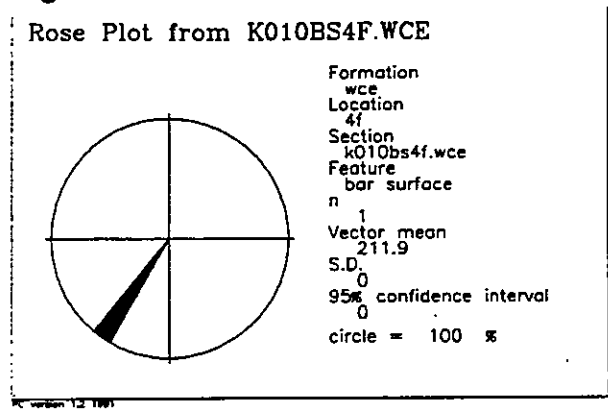
**Figure 38**



**Figure 39**



**Figure 40**



DATA FROM K010RR4F.WCE

LOCATION : 4f

SECTION : k010rr4f.wce

FORMATION : wce

FEATURE : ripples on bar surface

N : 26 VECTOR MEAN : 292.8

STANDARD DEVIATION : 10.3

305 283 285 306 314 301 293 280 299 297 303 291 282 291 295 310 280 283  
294 284 298 292 276 299 275 299

DATA FROM K011BS4F.WCE

LOCATION : 4f

SECTION : k011bs4f.wce

FORMATION : wce

FEATURE : bar surface

N : 1 VECTOR MEAN : 213.9

STANDARD DEVIATION : 0.0

214

DATA FROM K011RR4F.WCE

LOCATION : 4f

SECTION : k011rr4f.wce

FORMATION : wce

FEATURE : ripples on bar surface

N : 7 VECTOR MEAN : 320.0

STANDARD DEVIATION : 6.6

320 322 331 324 315 308 320

DATA FROM K012BS4F.WCC

LOCATION : 4f

SECTION : k012bs4f.wcc

FORMATION : wcc

FEATURE : bar surface

N : 1 VECTOR MEAN : 231.0

STANDARD DEVIATION : 0.0

231

DATA FROM K012RR4F.WCC

LOCATION : 4f

SECTION : k012rr4f.wcc

FORMATION : wcc

FEATURE : ripples on bar surface

N : 30 VECTOR MEAN : 326.1

STANDARD DEVIATION : 8.9

327 319 325 335 316 317 334 321 344 332 312 320 325 332 339 328 321 314  
326 326 339 330 328 309 322 329 345 329 326 314

DATA FROM K014DC5F.WC1

LOCATION : 5f

SECTION : k014dc5f.wc1

FORMATION : wc1

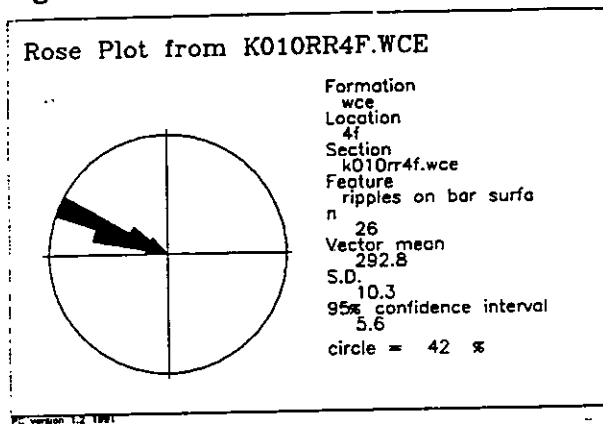
FEATURE : dm (sm) trough X beds

N : 20 VECTOR MEAN : 275.9

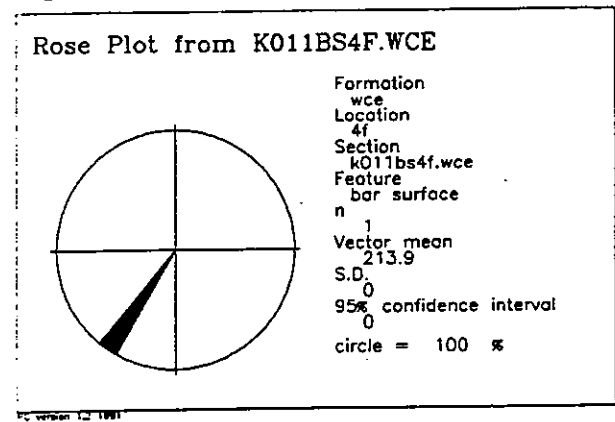
STANDARD DEVIATION : 11.6

272 289 281 268 265 264 270 277 305 298 286 277 274 270 281 283 273 259  
265 263

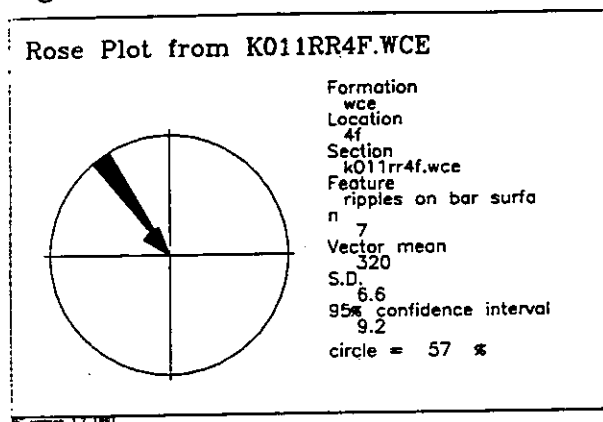
**Figure 41**



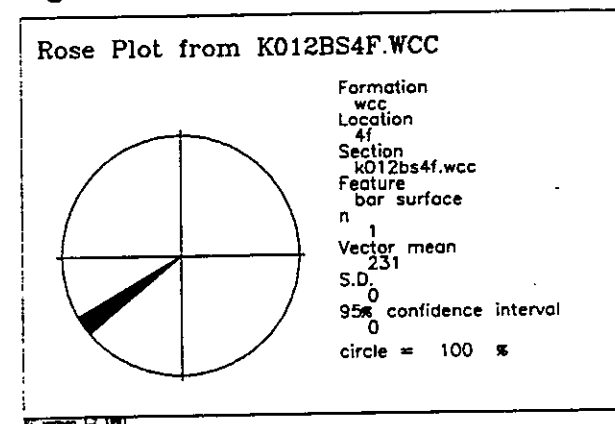
**Figure 42**



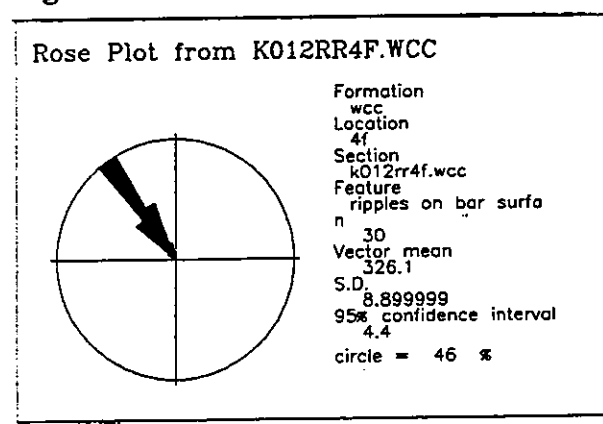
**Figure 43**



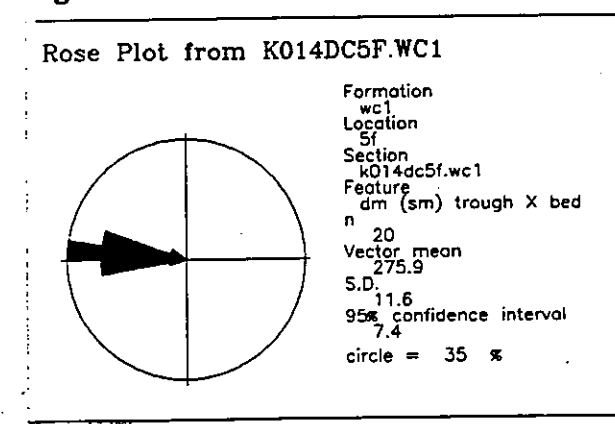
**Figure 44**



**Figure 45**



**Figure 46**



DATA FROM K015DC5F.WC1

LOCATION : 5f

SECTION : k015dc5f.wc1

FORMATION : wc1

FEATURE : dm (sm) trough x beds

N : 20 VECTOR MEAN : 271.8 STANDARD DEVIATION : 13.5

291 280 276 295 274 269 263 254 285 297 277 251 279 275 272 263 267 264  
259 247

DATA FROM K016DC5G.WC1

LOCATION : 5g

SECTION : k016dc5g.wc1

FORMATION : wc1

FEATURE : dm (sm) trough X beds

N : 20 VECTOR MEAN : 260.7 STANDARD DEVIATION : 11.3

253 274 254 249 277 288 256 273 270 252 250 256 271 247 242 258 262 265  
261 258

DATA FROM K017DC5G.WC1

LOCATION : 5g

SECTION : k017dc5g.wc1

FORMATION : wc1

FEATURE : dm (sm) trough X beds

N : 20 VECTOR MEAN : 270.8 STANDARD DEVIATION : 12.2

308 271 260 258 274 267 263 273 266 277 259 254 281 262 280 275 269 274  
260 289

DATA FROM K018DC5F.WC1

LOCATION : 5f

SECTION : k018dc5f.wc1

FORMATION : wc1

FEATURE : dm (sm) trough X beds

N : 20 VECTOR MEAN : 259.5 STANDARD DEVIATION : 13.3

267 269 258 272 265 253 281 266 267 278 264 254 233 255 227 247 257 247  
260 270

DATA FROM K019DC5F.WC1

LOCATION : 5f

SECTION : k019dc5f.wc1

FORMATION : wc1

FEATURE : dm (sm) trough X beds

N : 20 VECTOR MEAN : 260.3 STANDARD DEVIATION : 9.0

253 261 259 276 238 265 258 260 252 265 254 261 256 263 279 272 266 264  
255 250

DATA FROM K020BS5F.WC1

LOCATION : 5f

SECTION : k020bs5f.wc1

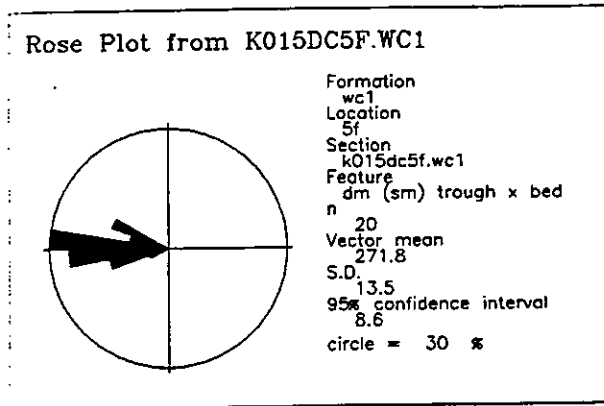
FORMATION : wc1

FEATURE : bar surface

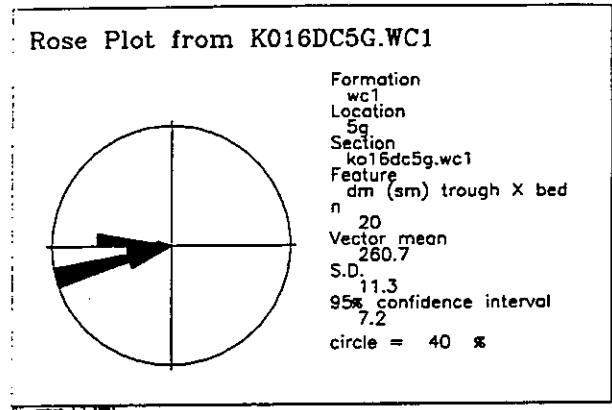
N : 1 VECTOR MEAN : 357.9 STANDARD DEVIATION : 0.1

358

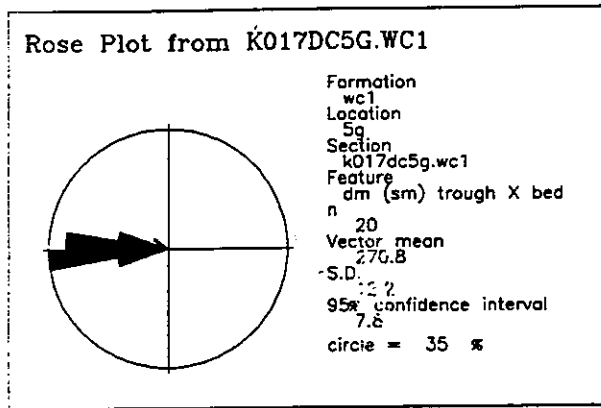
**Figure 47**



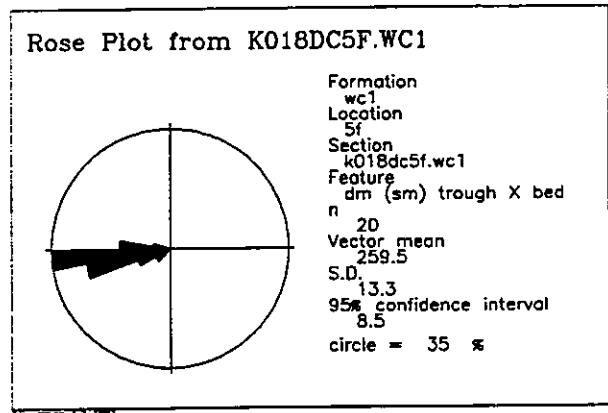
**Figure 48**



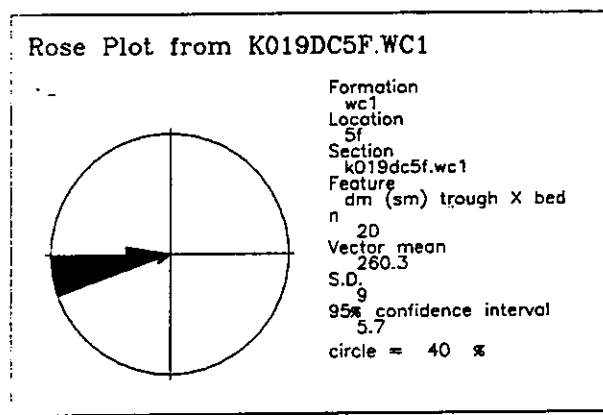
**Figure 49**



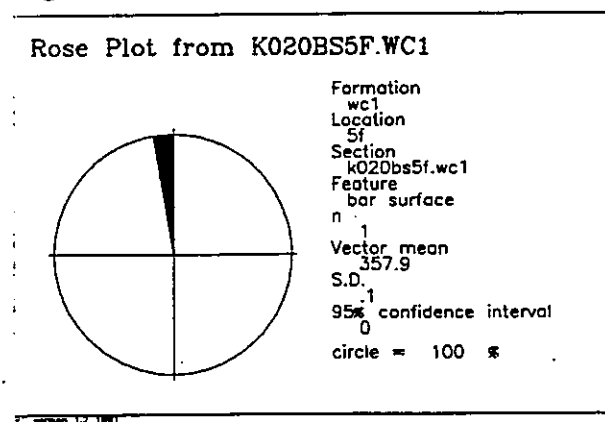
**Figure 50**



**Figure 51**



**Figure 52**



DATA FROM K020RR5F.WC1

LOCATION : 5f  
FORMATION : wc1  
N : 7 VECTOR MEAN : 239.1  
288 224 217 226 248 230 246

SECTION : k020rr5f.wc1  
FEATURE : ripples on bar surface  
STANDARD DEVIATION : 22.3

DATA FROM K021BS5F.WC1

LOCATION : 5f  
FORMATION : wc1  
N : 1 VECTOR MEAN : 164.9  
165

SECTION : k021bs5f.wc1  
FEATURE : bar surface  
STANDARD DEVIATION : 0.1

DATA FROM K021RR5F.WC1

LOCATION : 5f  
FORMATION : wc1  
N : 20 VECTOR MEAN : 244.8  
256 254 255 232 240 251 245 241 250 236 259 254 260 246 265 255 267 248  
257 266

SECTION : k021rr5f.wc1  
FEATURE : ripples on bar surface  
STANDARD DEVIATION : 31.8

DATA FROM K022RR5F.WBZ

LOCATION : 5f  
FORMATION : wbz  
N : 100 VECTOR MEAN : 49.9

SECTION : k022rr5f.wbz  
FEATURE : ripples  
STANDARD DEVIATION : 66.3

335 329 317 306 112 113 097 123 119 141 116 166 043 037 009 039 046 323  
017 035 343 326 309 312 120 105 100 112 122 132 130 012 029 020 026 036  
327 315 010 040 336 330 313 115 114 102 090 114 133 137 134 029 033 031  
035 039 320 020 034 031 341 323 302 106 090 110 096 111 127 135 146 040  
028 041 037 039 335 023 027 029 336 319 299 099 106 103 131 125 140 120  
148 030 033 038 031 026 317 026 036 032

DATA FROM K023RR5F.WBZ

LOCATION : 5f  
FORMATION : wbz  
N : 80 VECTOR MEAN : 334.1

SECTION : k023rr5f.wbz  
FEATURE : ripples  
STANDARD DEVIATION : 56.3

290 292 285 275 266 293 282 285 271 262 288 275 286 281 257 279 277 288  
267 285 286 288 287 274 255 276 270 273 019 040 295 035 031 026 043 026  
280 281 261 023 026 041 315 030 019 024 034 264 287 258 040 024 038 027  
039 025 044 031 275 284 010 036 020 033 019 020 028 052 023 272 278 015  
037 014 025 050 012 030 027 030

DATA FROM K024RR5G.WBZ

LOCATION : 5g  
FORMATION : wbz  
N : 76 VECTOR MEAN : 300.4

SECTION : k024rr5g.wbz  
FEATURE : ripples  
STANDARD DEVIATION : 28.0

297 307 295 275 308 298 286 287 311 292 279 280 285 296 300 268 306 330  
274 276 290 265 320 296 306 306 300 221 299 314 355 352 296 345 302 283  
308 295 291 225 350 326 000 287 354 298 290 291 293 308 265 315 322 355  
267 352 303 305 298 302 255 259 317 309 357 260 305 292 302 305 290 304



Figure 53

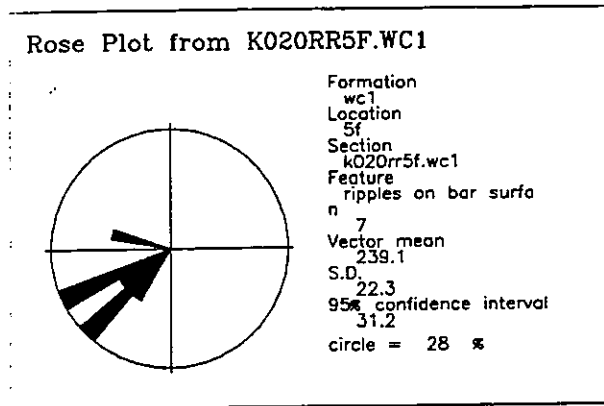


Figure 54

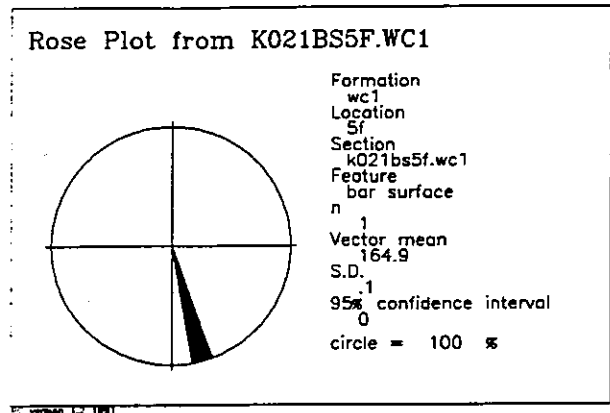


Figure 55

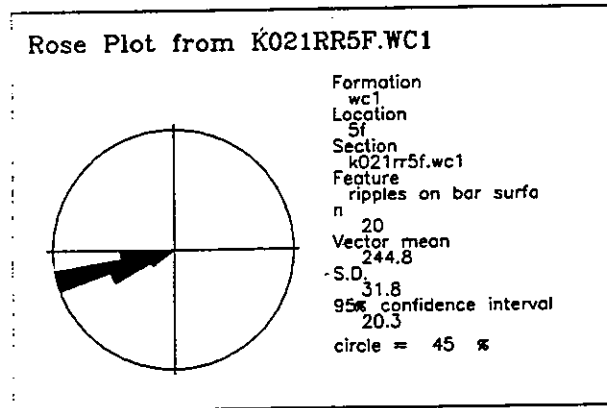


Figure 56

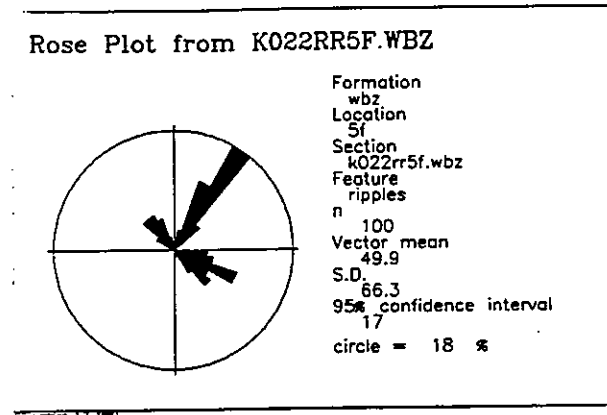


Figure 57

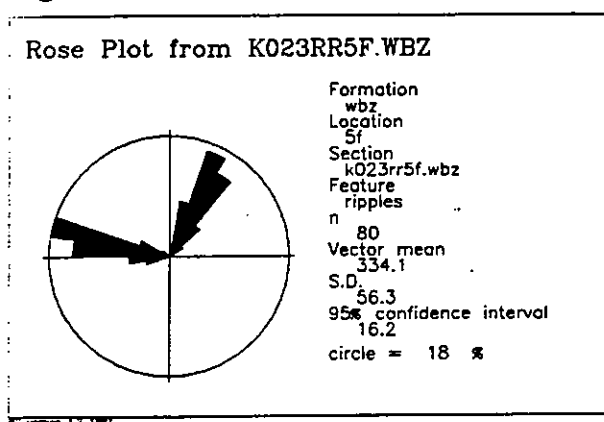
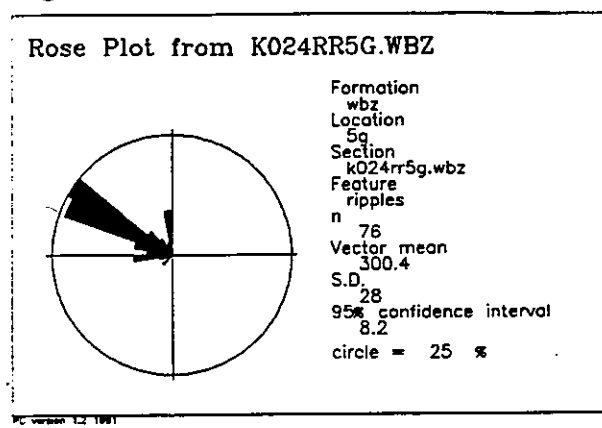


Figure 58



DATA FROM K025RR5F.WCC

LOCATION : 5f SECTION : k025rr5f.wcc  
FORMATION : wcc FEATURE : ripples  
N : 70 VECTOR MEAN : 36.8 STANDARD DEVIATION : 42.1  
028 032 035 036 031 037 033 026 039 030 029 038 029 024 027 029 036 032  
034 037 045 042 036 036 039 041 040 055 048 042 039 035 044 029 030 043  
034 034 040 034 037 046 031 027 039 043 034 036 030 037 035 031 025 150  
032 026 025 150 036 028 040 036 039 040 042 041 037 036 034 029

DATA FROM K026RR5F.WCC

LOCATION : SECTION : k026rr5f.wcc  
FORMATION : wcc FEATURE : ripples  
N : 70 VECTOR MEAN : 37.8 STANDARD DEVIATION : 7.2  
044 036 040 045 038 044 036 040 033 048 043 034 032 034 032 039 040 041  
039 053 044 056 040 046 039 048 039 033 036 029 032 025 031 024 023 022  
026 031 033 027 030 032 035 030 031 037 036 035 034 042 046 041 053 033  
040 032 045 041 035 043 041 039 036 037 049 046 047 036 044 049

DATA FROM K027DC5F.WCG

LOCATION : 5f SECTION : k027dc5f.wcg  
FORMATION : wcg FEATURE : dm trough cross beds  
N : 30 VECTOR MEAN : 250.0 STANDARD DEVIATION : 16.0  
300 285 245 240 237 258 279 264 239 244 236 230 245 246 253 251 238 236  
232 244 236 234 241 250 247 256 258 264 256 265

DATA FROM K028DC5F.WCG

LOCATION : 5f SECTION : k028dc5f.wcg  
FORMATION : wcg FEATURE : dm trough cross beds  
N : 25 VECTOR MEAN : 260.3 STANDARD DEVIATION : 6.3  
248 256 253 259 250 255 262 258 260 252 263 259 261 256 270 264 257 271  
256 269 268 260 262 269 270

DATA FROM K029DC5F.WCG

LOCATION : 5f SECTION : k029dc5f.wcg  
FORMATION : wcg FEATURE : dm trough cross beds  
N : 37 VECTOR MEAN : 258.2 STANDARD DEVIATION : 11.2  
271 266 269 267 274 277 275 274 277 265 236 242 252 264 260 267 270 258  
260 254 246 252 249 248 250 251 250 253 260 231 248 266 249 254 250 256  
262

DATA FROM K030DC5G.WC1

LOCATION : 5g SECTION : k030dc5f.wc1  
FORMATION : wc1 FEATURE : dm trough cross beds  
N : 9 VECTOR MEAN : 274.8 STANDARD DEVIATION : 11.8  
295 288 280 266 271 254 277 264 279

Figure 59

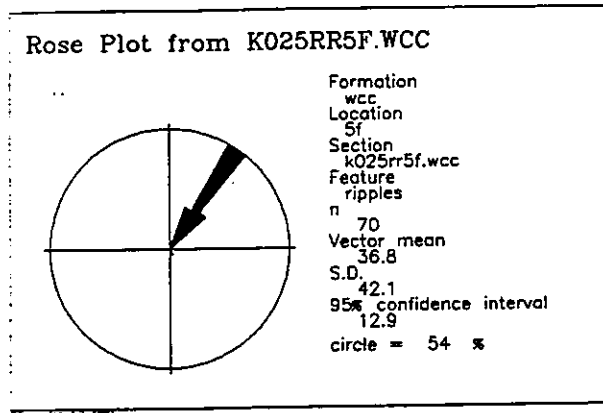


Figure 60

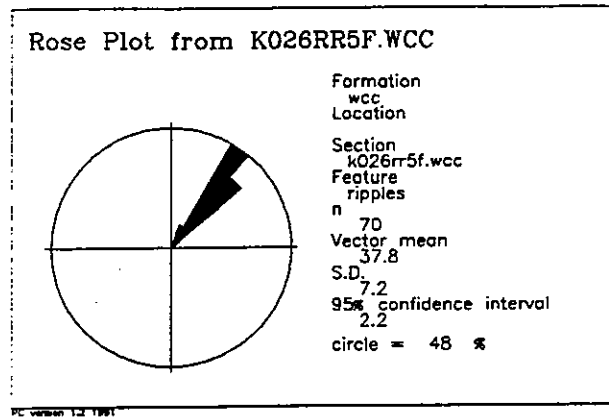


Figure 61

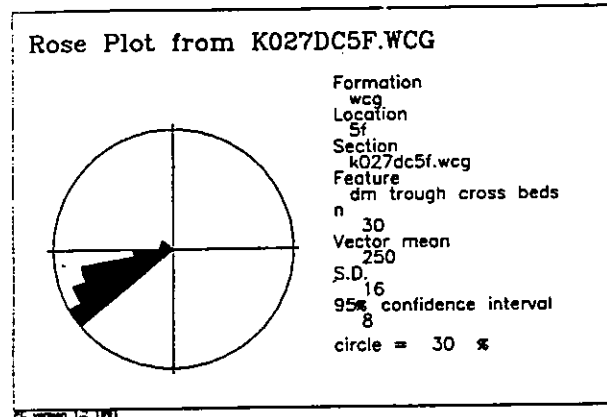


Figure 62

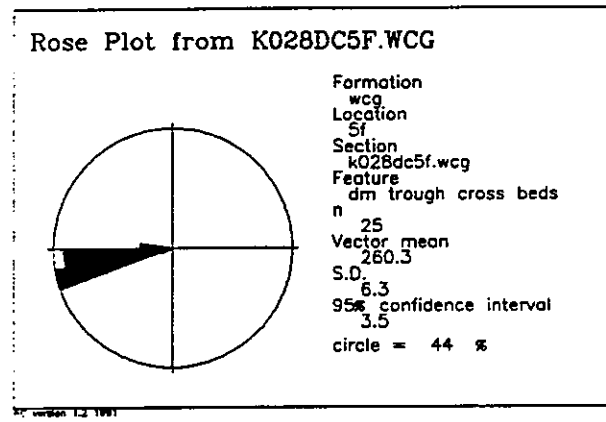


Figure 63

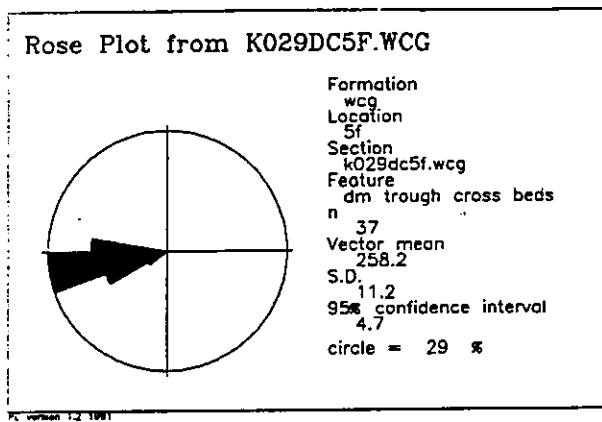
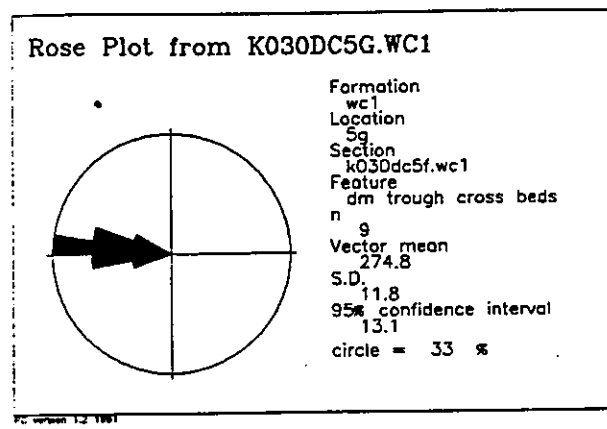


Figure 64



DATA FROM K031DC5H.VF

LOCATION : 5h SECTION : k031dc5h.vf  
FORMATION : vf FEATURE : dm trough cross beds  
N : 12 VECTOR MEAN : 279.3 STANDARD DEVIATION : 14.6  
288 276 277 291 300 302 283 279 275 256 273 251

DATA FROM K032DC5H.VF

LOCATION : 5h SECTION : k032dc5h.vf  
FORMATION : vf FEATURE : dm trough cross beds  
N : 20 VECTOR MEAN : 355.1 STANDARD DEVIATION : 35.2  
307 301 306 314 286 298 032 020 027 036 026 020 005 001 008 012 007 014  
005 003

DATA FROM K033DC5H.VF

LOCATION : 5h SECTION : k033dc5h.vf  
FORMATION : vf FEATURE : dm trough cross beds  
N : 8 VECTOR MEAN : 340.8 STANDARD DEVIATION : 46.1  
018 006 010 015 283 280 272 016

DATA FROM K034DC5H.VF

LOCATION : 5h SECTION : k034dc5h.vf  
FORMATION : vf FEATURE : dm trough cross beds  
N : 15 VECTOR MEAN : 271.8 STANDARD DEVIATION : 9.0  
288 291 283 278 264 266 265 267 265 266 270 272 269 275 259

DATA FROM K035DC5H.VF

LOCATION : 5h SECTION : k035dc5h.vf  
FORMATION : vf FEATURE : dm trough x beds  
N : 28 VECTOR MEAN : 345.3 STANDARD DEVIATION : 12.6  
323 020 351 359 016 323 338 351 351 348 343 349 337 335 345 343 349 337  
335 345 356 345 341 358 348 340 334 332

DATA FROM K036DC5H.VF

LOCATION : 5h SECTION : k036dc5h.vf  
FORMATION : vf FEATURE : dm trough x beds  
N : 19 VECTOR MEAN : 313.0 STANDARD DEVIATION : 34.6  
280 275 254 280 265 278 299 305 009 005 009 359 310 322 324 325 327 329  
318

Figure 65

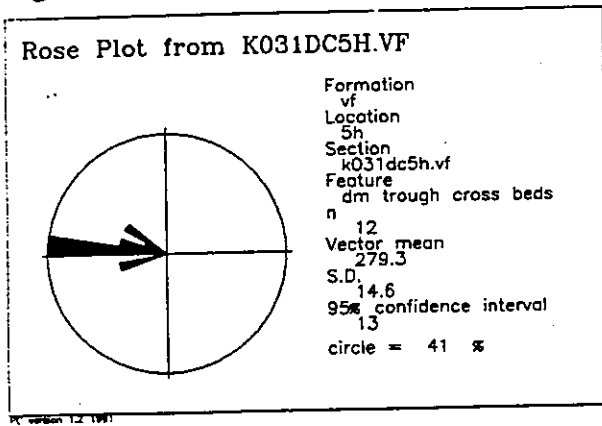


Figure 66

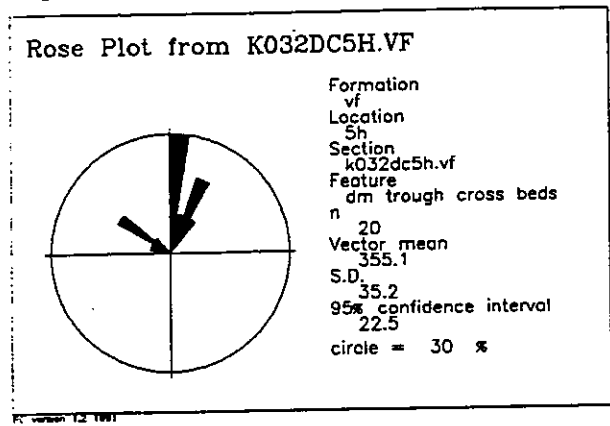


Figure 67

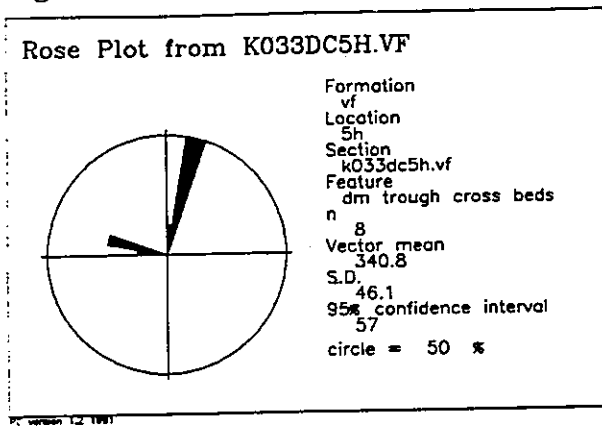


Figure 68

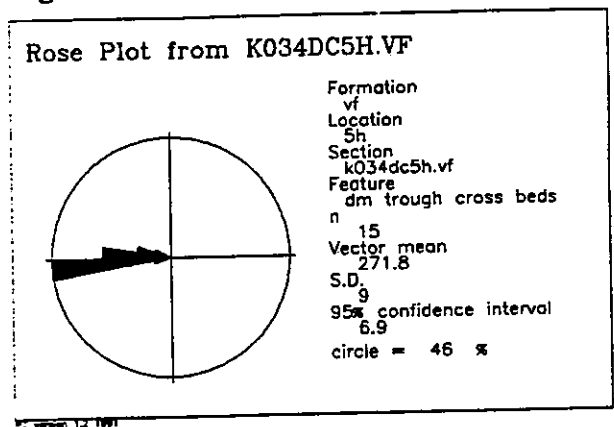


Figure 69

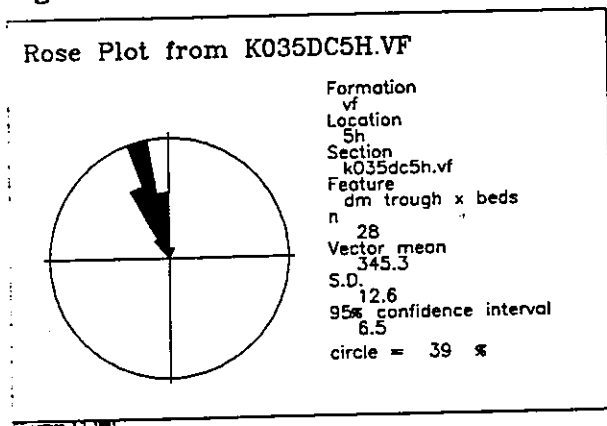
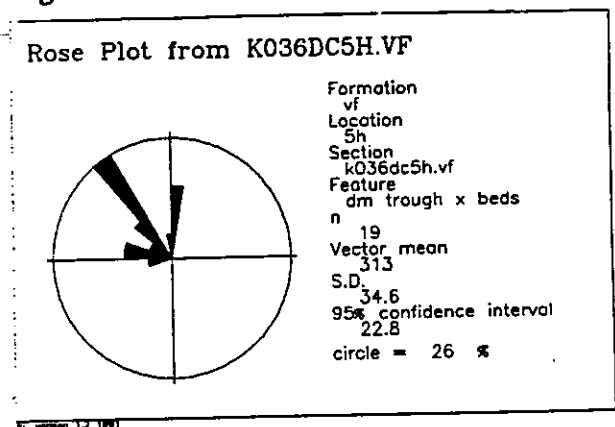


Figure 70



DATA FROM K037DC4H.WCG

LOCATION : 4h SECTION : k037dc4h.wcg  
FORMATION : wcg FEATURE : dc trough x beds  
N : 35 VECTOR MEAN : 268.8 STANDARD DEVIATION : 11.0  
255 262 269 271 274 247 284 246 265 266 262 274 294 277 272 266 270 282  
277 257 275 250 262 264 258 265 281 277 273 279 284 274 279 263 254

DATA FROM K037DH4H.WCE

LOCATION : 4h SECTION : k037dh4h.wce  
FORMATION : wce FEATURE : dm linear hummocks  
N : 3 VECTOR MEAN : 132.6 STANDARD DEVIATION : 11.4  
119 147 132

DATA FROM K037DS4H.WCE

LOCATION : 4h SECTION : k037ds4h.wce  
FORMATION : wce FEATURE : dm linear swales  
N : 3 VECTOR MEAN : 97.6 STANDARD DEVIATION : 12.1  
114 094 085

DATA FROM K037MT4H.WCG

LOCATION : 4h SECTION : k037mt4h.wcg  
FORMATION : wcg FEATURE : m tabular x beds  
N : 12 VECTOR MEAN : 259.7 STANDARD DEVIATION : 16.4  
245 248 269 249 240 238 290 280 260 255 281 263

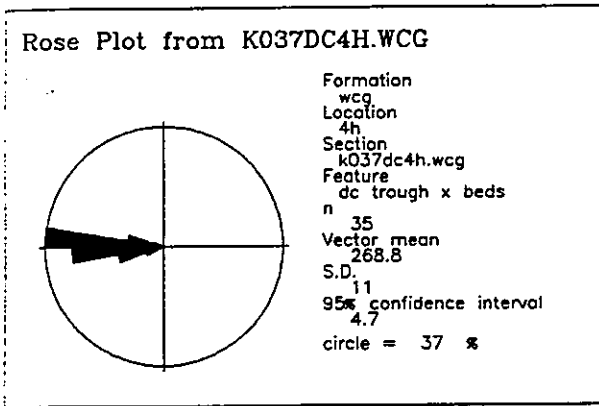
DATA FROM K037RR4H.WCE

LOCATION : 4h SECTION : k037rr4h.wce  
FORMATION : wce FEATURE : ripples  
N : 32 VECTOR MEAN : 290.3 STANDARD DEVIATION : 14.4  
274 277 272 285 280 270 273 281 260 258 295 302 285 277 295 287 296 303  
299 312 309 315 300 303 309 298 289 294 300 297 294 300

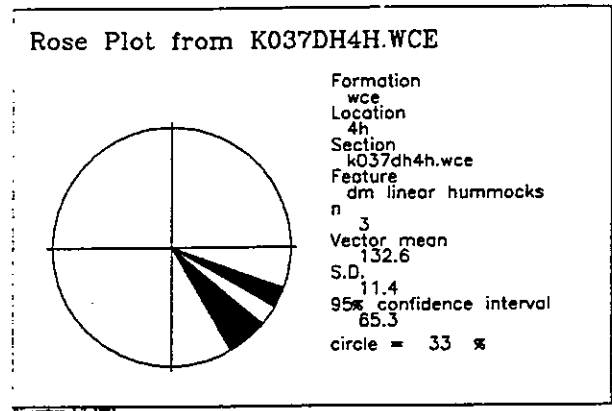
DATA FROM K037RR4H.WCH

LOCATION : 4h SECTION : k037rr4h.wch  
FORMATION : wch FEATURE : ripples  
N : 35 VECTOR MEAN : 261.2 STANDARD DEVIATION : 6.5  
267 271 260 256 255 259 268 264 256 253 255 252 264 261 254 266 257 270  
255 260 250 262 263 256 274 270 261 267 259 273 251 265 260 259 271

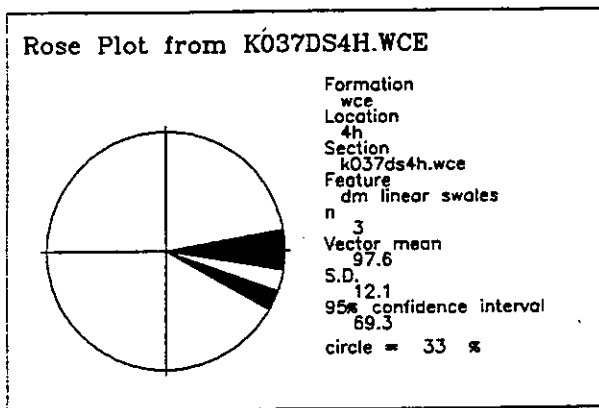
**Figure 71**



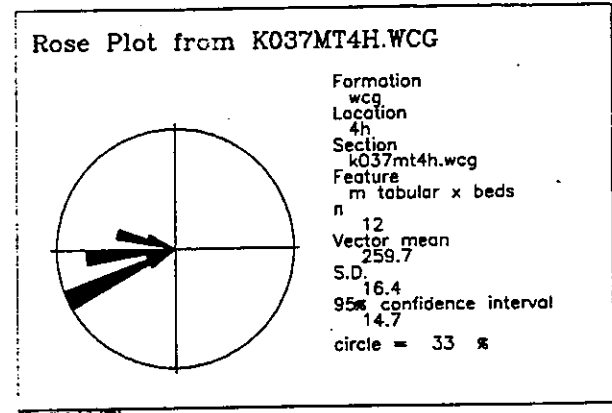
**Figure 72**



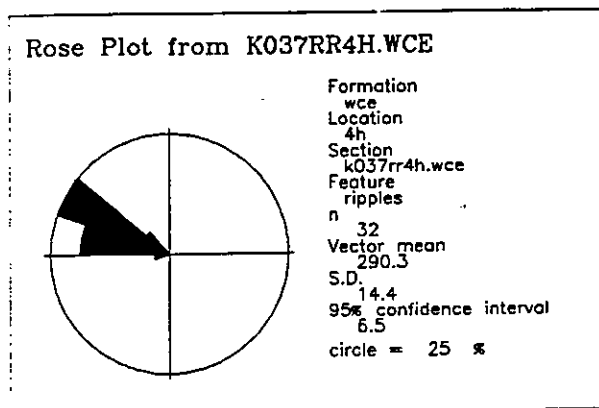
**Figure 73**



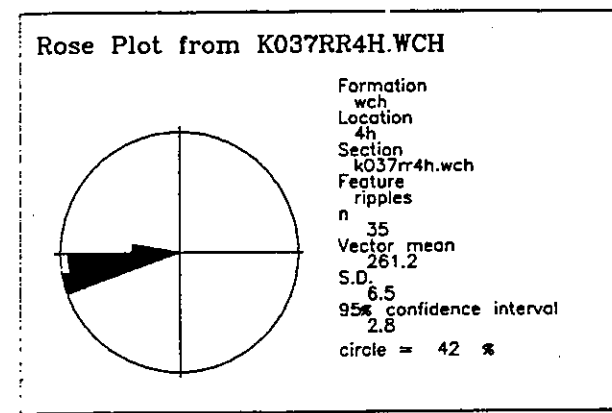
**Figure 74**



**Figure 75**



**Figure 76**



DATA FROM K037RR4H.WCJ

LOCATION : 4h

FORMATION : wcj

N : 16 VECTOR MEAN : 99.6

155 153 147 159 140 138 119 137 091 100 052 033 040 039 011 036

SECTION : k037rr4h.wcj

FEATURE : ripples

STANDARD DEVIATION : 139.2

DATA FROM K038DH4H.WCE

LOCATION : 4h

FORMATION : wce

N : 2 VECTOR MEAN : 231.4

295 168

SECTION : k038dh4h.wce

FEATURE : dm linear hummocks

STANDARD DEVIATION : 63.5

DATA FROM K038DS4H.WCE

LOCATION : 4h

FORMATION : wce

N : 4 VECTOR MEAN : 329.9

298 347 351 157

SECTION : k038ds4h.wce

FEATURE : dm linear swales

STANDARD DEVIATION : 88.9

DATA FROM K038DT4H.WCE

LOCATION : 4h

FORMATION : wce

N : 7 VECTOR MEAN : 310.7

295 297 302 336 322 305 319

SECTION : k038dt4h.wce

FEATURE : dm tabular x beds

STANDARD DEVIATION : 14.0

DATA FROM K038MH4H.WCE

LOCATION : 4h

FORMATION : wce

N : 4 VECTOR MEAN : 304.5

297 324 145 313

SECTION : k038mh4h.wce

FEATURE : m hummocks

STANDARD DEVIATION : 100.8

DATA FROM K038MS4H.WCE

LOCATION : 4h

FORMATION : wce

N : 4 VECTOR MEAN : 313.4

309 322 345 170

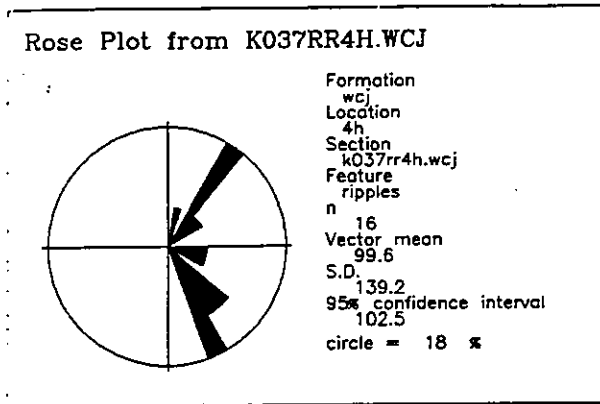
SECTION : k038ms4h.wce

FEATURE : m swales

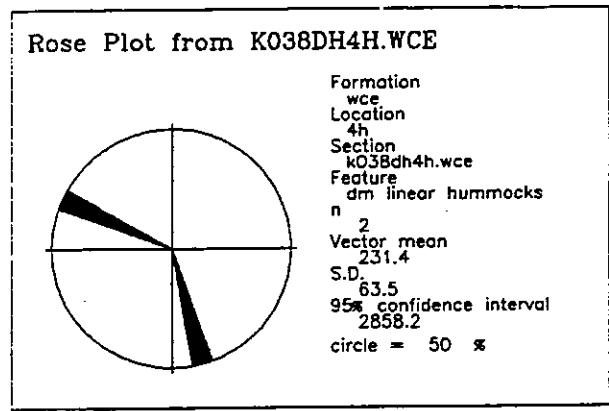
STANDARD DEVIATION : 73.5



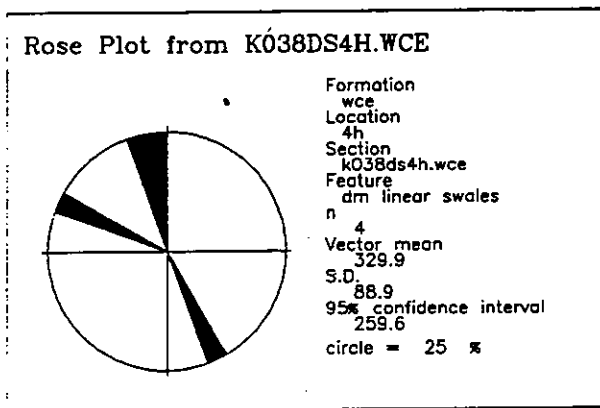
**Figure 77**



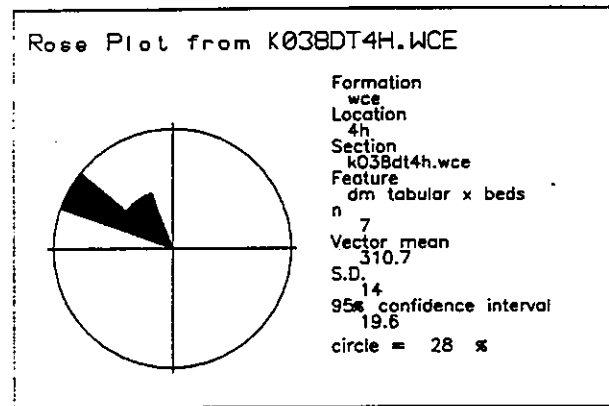
**Figure 78**



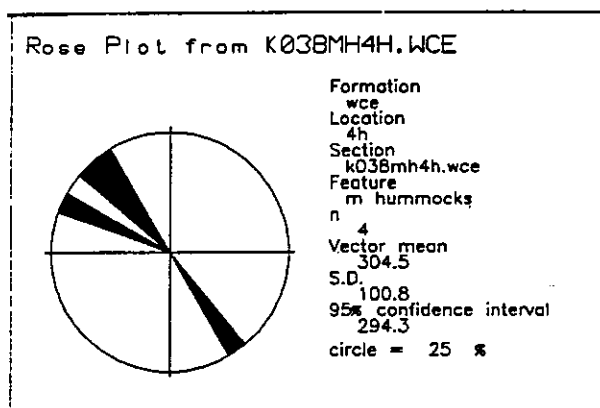
**Figure 79**



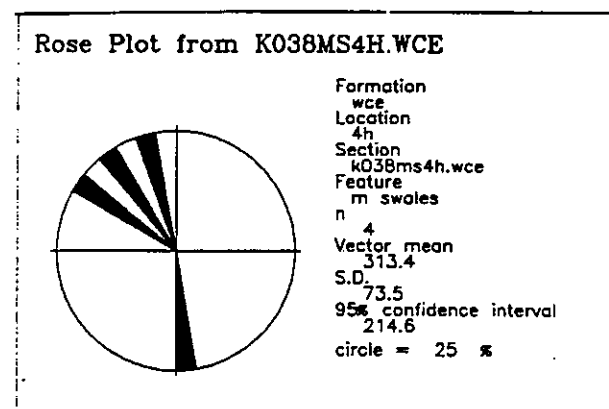
**Figure 80**



**Figure 81**



**Figure 82**



DATA FROM K038RR4H.WCE

LOCATION : 4h SECTION : k038rr4h.wce  
FORMATION : wce FEATURE : ripples  
N : 24 VECTOR MEAN : 308.2 STANDARD DEVIATION : 34.7  
320 318 317 312 310 303 314 323 315 295 299 319 327 316 320 312 325 318  
322 230 235 190 308 345

DATA FROM K039RR4H.WCC

LOCATION : 4h SECTION : k039rr4h.wcc  
FORMATION : wcc FEATURE : ripples  
N : 67 VECTOR MEAN : 168.4 STANDARD DEVIATION : 175.0  
001 013 019 027 015 018 026 031 033 026 034 032 035 038 105 130 175 160  
155 153 149 167 162 173 157 142 150 148 153 138 142 146 337 333 319 315  
175 159 162 149 143 152 151 198 191 186 184 184 182 205 192 206 189 190  
195 184 167 160 234 246 257 255 259 255 262 283 277

DATA FROM K041DC4H.WCG

LOCATION : 4h SECTION : k041dc4h.wcg  
FORMATION : wcg FEATURE : dm cross beds  
N : 30 VECTOR MEAN : 258.8 STANDARD DEVIATION : 8.6  
255 271 262 278 259 263 264 273 252 259 272 251 267 263 268 243 266 255  
266 254 252 258 260 254 257 248 247 253 246 250

DATA FROM K041DH4H.WCJ

LOCATION : 4h SECTION : k041dh4h.wcj  
FORMATION : wcj FEATURE : dm hummocks  
N : 4 VECTOR MEAN : 73.3 STANDARD DEVIATION : 20.3  
075 095 082 040

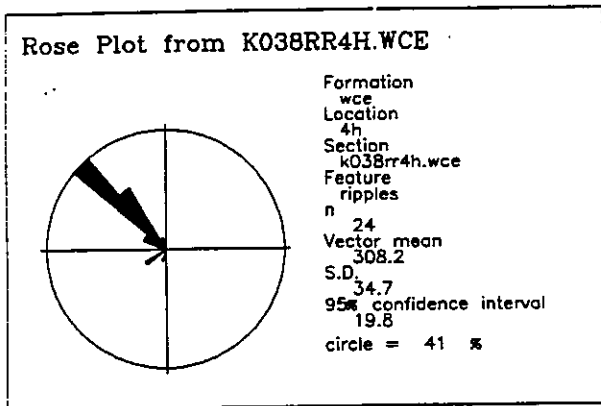
DATA FROM K041DT4H.WCJ

LOCATION : 4h SECTION : k041dt4h.wcj  
FORMATION : wcj FEATURE : dm tabular x beds  
N : 15 VECTOR MEAN : 32.4 STANDARD DEVIATION : 35.1  
034 087 093 029 013 110 005 357 040 357 016 009 045 000 044

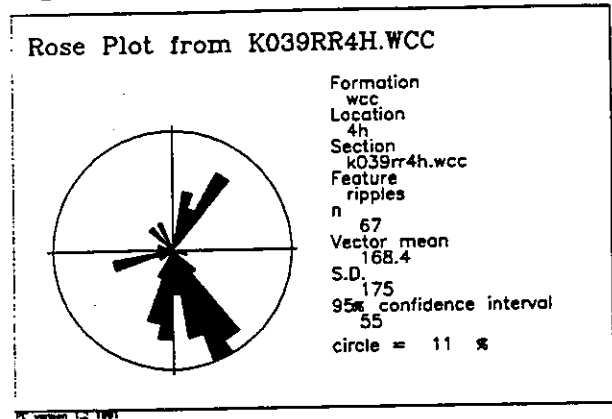
DATA FROM K041MS4H.WCJ

LOCATION : 4h SECTION : k041ms4h.wcj  
FORMATION : wcj FEATURE : m swales  
N : 4 VECTOR MEAN : 90.5 STANDARD DEVIATION : 15.3  
097 110 068 087

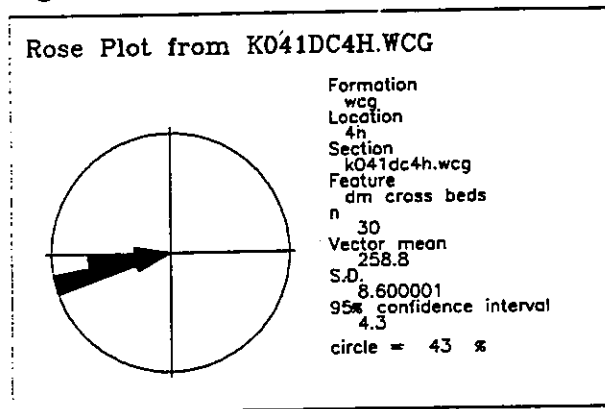
**Figure 83**



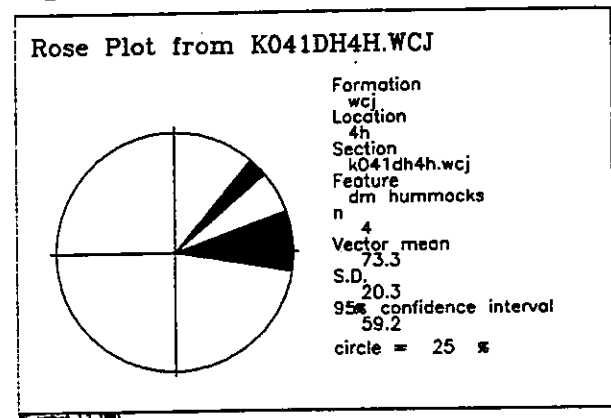
**Figure 84**



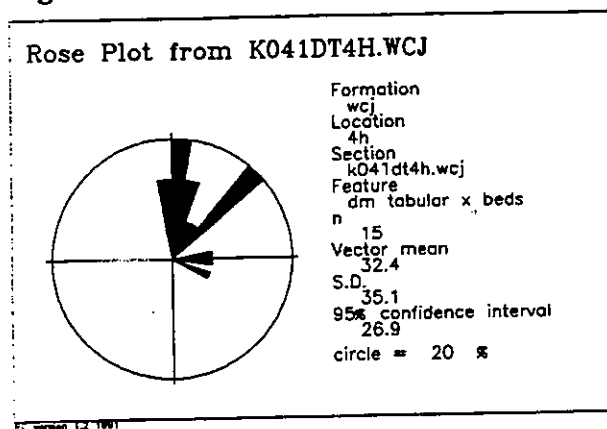
**Figure 85**



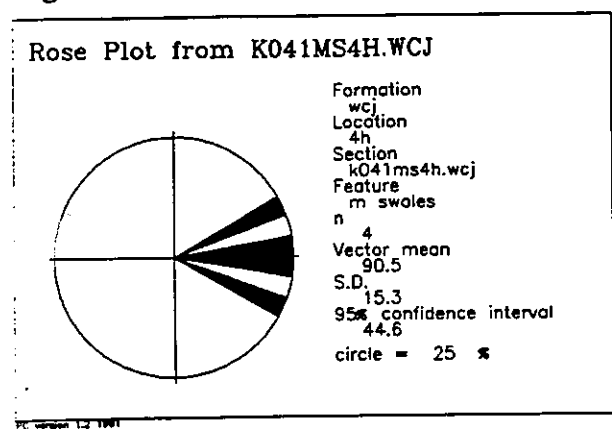
**Figure 86**



**Figure 87**



**Figure 88**



DATA FROM K041RR4H.WCH

LOCATION : 4h SECTION : k041rr4h.wch  
FORMATION : wch FEATURE : ripples  
N : 50 VECTOR MEAN : 253.0 STANDARD DEVIATION : 6.9  
266 258 253 262 255 252 254 255 252 251 248 252 247 258 253 261 244 241  
263 244 259 267 255 250 243 241 246 247 257 255 261 265 256 259 254 253  
249 245 255 256 264 240 239 252 256 248 252 247 260 250

DATA FROM K041RR4H.WCJ

LOCATION : 4h SECTION : k041rr4h.wcj  
FORMATION : wcj FEATURE : ripples  
N : 35 VECTOR MEAN : 93.2 STANDARD DEVIATION : 8.1  
087 090 099 091 102 082 092 100 108 103 104 100 105 086 093 083 086 088  
097 090 094 089 101 095 096 095 086 080 077 078 105 087 095 103 096

DATA FROM K042RR4H.WCC

LOCATION : 4h SECTION : k042rr4h.wcc  
FORMATION : wcc FEATURE : ripples  
N : 70 VECTOR MEAN : 129.1 STANDARD DEVIATION : 104.8  
127 122 125 131 139 091 088 085 074 078 117 122 120 126 117 124 128 141  
135 131 141 124 130 134 131 142 137 139 126 121 123 132 125 122 141 144  
126 120 110 118 130 129 127 114 110 117 122 116 119 113 117 322 325 324  
290 305 291 287 286 274 279 286 281 284 277 265 288 284 280 289

DATA FROM K043DC4H.WCG

LOCATION : 4h SECTION : k043dc4h.wcg  
FORMATION : wcg FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 263.2 STANDARD DEVIATION : 10.2  
276 244 254 273 267 271 274 263 276 265 286 247 253 260 266 259 253 255  
268 271 250 274 257 268 255 254 250 261 276 272

DATA FROM K043RR4H.WCH

LOCATION : 4h SECTION : k043rr4h.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 274.7 STANDARD DEVIATION : 9.9  
278 275 274 275 277 264 267 283 280 274 285 266 254 260 287 267 284 277  
274 296 279 282 284 288 285 279 266 264 261 258

DATA FROM K043RR4H.WCJ

LOCATION : 4h SECTION : k043rr4h.wcj  
FORMATION : wcj FEATURE : ripples  
N : 33 VECTOR MEAN : 67.2 STANDARD DEVIATION : 7.4  
070 072 081 066 058 075 074 077 072 060 055 051 064 059 065 077 070 063  
067 065 071 072 066 061 068 080 064 072 065 064 073 050 071

Figure 89

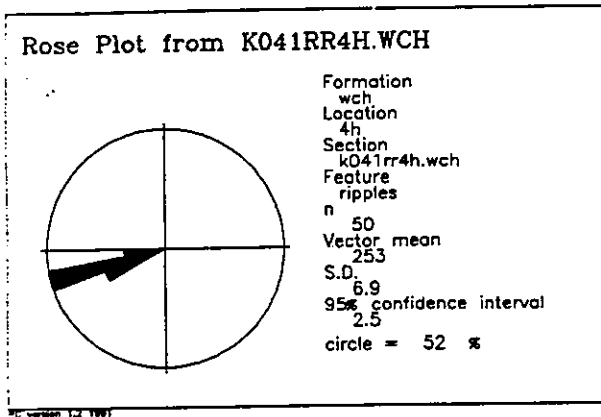


Figure 90

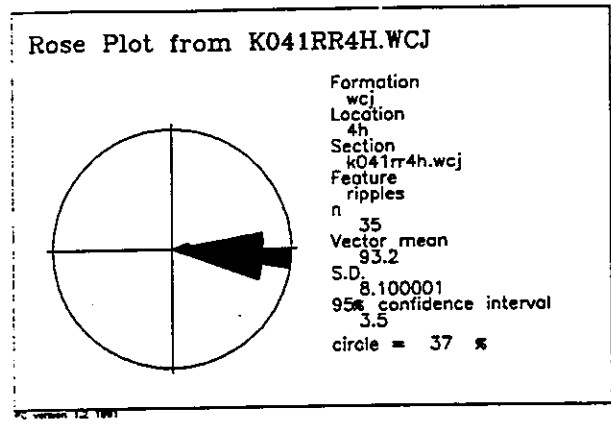


Figure 91

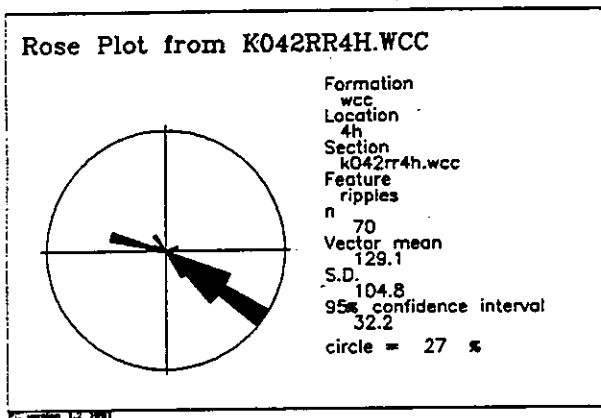


Figure 92

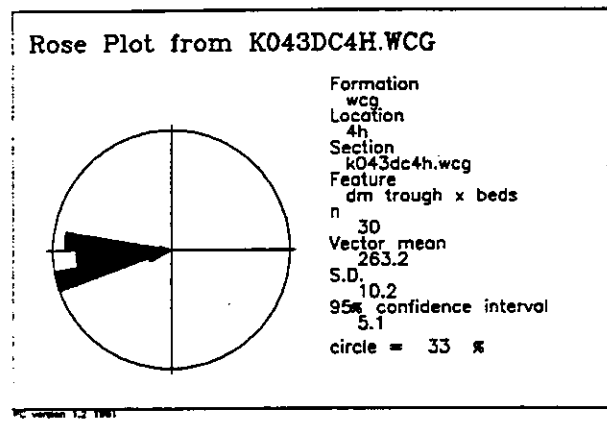


Figure 93

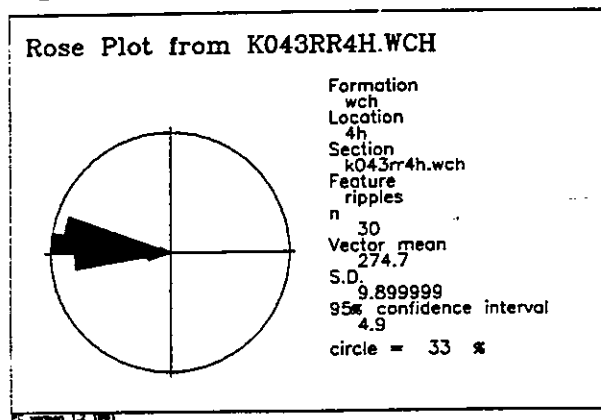
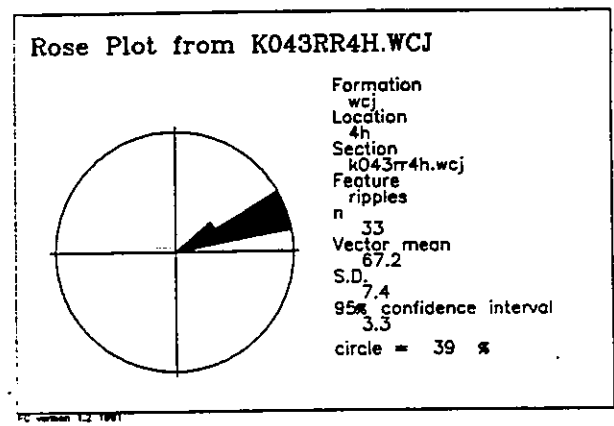


Figure 94



DATA FROM K044MC4G.WBZ

LOCATION : 4g SECTION : k044mc4g.wbz  
FORMATION : wbz FEATURE : m trough x bed  
N : 1 VECTOR MEAN : 221.0 STANDARD DEVIATION : 0.0  
221

DATA FROM K044MH4G.WBZ

LOCATION : 4g SECTION : k044mh4g.wbz  
FORMATION : wbz FEATURE : m hummocks  
N : 4 VECTOR MEAN : 223.5 STANDARD DEVIATION : 8.7  
211 229 220 234

DATA FROM K044MS4G.WBZ

LOCATION : 4g SECTION : k044ms4g.wbz  
FORMATION : wbz FEATURE : m scale swale with ripples  
N : 1 VECTOR MEAN : 43.9 STANDARD DEVIATION : 0.1  
044

DATA FROM K044RR4G.WBZ

LOCATION : 4g SECTION : k044rr4g.wbz  
FORMATION : wbz FEATURE : ripples  
N : 80 VECTOR MEAN : 227.8 STANDARD DEVIATION : 18.4  
231 238 227 230 233 224 239 236 253 244 229 226 236 250 218 241 240 238  
223 221 345 274 257 260 262 243 238 222 215 227 236 216 219 225 231 227  
229 224 223 225 217 214 221 216 229 225 202 233 212 224 222 210 200 215  
212 209 219 221 223 234 224 223 226 229 230 227 230 228 234 235 225 216  
221 204 218 222 213 214 225 221

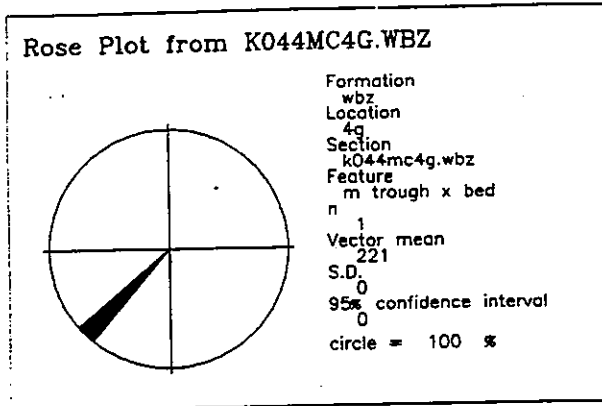
DATA FROM K045RR4G.WBZ

LOCATION : 4g SECTION : k045rr4g.wbz  
FORMATION : wbz FEATURE : ripples  
N : 30 VECTOR MEAN : 220.5 STANDARD DEVIATION : 5.8  
222 225 218 215 231 231 216 220 214 215 228 219 223 234 225 221 224 219  
227 226 220 211 218 213 217 220 210 216 221 219

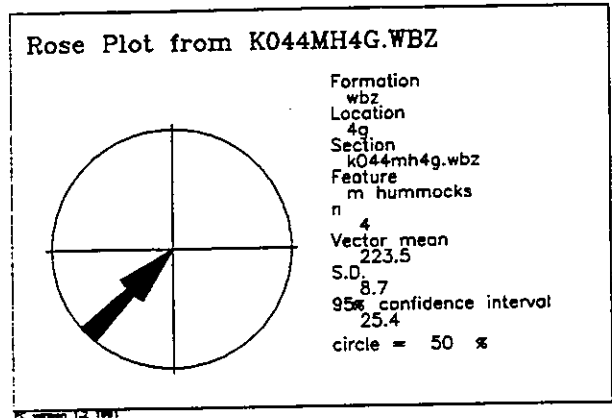
DATA FROM K046DC4H.WCG

LOCATION : 4h SECTION : k046dc4h.wcg  
FORMATION : wcg FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 249.2 STANDARD DEVIATION : 13.5  
265 247 256 244 237 232 256 225 231 254 267 242 263 262 266 265 258 249  
279 224 241 237 236 247 254 237 242 243 262 256

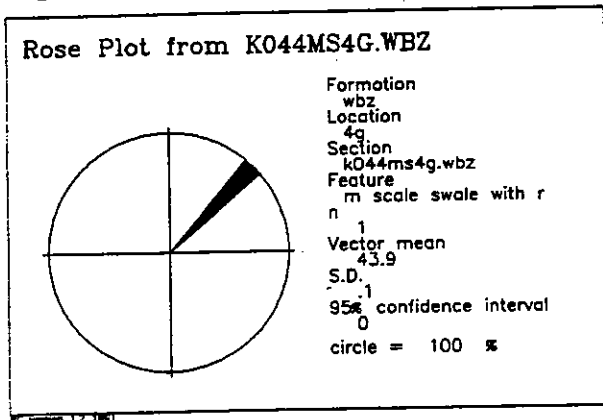
**Figure 95**



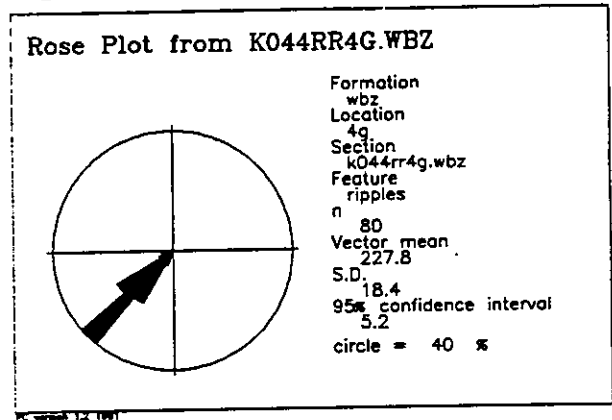
**Figure 96**



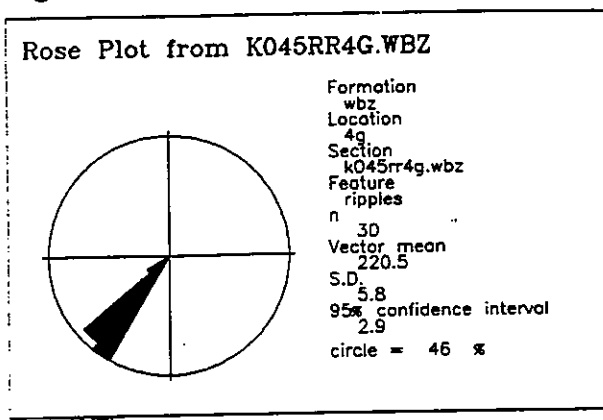
**Figure 97**



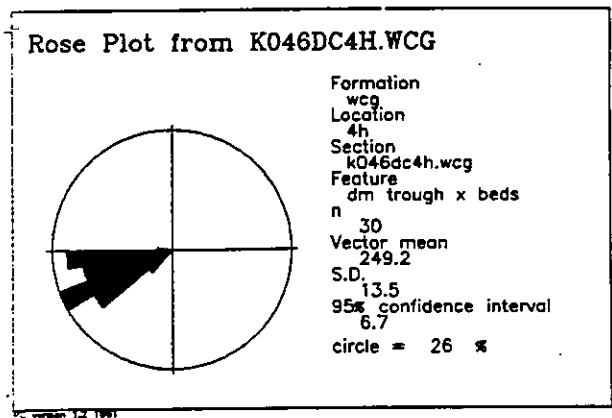
**Figure 98**



**Figure 99**



**Figure 100**



DATA FROM K046RR4H.WCH

LOCATION : 4h SECTION : k046rr4h.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 266.2 STANDARD DEVIATION : 23.1  
250 247 245 259 254 248 251 265 262 251 259 266 263 260 303 318 332 333  
263 266 254 249 277 261 271 274 247 266 262 266

DATA FROM K047DC5G.WC1

LOCATION : 5g SECTION : k047dc5g.wc1  
FORMATION : wc1 FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 239.0 STANDARD DEVIATION : 10.0  
252 234 260 246 233 241 235 247 251 246 235 231 231 260 254 245 237 250  
243 242 236 230 236 226 227 235 231 223 234 222

DATA FROM K047RR5G.WC1

LOCATION : 5g SECTION : k047rr5g.wc1  
FORMATION : wc1 FEATURE : ripples  
N : 30 VECTOR MEAN : 231.6 STANDARD DEVIATION : 11.0  
217 221 225 219 225 232 238 235 227 234 245 236 226 241 216 229 253 242  
225 220 203 232 245 238 237 234 236 223 251 245

DATA FROM K048MC5G.WCE

LOCATION : 5g SECTION : k048mc5g.wce  
FORMATION : wce top 1 m FEATURE : m trough cross beds  
N : 12 VECTOR MEAN : 308.2 STANDARD DEVIATION : 9.5  
314 308 325 304 296 307 304 297 327 302 314 301

DATA FROM K048RR5G.WCE

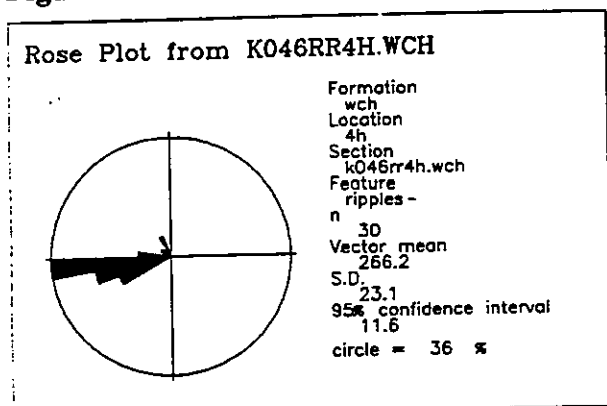
LOCATION : 5g SECTION : k048rr5g.wce  
FORMATION : wce top 1m FEATURE : ripples  
N : 70 VECTOR MEAN : 334.2 STANDARD DEVIATION : 62.3  
308 315 312 320 309 314 303 317 309 301 312 308 292 299 306 310 294 301  
315 314 318 311 289 298 323 325 115 103 097 111 115 104 116 117 109 104  
100 105 105 111 318 324 325 346 344 342 338 341 340 344 347 339 342 345  
337 340 335 338 334 335 340 330 342 336 332 315 341 332 335 331

DATA FROM K049MC5G.WCE

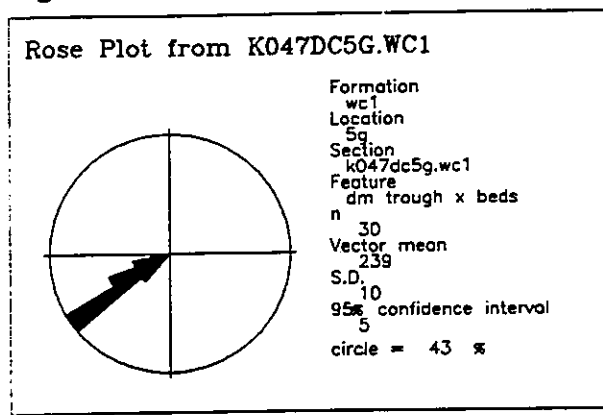
LOCATION : 5g SECTION : k049mc5g.wce  
FORMATION : wce FEATURE : m trough cross beds  
N : 18 VECTOR MEAN : 318.0 STANDARD DEVIATION : 20.4  
291 311 308 288 307 283 312 324 300 322 326 304 346 337 343 332 356 336



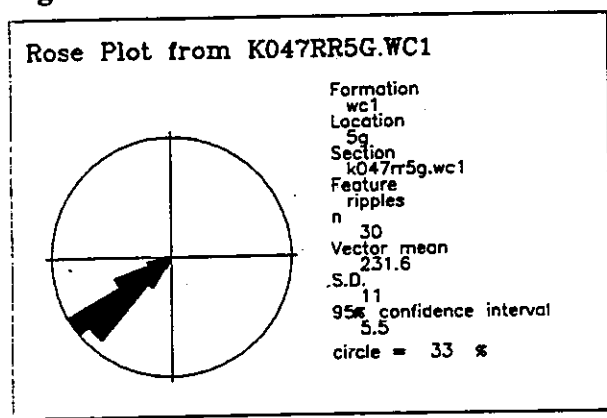
**Figure 101**



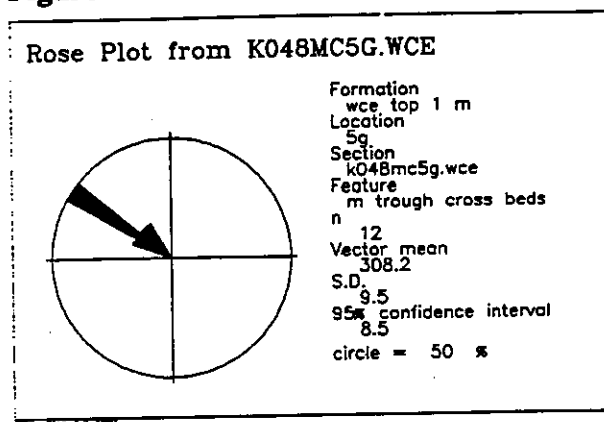
**Figure 102**



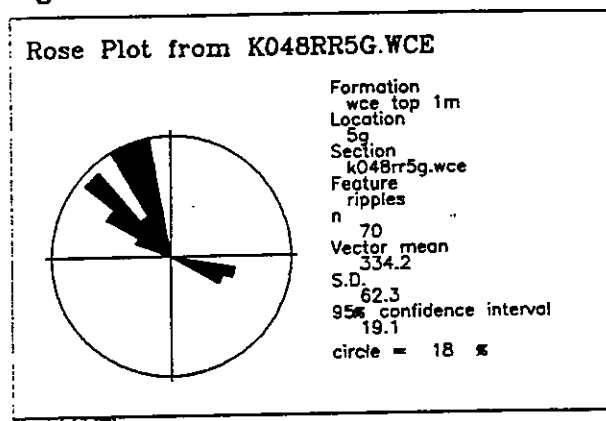
**Figure 103**



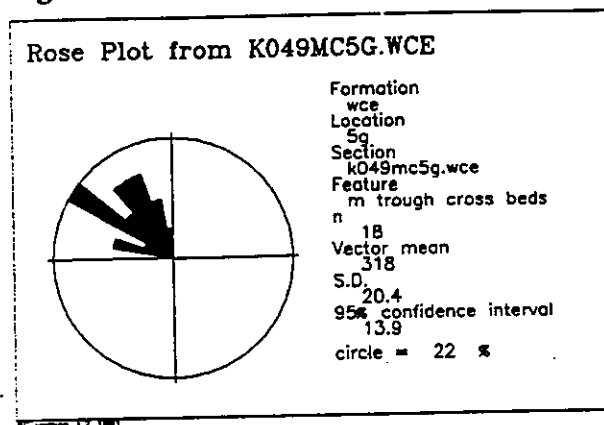
**Figure 104**



**Figure 105**



**Figure 106**



DATA FROM K049RR5G.WCE

LOCATION : 5g SECTION : k049rr5g.wce  
FORMATION : wce FEATURE : ripples  
N : 32 VECTOR MEAN : 328.2 STANDARD DEVIATION : 44.8  
318 315 326 329 328 295 338 331 004 358 337 334 329 332 335 343 334 337  
359 355 344 358 243 262 260 255 247 248 332 064 073 018

DATA FROM K050RR5G.WCE

LOCATION : 5g SECTION : k050rr5g.wce  
FORMATION : wce bottom 1-2 m FEATURE : ripples  
N : 60 VECTOR MEAN : 264.0 STANDARD DEVIATION : 78.1  
299 303 298 311 332 285 312 262 325 229 313 334 310 319 323 327 332 287  
262 255 264 252 243 249 238 252 254 242 284 230 236 253 298 217 228 224  
306 275 193 122 128 114 272 240 235 231 277 298 221 289 102 106 098 089  
236 234 231 235 233 242

DATA FROM K051DC5G.WCG

LOCATION : 5g SECTION : k051dc5g.wcg  
FORMATION : wcg FEATURE : dm trough x beds  
N : 13 VECTOR MEAN : 213.8 STANDARD DEVIATION : 17.3  
213 210 205 227 206 218 207 245 241 192 213 179 224

DATA FROM K051RR5G.WCH

LOCATION : 5g SECTION : k051rr5g.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 205.8 STANDARD DEVIATION : 13.1  
212 199 205 201 180 187 190 196 201 209 230 228 232 219 196 184 211 218  
200 219 204 195 221 212 201 219 208 206 194 199

DATA FROM K051RR5G.WCI

LOCATION : 5g SECTION : k051rr5g.wci  
FORMATION : wci split in seam FEATURE : ripples  
N : 30 VECTOR MEAN : 269.5 STANDARD DEVIATION : 7.7  
273 275 264 262 266 260 269 259 264 270 274 274 272 250 269 260 274 271  
276 279 276 272 254 271 262 281 276 283 277 272

DATA FROM K051RR5G.WCJ

LOCATION : 5g SECTION : k051rr5g.wcj  
FORMATION : wcj lower 1-2 m FEATURE : ripples  
N : 30 VECTOR MEAN : 339.6 STANDARD DEVIATION : 9.4  
317 322 329 336 344 337 333 336 328 347 330 342 328 347 358 349 337 340  
338 341 355 343 334 342 338 340 348 356 346 349

Figure 107

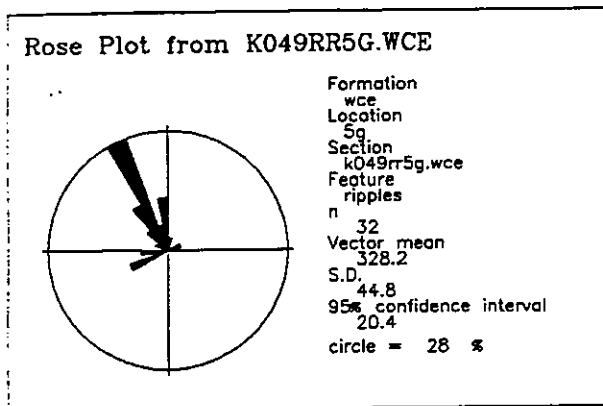


Figure 108

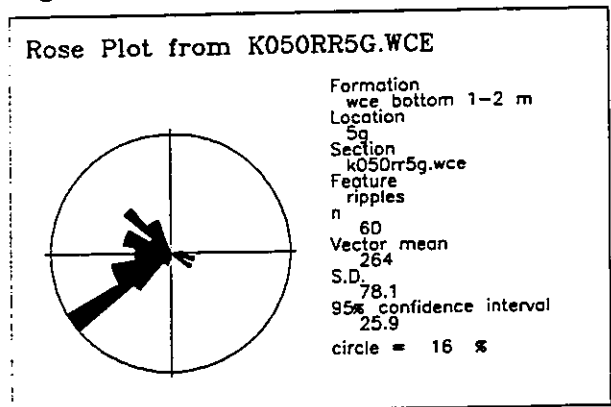


Figure 109

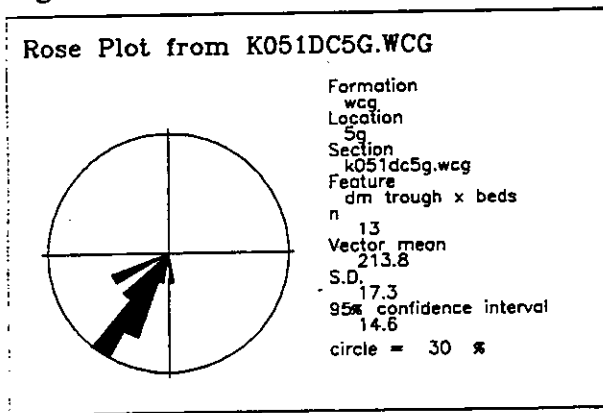


Figure 110

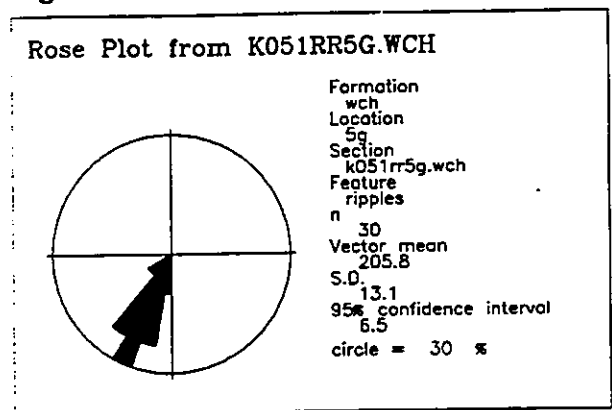


Figure 111

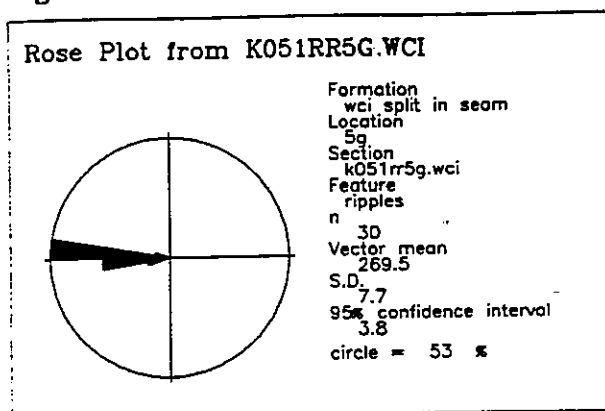
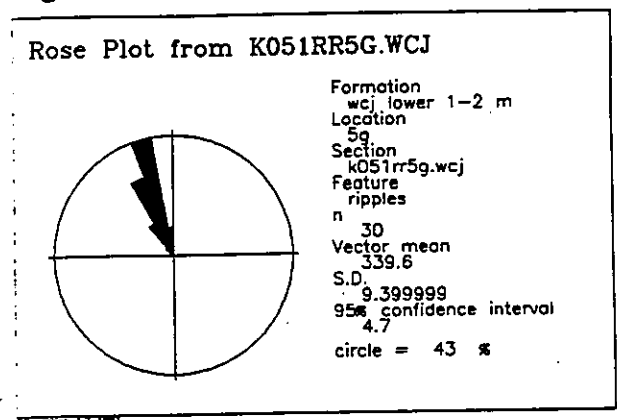


Figure 112



DATA FROM K052RR5G.WCE

LOCATION : 5g SECTION : k052rr5g.wce  
FORMATION : wce FEATURE : ripples top 1 m  
N : 30 VECTOR MEAN : 209.3 STANDARD DEVIATION : 11.1  
226 204 218 222 224 226 224 215 201 227 205 202 194 199 216 231 210 212  
206 202 203 208 189 194 206 206 195 198 211 207

DATA FROM K052RR5G.WCH

LOCATION : 5g SECTION : k052rr5g.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 194.8 STANDARD DEVIATION : 5.6  
197 200 206 203 194 195 189 193 198 195 202 198 197 188 192 190 195 199  
202 204 190 196 193 189 186 191 194 199 190 181

DATA FROM K053RR5F.WCC

LOCATION : 5f SECTION : k053rr5f.wcc  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 330.6 STANDARD DEVIATION : 20.7  
019 024 007 016 321 324 308 332 333 334 329 327 330 322 318 324 316 307  
292 309 337 348 326 334 325 317 324 330 333 329

DATA FROM K053RR5F.WCE

LOCATION : 5f SECTION : k053rr5f.wce  
FORMATION : wce FEATURE : ripples top 1 m  
N : 30 VECTOR MEAN : 354.8 STANDARD DEVIATION : 7.1  
350 355 359 341 354 351 358 350 355 352 349 347 355 351 357 002 348 345  
352 350 359 347 351 017 003 001 359 357 006 004

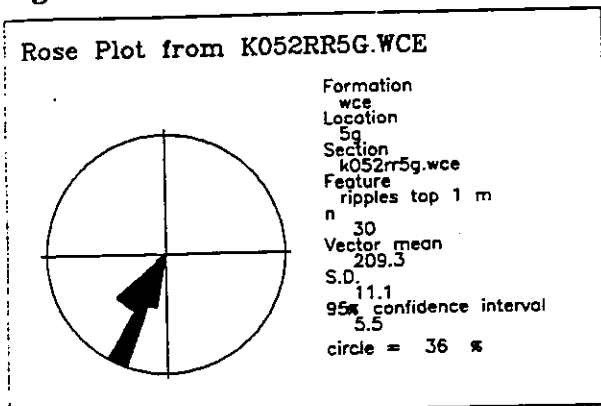
DATA FROM K054BS5F.WCF

LOCATION : 5f SECTION : k054bs5f.wcf  
FORMATION : wcf (sst split) FEATURE : lateral accr. sur  
N : 2 VECTOR MEAN : 17.4 STANDARD DEVIATION : 2.5  
020 015

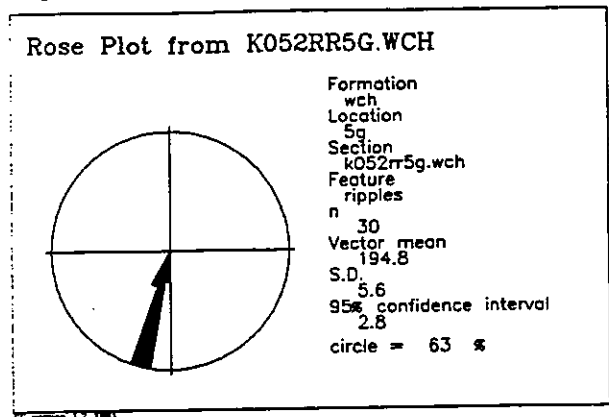
DATA FROM K054RR5F.WCF

LOCATION : 5f SECTION : k054rr5f.wcf  
FORMATION : wcf sst split FEATURE : ripples  
N : 30 VECTOR MEAN : 114.9 STANDARD DEVIATION : 8.3  
120 108 107 105 104 110 119 116 125 111 136 120 124 122 131 119 120 123  
117 114 113 109 116 111 097 105 110 107 109 120

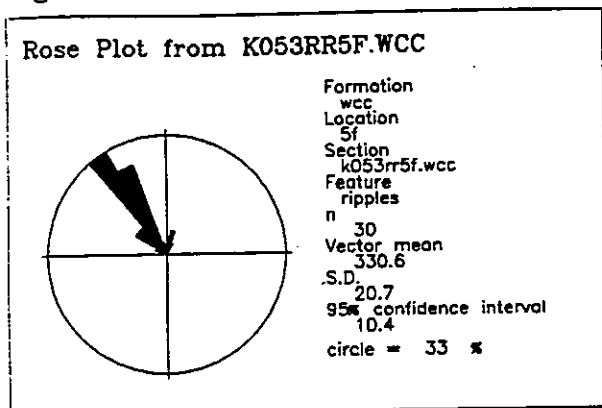
**Figure 113**



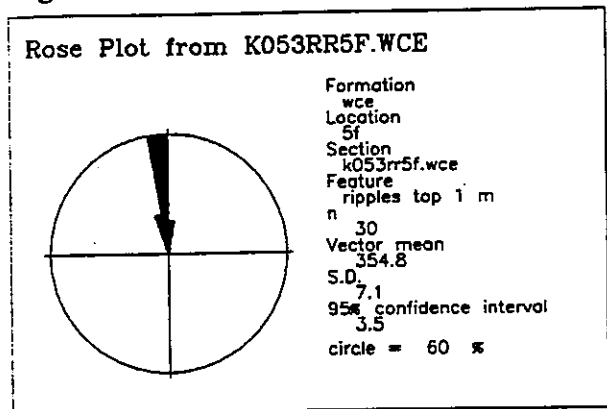
**Figure 114**



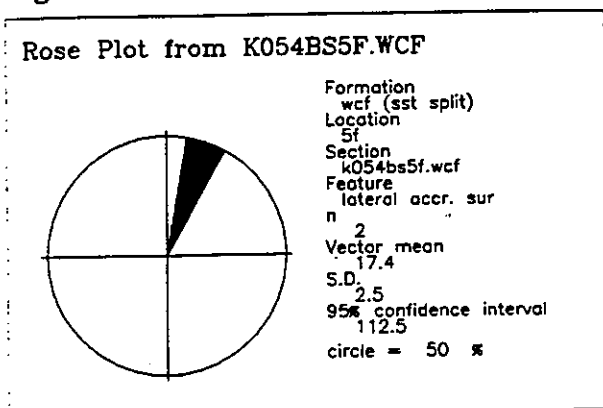
**Figure 115**



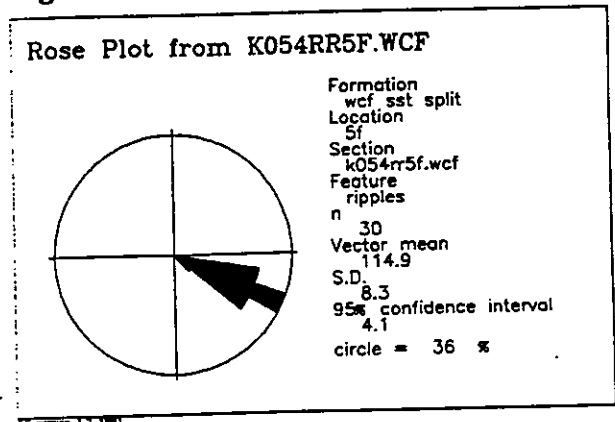
**Figure 116**



**Figure 117**



**Figure 118**



DATA FROM K055RR5F.WCF

LOCATION : 5f SECTION : k055rr5f.wcf  
FORMATION : wcf (sst split) FEATURE : ripples  
N : 30 VECTOR MEAN : 106.4 STANDARD DEVIATION : 9.4  
095 101 129 097 096 108 104 102 114 121 116 118 107 112 114 110 109 115  
117 106 113 114 089 091 095 096 101 102 103 100

DATA FROM K056DC5F.WCG

LOCATION : 5f SECTION : k056dc5f.wcg  
FORMATION : wcg FEATURE : dm trough x beds  
N : 21 VECTOR MEAN : 257.0 STANDARD DEVIATION : 12.2  
265 281 272 251 257 242 260 245 247 284 267 253 271 256 235 247 256 250  
248 261 252

DATA FROM K056RR5F.WCH

LOCATION : 5f SECTION : k056rr5f.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 264.4 STANDARD DEVIATION : 8.9  
277 269 240 251 264 256 275 278 263 261 255 271 272 256 260 244 263 269  
276 262 267 261 264 268 265 267 274 265 268 271

DATA FROM K057RR5F.WCJ

LOCATION : 5f SECTION : k057rr5f.wcj  
FORMATION : wcj 1 m below wck FEATURE : ripples  
N : 35 VECTOR MEAN : 212.3 STANDARD DEVIATION : 181.9  
276 267 258 260 263 259 271 265 249 271 254 256 279 262 256 241 259 256  
258 261 124 126 120 131 130 134 134 119 137 120 131 116 118 112 111

DATA FROM K058RR5F.WCF

LOCATION : 5f SECTION : k058rr5f.wcf  
FORMATION : wcf split FEATURE : ripples  
N : 30 VECTOR MEAN : 52.2 STANDARD DEVIATION : 9.7  
040 033 046 061 053 044 048 050 075 066 039 056 059 062 062 047 040 050  
055 057 052 074 045 047 056 054 053 048 040 056

DATA FROM K059RR5F.WCF

LOCATION : 5f N end of split SECTION : k059rr5f.wcf  
FORMATION : wcf FEATURE : ripples  
N : 30 VECTOR MEAN : 350.6 STANDARD DEVIATION : 38.9  
357 000 015 018 003 009 358 344 351 354 000 356 353 001 358 346 341 350  
339 349 333 150 333 320 342 336 330 345 353 335

Figure 119

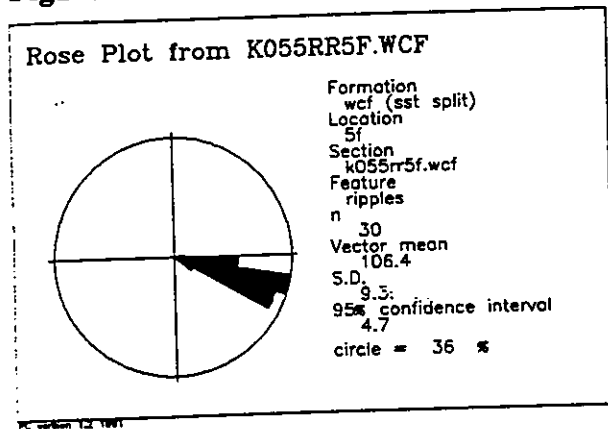


Figure 120

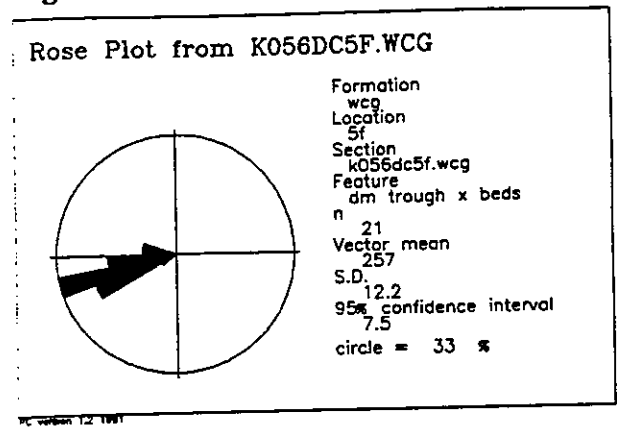


Figure 121

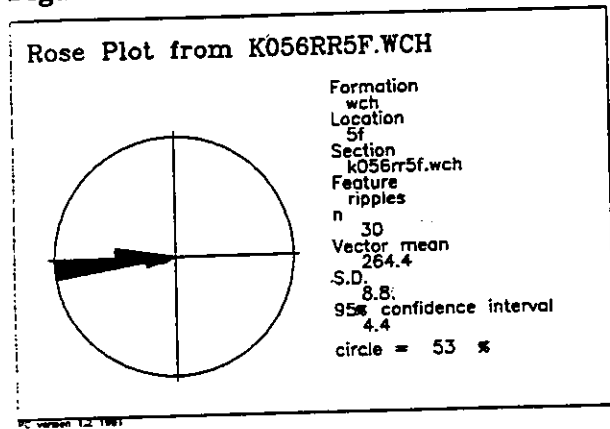


Figure 122

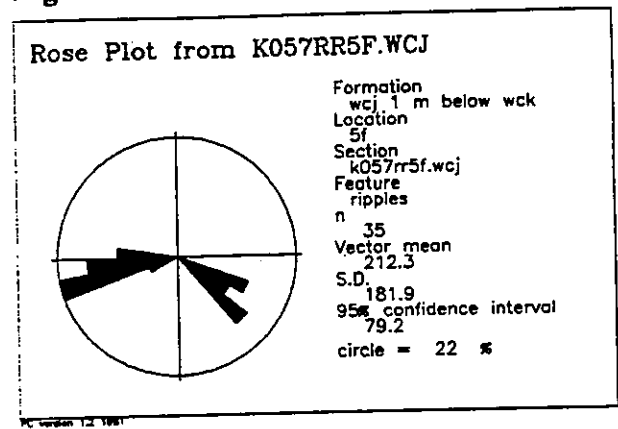


Figure 123

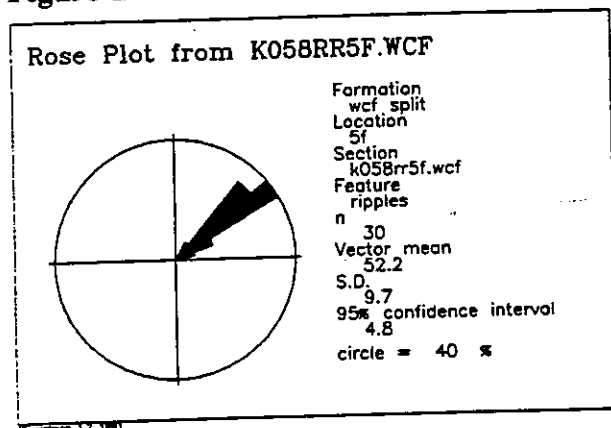
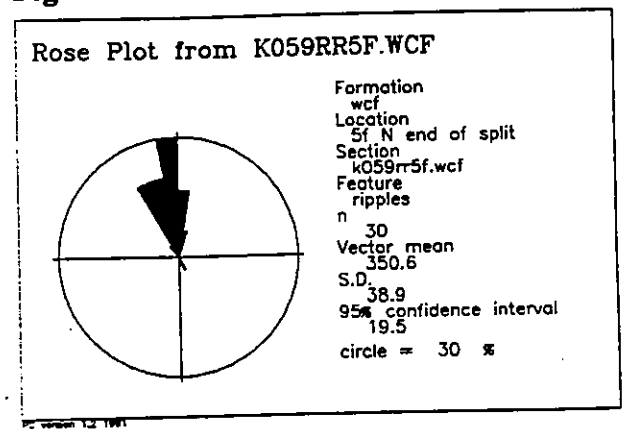


Figure 124



DATA FROM K060DC5F.WCK

LOCATION : 5f SECTION : k060dc5f.wck  
FORMATION : wck FEATURE : dm trough x beds  
N : 23 VECTOR MEAN : 275.9 STANDARD DEVIATION : 12.3  
281 302 279 275 255 276 287 259 256 283 260 277 282 284 252 263 284 286  
278 275 288 285 279

DATA FROM K061DC5F.WCK

LOCATION : 5f SECTION : k061dc5f.wck  
FORMATION : wck FEATURE : dm trough x beds  
N : 28 VECTOR MEAN : 284.7 STANDARD DEVIATION : 11.4  
279 295 297 274 301 278 276 284 313 275 282 274 263 292 289 280 289 293  
302 288 275 278 284 288 304 276 273 272

DATA FROM K062DC5F.WCK

LOCATION : 5f SECTION : k062dc5f.wck  
FORMATION : wck 3rd sst FEATURE : dm trough x beds  
N : 22 VECTOR MEAN : 274.0 STANDARD DEVIATION : 8.7  
274 261 268 276 271 267 265 270 280 287 271 273 286 278 284 282 279 277  
257 257 280 285

DATA FROM K062DC5F.WCL

LOCATION : 5f SECTION : k062dc5f.wcl  
FORMATION : wcl base FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 240.3 STANDARD DEVIATION : 36.7  
336 255 249 256 266 235 250 254 260 255 272 266 259 267 276 251 271 248  
231 215 205 170 178 204 181 176 184 214 248 261

DATA FROM K062RR5F.WCL

LOCATION : 5f SECTION : k062rr5f.wcl  
FORMATION : wcl top FEATURE : ripples  
N : 25 VECTOR MEAN : 353.0 STANDARD DEVIATION : 23.4  
355 001 358 355 002 356 004 000 001 357 006 003 025 016 002 344 341 347  
354 343 343 341 347 252 330

DATA FROM K063DC6F.VF

LOCATION : 6f SECTION : k063dc6f.vf  
FORMATION : vf 0.4-2.2 FEATURE : dm trough x beds  
N : 15 VECTOR MEAN : 294.1 STANDARD DEVIATION : 23.5  
311 314 298 322 245 263 307 316 266 280 293 328 297 269 298



Figure 125

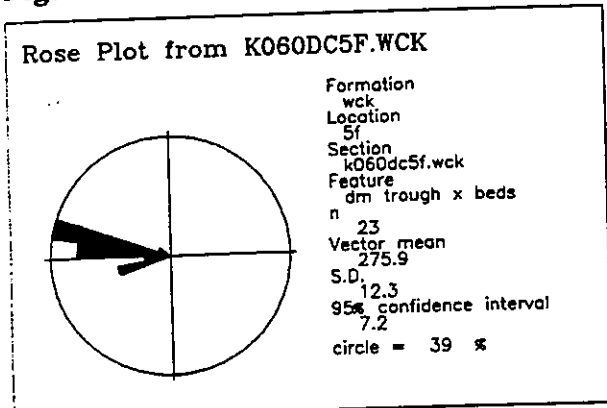


Figure 126

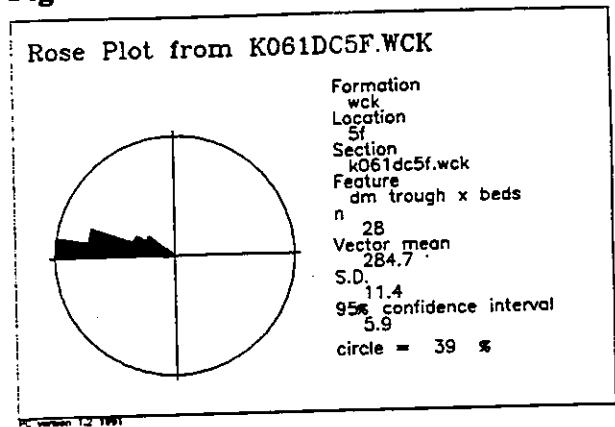


Figure 127

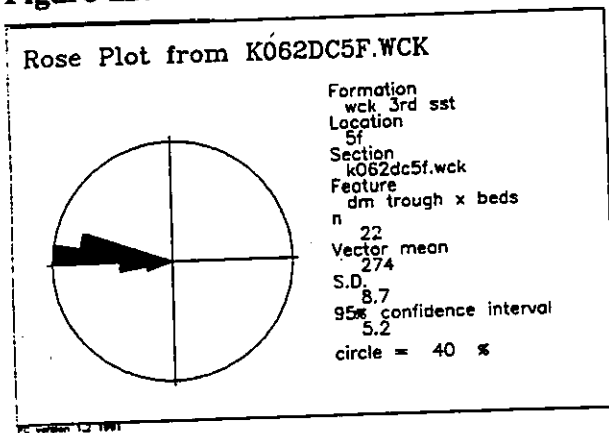


Figure 128

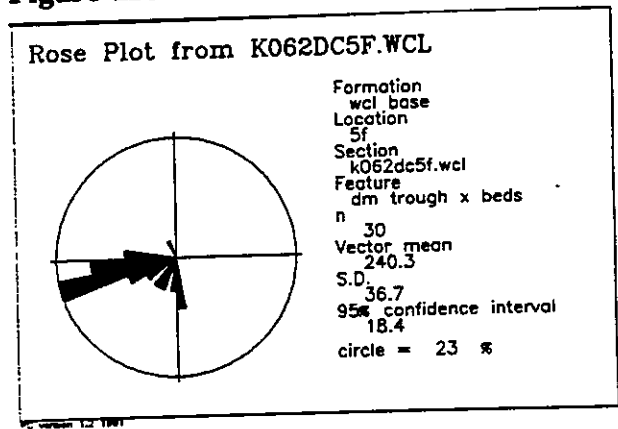


Figure 129

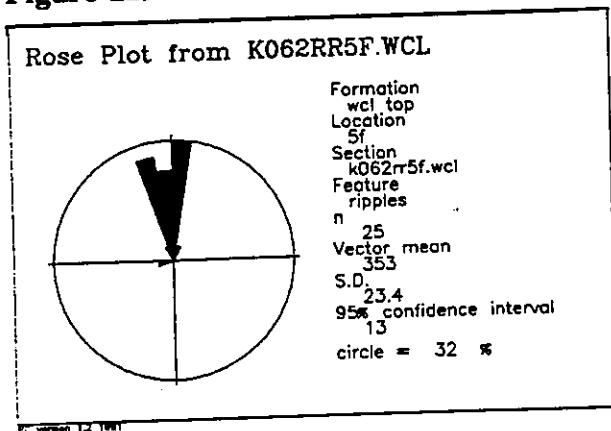
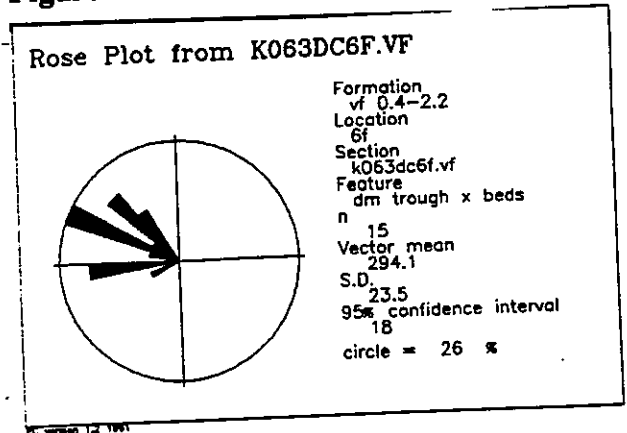


Figure 130



DATA FROM K064DC6F.VF

LOCATION : 6f SECTION : k064dc6f.vf  
FORMATION : vf 2.2-5.2 FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 309.6 STANDARD DEVIATION : 15.6  
295 308 306 316 297 298 295 291 287 298 311 327 300 316 336 317 312 321  
317 332 314 315 322 321 342 314 291 288 275 327

DATA FROM K065DC6F.VF

LOCATION : 6f SECTION : k065dc6f.vf  
FORMATION : vf 5.2-6.7 FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 307.4 STANDARD DEVIATION : 13.1  
311 310 316 321 253 296 307 322 303 312 295 306 307 312 308 310 305 312  
320 315 301 298 319 320 318 297 303 288 314 317

DATA FROM K066DC6F.VF

LOCATION : 6f SECTION : k066dc6f.vf  
FORMATION : vf 12.7-18.7 FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 312.7 STANDARD DEVIATION : 18.5  
310 315 308 336 329 319 317 333 322 300 334 309 318 336 342 311 314 310  
321 342 272 275 293 330 295 314 284 286 297 308

DATA FROM K067DC6F.VF

LOCATION : 6f SECTION : k067dc6f.vf  
FORMATION : vf 26.2-27.7 FEATURE : dm trough x beds  
N : 15 VECTOR MEAN : 295.6 STANDARD DEVIATION : 12.7  
289 292 284 278 283 279 301 296 305 294 291 293 315 318 317

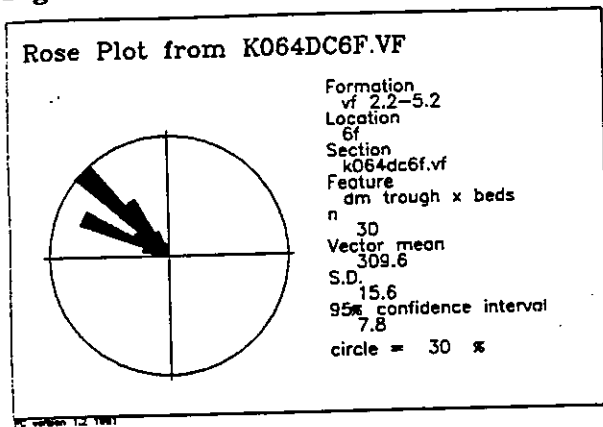
DATA FROM K068DC6F.VF

LOCATION : 6f SECTION : k068dc6f.vf  
FORMATION : vf 41.2-43.2 FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 312.9 STANDARD DEVIATION : 10.3  
305 314 310 316 305 309 322 298 318 307 307 313 316 281 322 317 310 315  
304 314 319 329 299 331 300 328 326 317 320 316

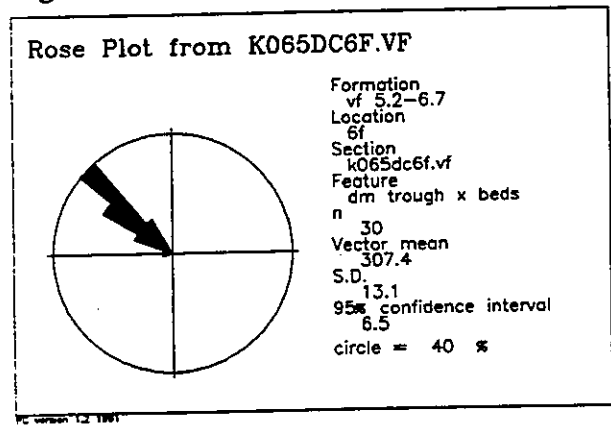
DATA FROM K069DC6F.VF

LOCATION : 6f SECTION : k069dc6f.vf  
FORMATION : vf 47.0-50.2 FEATURE : dm trough x beds  
N : 15 VECTOR MEAN : 331.1 STANDARD DEVIATION : 11.5  
344 336 345 338 329 346 335 312 326 338 334 334 325 319 305

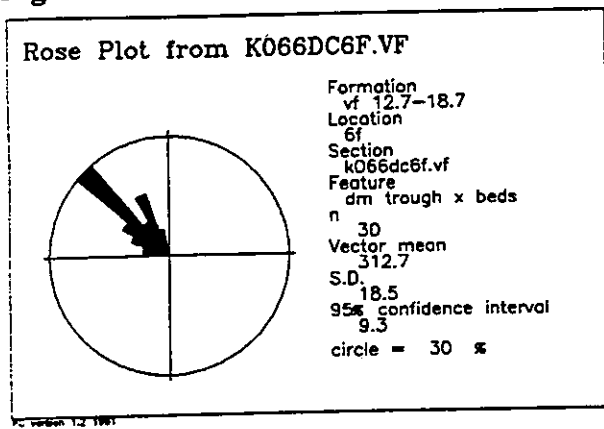
**Figure 131**



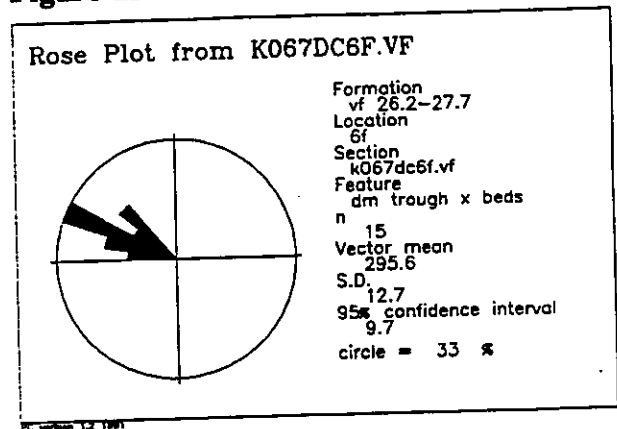
**Figure 132**



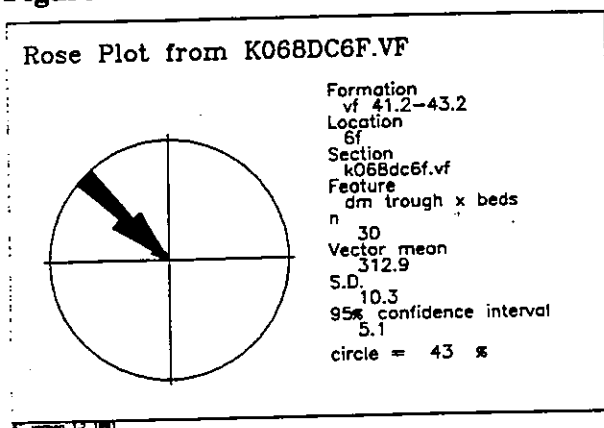
**Figure 133**



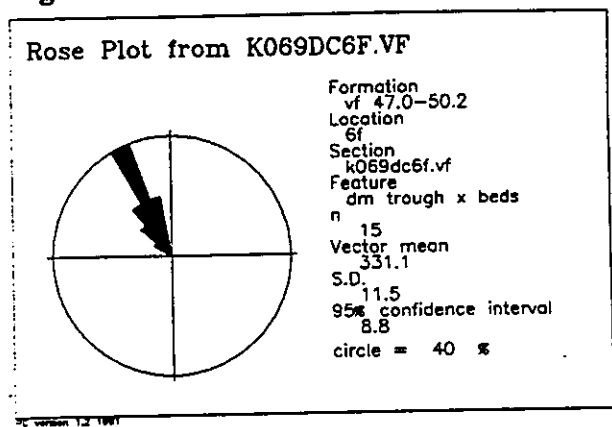
**Figure 134**



**Figure 135**



**Figure 136**



DATA FROM K070DC6F.VF

LOCATION : SECTION : k070dc6f.vf  
FORMATION : vf 62.3-63.7 FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 295.8 STANDARD DEVIATION : 40.6  
305 312 307 260 306 216 195 209 215 255 275 304 302 297 303 279 339 321  
306 313 286 300 307 315 265 348 351 356 319 311

DATA FROM K071MT6F.VF

LOCATION : 6f SECTION : k071mt6f.vf  
FORMATION : vf top FEATURE : m trough x beds  
N : 25 VECTOR MEAN : 9.0 STANDARD DEVIATION : 12.4  
000 356 001 022 353 021 005 010 007 015 359 355 033 031 038 019 016 016  
008 000 354 359 006 357 006

DATA FROM K072RR5G.WCC

LOCATION : 5g SECTION : k072rr5g.wcc  
FORMATION : wcc FEATURE : ripples (top)  
N : 30 VECTOR MEAN : 35.7 STANDARD DEVIATION : 11.4  
025 027 015 051 032 030 051 043 052 029 034 032 038 035 033 043 041 060  
052 044 031 035 050 039 042 025 011 024 028 022

DATA FROM K072RR5G.WCE

LOCATION : 5g canyon vly SECTION : k072rr5g.wce  
FORMATION : wce top FEATURE : ripples  
N : 30 VECTOR MEAN : 338.4 STANDARD DEVIATION : 83.4  
235 239 230 225 212 221 216 229 211 210 235 226 219 015 017 010 026 041  
044 055 017 020 008 018 022 024 027 016 007 026

DATA FROM K072RR5G.WCH

LOCATION : 5g canyon vly SECTION : k072rr5g.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 247.1 STANDARD DEVIATION : 7.6  
250 239 251 229 237 246 241 245 247 255 239 262 243 234 237 250 252 246  
248 245 252 256 255 247 239 250 259 255 256 248

DATA FROM K073DC5G.WC1

LOCATION : 5g canyon vly SECTION : k073dc5g.wc1  
FORMATION : wc1 FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 257.1 STANDARD DEVIATION : 9.8  
255 274 256 246 259 260 265 247 246 249 260 268 262 253 273 265 261 258  
263 266 269 272 256 236 235 255 259 248 253 246

Figure 137

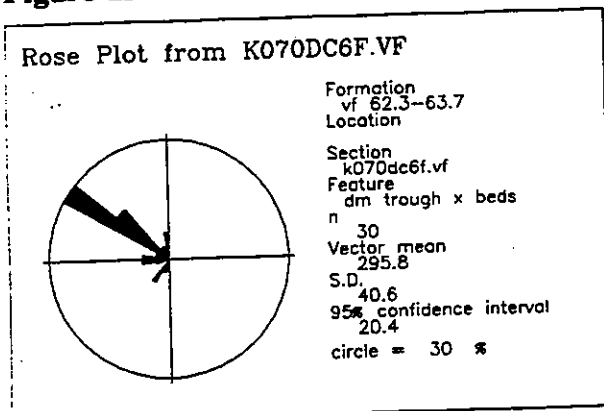


Figure 138

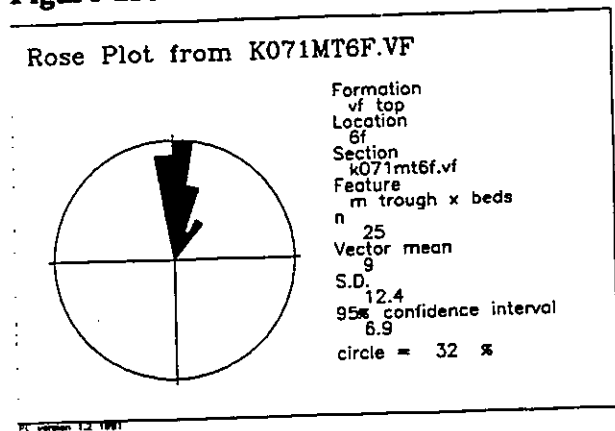


Figure 139

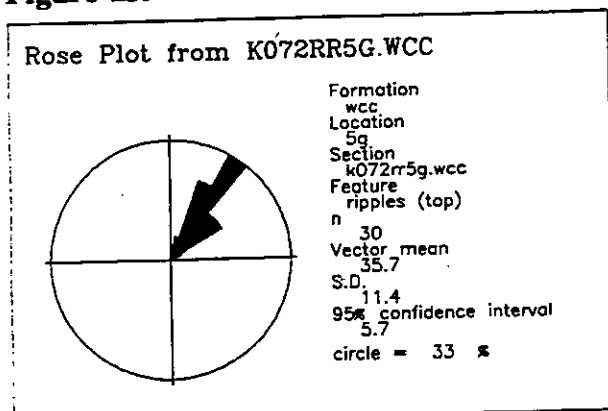


Figure 140

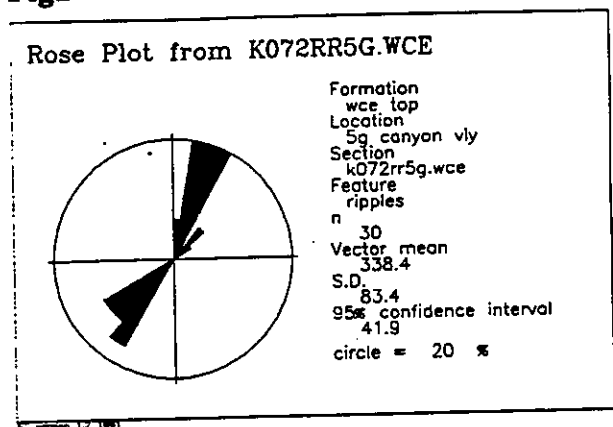


Figure 141

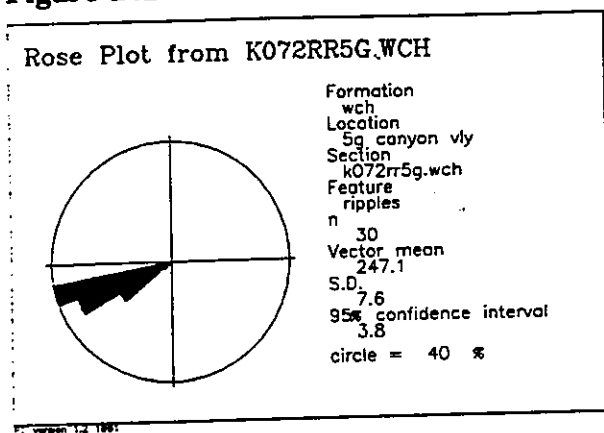
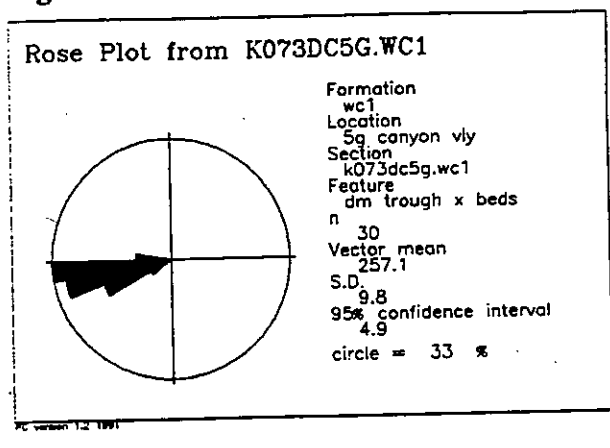


Figure 142



DATA FROM K073RR5G.WBZ

LOCATION : 5g canyon vly SECTION : k073rr5g.wbz  
FORMATION : wbz top FEATURE : ripples  
N : 30 VECTOR MEAN : 225.3 STANDARD DEVIATION : 6.3  
230 242 226 227 235 216 231 229 228 234 221 223 226 223 228 236 223 224  
225 229 227 214 220 227 215 217 224 219 220 222

DATA FROM K073RR5G.WCC

LOCATION : 5g canyon vly SECTION : k073rr5g.wcc  
FORMATION : wcc top FEATURE : ripples  
N : 30 VECTOR MEAN : 354.0 STANDARD DEVIATION : 5.5  
348 344 355 357 001 000 358 344 355 003 357 350 354 356 359 002 002 358  
355 353 354 353 000 352 350 349 346 344 354 347

DATA FROM K073RR5G.WCE

LOCATION : 5g canyon vly SECTION : k073rr5g.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 228.2 STANDARD DEVIATION : 59.3  
285 287 291 320 255 225 002 196 181 179 266 201 192 183 171 176 176 259  
200 002 213 277 203 206 189 219 224 191 330 334

DATA FROM K073RR5G.WCH

LOCATION : 5g canyon vly SECTION : k073rr5g.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 226.2 STANDARD DEVIATION : 12.9  
203 198 205 249 210 241 232 224 254 227 240 231 215 234 226 224 230 229  
201 222 225 236 233 228 221 227 234 237 230 221

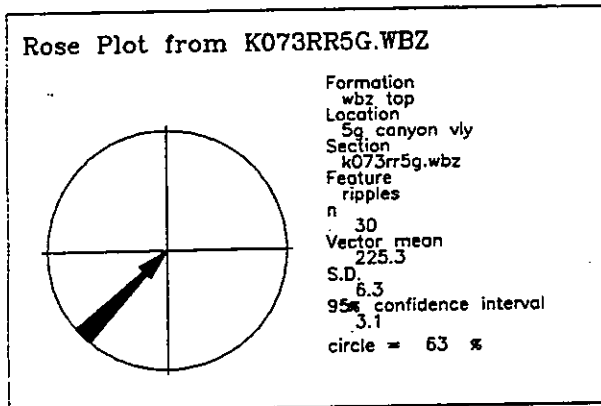
DATA FROM K074RR5G.WCC

LOCATION : 5g trench pit SECTION : k074rr5g.wcc  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 262.1 STANDARD DEVIATION : 127.0  
275 269 256 261 248 277 270 253 225 281 191 078 066 088 079 086 091 112  
076 104 142 131 120 305 322 306 313 280 279 281

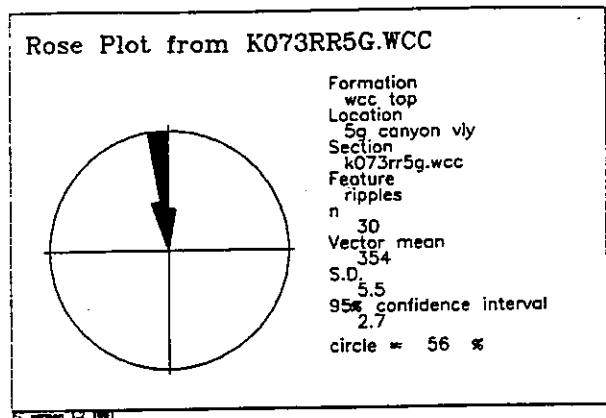
DATA FROM K075RR5G.WCE

LOCATION : 5g trench pit SECTION : k075rr5g.wce  
FORMATION : wce FEATURE : ripples 30  
N : 30 VECTOR MEAN : 244.4 STANDARD DEVIATION : 51.2  
301 296 300 305 335 348 340 225 231 156 005 190 218 283 276 245 210 229  
218 213 221 233 225 199 240 224 213 217 222 231

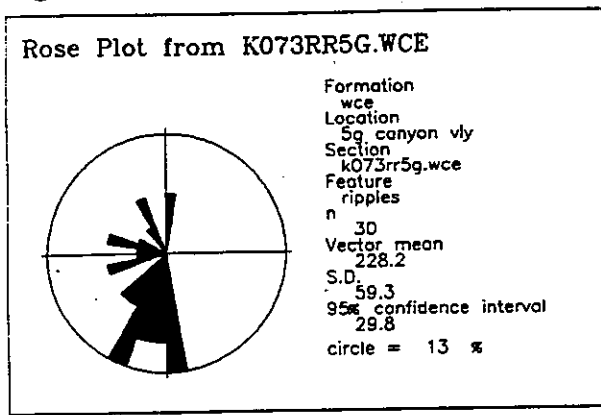
**Figure 143**



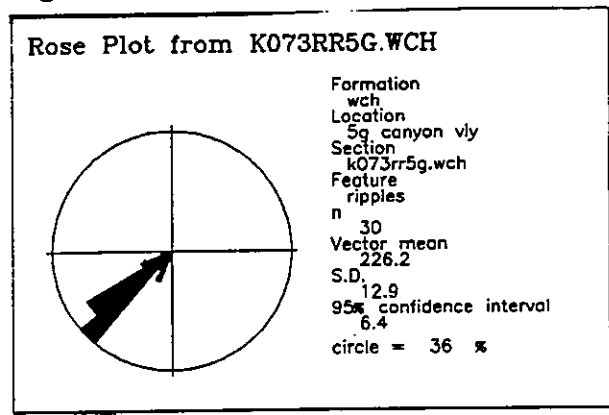
**Figure 144**



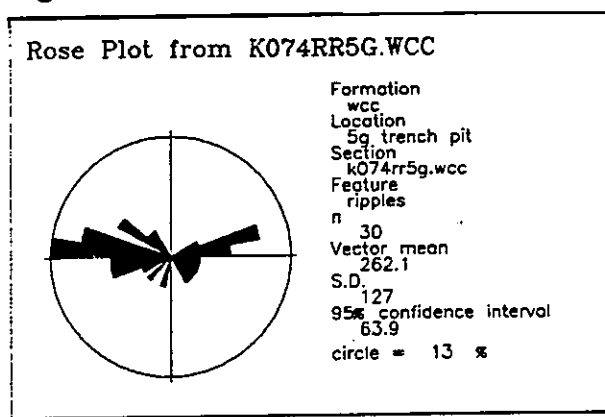
**Figure 145**



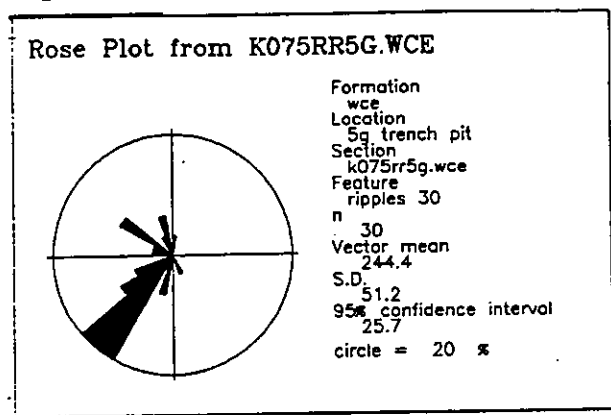
**Figure 146**



**Figure 147**



**Figure 148**



DATA FROM K076DC5G.WCG

LOCATION : 5g trench pit SECTION : k076dc5g.wcg  
FORMATION : wcg FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 195.0 STANDARD DEVIATION : 7.6  
191 193 205 196 192 197 176 189 211 208 197 199 206 194 201 203 192 195  
190 191 200 196 181 189 188 193 194 199 184 202

DATA FROM K076RR5G.WCH

LOCATION : 5g trench pit SECTION : k076rr5g.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 198.2 STANDARD DEVIATION : 5.0  
195 203 192 194 196 195 201 197 200 203 205 192 188 196 201 209 198 195  
199 201 189 194 201 204 208 199 196 196 203 198

DATA FROM K077RR6E.WCJ

LOCATION : 6e feather bay SECTION : k077rr6e.wcj  
FORMATION : ? wcj top FEATURE : ripples  
N : 30 VECTOR MEAN : 81.9 STANDARD DEVIATION : 7.5  
086 092 081 084 092 085 080 085 090 087 084 098 087 094 074 078 081 086  
079 085 076 069 075 074 077 075 070 083 065 087

DATA FROM K078DC6E.VF

LOCATION : 6e feather bay SECTION : k078dc6e.vf  
FORMATION : vf base FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 288.1 STANDARD DEVIATION : 10.3  
309 294 299 303 290 281 284 285 274 279 283 281 294 280 269 291 278 279  
292 296 308 284 292 300 289 273 284 285 283 307

DATA FROM K079BS6E.VF

LOCATION : 6e feather bay SECTION : k079bs6e.vf  
FORMATION : vf nr trees FEATURE : bs ? braid bars  
N : 40 VECTOR MEAN : 242.1 STANDARD DEVIATION : 86.7  
260 211 227 235 276 293 256 234 235 145 157 171 175 197 220 333 039 141  
307 240 161 267 296 010 337 359 204 241 253 229 236 229 285 167 004 015  
253 182 326 209

DATA FROM K079PL6E.VF

LOCATION : 6e feather bay SECTION : k079pl6e.vf  
FORMATION : vf nr trees FEATURE : parting lineation  
N : 60 VECTOR MEAN : 332.9 STANDARD DEVIATION : 90.4  
260 080 262 082 250 070 245 065 236 056 247 067 252 072 241 061 232 052  
243 063 245 065 236 056 236 056 243 063 234 054 250 070 236 056 241 061  
252 072 237 057 240 060 235 055 261 081 238 058 246 066 227 047 230 050  
243 063 241 061 250 070



Figure 149

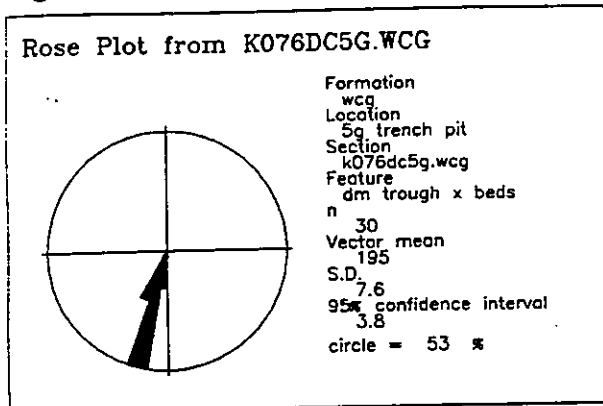


Figure 150

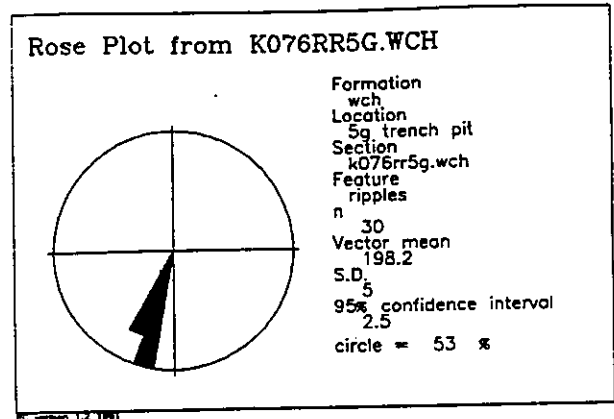


Figure 151

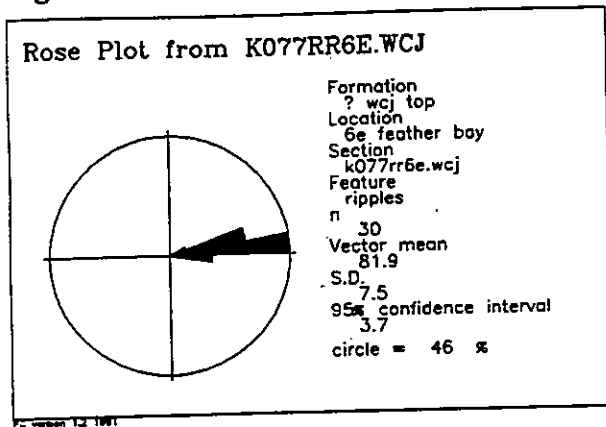


Figure 152

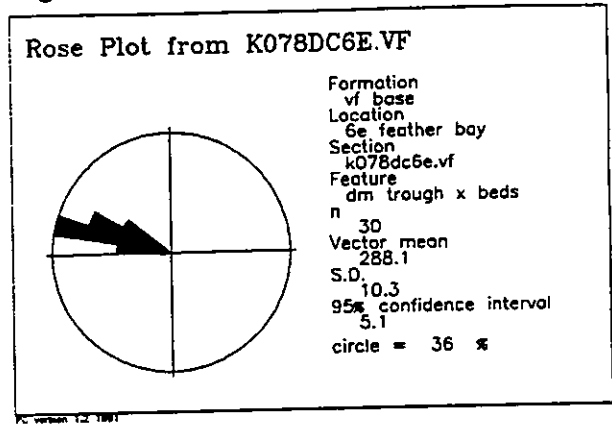


Figure 153

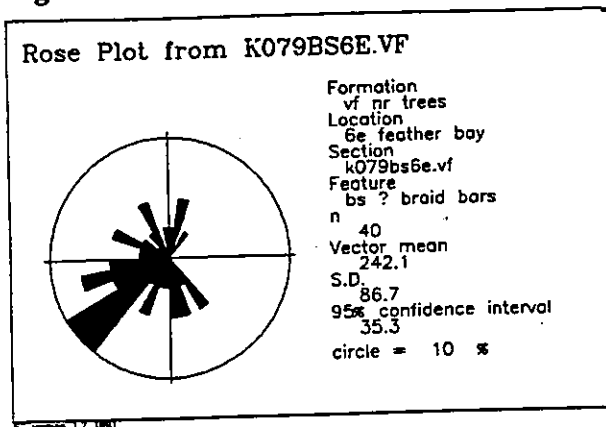
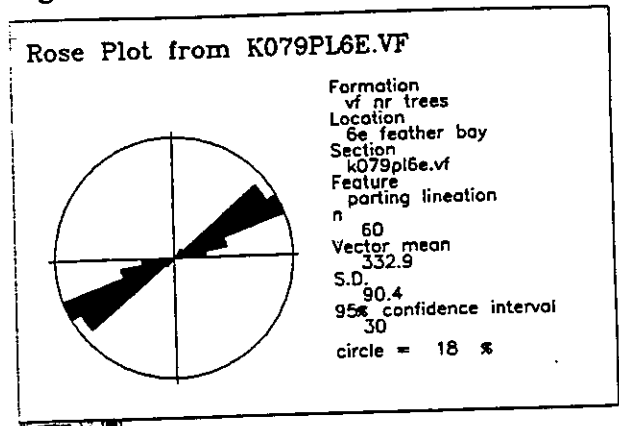


Figure 154



DATA FROM K079RR6E.VF

LOCATION : 6e feather bay SECTION : k079rr6e.vf  
FORMATION : vf nr trees FEATURE : ripples  
N : 31 VECTOR MEAN : 230.4 STANDARD DEVIATION : 15.2  
227 231 221 232 229 219 215 231 236 219 222 217 215 211 205 237 230 228  
218 227 228 235 262 267 254 261 230 231 244 212 253

DATA FROM K080DC6E.VF

LOCATION : 6e feather bay SECTION : k080dc6e  
FORMATION : vf above trees FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 23.5 STANDARD DEVIATION : 5.3  
025 015 021 027 034 031 026 029 028 021 025 016 024 019 026 027 025 031  
023 029 017 012 019 016 020 024 030 027 021 019

DATA FROM K081MC6E.VF

LOCATION : 6e feather bay SECTION : k081mc6e.vf  
FORMATION : vf above lowest psol FEATURE : m trough x beds  
N : 30 VECTOR MEAN : 52.4 STANDARD DEVIATION : 9.0  
035 037 057 067 066 055 056 061 049 048 057 043 049 051 056 062 054 051  
056 053 054 057 053 046 077 038 055 044 042 045

DATA FROM K082RR6E.VF

LOCATION : 6e feather bay SECTION : k082rr6e.vf  
FORMATION : vf below main psols FEATURE : ripples  
N : 30 VECTOR MEAN : 24.7 STANDARD DEVIATION : 8.3  
022 015 024 018 016 020 005 014 017 017 025 031 036 034 021 025 023 046  
030 024 027 025 036 037 016 031 028 030 029 021

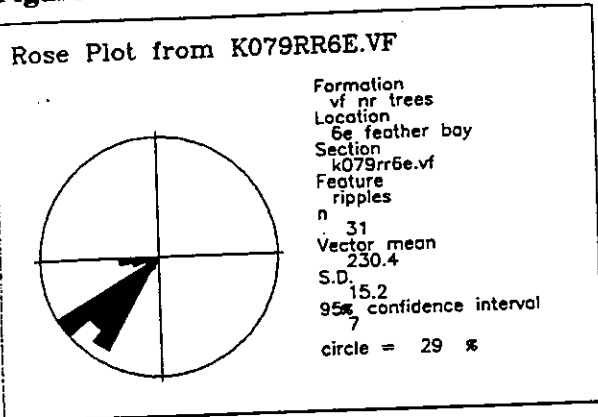
DATA FROM K083DC7E.VF

LOCATION : 7e feather bay SECTION : k083dc7e.vf  
FORMATION : vf above psols FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 299.2 STANDARD DEVIATION : 7.2  
291 288 294 295 289 286 310 295 287 296 301 295 297 300 302 294 301 298  
299 300 313 304 312 305 303 310 304 308 305 297

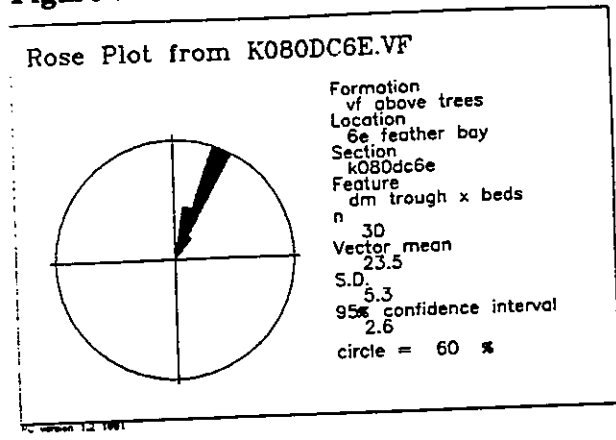
DATA FROM K084RR7E.VF

LOCATION : 7e feather bay SECTION : k084rr7e.vf  
FORMATION : vf below main psols FEATURE : ripples  
N : 30 VECTOR MEAN : 56.6 STANDARD DEVIATION : 5.6  
061 056 057 054 058 063 060 056 065 061 054 066 055 056 060 068 054 061  
047 054 065 054 056 050 046 053 051 061 047 052

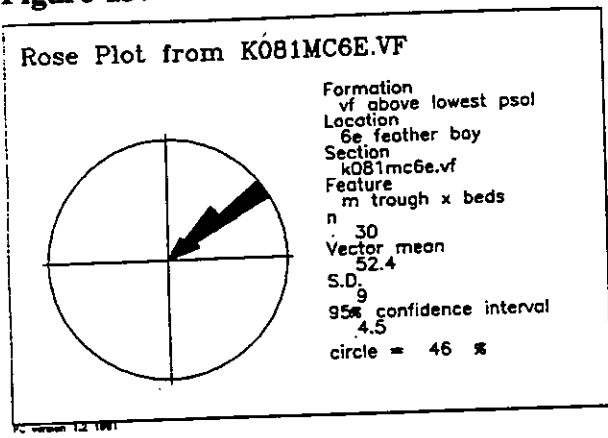
**Figure 155**



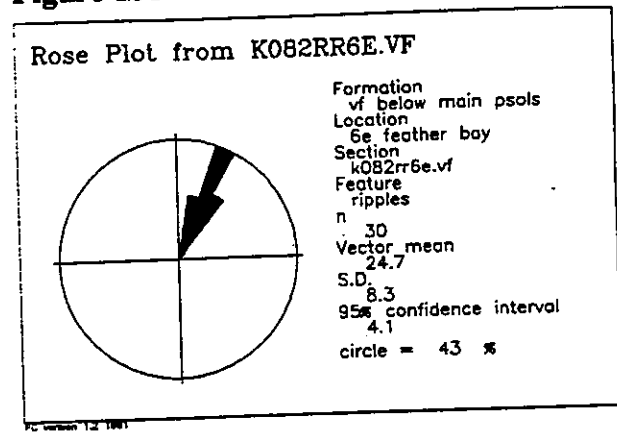
**Figure 156**



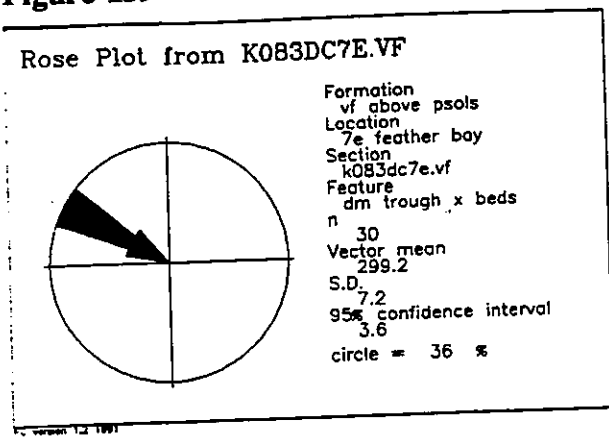
**Figure 157**



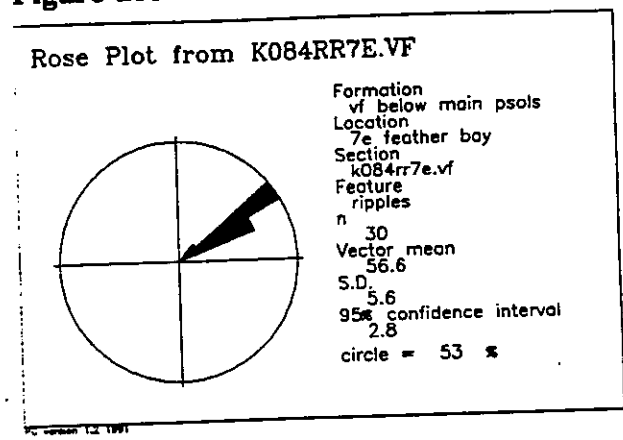
**Figure 158**



**Figure 159**



**Figure 160**



DATA FROM K085RR4G.WBZ

LOCATION : 4g west o vly floor

SECTION : k085rr4g.wbz

FORMATION : wbz

FEATURE : ripples

N : 30 VECTOR MEAN : 23.7 STANDARD DEVIATION : 93.6

179 174 188 185 181 186 005 011 031 036 016 024 007 039 027 046 043 046  
049 027 032 041 041 023 333 345 353 312 315 000

DATA FROM K086RR4G.WBZ

LOCATION : 4g west o vly floor

SECTION : k085rr4g.wbz

FORMATION : wbz

FEATURE : ripples

N : 30 VECTOR MEAN : 185.4 STANDARD DEVIATION : 9.0

194 187 193 196 189 187 181 189 188 180 181 185 167 172 178 180 176 179  
165 173 181 197 190 197 191 198 199 195 190 184

DATA FROM K086RR4G.WC1

LOCATION : 4g west o vly floor

SECTION : k086rr4g.wc1

FORMATION : wc1 (probable)

FEATURE : ripples

N : 30 VECTOR MEAN : 210.7 STANDARD DEVIATION : 20.7

232 237 251 200 225 186 198 196 189 216 202 204 221 214 204 203 205 199  
175 187 197 203 200 196 202 202 250 245 248 244

DATA FROM K087RR4G.WC1

LOCATION : 4g west o vly floor

SECTION : k087rr4g.wc1

FORMATION : wc1 (probable)

FEATURE : ripples

N : 30 VECTOR MEAN : 207.2 STANDARD DEVIATION : 8.8

220 215 207 218 222 215 211 215 190 193 195 213 226 208 214 203 209 211  
206 197 210 205 199 198 200 204 205 212 195 203

DATA FROM K088RR4G.WCC

LOCATION : 4g west o vly floor

SECTION : k088rr4g.wcc

FORMATION : wcc

FEATURE : ripples

N : 30 VECTOR MEAN : 294.9 STANDARD DEVIATION : 7.9

295 284 301 303 295 297 299 301 298 293 287 294 296 298 290 296 298 307  
299 295 276 272 289 288 293 305 302 291 298 309

DATA FROM K089RR4G.WC1

LOCATION : 4g

SECTION : k089rr4g.wc1

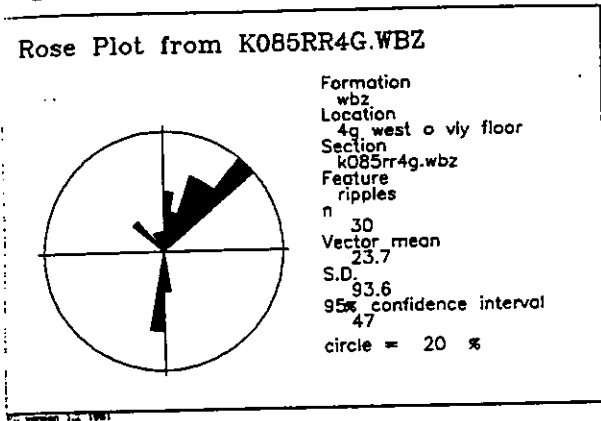
FORMATION : wc1

FEATURE : ripples

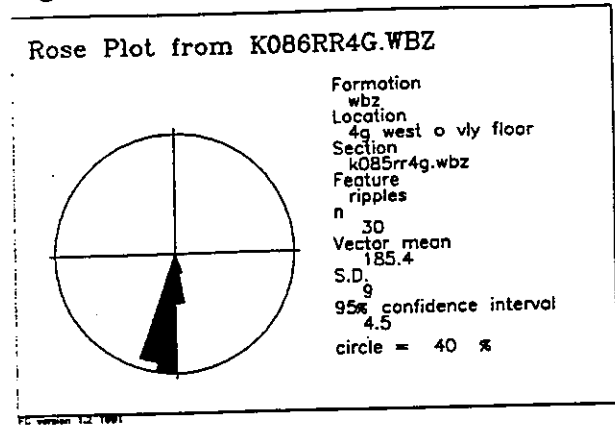
N : 30 VECTOR MEAN : 238.9 STANDARD DEVIATION : 25.1

235 228 241 244 255 247 254 243 240 267 252 244 250 235 253 252 239 243  
244 242 235 242 234 231 256 219 245 241 236 246

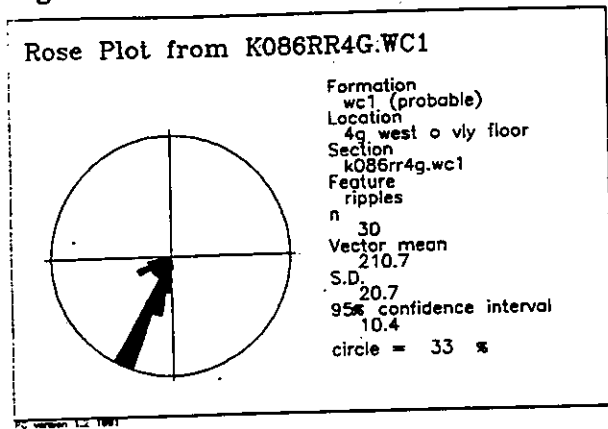
**Figure 161**



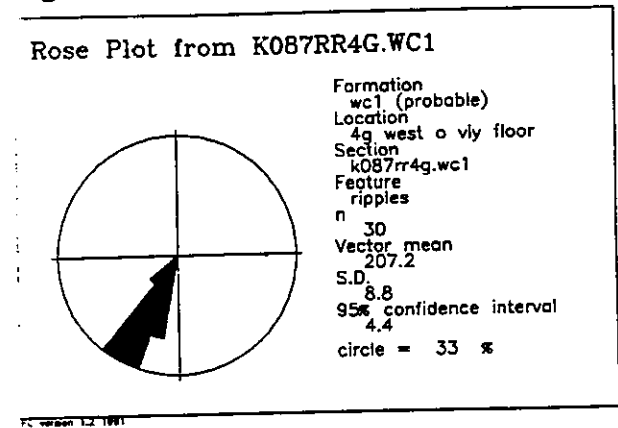
**Figure 162**



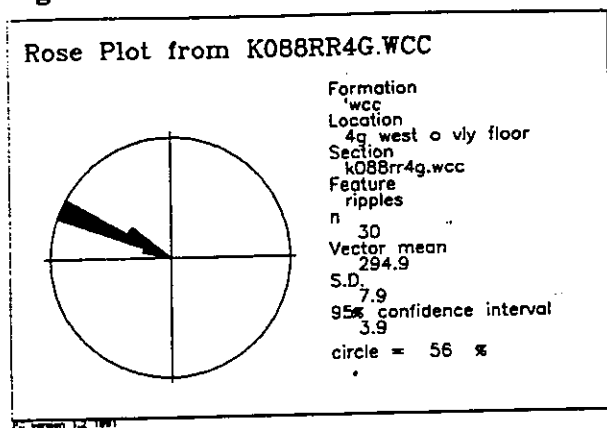
**Figure 163**



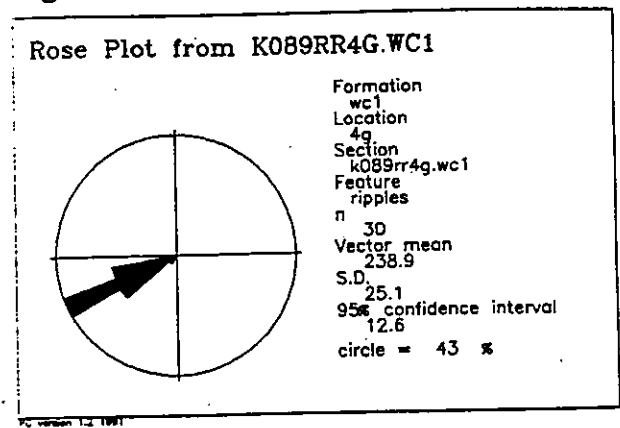
**Figure 164**



**Figure 165**



**Figure 166**



DATA FROM K090BS4G.WCC

LOCATION : 4g SECTION : k090bs4g.wcc  
FORMATION : wcc FEATURE : bar surfaces  
N : 6 VECTOR MEAN : 328.7 STANDARD DEVIATION : 74.2  
225 355 350 347 187 357

DATA FROM K090RR4G.WCC

LOCATION : 4g SECTION : k090rr4g.wcc  
FORMATION : wcc FEATURE : ripples  
N : 35 VECTOR MEAN : 287.3 STANDARD DEVIATION : 24.9  
298 285 299 302 279 301 295 283 251 288 302 318 331 308 305 314 292 269  
260 235 280 274 335 334 301 308 255 310 255 270 258 255 281 264 263

DATA FROM K091BS4G.WCC

LOCATION : 4g SECTION : k091bs4g.wcc  
FORMATION : wcc FEATURE : bar surface  
N : 1 VECTOR MEAN : 223.9 STANDARD DEVIATION : 0.0  
224

DATA FROM K091RR4G.WCC

LOCATION : 4g SECTION : k091rr4g.wcc  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 316.7 STANDARD DEVIATION : 10.5  
322 319 317 313 314 321 326 320 318 314 309 305 304 300 314 301 295 306  
310 305 310 321 334 329 324 333 328 332 325 332

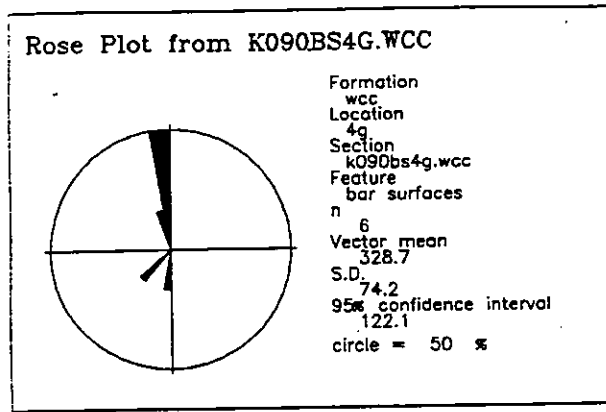
DATA FROM K092ARR .WCC

LOCATION : 4g (base of bar 092) SECTION : k092arr.wcc  
FORMATION : wcc FEATURE : ripples  
N : 10 VECTOR MEAN : 318.1 STANDARD DEVIATION : 12.8  
350 324 320 320 324 316 315 304 304 306

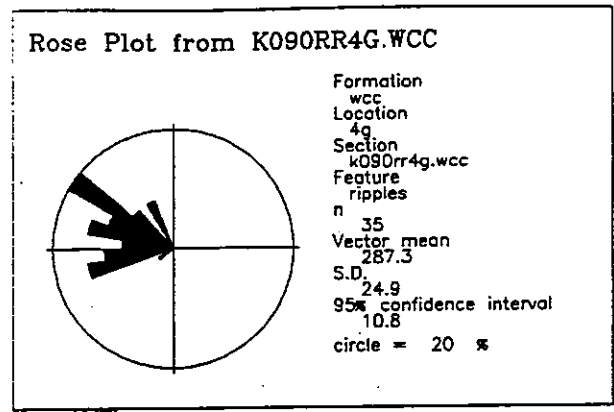
DATA FROM K092BRR .WCC

LOCATION : 4g (top of bar 092) SECTION : k092brr.wcc  
FORMATION : wcc FEATURE : ripples  
N : 20 VECTOR MEAN : 339.4 STANDARD DEVIATION : 7.7  
335 341 333 329 326 332 334 337 350 342 353 355 348 345 343 341 332 337  
343 334

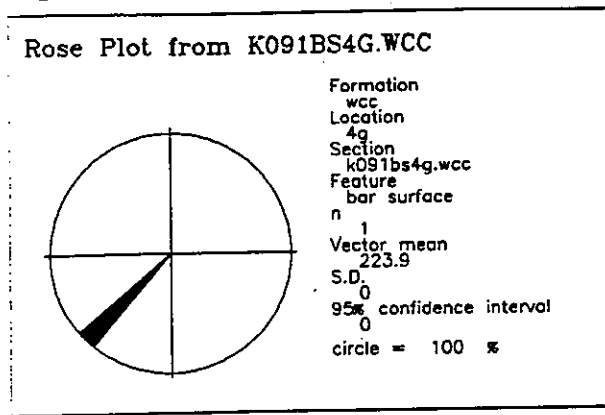
**Figure 167**



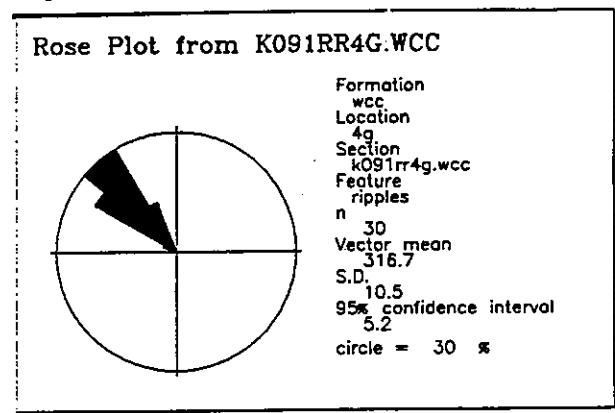
**Figure 168**



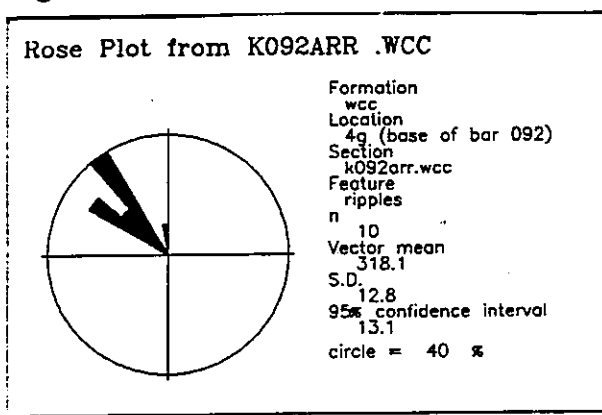
**Figure 169**



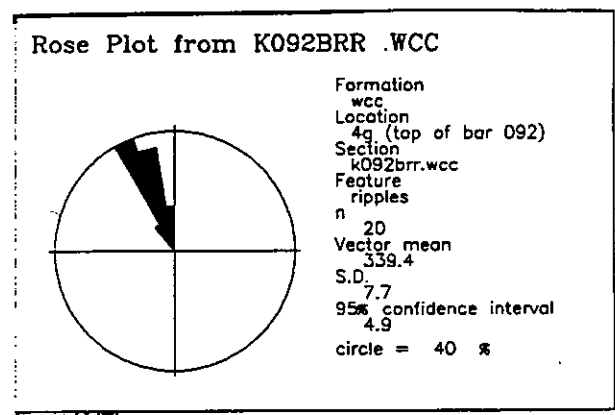
**Figure 170**



**Figure 171**



**Figure 172**



DATA FROM K092BS4G.WCC

LOCATION : 4g SECTION : k092bs4g.wcc  
FORMATION : wcc FEATURE : bar surface  
N : 1 VECTOR MEAN : 232.0 STANDARD DEVIATION : 0.0  
232

DATA FROM K092RR4G.WCC

LOCATION : 4g SECTION : k092rr4g.wcc  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 332.4 STANDARD DEVIATION : 13.9  
335 341 329 326 333 332 334 337 350 342 353 355 348 345 343 341 332 337  
343 334 350 324 320 320 324 316 315 304 304 306

DATA FROM K093ARR .WCC

LOCATION : 4g (base of Bar 093) SECTION : k093arr.wcc  
FORMATION : wcc FEATURE : ripples  
N : 15 VECTOR MEAN : 40.2 STANDARD DEVIATION : 8.0  
035 037 044 050 060 048 044 040 034 031 035 033 046 037 030

DATA FROM K093BRR .WCC

LOCATION : 4g (top of bar 093) SECTION : k093brr.wcc  
FORMATION : wcc FEATURE : ripples  
N : 15 VECTOR MEAN : 45.0 STANDARD DEVIATION : 12.6  
027 025 050 023 031 060 065 050 042 043 045 050 056 053 055

DATA FROM K093BS4G.WCC

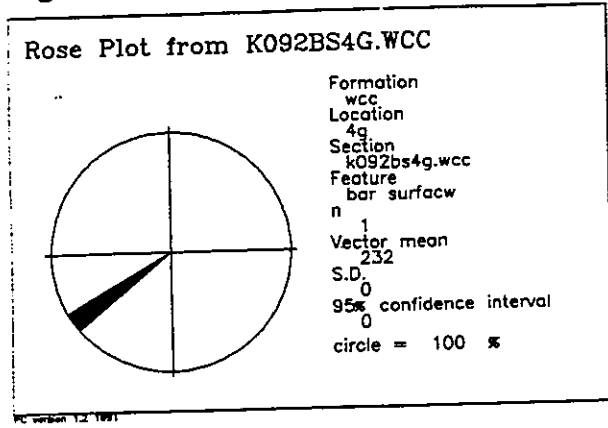
LOCATION : 4g SECTION : k093bs4g.wcc  
FORMATION : wcc FEATURE : bar surface  
N : 1 VECTOR MEAN : 324.9 STANDARD DEVIATION : 0.1  
325

DATA FROM K093RR4G.WCC

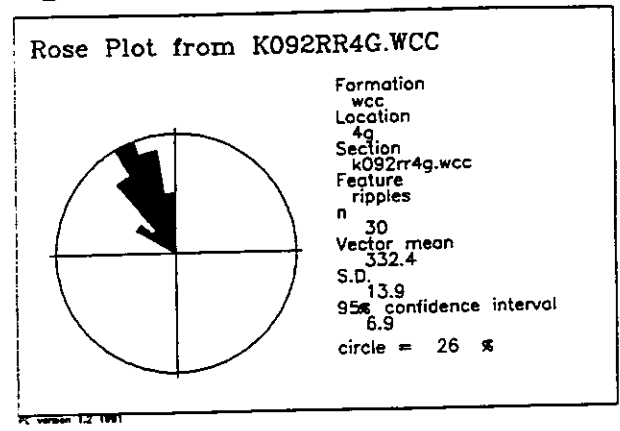
LOCATION : 4g SECTION : k093rr4g.wcc  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 42.2 STANDARD DEVIATION : 10.9  
027 025 050 055 023 031 060 065 050 042 043 045 050 056 053 035 037 044  
050 060 048 044 040 034 031 035 033 040 032 030



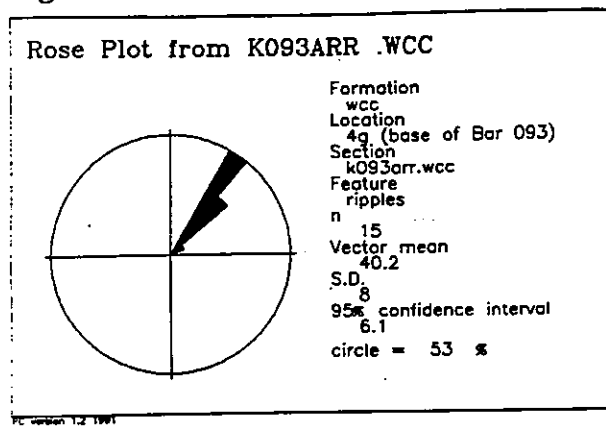
**Figure 173**



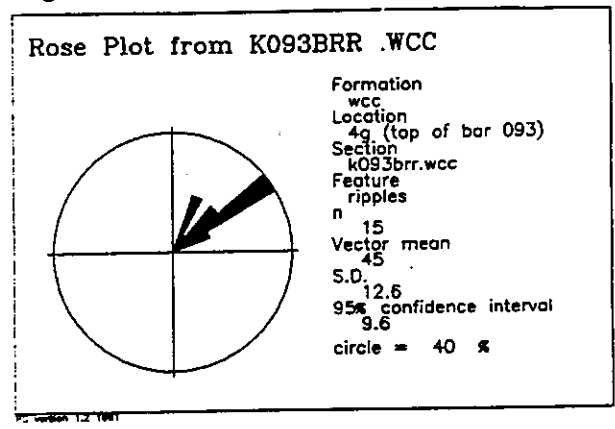
**Figure 174**



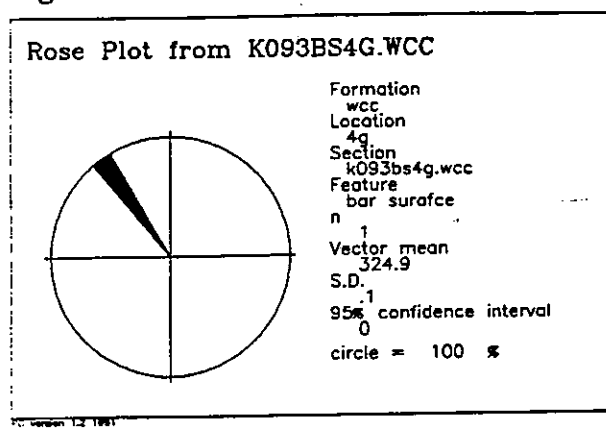
**Figure 175**



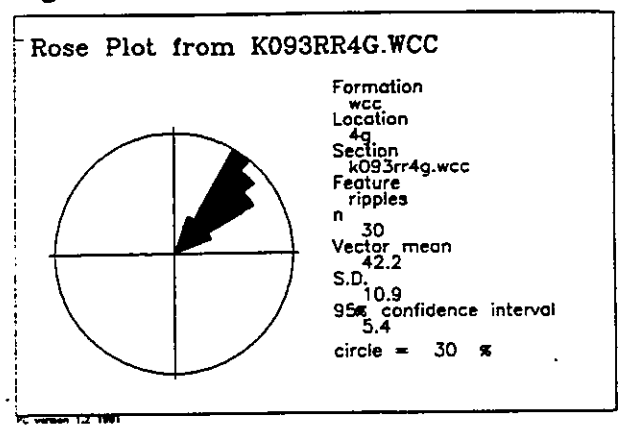
**Figure 176**



**Figure 177**



**Figure 178**



DATA FROM K094BSXX.WCC

LOCATION : Allan Hills SECTION : k094bsxx.wcc  
FORMATION : wcc FEATURE : bar surfaces  
N : 60 VECTOR MEAN : 284.5 STANDARD DEVIATION : 89.5  
325 320 110 332 155 325 314 324 123 345 118 146 316 065 324 017 045 240  
219 262 250 264 332 354 345 337 335 100 333 215 200 221 355 326 182 350  
175 215 353 346 001 180 358 002 230 222 314 220 072 285 200 170 197 227  
248 245 199 181 185 330

DATA FROM K094RRXX.WCC

LOCATION : allan hills SECTION : k094rrxx.wcc  
FORMATION : wcc FEATURE : ripples  
N : 60 VECTOR MEAN : 334.4 STANDARD DEVIATION : 80.5  
037 046 041 055 048 038 055 031 062 046 020 261 027 145 240 103 139 325  
319 346 357 356 045 078 093 073 030 015 250 281 317 315 074 053 279 275  
253 307 270 265 110 271 255 262 312 316 217 143 165 191 286 256 275 311  
320 309 305 327 270 259

DATA FROM K095RR5G.WCE

LOCATION : 5g WCE saddle SECTION : k095rr5g.wce  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 174.3 STANDARD DEVIATION : 135.3  
167 145 147 152 206 258 184 186 181 178 155 162 154 135 131 140 159 166  
172 176 184 179 198 194 181 199 164 263 191 172

DATA FROM K096RR5G.WCE

LOCATION : 5g WCE saddle SECTION : k096rr5g.wce  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 115.3 STANDARD DEVIATION : 167.7  
199 194 193 201 228 224 197 184 205 147 126 116 110 099 113 085 317 078  
095 016 013 031 353 056 060 058 063 045 184 110

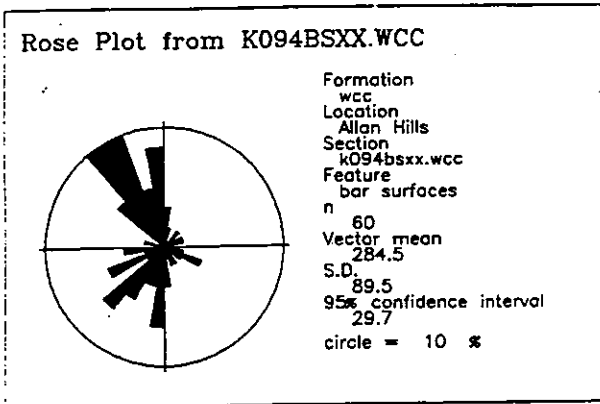
DATA FROM K097RR5G.WCE

LOCATION : 5g SECTION : k097rr5g.wce  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 225.6 STANDARD DEVIATION : 102.7  
204 201 175 228 194 187 272 275 267 314 010 019 006 001 016 024 039 044  
051 340 358 002 175 181 177 174 158 176 183 179

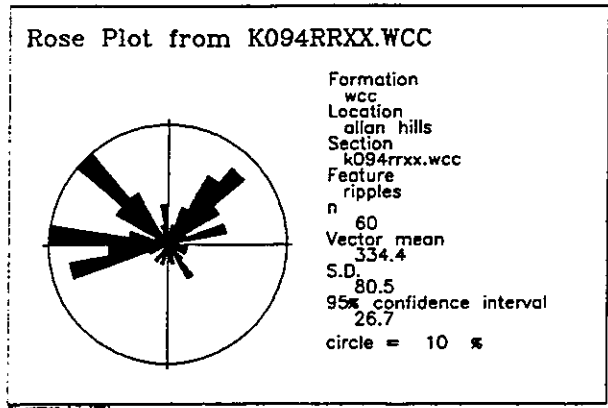
DATA FROM K098RR5G.WCE

LOCATION : 5g wce saddle SECTION : k097rr5g.wce  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 94.2 STANDARD DEVIATION : 161.7  
135 140 110 105 129 052 057 064 206 171 175 188 159 156 317 277 115 110  
354 306 177 192 034 004 355 013 018 043 304 309

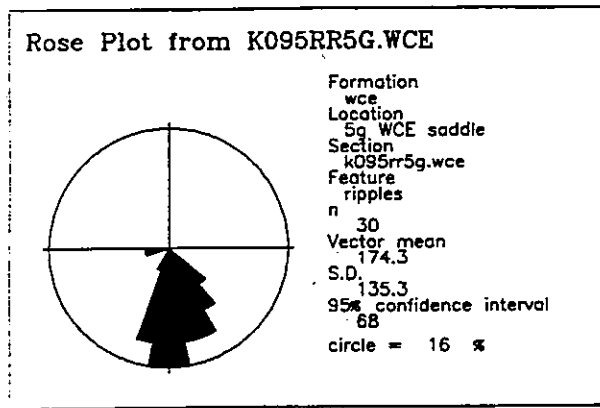
**Figure 179**



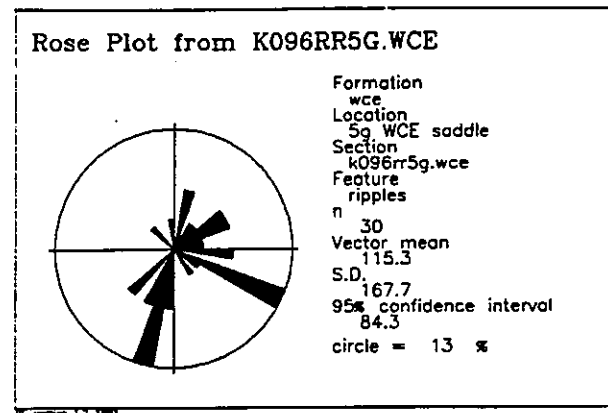
**Figure 180**



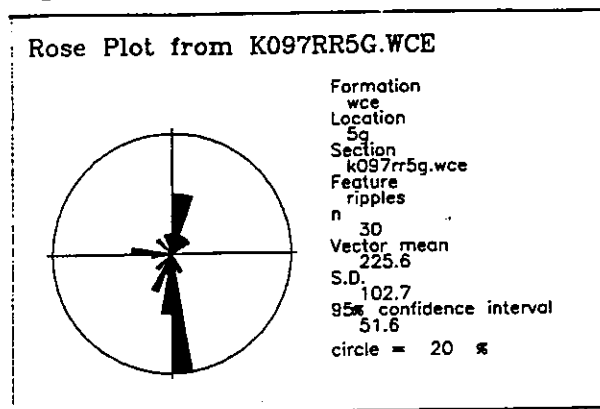
**Figure 181**



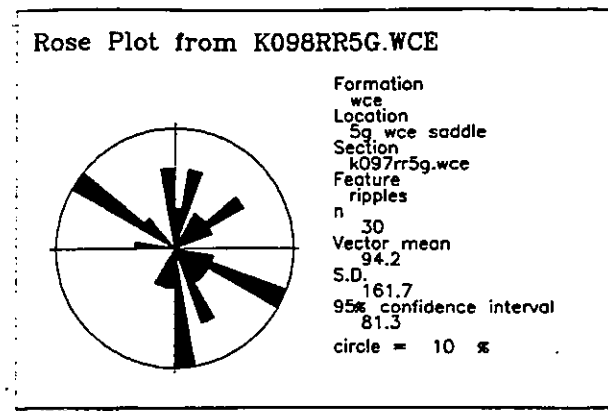
**Figure 182**



**Figure 183**



**Figure 184**



DATA FROM K099RR5G.WCE

LOCATION : 5g wce saddle SECTION : k099rr5g.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 352.1 STANDARD DEVIATION : 56.0  
349 348 358 341 359 356 343 349 352 355 003 350 344 100 096 107 110 305  
000 111 320 335 344 349 321 316 290 298 295 111

DATA FROM K100CM5G.WCE

LOCATION : 5g wce saddle SECTION : k100cm5g.wce  
FORMATION : wce FEATURE : channel margin  
N : 3 VECTOR MEAN : 322.9 STANDARD DEVIATION : 6.1  
316 322 331

DATA FROM K100DC5G.WCE

LOCATION : 5g wce saddle SECTION : k100dc5g.wce  
FORMATION : wce FEATURE : dm trough x beds  
N : 8 VECTOR MEAN : 329.4 STANDARD DEVIATION : 5.9  
333 324 326 329 332 341 331 320

DATA FROM K100RR5G.WCE

LOCATION : 5g wce saddle SECTION : k100rr5g.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 327.8 STANDARD DEVIATION : 9.0  
328 333 334 326 309 325 311 322 324 328 310 322 330 333 328 325 336 327  
336 324 339 342 326 334 337 333 341 339 310 322

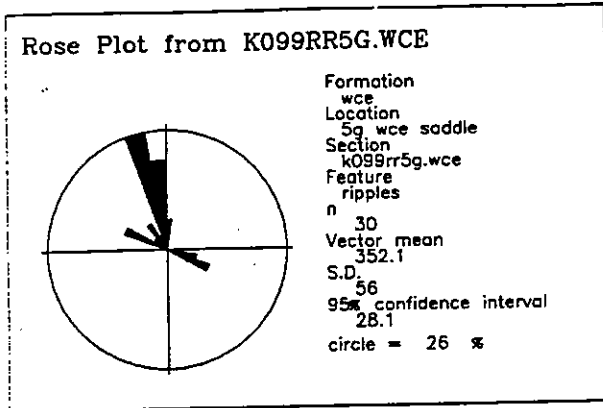
DATA FROM K101RR5G.WCE

LOCATION : 5g wce saddle SECTION : k101rr5g.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 105.5 STANDARD DEVIATION : 145.6  
100 091 105 081 117 119 250 242 226 237 354 001 019 010 006 013 141 146  
157 155 082 074 105 119 270 277 120 169 000 147

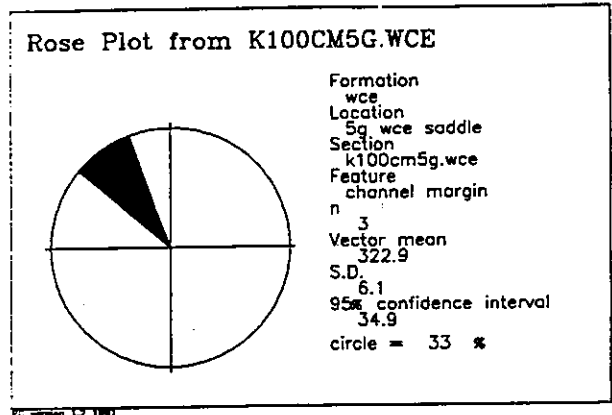
DATA FROM K102DC5G.WCI

LOCATION : 5g east of saddle SECTION : k102dc5g.wci  
FORMATION : wci FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 272.0 STANDARD DEVIATION : 11.7  
275 274 263 258 249 269 278 252 301 273 281 277 264 253 262 293 274 272  
275 292 280 275 262 265 274 281 282 277 263 267

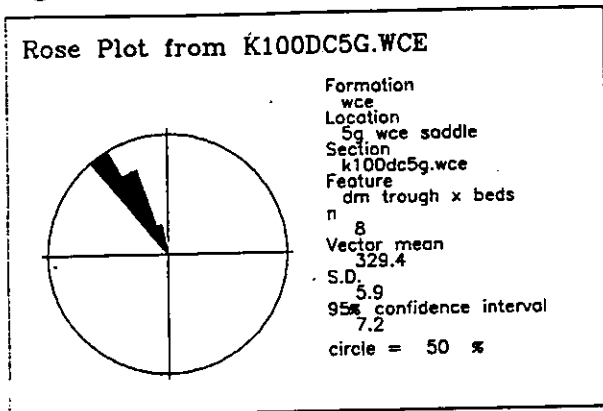
**Figure 185**



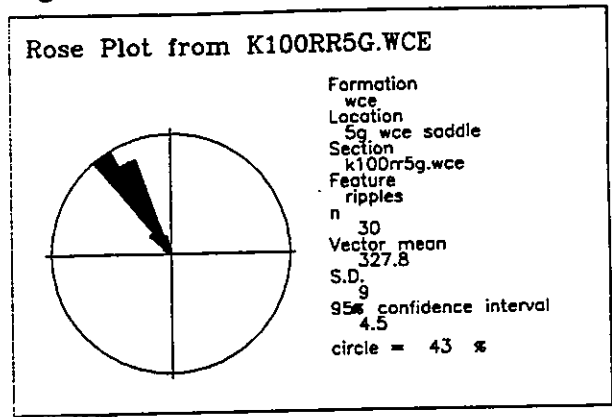
**Figure 186**



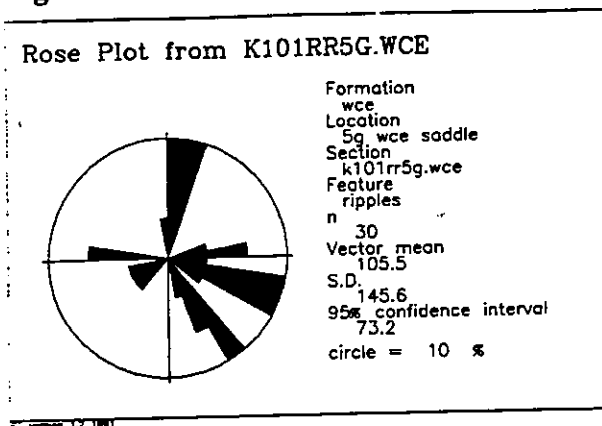
**Figure 187**



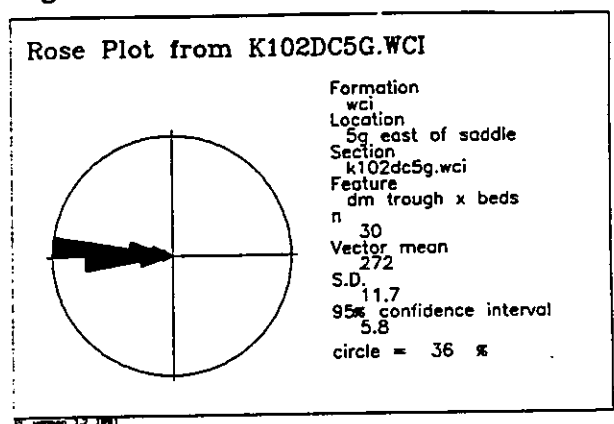
**Figure 188**



**Figure 189**



**Figure 190**



DATA FROM K102RR5G.WCH

LOCATION : 5g east of saddle SECTION : k102rr5g.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 202.0 STANDARD DEVIATION : 9.2  
185 190 199 195 196 207 191 197 202 197 211 200 193 201 205 207 203 200  
210 205 202 198 209 201 199 201 206 198 235 221

DATA FROM K102RR5G.WCI

LOCATION : 5g east of saddle SECTION : k102rr5g.wci  
FORMATION : wci FEATURE : ripples  
N : 30 VECTOR MEAN : 270.2 STANDARD DEVIATION : 8.4  
270 267 274 264 252 279 275 261 273 269 273 261 273 259 276 270 272 280  
274 266 263 266 269 276 273 297 276 265 278 256

DATA FROM K103BS5G.WCE

LOCATION : 5g hidden Vly SECTION : k103bs5g.wce  
FORMATION : wce FEATURE : bar surface  
N : 1 VECTOR MEAN : 314.9 STANDARD DEVIATION : 0.1  
315

DATA FROM K103RR5G.WCE

LOCATION : 5g hidden valley SECTION : k103rr5g.wce  
FORMATION : wce FEATURE : ripples on bar  
N : 30 VECTOR MEAN : 223.4 STANDARD DEVIATION : 10.7  
248 244 239 235 214 220 229 236 203 227 207 213 219 222 218 217 238 229  
232 216 218 221 215 220 214 210 217 230 225 227

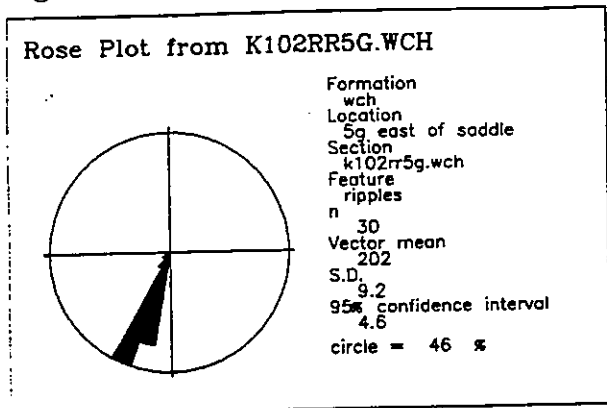
DATA FROM K104RR5G.WCI

LOCATION : 5g hidden valley SECTION : k104rr5g.wci  
FORMATION : wci 2nd split FEATURE : ripples  
N : 30 VECTOR MEAN : 292.7 STANDARD DEVIATION : 6.9  
281 283 278 289 277 298 288 286 302 293 301 294 289 286 296 300 296 292  
295 294 290 295 301 292 293 296 295 297 299 306

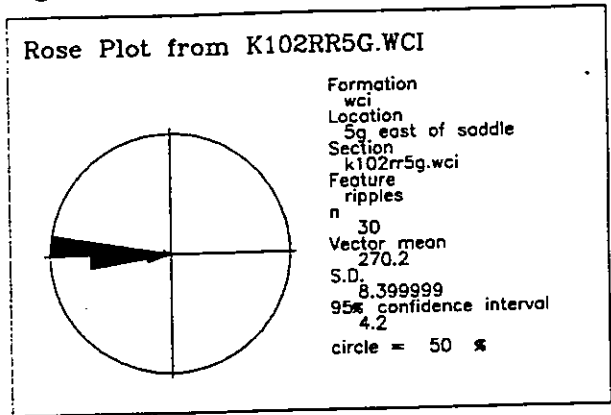
DATA FROM K105DC6H.SS1

LOCATION : 6h east of canyon SECTION : k105dc6h.ss1  
FORMATION : sand sheet 1 FEATURE : dm trough x beds  
N : 5 VECTOR MEAN : 252.9 STANDARD DEVIATION : 12.8  
228 256 264 255 261

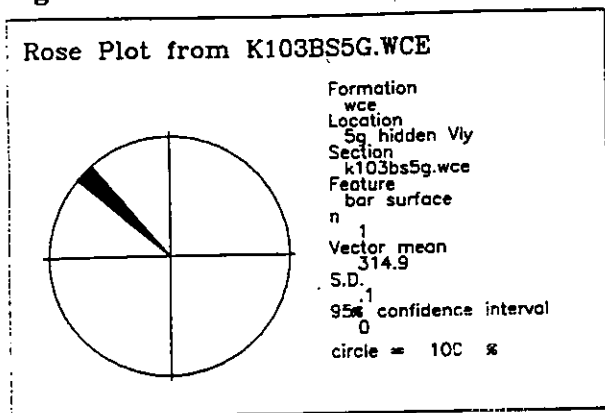
**Figure 191**



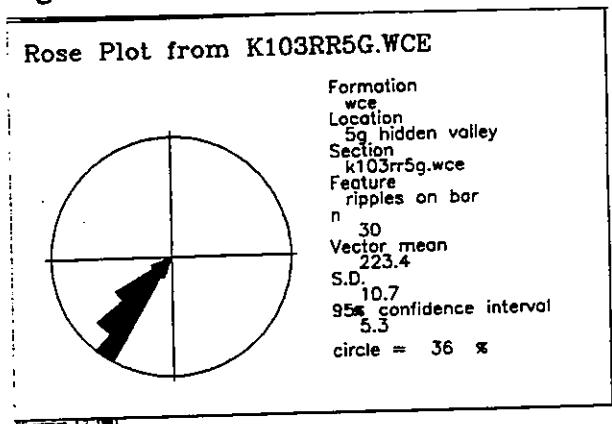
**Figure 192**



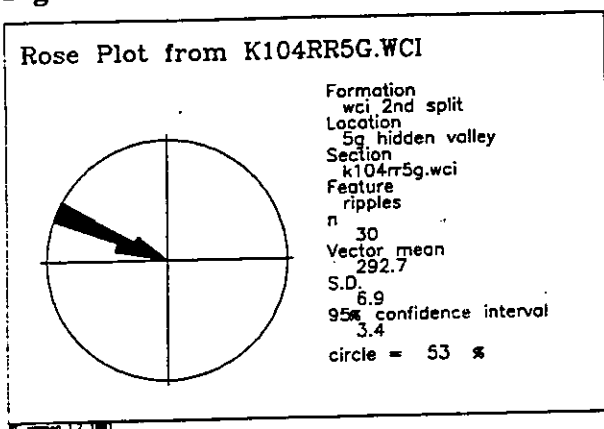
**Figure 193**



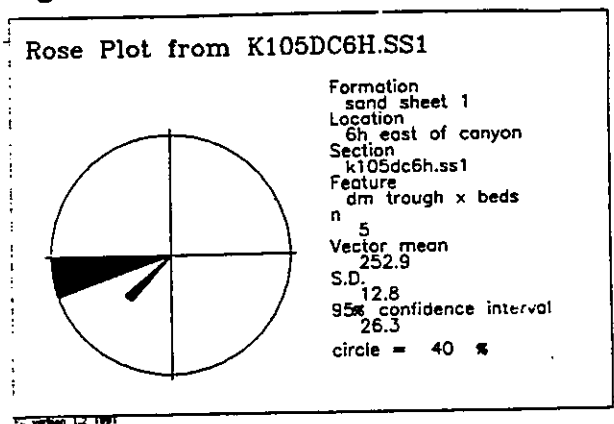
**Figure 194**



**Figure 195**



**Figure 196**



DATA FROM K105DC6H.SS2

LOCATION : 6h east of canyon SECTION : k105dc6h.ss2  
FORMATION : sand sheet 2 FEATURE : dm trough x beds  
N : 24 VECTOR MEAN : 260.2 STANDARD DEVIATION : 10.3  
268 273 275 264 262 266 263 252 264 271 266 275 270 247 265 272 254 256  
247 246 253 250 240 247

DATA FROM K105DC6H.SS3

LOCATION : 6h east of canyon SECTION : k105dc6h.ss3  
FORMATION : ss3 FEATURE : dm trough x beds  
N : 17 VECTOR MEAN : 266.9 STANDARD DEVIATION : 5.9  
263 275 258 263 269 276 265 264 275 264 266 270 259 262 265 266 279

DATA FROM K105DC6H.SS4

LOCATION : 6h east of canyon SECTION : k105dc6h.ss4  
FORMATION : ss4 FEATURE : dm trough x beds  
N : 7 VECTOR MEAN : 269.7 STANDARD DEVIATION : 4.2  
276 267 274 263 272 266 270

DATA FROM K105DC7H.SS5

LOCATION : 7h east of canyon SECTION : k105dc7h.ss5  
FORMATION : ss5 FEATURE : dm trough x beds  
N : 12 VECTOR MEAN : 265.6 STANDARD DEVIATION : 8.7  
254 270 265 255 260 254 267 279 271 260 276 277

DATA FROM K105DC7H.VF

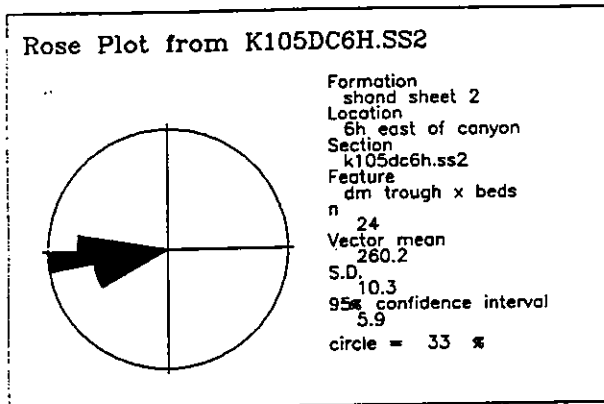
LOCATION : 7h east of canyon SECTION : k105dc7h.vf  
FORMATION : vf base FEATURE : dm trough x beds  
N : 10 VECTOR MEAN : 274.2 STANDARD DEVIATION : 10.0  
288 275 281 260 277 260 277 290 265 270

DATA FROM K105RR6H.SH3

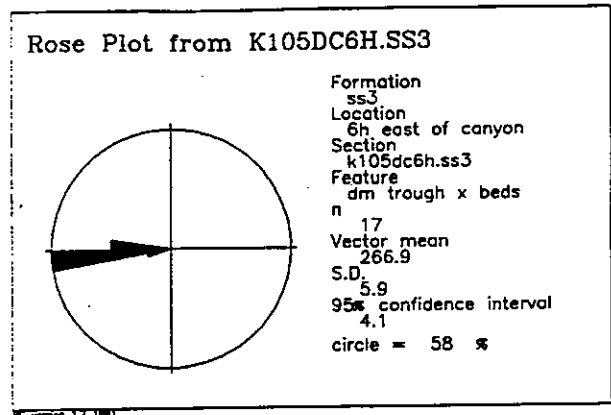
LOCATION : 6h east of canyon SECTION : k105rr6h.sh3  
FORMATION : sh3 FEATURE : ripples  
N : 30 VECTOR MEAN : 255.3 STANDARD DEVIATION : 7.3  
255 257 251 253 256 261 265 258 250 263 267 264 259 253 247 245 266 274  
259 254 256 249 244 260 243 250 248 250 256 249



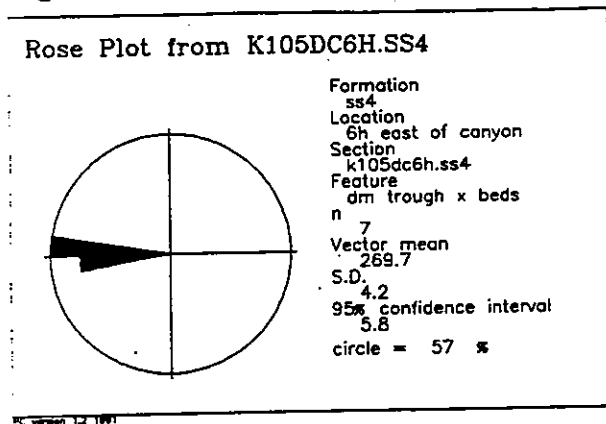
**Figure 197**



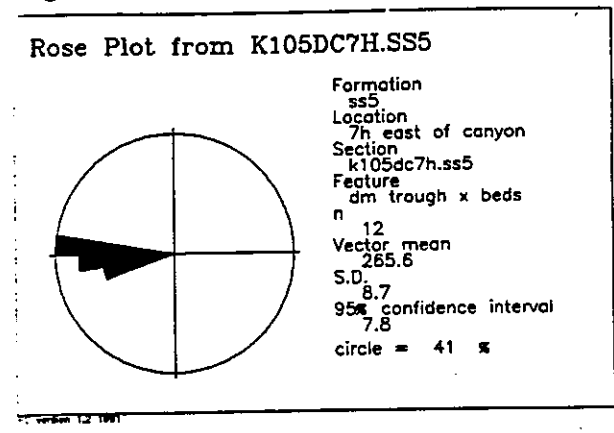
**Figure 198**



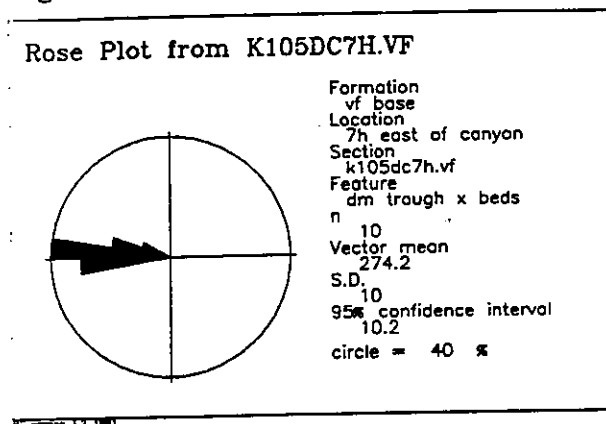
**Figure 199**



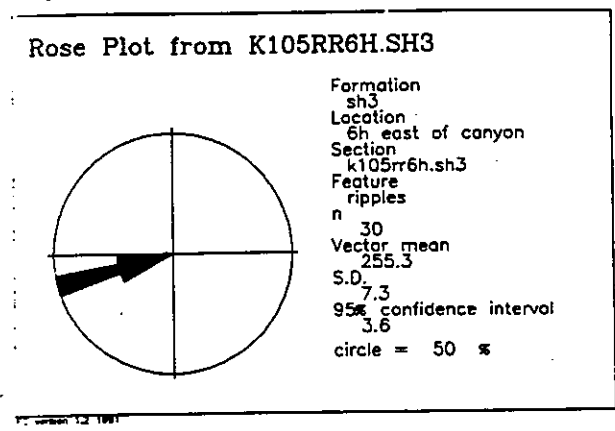
**Figure 200**



**Figure 201**



**Figure 202**



DATA FROM K105RR6H.SS4  
LOCATION : 6h east of canyon SECTION : k105rr6h.ss4  
FORMATION : ss4 top FEATURE : ripples  
N : 14 VECTOR MEAN : 270.4 STANDARD DEVIATION : 6.1  
264 269 273 279 276 265 270 259 266 268 281 277 265 274

DATA FROM PPV1RR5F.WC1  
LOCATION : POND VALLEY SECTION : PPV1  
FORMATION : WC1 FEATURE : RIPPLE LAMINATION  
N : 12 VECTOR MEAN : 334.5 STANDARD DEVIATION : 4.8  
336 336 331 331 325 339 339 330 339 331 343 334

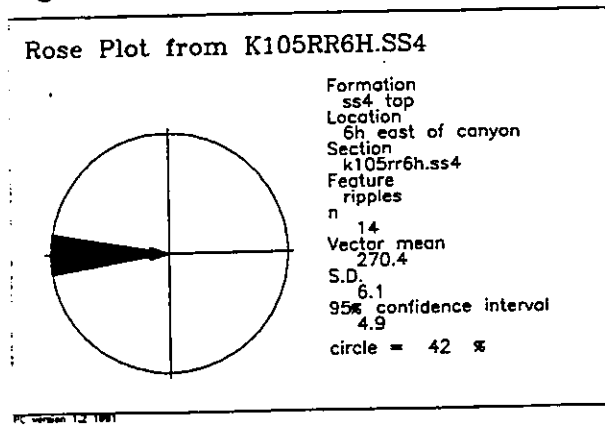
DATA FROM PPV2DC5F.WC1  
LOCATION : POND VALLEY SECTION : PV2  
FORMATION : WC1 FEATURE : TROUGH XBEDS (DM)  
N : 8 VECTOR MEAN : 312.7 STANDARD DEVIATION : 20.9  
287 342 278 302 328 324 330 310

DATA FROM PPV2RR5F.WC1  
LOCATION : POND VALLEY SECTION : PV2  
FORMATION : WC1 FEATURE : RIPPLE LAM IN TROUGHS  
N : 5 VECTOR MEAN : 327.6 STANDARD DEVIATION : 48.7  
336 317 052 260 326

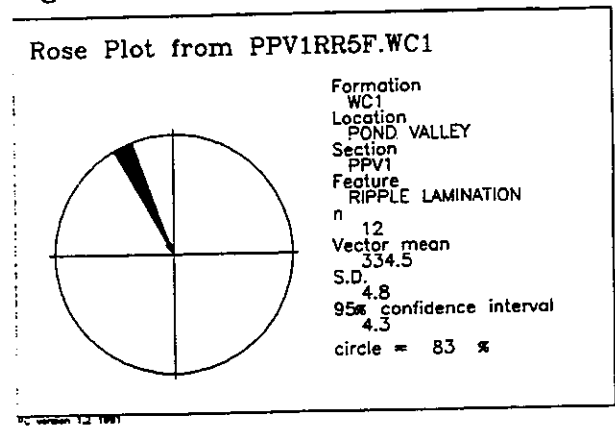
DATA FROM PPV2RR5F.WC2  
LOCATION : POND VALLEY SECTION : PV2  
FORMATION : WC2 FEATURE : RIPPLE LAMINATION  
N : 10 VECTOR MEAN : 311.2 STANDARD DEVIATION : 6.3  
306 309 304 302 309 313 314 324 314 318

DATA FROM PPV3DC5F.WC1  
LOCATION : WC1 IN POND VALLEY SECTION : PV3  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS  
N : 30 VECTOR MEAN : 261.2 STANDARD DEVIATION : 15.8  
245 249 251 251 267 271 252 275 267 272 265 290 291 291 282 290 266 244  
239 244 236 263 256 259 243 256 260 244 257 264

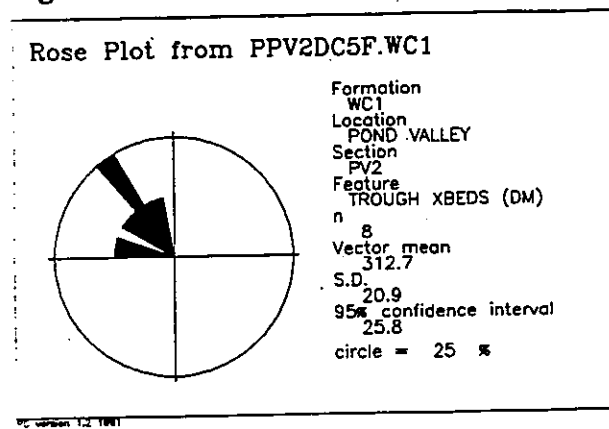
**Figure 203**



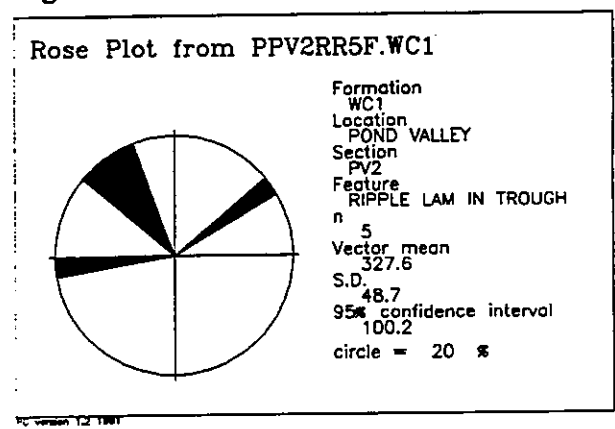
**Figure 204**



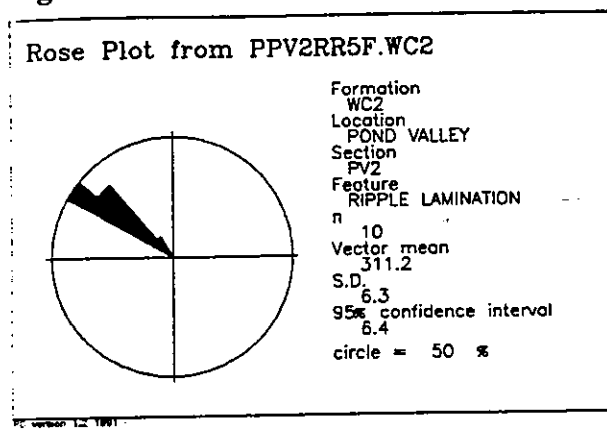
**Figure 205**



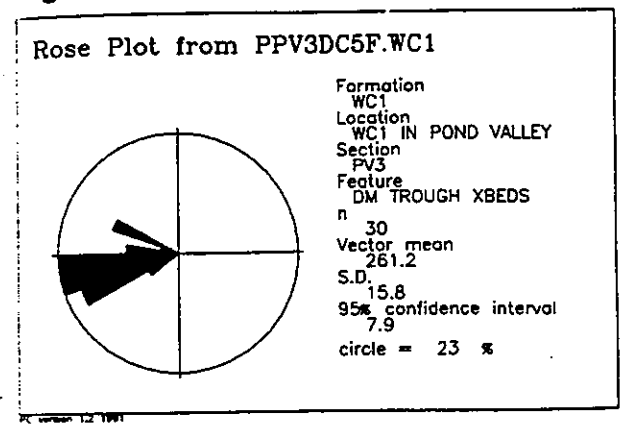
**Figure 206**



**Figure 207**



**Figure 208**



DATA FROM PPV3RR5F.WC2  
LOCATION : POND VALLEY SECTION : PV3  
FORMATION : WC2 FEATURE : RIPPLE LAMINATION  
N : 28 VECTOR MEAN : 275.5 STANDARD DEVIATION : 6.1  
283 281 274 281 269 286 267 284 273 271 272 282 281 276 277 280 267 273  
274 278 265 282 275 280 261 273 280 271

DATA FROM PPV4CM5G.WC2  
LOCATION : POND VALLEY SECTION : PV4  
FORMATION : WC2 FEATURE : CHANNEL MARGIN - STRAIGHT  
N : 1 VECTOR MEAN : 266.9 STANDARD DEVIATION : 0.0  
267

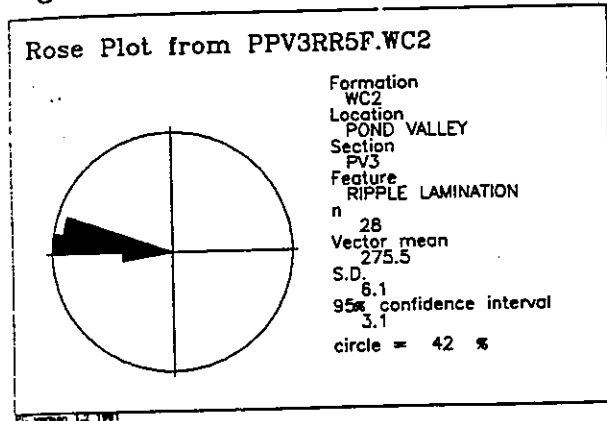
DATA FROM PPV4DC5G.WC1  
LOCATION : POND VALLEY SECTION : PV4  
FORMATION : WC1 FEATURE : TROUGH XBEDS (DM)  
N : 30 VECTOR MEAN : 264.1 STANDARD DEVIATION : 9.2  
266 253 267 262 272 280 260 282 268 265 252 274 272 258 268 255 252 258  
268 255 252 268 258 260 260 276 275 282 258 250

DATA FROM PPV4RR5G.WC2  
LOCATION : POND VALLEY SECTION : PV4  
FORMATION : WC2 FEATURE : RIPPLE LAMINATION  
N : 30 VECTOR MEAN : 274.4 STANDARD DEVIATION : 6.4  
269 261 283 275 275 288 277 277 273 257 279 278 273 267 283 270 276 282  
283 275 277 278 274 273 271 278 265 273 274 270

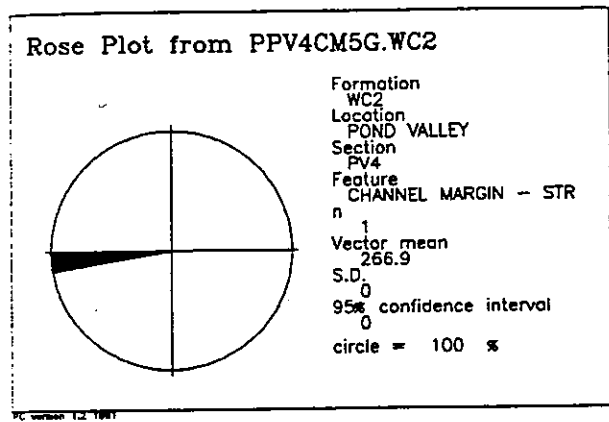
DATA FROM K108DC5G.WCJ  
LOCATION : 5g east of hidden Vly SECTION : k108dc5g.wcj  
FORMATION : wcj nr base FEATURE : dm trough x beds  
N : 30 VECTOR MEAN : 273.1 STANDARD DEVIATION : 7.3  
282 274 280 277 285 270 287 283 272 267 265 275 271 274 269 277 268 286  
273 263 269 260 272 273 266 281 277 264 275 260

DATA FROM K109RR5G.WCE  
LOCATION : 5g hidden vly SECTION : k109rr5g.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 286.7 STANDARD DEVIATION : 44.9  
352 359 002 270 264 255 279 265 214 214 239 252 241 292 306 286 255 019  
023 354 315 313 302 290 283 255 276 279 284 272

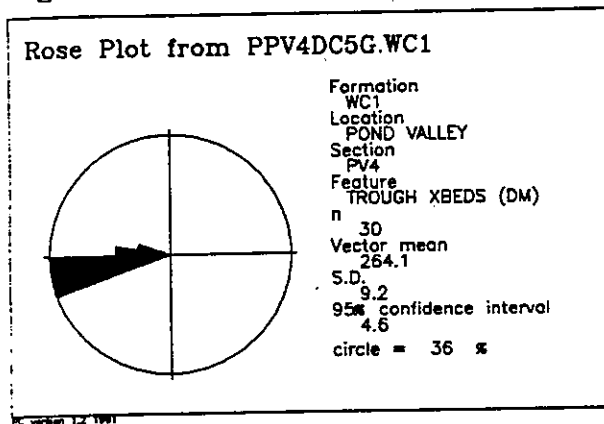
**Figure 209**



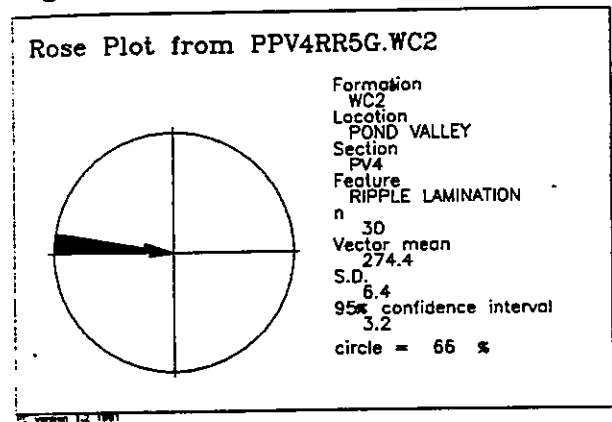
**Figure 210**



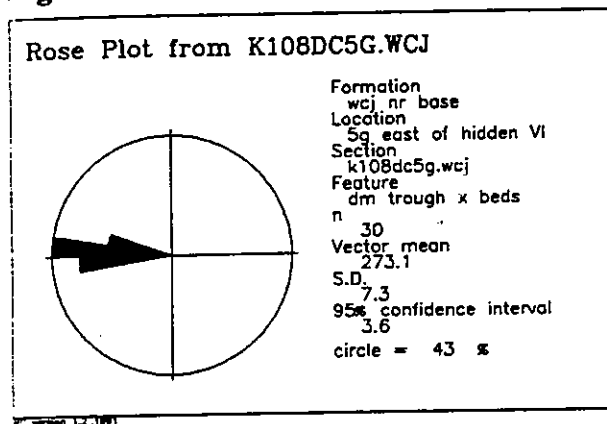
**Figure 211**



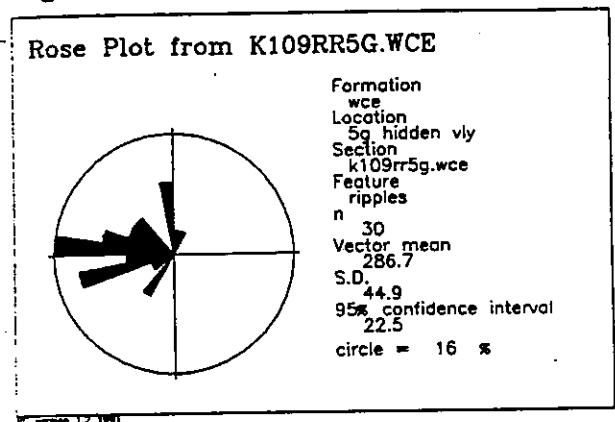
**Figure 212**



**Figure 213**



**Figure 214**



DATA FROM K110RR5F.WCH

LOCATION : 5f adj to lisa SECTION : k110rr5f.wch  
FORMATION : wch FEATURE : ripples  
N : 30 VECTOR MEAN : 263.1 STANDARD DEVIATION : 5.9  
259 258 260 267 271 265 262 274 276 269 260 263 279 263 256 264 267 257  
261 260 264 262 262 259 257 258 260 255 257 270

DATA FROM K111RR5F.WCJ

LOCATION : 5f nr lisa SECTION : k111rr5f.wcj  
FORMATION : wcj nr base FEATURE : ripples  
N : 30 VECTOR MEAN : 317.1 STANDARD DEVIATION : 66.2  
001 358 354 357 005 007 338 345 350 359 351 030 358 154 325 330 242 251  
260 272 006 358 254 260 265 240 269 257 177 174

DATA FROM K112RR4F.WCE

LOCATION : 4f at ice edge SECTION : k112rr4f.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 56.0 STANDARD DEVIATION : 7.5  
053 057 052 061 065 063 041 048 049 054 067 064 055 056 047 052 055 057  
062 059 068 066 064 060 057 051 049 061 054 035

DATA FROM K113RR4F.WCE

LOCATION : 4f nr ice edge SECTION : k113rr4f.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 184.7 STANDARD DEVIATION : 161.2  
195 192 204 204 215 203 226 215 222 220 218 209 227 224 207 107 011 009  
233 241 124 140 116 136 075 078 057 073 180 171

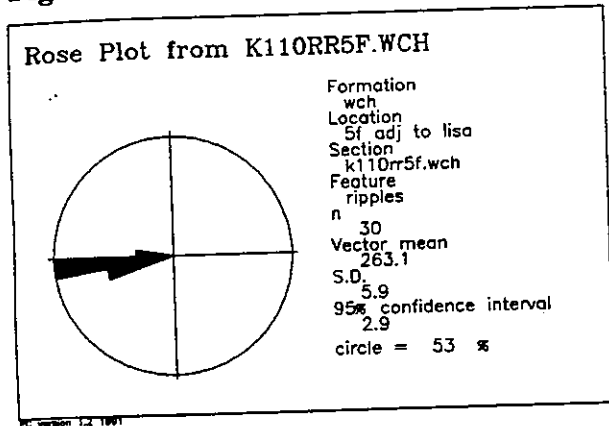
DATA FROM K114RR4F.WCE

LOCATION : 4f on platform SECTION : k114rr4f.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 297.4 STANDARD DEVIATION : 78.7  
185 187 200 194 188 198 359 352 353 357 090 085 277 267 270 225 018 060  
041 353 242 237 238 261 337 335 334 334 313 325

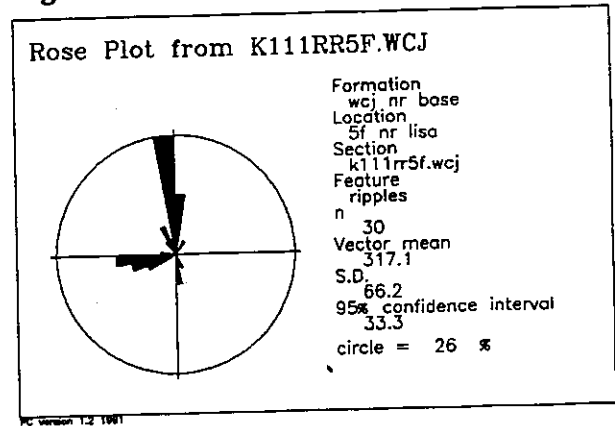
DATA FROM K115RR4F.WCE

LOCATION : 4f platform SECTION : k115rr4f.wce  
FORMATION : wce FEATURE : ripples  
N : 30 VECTOR MEAN : 278.9 STANDARD DEVIATION : 60.9  
222 225 240 247 276 272 270 268 250 251 246 257 266 263 248 235 274 247  
040 044 037 039 056 265 249 324 332 335 343 344

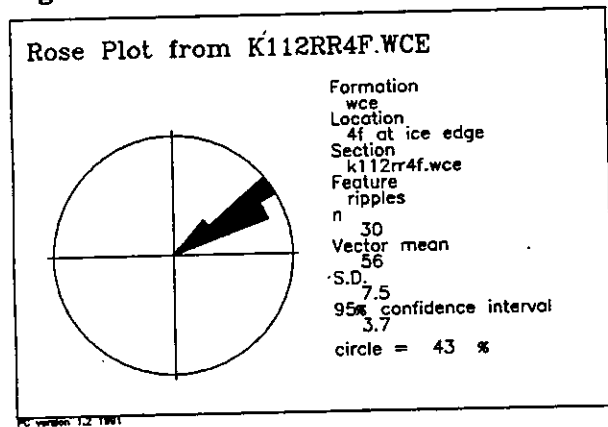
**Figure 215**



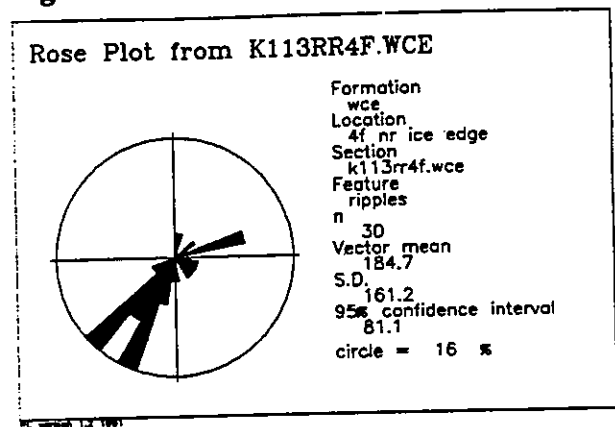
**Figure 216**



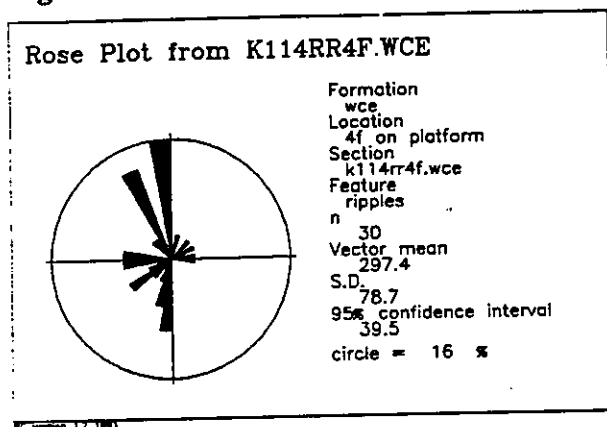
**Figure 217**



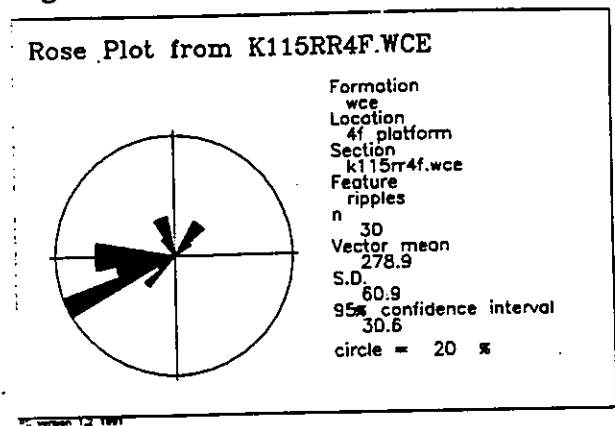
**Figure 218**



**Figure 219**



**Figure 220**



DATA FROM K116RR5G.WCE

LOCATION : 5g north of whirlpool SECTION : k116rr5g.wce  
FORMATION : wce\ FEATURE : ripples  
N : 30 VECTOR MEAN : 39.9 STANDARD DEVIATION : 66.9  
110 107 125 113 085 125 102 137 117 312 294 308 301 310 313 099 291 099  
098 002 017 001 025 030 016 358 004 056 041 003

DATA FROM K117BS5G.WCC

LOCATION : 5g NW Trudge Vly SECTION : k117bs5g.wcc  
FORMATION : wcc (see J034) FEATURE : bar surface  
N : 1 VECTOR MEAN : 234.9 STANDARD DEVIATION : 0.0  
235

DATA FROM K117RR5G.WCC

LOCATION : 5g NW Trudge Vly SECTION : k117rr5g.wcc  
FORMATION : wcc (k118 J034) FEATURE : ripples  
N : 30 VECTOR MEAN : 330.4 STANDARD DEVIATION : 15.3  
337 324 327 333 317 000 315 308 323 314 359 335 332 321 313 301 317 321  
326 334 345 342 340 338 347 333 314 007 335 338

DATA FROM K118RR5G.WCC

LOCATION : 5g NW Trudge Vly SECTION : K118rr5g.wcc (see K117 J034)  
FORMATION : wcc FEATURE : ripples  
N : 30 VECTOR MEAN : 332.0 STANDARD DEVIATION : 8.1  
337 343 336 331 328 330 324 335 325 323 323 333 326 337 328 322 341 333  
340 319 347 344 335 322 317 336 345 329 330 343

DATA FROM K119RR5G.WBZ

LOCATION : 5g NW Trudge Vly SECTION : k119rr5g.wbz  
FORMATION : wbz top FEATURE : ripples  
N : 30 VECTOR MEAN : 166.4 STANDARD DEVIATION : 168.2  
182 179 150 152 162 160 157 166 327 309 301 284 258 182 189 303 072 124  
129 152 150 161 167 164 141 150 160 151 155 153

DATA FROM K120BS5G.WBZ

LOCATION : 5g W Trudge Vly SECTION : k120bs5g.wbz  
FORMATION : wbz FEATURE : bar surface  
N : 1 VECTOR MEAN : 144.9 STANDARD DEVIATION : 0.1  
145



Figure 221

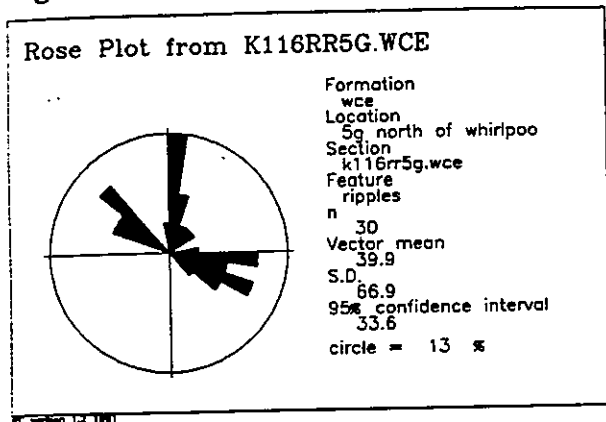


Figure 222

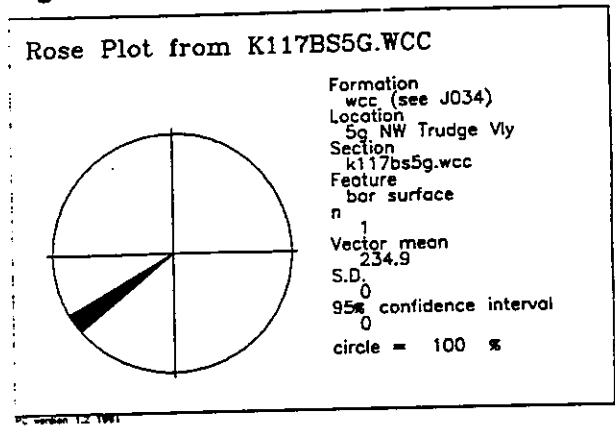


Figure 223

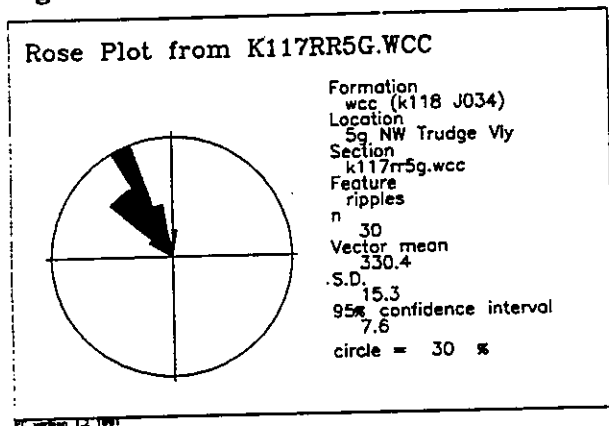


Figure 224

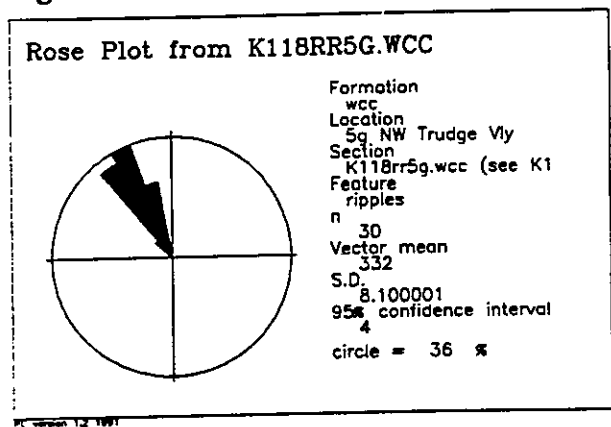


Figure 225

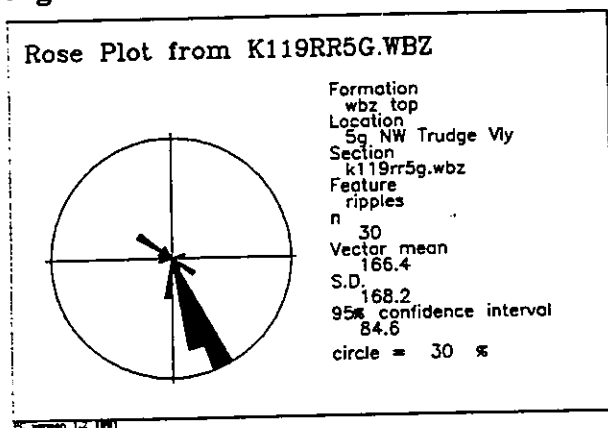
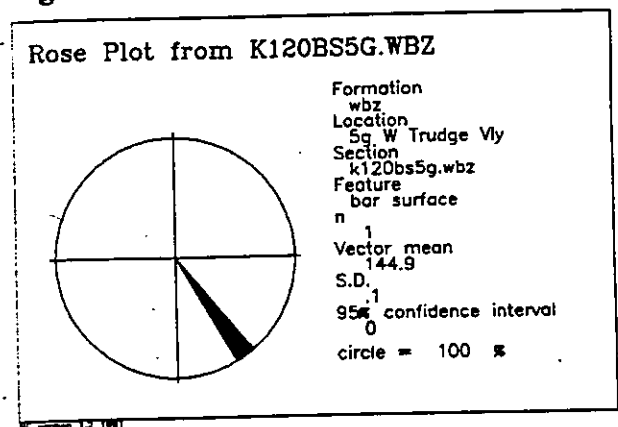


Figure 226



DATA FROM K120RR5G.WBZ

LOCATION : 5g W Trudge Vly

SECTION : k120rr5g.wbz

FORMATION : wbz

FEATURE : ripples

N : 30 VECTOR MEAN : 33.0 STANDARD DEVIATION : 9.6

035 037 031 036 045 027 012 010 041 017 028 034 040 037 029 030 026 031  
030 034 024 035 031 048 033 031 055 036 039 050

DATA FROM K121BS5G.WBZ

LOCATION : 5g SW Trudge Vly

SECTION : k121bs5g.wbz

FORMATION : wbz

FEATURE : bar surface

N : 1 VECTOR MEAN : 156.0 STANDARD DEVIATION : 0.0

156

DATA FROM K121RR5G.WBZ

LOCATION : 5g W Trudge Vly

SECTION : k121rr5g.wbz

FORMATION : wbz

FEATURE : ripples

N : 30 VECTOR MEAN : 67.9 STANDARD DEVIATION : 8.2

066 068 060 060 053 061 068 062 050 064 075 069 072 076 060 058 063 071  
069 090 076 081 069 067 066 077 074 071 077 065

DATA FROM K122RR6F.VLC

LOCATION : 6f Ros Tor

SECTION : k122rr6f.vlc

FORMATION : vlc

FEATURE : ripples

N : 30 VECTOR MEAN : 335.1 STANDARD DEVIATION : 7.0

348 345 342 346 340 344 337 334 329 333 346 335 337 335 333 329 330 324  
325 334 327 326 342 324 330 340 326 341 337 336

DATA FROM K123CM6F.VLC

LOCATION : 6f Ros Tor

SECTION : k123cm6f.vlc

FORMATION : vlc

FEATURE : channel margin

N : 1 VECTOR MEAN : 291.9 STANDARD DEVIATION : 0.1

292

DATA FROM K123MT6F.VLC

LOCATION : 6f Ros Tor

SECTION : k123mt6f.vlc

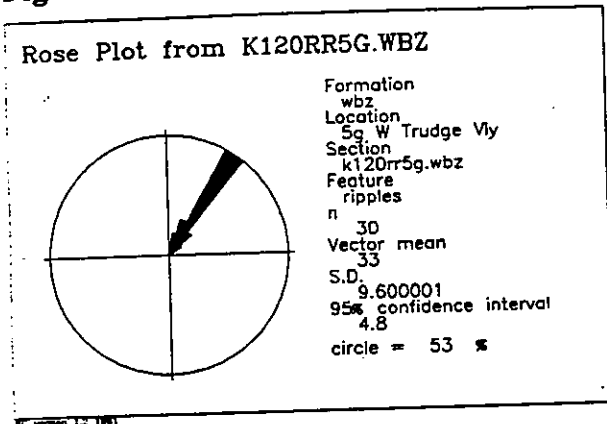
FORMATION : vlc

FEATURE : m trough x beds

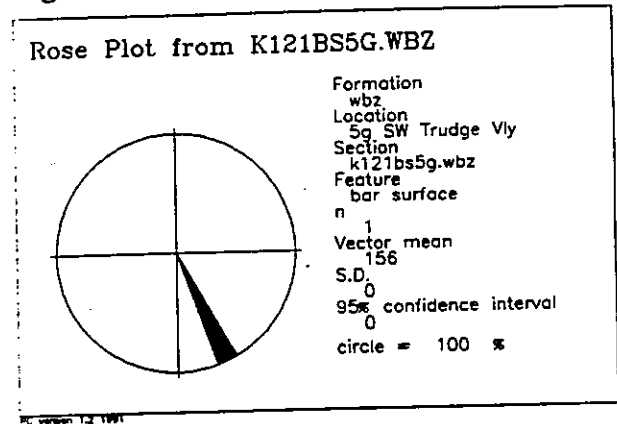
N : 30 VECTOR MEAN : 293.7 STANDARD DEVIATION : 11.0

295 299 307 295 304 306 299 287 302 311 280 277 285 287 310 283 290 286  
284 297 285 283 294 300 272 316 299 298 304 277

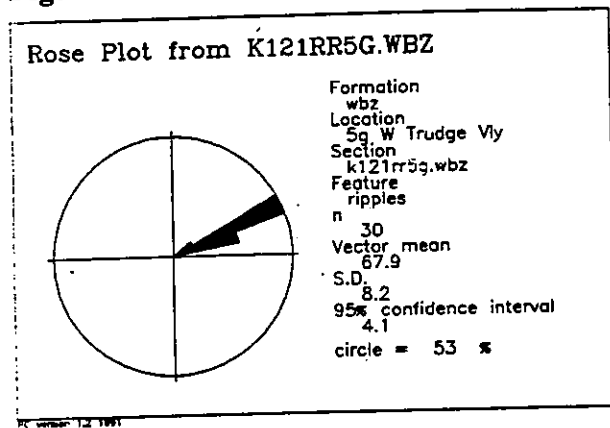
**Figure 227**



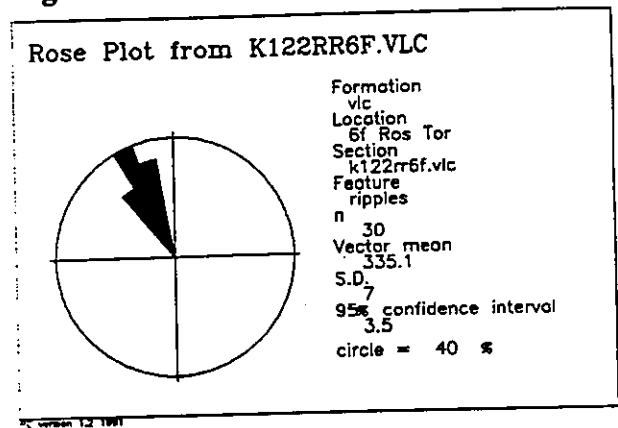
**Figure 228**



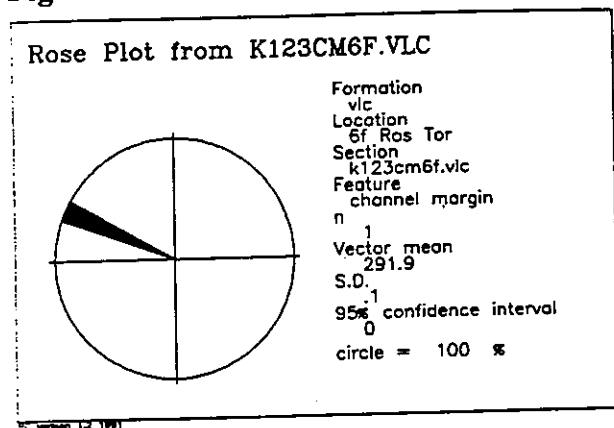
**Figure 229**



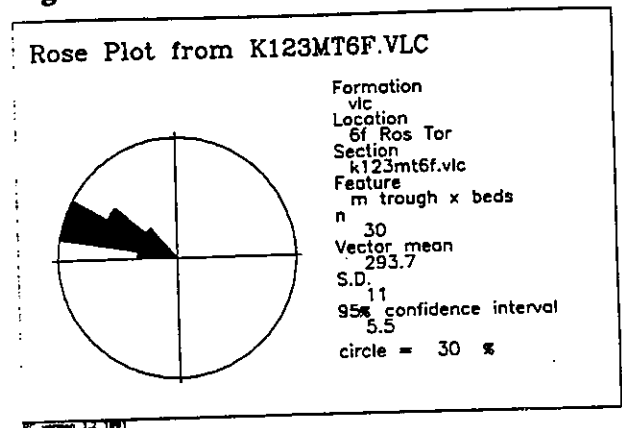
**Figure 230**



**Figure 231**



**Figure 232**



DATA FROM K123PL6F.VLC

LOCATION : 6f Ros Tor

SECTION : k123pl6f.vlc

FORMATION : vlc

FEATURE : parting Lin

N : 60 VECTOR MEAN : 17.9 STANDARD DEVIATION : 91.1

285 105 286 106 283 103 289 109 308 128 302 122 313 133 301 121 289 109  
273 093 277 097 259 079 281 101 285 105 279 099 265 085 275 095 283 103  
312 132 291 111 266 086 284 104 286 106 290 110 294 114 290 110 276 096  
302 122 295 115 320 140

DATA FROM K123RR6F.VLC

LOCATION : 6f Ros Tor

SECTION : k123rr6f.vlc

FORMATION : vlc

FEATURE : ripples

N : 30 VECTOR MEAN : 294.9 STANDARD DEVIATION : 17.8

290 286 279 320 270 326 323 322 327 331 278 281 295 283 288 274 293 285  
279 275 298 297 293 301 315 277 300 304 283 281

DATA FROM K124BS5G.WBZ

LOCATION : 5g

SECTION : k124bs5g.wbz

FORMATION : wbz

FEATURE : bar surface

N : 1 VECTOR MEAN : 271.9 STANDARD DEVIATION : 0.0

272

DATA FROM K124RR6G.WBZ

LOCATION : 6g nr small pond

SECTION : k124rr6g.wbz

FORMATION : wbz

FEATURE : ripples

N : 30 VECTOR MEAN : 353.4 STANDARD DEVIATION : 5.7

001 358 004 355 347 350 359 345 354 348 358 351 353 350 350 356 353 001  
344 342 002 359 355 347 346 000 350 351 359 354

DATA FROM PC01DC5G.WC1

LOCATION : CAMP VALLEY

SECTION : C01

FORMATION : WC1

FEATURE : DM TROUGH XBEDS

N : 30 VECTOR MEAN : 242.2 STANDARD DEVIATION : 7.5

239 244 251 244 230 248 226 241 248 248 244 241 250 244 237 244 243 244  
235 254 233 251 251 240 232 229 237 258 238 244

DATA FROM PC01R15G.WC2

LOCATION : CAMP VALLEY

SECTION : C01

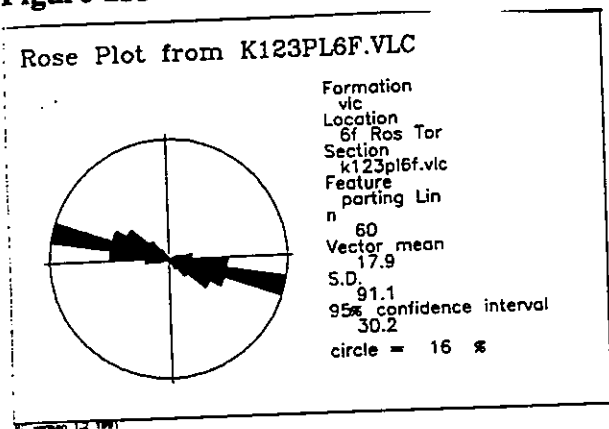
FORMATION : WC2 FROM 0 TO 2 M

FEATURE : RIPPLE LAM

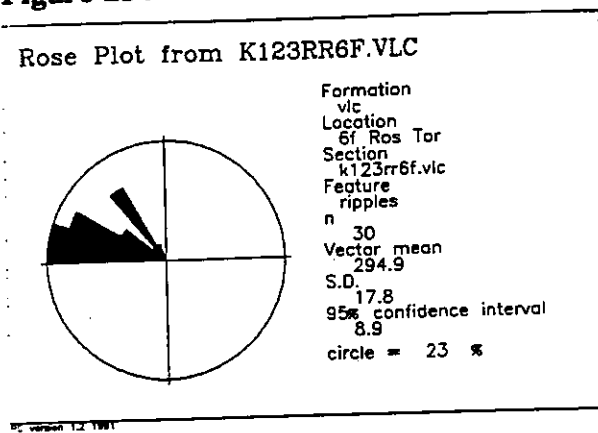
N : 30 VECTOR MEAN : 237.5 STANDARD DEVIATION : 7.3

243 245 252 239 232 240 242 246 237 228 240 233 243 246 248 226 233 237  
234 241 234 229 233 247 224 230 227 248 234 235

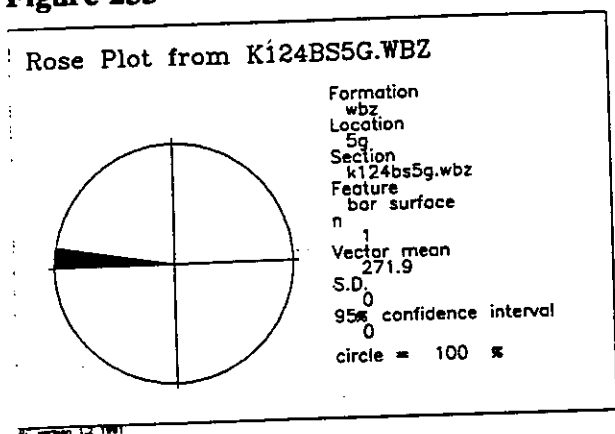
**Figure 233**



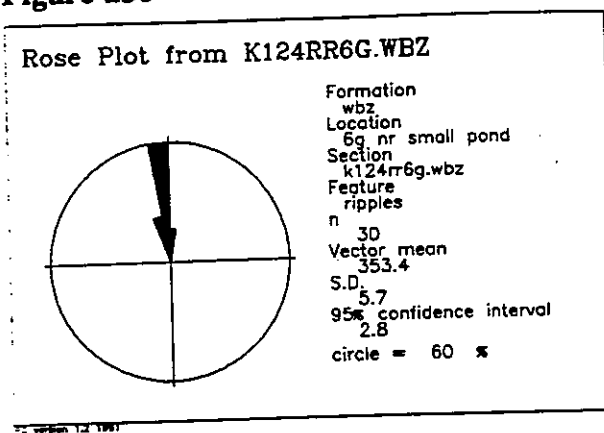
**Figure 234**



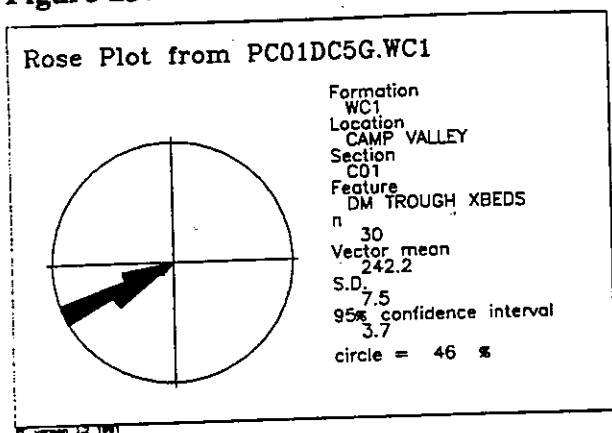
**Figure 235**



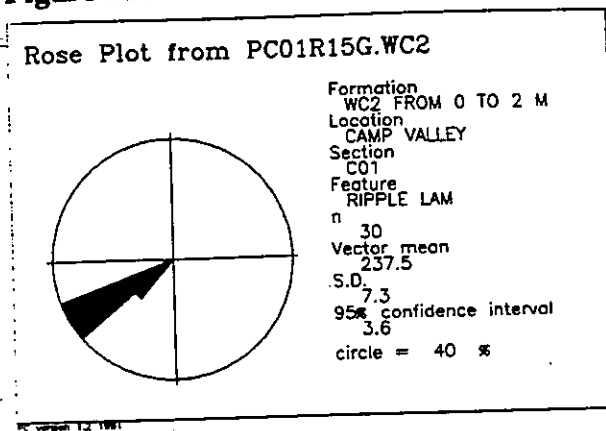
**Figure 236**



**Figure 237**



**Figure 238**



DATA FROM PC01RR5G.WC1

LOCATION : CAMP VALLEY

SECTION : C01

FORMATION : WC1

FEATURE : RIPPLE LAM

N : 30 VECTOR MEAN : 243.8 STANDARD DEVIATION : 8.6

250 236 248 234 235 254 243 235 241 253 244 232 252 240 240 270 240 255  
239 240 246 241 230 232 250 251 241 242 254 248

DATA FROM PC02DC4G.WC1

LOCATION : W SIDE CAMP VALLEY RIDGE SECTION : C02

FORMATION : WC1 0 TO 2 M (COARSE FACIES) FEATURE : DM TROUGH XBEDS

N : 16 VECTOR MEAN : 238.8 STANDARD DEVIATION : 9.0

257 240 250 244 228 231 243 220 230 240 241 250 235 236 242 234

DATA FROM PC03MC4G.WC1

LOCATION : PLATFORM N OF W END OF DIKE SECTION : C03

FORMATION : WC1 FINE FACIES FEATURE : METRE TROUGH XBEDS

N : 12 VECTOR MEAN : 228.5 STANDARD DEVIATION : 6.6

233 219 228 228 235 224 237 219 234 219 229 237

DATA FROM PC05RR4F.WC2

LOCATION : LOWER CAMP VALLEY SECTION : C05

FORMATION : WC2 FEATURE : RIPPLE LAM

N : 50 VECTOR MEAN : 212.4 STANDARD DEVIATION : 13.0

194 207 211 206 214 215 215 207 209 213 209 208 253 206 258 204 215 212  
211 208 199 207 209 211 209 254 219 205 212 210 207 210 212 215 210 208  
210 193 217 213 207 248 198 217 207 209 208 213 207 215

DATA FROM PF02DC4G.WC1

LOCATION : FEISTMANTEL VALLEY SECTION : PFO2 OVER 50 X 20 M

FORMATION : WC1 FEATURE : DM TROUGH XBEDS

N : 30 VECTOR MEAN : 223.0 STANDARD DEVIATION : 12.0

204 235 224 230 187 218 224 228 214 223 234 224 246 242 242 240 220 226  
232 206 219 214 226 219 218 222 211 219 220 224

DATA FROM PF02MC4G.WC1

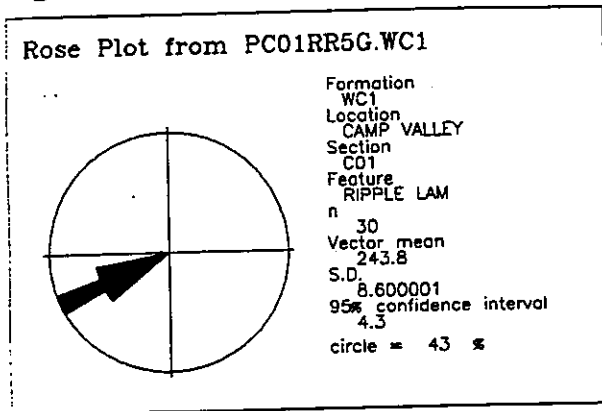
LOCATION : FEISTMANTEL VALLEY SECTION : F02 OVER 50 X 50 M

FORMATION : WC1 UPPER 2 M FEATURE : M TROUGH XBEDS

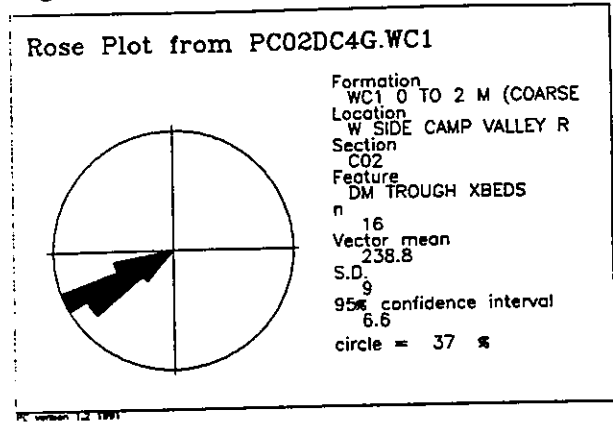
N : 20 VECTOR MEAN : 223.1 STANDARD DEVIATION : 8.8

221 225 223 213 226 218 223 223 240 245 230 221 221 212 232 223 214 211  
212 231

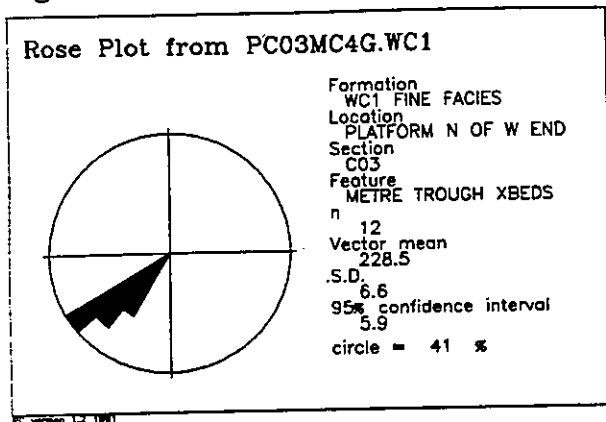
**Figure 239**



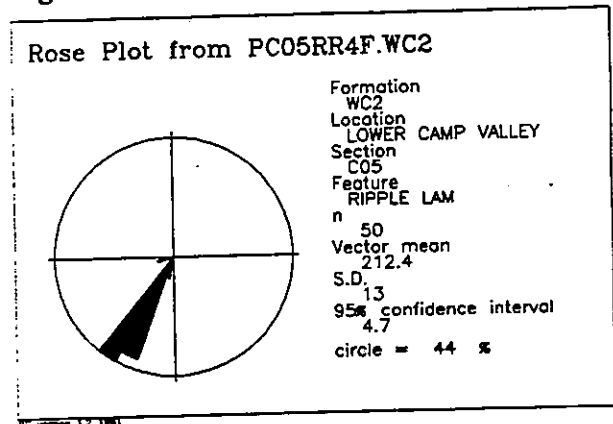
**Figure 240**



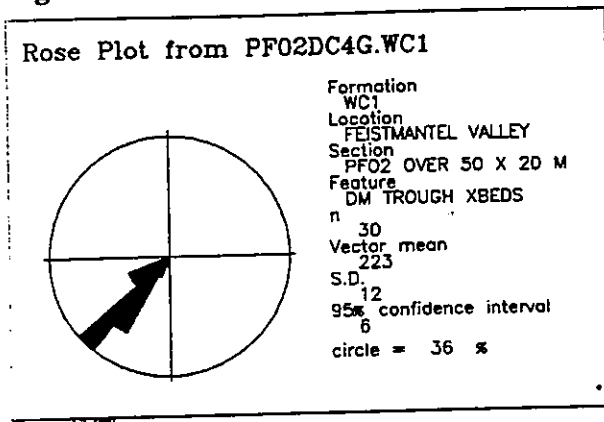
**Figure 241**



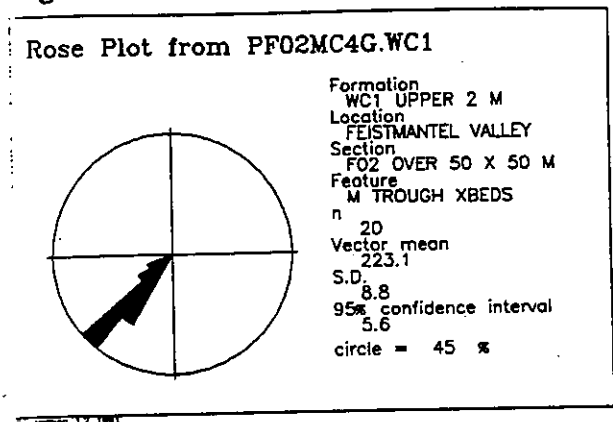
**Figure 242**



**Figure 243**



**Figure 244**



DATA FROM PF02RR4G.WC1

LOCATION : FEISTMANTEL VALLEY SECTION : F02 OVER 50 X 20 M  
FORMATION : WC1 FEATURE : RIPPLE LAM  
N : 32 VECTOR MEAN : 244.6 STANDARD DEVIATION : 73.1  
078 113 289 239 302 311 327 306 199 200 178 155 234 218 225 205 158 182  
227 314 246 306 300 258 232 268 152 300 290 236 221 302

DATA FROM PF03MC4G.WC1

LOCATION : FEISTMANTEL VALLEY SECTION : F3  
FORMATION : WC1 0 TO 2 M FEATURE : METRE TROUGH XBEDS  
N : 30 VECTOR MEAN : 238.4 STANDARD DEVIATION : 6.8  
239 228 243 244 245 237 231 244 249 233 230 252 229 236 231 242 243 235  
230 227 235 235 242 240 245 236 234 243 251 245

DATA FROM PF03RR4G.WC1

LOCATION : FEISTMANTEL VALLEY SECTION : F3  
FORMATION : WC1 LOWER 2 M FEATURE : RIPPLE LAMINATION  
N : 32 VECTOR MEAN : 212.9 STANDARD DEVIATION : 103.5  
196 216 224 183 133 124 202 202 208 135 289 194 157 320 291 279 111 226  
185 257 230 231 269 210 238 181 173 227 205 231 221 254

DATA FROM PF03RR4G.WC2

LOCATION : FEISTMANTEL VALLEY SECTION : WC2  
FORMATION : WC2 FEATURE : RIPPLE LAMINATION  
N : 17 VECTOR MEAN : 230.1 STANDARD DEVIATION : 8.4  
236 237 238 241 232 230 223 209 227 236 230 241 221 239 222 224 227

DATA FROM PF1ARR4G.WC1

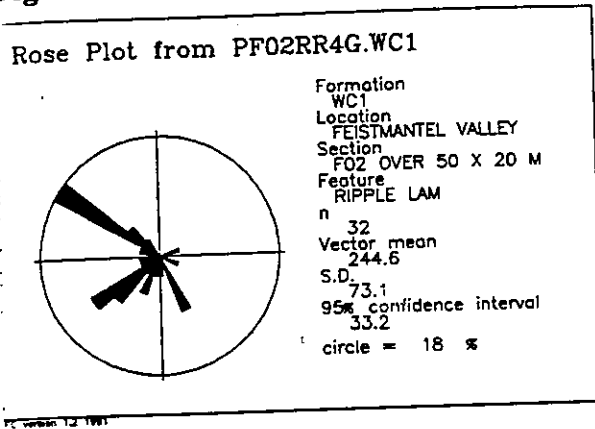
LOCATION : FEISTMANTEL VALLEY SECTION : F01A AT EDGE OF  
CHANNEL  
FORMATION : WC1 PINCHOUT FEATURE : RIPPLE LAM  
N : 12 VECTOR MEAN : 212.7 STANDARD DEVIATION : 7.7  
203 219 197 209 217 220 211 216 226 215 215 205

DATA FROM PF1BRR4G.WC1

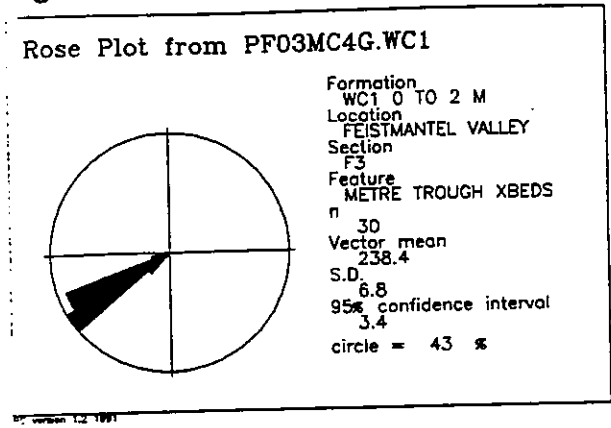
LOCATION : FEISTMANTEL VALLEY SECTION : F01B 20 M E OF  
CHANNEL EDGE  
FORMATION : WC1 UPPER M FEATURE : RIPPLE LAM  
N : 28 VECTOR MEAN : 208.4 STANDARD DEVIATION : 16.1  
215 207 202 220 213 208 204 261 214 202 199 215 207 206 213 152 192 199  
217 200 206 200 214 210 216 217 218 208



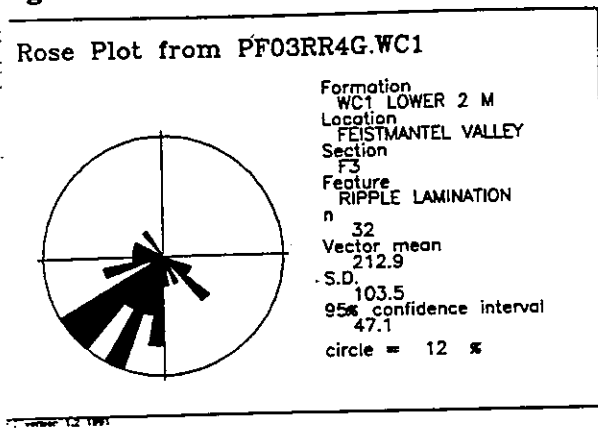
**Figure 245**



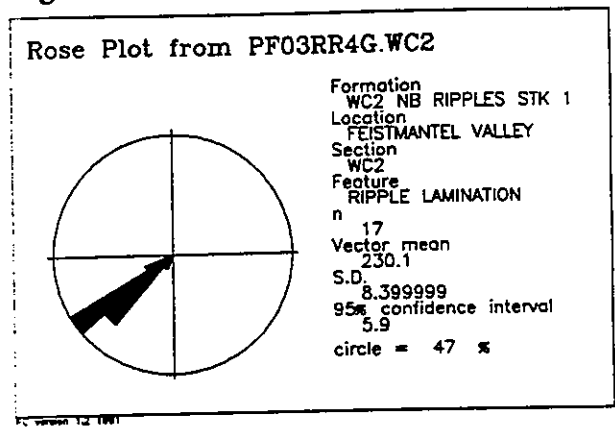
**Figure 246**



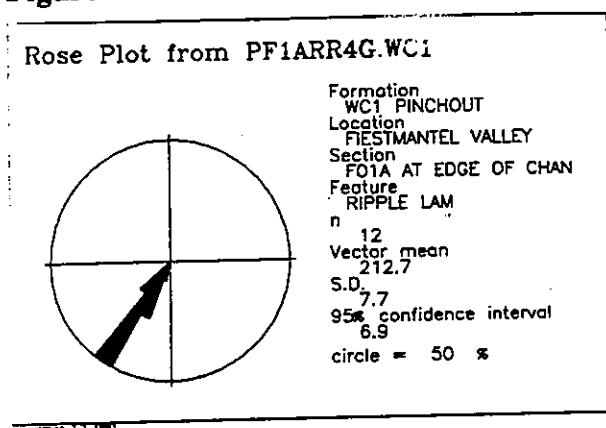
**Figure 247**



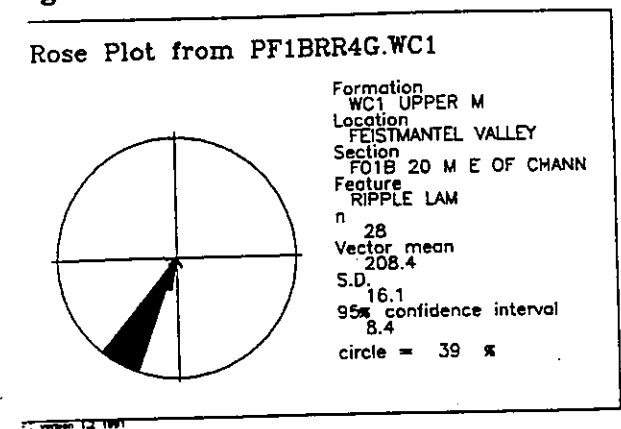
**Figure 248**



**Figure 249**



**Figure 250**



DATA FROM PF1CRR4G.WC1

LOCATION : FEISTMANTEL VALLEY SECTION : F01C 50 M S OF 1A & 1B  
FORMATION : WC1 UPPER M FEATURE : RIPPLE LAM CLOSE TO  
BEND IN CHANNEL STK 80 DEG

N : 16 VECTOR MEAN : 223.5 STANDARD DEVIATION : 8.3  
225 227 229 241 233 226 218 209 221 214 227 214 210 228 229 226

DATA FROM PJ01ST5G.SIR

LOCATION : JACQUE S END SECTION : J01  
FORMATION : SIRIUS FEATURE : STRIAE IN SOFT TILL 10 CM  
THICK

N : 8 VECTOR MEAN : 5.6 STANDARD DEVIATION : 5.1  
003 006 006 005 010 011 354 010

DATA FROM PP10DC5G.WC1

LOCATION : POND VALLEY SOUTH W SIDE SECTION : PV10  
FORMATION : WC1 FEATURE : TROUGH XBEDS (DM) UPPER  
0.5 M

N : 20 VECTOR MEAN : 212.1 STANDARD DEVIATION : 23.0  
207 214 241 162 197 203 212 201 169 197 232 215 217 238 232 261 200 203  
205 235

DATA FROM PP10RR5G.WC2

LOCATION : POND VALLEY W SIDE S END SECTION : PV10  
FORMATION : WC2 FEATURE : RIPPLE LAMINATION

N : 30 VECTOR MEAN : 216.2 STANDARD DEVIATION : 8.4  
228 226 216 218 207 207 217 224 218 210 212 227 208 232 214 226 202 208  
212 212 221 213 202 236 207 216 221 221 217 210

DATA FROM PP11DC5G.WC1

LOCATION : POND VALLEY W SIDE S END SECTION : PV11  
FORMATION : WC1 FEATURE : TROUGH XBEDS ON GOOD  
PLATFORM

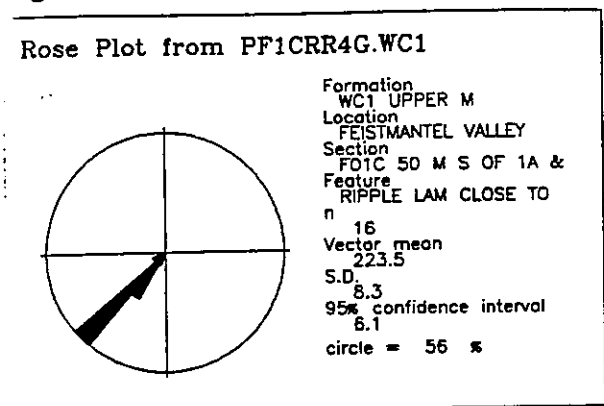
N : 30 VECTOR MEAN : 282.4 STANDARD DEVIATION : 8.3  
276 276 271 287 294 281 283 284 271 281 286 289 301 271 281 283 274 285  
289 291 294 290 267 280 272 293 293 279 279 274

DATA FROM PP11R-5G.WC2

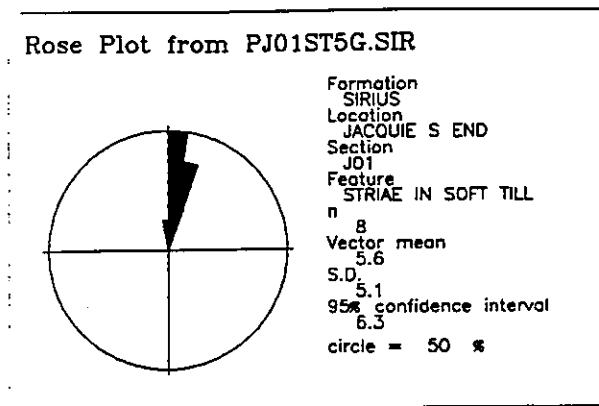
LOCATION : POND VALLEY W SIDE S END SECTION : PV11  
FORMATION : WC2 FEATURE : RIPPLE LAM ABOVE PP11DC

N : 30 VECTOR MEAN : 285.3 STANDARD DEVIATION : 9.5  
291 299 281 288 280 288 294 300 270 278 282 284 264 290 290 286 286 307  
290 287 302 287 276 272 276 280 276 293 279 285

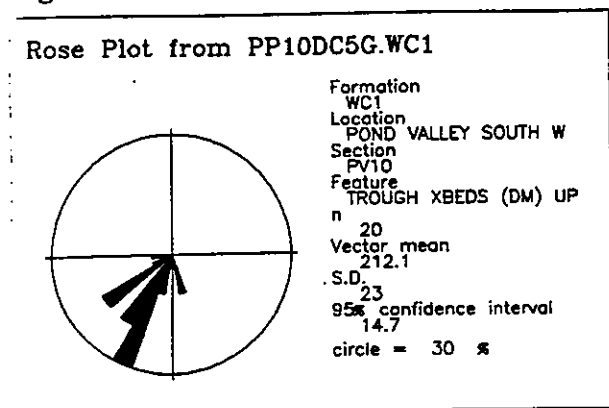
**Figure 251**



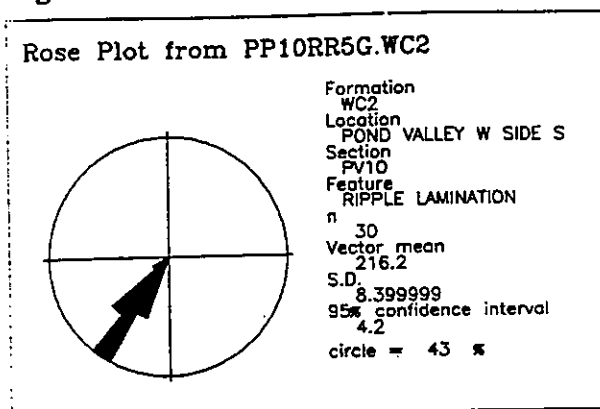
**Figure 252**



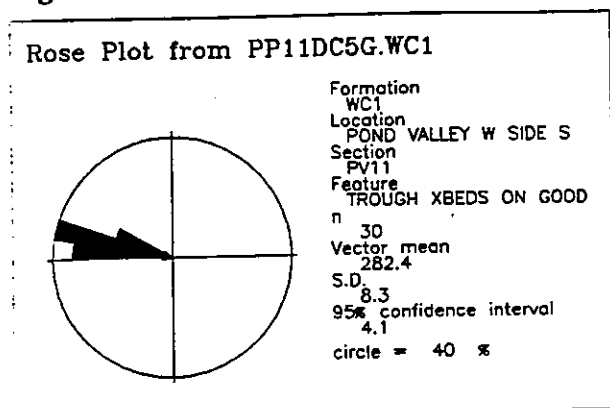
**Figure 253**



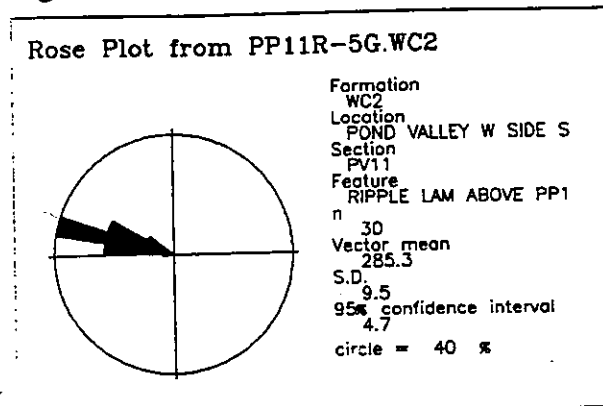
**Figure 254**



**Figure 255**



**Figure 256**



DATA FROM PP11RR5G.WC2

LOCATION : POND VALLEY W SIDE S END SECTION : PV11  
FORMATION : WC2 FEATURE : RIPPLE 'LAM ON RH BAR STK  
135 DEG  
N : 30 VECTOR MEAN : 299.8 STANDARD DEVIATION : 7.5  
293 297 296 300 315 296 291 300 315 297 283 293 296 301 303 303 289 295  
311 290 309 305 304 300 297 299 313 304 298 304

DATA FROM PP12DC5G.WC1

LOCATION : POND VALLEY GLOSS QUARRY SECTION : PV12  
FORMATION : WC1 FEATURE : TROUGH XBEDS (DM)  
N : 30 VECTOR MEAN : 261.8 STANDARD DEVIATION : 6.7  
267 265 260 257 275 259 253 268 266 270 252 258 262 260 265 265 267 265  
270 261 268 265 244 264 252 260 249 257 265 265

DATA FROM PP12RR5G.WC2

LOCATION : POND VALLEY GLOSS QUARRY SECTION : PV12  
FORMATION : WC2 FEATURE : RIPPLE LAM ON LH BAR NEAR  
TOP STK 115 DEG  
N : 10 VECTOR MEAN : 249.4 STANDARD DEVIATION : 8.3  
257 254 248 252 252 249 244 263 245 230

DATA FROM PP14DC5G.WC1

LOCATION : POND VALLEY W SIDE N END SECTION : PV14  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS THROUGH  
UNIT  
N : 36 VECTOR MEAN : 265.7 STANDARD DEVIATION : 10.7  
255 270 273 275 267 280 258 256 255 267 279 289 278 275 275 262 258 263  
277 268 264 271 278 286 268 262 256 252 256 257 241 258 271 261 249 257

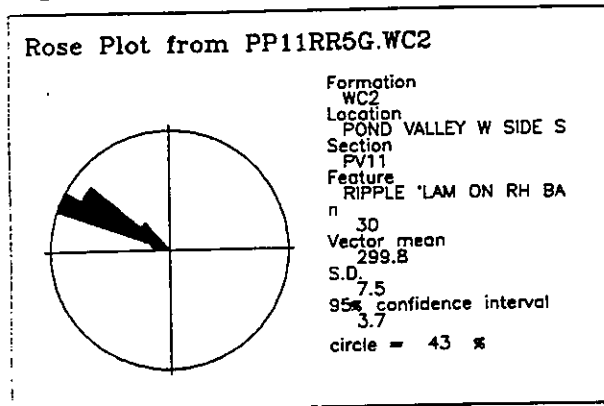
DATA FROM PP15DC5F.WC1

LOCATION : POND VALLEY W SIDE N END SECTION : PV15  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS IN BLUFF  
N : 26 VECTOR MEAN : 255.2 STANDARD DEVIATION : 16.8  
247 219 225 248 247 252 296 270 246 252 268 249 245 265 251 259 275 255  
250 291 272 255 242 242 249 268

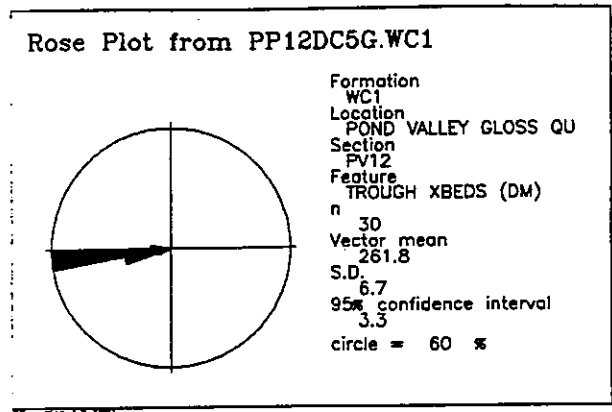
DATA FROM PP15RR5F.WC2

LOCATION : POND VALLEY W SIDE N END SECTION : PV15  
FORMATION : WC2 FEATURE : RIPPLE LAMINATION  
N : 30 VECTOR MEAN : 240.5 STANDARD DEVIATION : 17.2  
242 242 251 252 255 240 244 238 230 225 250 230 249 242 240 224 243 246  
230 240 252 235 243 246 238 249 252 248 246 250

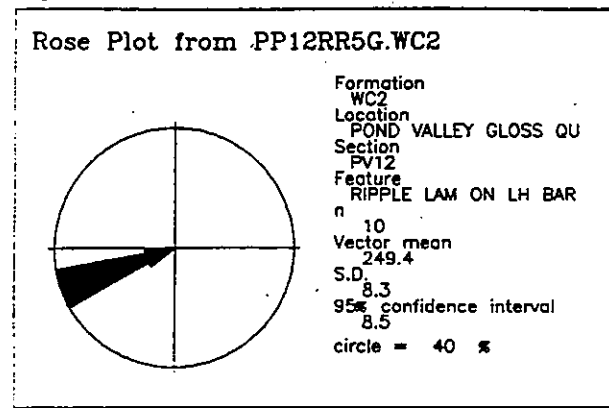
**Figure 257**



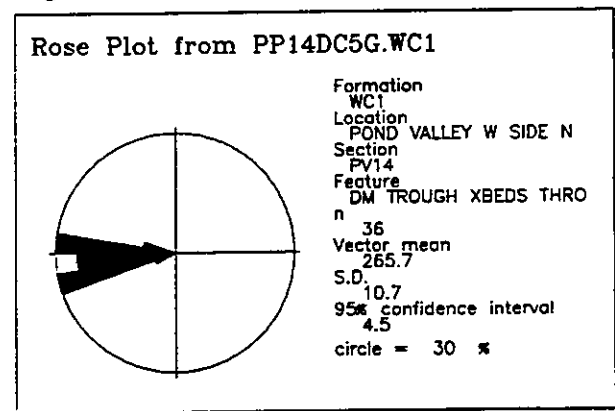
**Figure 258**



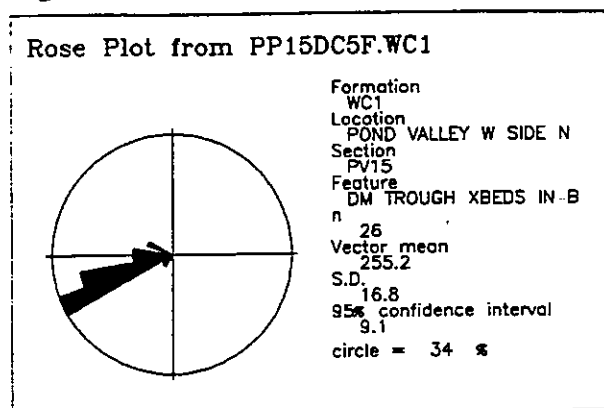
**Figure 259**



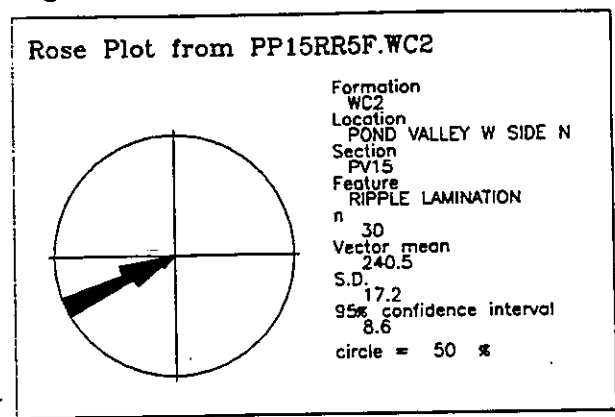
**Figure 260**



**Figure 261**



**Figure 262**



DATA FROM PP16DC5F.WC1

LOCATION : POND VALLEY W SIDE N END SECTION : PV16  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS  
N : 30 VECTOR MEAN : 258.5 STANDARD DEVIATION : 8.9  
250 262 276 260 270 254 266 268 259 279 250 268 250 261 255 240 254 250  
259 245 266 251 253 245 258 256 259 267 262 263

DATA FROM PP16RR5F.WC2

LOCATION : POND VALLEY W SIDE N END SECTION : PV16  
FORMATION : WC2 FEATURE : RIPPLE LAM  
N : 30 VECTOR MEAN : 255.5 STANDARD DEVIATION : 11.7  
255 267 259 248 287 265 250 248 236 249 260 264 259 261 251 277 245 277  
263 270 240 243 247 252 246 250 244 259 250 246

DATA FROM PP18RR5F.WC1

LOCATION : POND VALLEY W SIDE FAR N END SECTION : PV18  
FORMATION : WC1 FEATURE : RIPPLE LAM  
N : 30 VECTOR MEAN : 265.9 STANDARD DEVIATION : 28.0  
244 252 249 254 275 277 290 273 283 296 318 255 263 257 251 256 244 268  
245 259 297 304 274 259 274 274 255 271 259 270

DATA FROM PP7BDC5G.WC1

LOCATION : POND VALLEY SOUTH END SECTION : PV7B  
FORMATION : WC1 FEATURE : TROUGH XBEDS (DM) IN CLIFF  
N : 11 VECTOR MEAN : 244.6 STANDARD DEVIATION : 13.3  
240 232 250 241 214 256 262 262 242 251 240

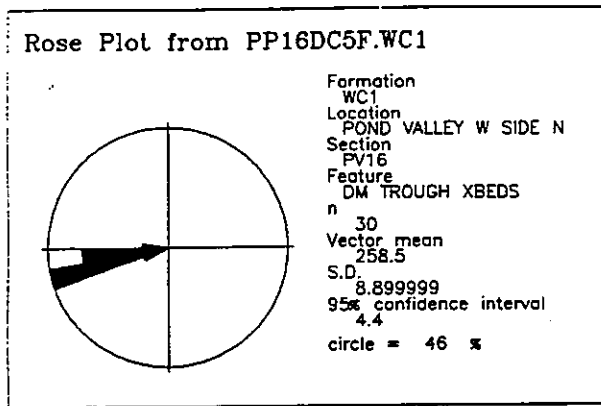
DATA FROM PPV5DC5G.WC1

LOCATION : POND VALLEY EAST SECTION : PV5  
FORMATION : WC1 FEATURE : TROUGH XBEDS (DM)  
N : 30 VECTOR MEAN : 275.8 STANDARD DEVIATION : 9.5  
285 287 263 288 284 273 266 260 282 277 277 274 292 281 263 278 278 278  
277 288 275 278 269 267 256 258 277 286 288 270

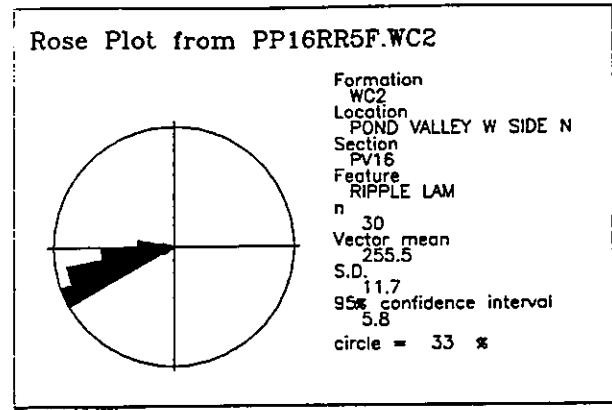
DATA FROM PPV5RR5G.WC2

LOCATION : POND VALLEY SECTION : PV5  
FORMATION : WC2 FEATURE : RIPPLE LAMINATION  
N : 30 VECTOR MEAN : 268.2 STANDARD DEVIATION : 10.5  
287 254 260 282 260 254 282 278 269 252 273 283 265 249 279 259 282 257  
267 265 267 265 283 270 272 283 264 265 263 260

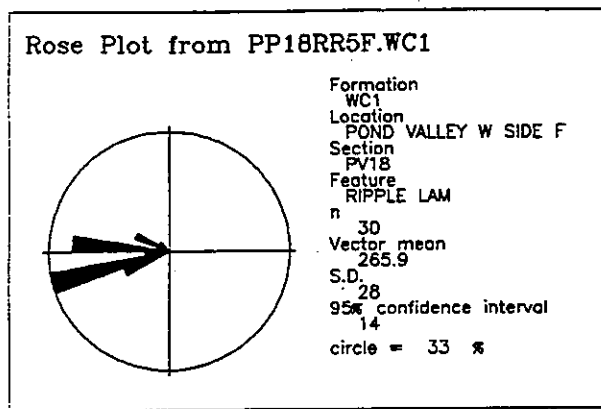
**Figure 263**



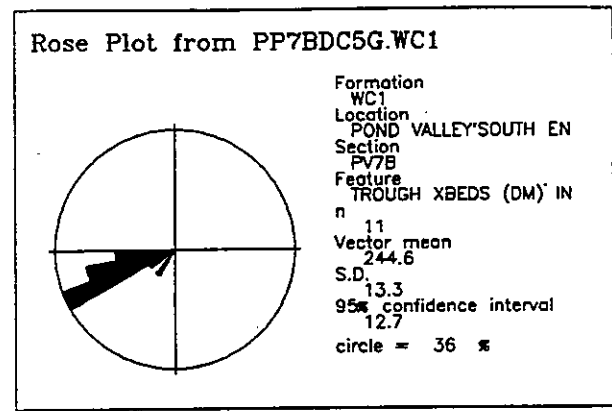
**Figure 264**



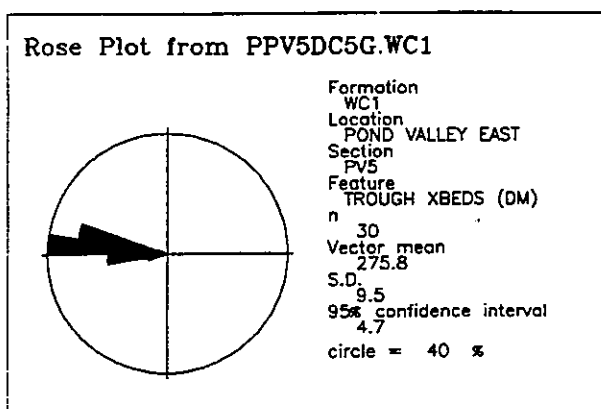
**Figure 265**



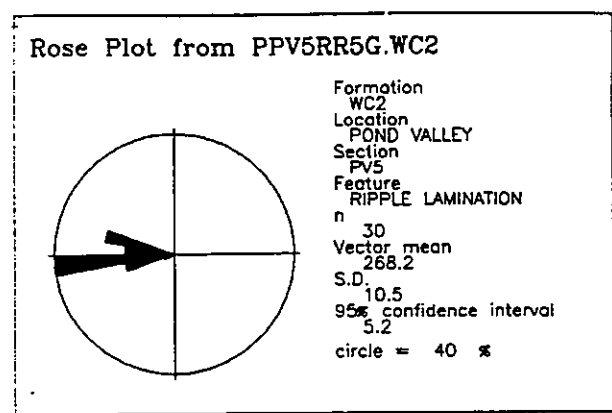
**Figure 266**



**Figure 267**



**Figure 268**



DATA FROM PPV6DC5G.WC1  
LOCATION : POND VALLEY  
FORMATION : WC1

SECTION : PV6  
FEATURE : TOUGH XBEDS (DM)

N : 30 VECTOR MEAN : 275.7 STANDARD DEVIATION : 11.3  
282 265 292 276 300 284 287 259 290 271 269 284 259 273 273 287 257 263  
271 290 266 276 276 285 255 268 273 275 289 277

DATA FROM PPV6RR5G.WC2  
LOCATION : POND VALLEY  
FORMATION : WC2

SECTION : PV6  
FEATURE : RIPPLE LAMINATION

N : 32 VECTOR MEAN : 271.8 STANDARD DEVIATION : 6.5  
282 267 267 278 286 284 270 260 272 275 266 273 266 275 266 281 283 268  
271 272 265 265 269 277 264 272 276 278 268 268 269 265

DATA FROM PPV7DC5G.WC1  
LOCATION : POND VALLEY  
FORMATION : WC1  
FACE

SECTION : PV7  
FEATURE : TROUGH XBEDS (DM) IN CLIFF

N : 23 VECTOR MEAN : 275.5 STANDARD DEVIATION : 13.6  
278 280 264 277 273 258 292 282 278 267 242 307 266 266 275 278 285 276  
270 270 263 293 298

DATA FROM PPV7LO5G.WC1  
LOCATION : POND VALLEY  
FORMATION : WC1  
BASE

SECTION : PV7  
FEATURE : STEMS 1 TO 3 CM O.4 M ABOVE

N : 10 VECTOR MEAN : 253.7 STANDARD DEVIATION : 27.7  
255 236 228 250 308 296 226 242 230 276

DATA FROM PPV8DC5G.WC1  
LOCATION : POND VALLEY SOUTH END  
FORMATION : WC1

SECTION : PV8  
FEATURE : TROUGH XBEDS (DM)

N : 12 VECTOR MEAN : 255.5 STANDARD DEVIATION : 18.7  
240 248 262 274 243 283 212 260 250 260 251 281

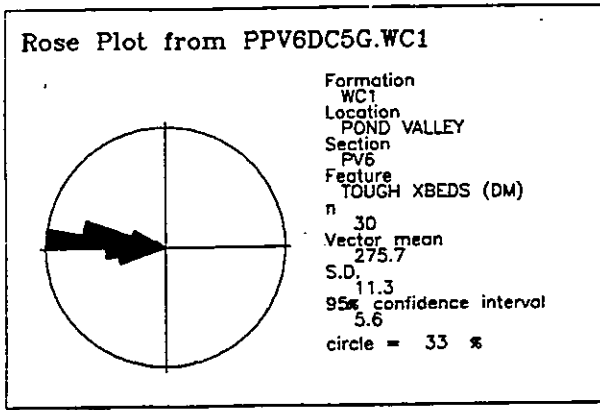
DATA FROM PPV8RR5G.WC2  
LOCATION : POND VALLEY SOUTH END  
FORMATION : WC2

SECTION : PV8  
FEATURE : RIPPLE LAMINATION

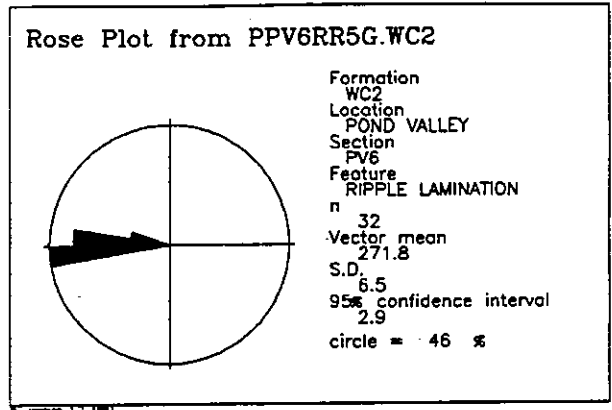
N : 12 VECTOR MEAN : 260.6 STANDARD DEVIATION : 23.1  
224 243 255 283 233 275 279 289 230 275 290 250



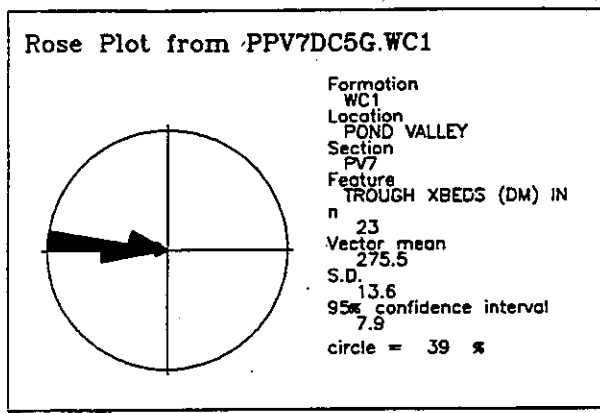
**Figure 269**



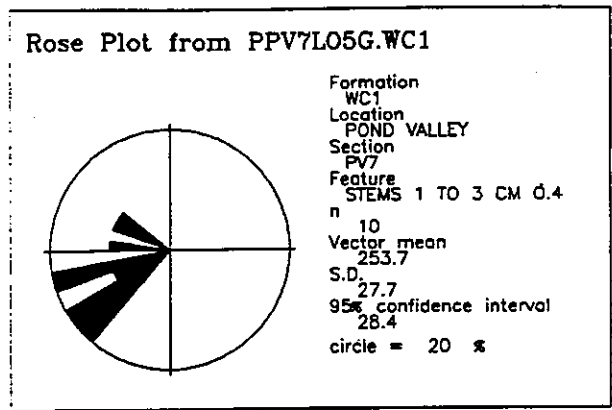
**Figure 270**



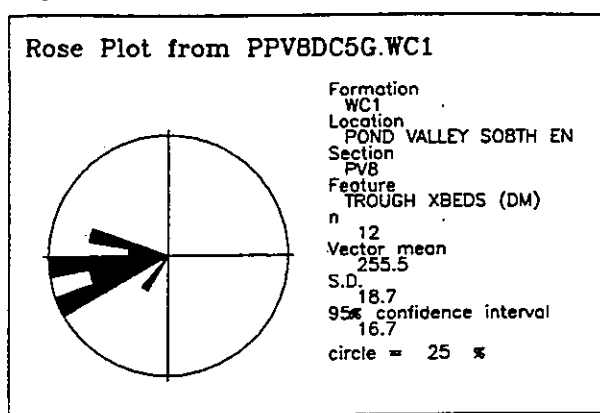
**Figure 271**



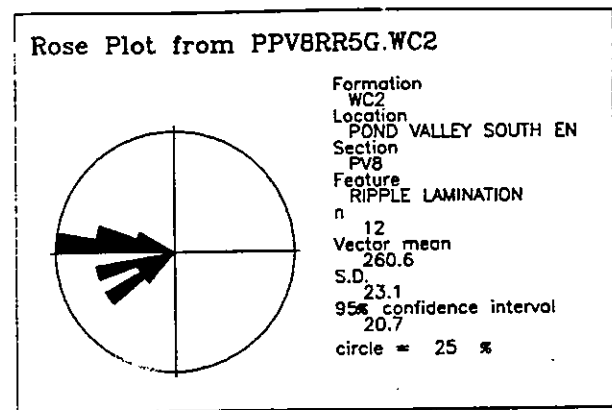
**Figure 272**



**Figure 273**



**Figure 274**



DATA FROM PT02DC5G.WC1

LOCATION : TRUDGE VALLEY W SIDE SECTION : TV2  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS ON BLUFFS  
AND PLATFORMS  
N : 22 VECTOR MEAN : 243.8 STANDARD DEVIATION : 12.4  
245 272 258 238 218 229 251 243 247 241 228 260 243 237 263 244 242 245  
240 258 233 231

DATA FROM PT04DC5G.WC1

LOCATION : TRUDGE VALLEY E SIDE SECTION : TV04  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS IN UPPER  
0.5 M PLATFORM  
N : 20 VECTOR MEAN : 233.9 STANDARD DEVIATION : 10.4  
256 217 240 215 231 219 236 240 228 236 250 228 245 234 229 234 237 246  
224 234

DATA FROM PT05DC5G.WC1

LOCATION : TRUDGE VALLEY E SIDE SECTION : TV 5  
FORMATION : WC1 UPPER 0.5 M FEATURE : DM TROUGH XBEDS ON  
PLATFORM  
N : 30 VECTOR MEAN : 237.8 STANDARD DEVIATION : 11.3  
218 233 237 218 259 250 229 222 239 246 255 244 239 219 233 242 257 237  
242 228 237 237 226 228 236 237 257 237 253 240

DATA FROM PT05RR5G.WC2

LOCATION : TV05 SECTION : TV05  
FORMATION : WC2 FEATURE : RIPPLE LAM POOR  
N : 10 VECTOR MEAN : 242.8 STANDARD DEVIATION : 10.8  
250 252 256 249 239 238 222 238 255 229

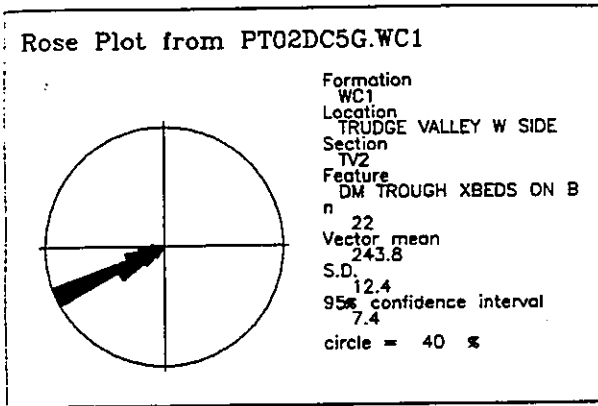
DATA FROM PT1ADC5G.WC1

LOCATION : TRUDGE VALLEY W SIDE SECTION : TV1A 50 M N OF TV1  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS ON UPPER  
.5 M OF PLATFORM  
N : 30 VECTOR MEAN : 246.3 STANDARD DEVIATION : 15.5  
272 290 240 248 257 250 230 219 245 219 242 229 242 232 229 250 258 237  
245 264 237 245 244 233 245 251 260 245 265 270

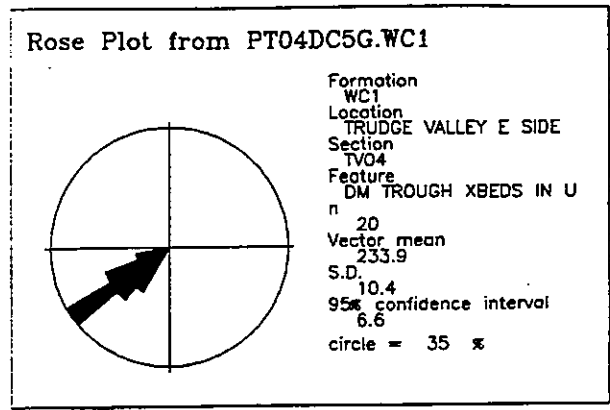
DATA FROM PT1ADT5G.WC2

LOCATION : TRUDGE VALLEY W SIDE SECTION : TV1A LOWER M  
FORMATION : WC2 LOWER M FEATURE : DM PLANAR  
XBEDS ON PLATFORM  
N : 16 VECTOR MEAN : 279.1 STANDARD DEVIATION : 6.1  
295 277 283 273 280 269 281 287 279 283 273 277 276 263 273 278

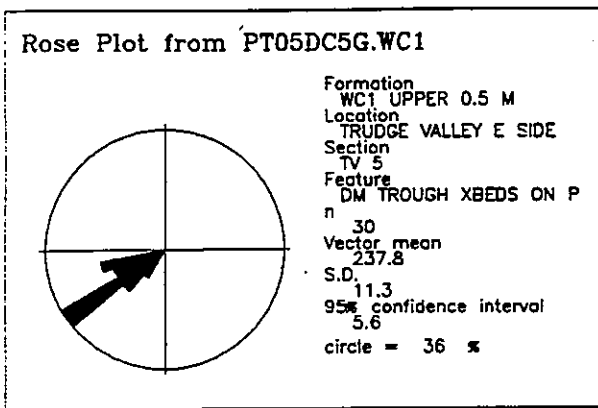
**Figure 275**



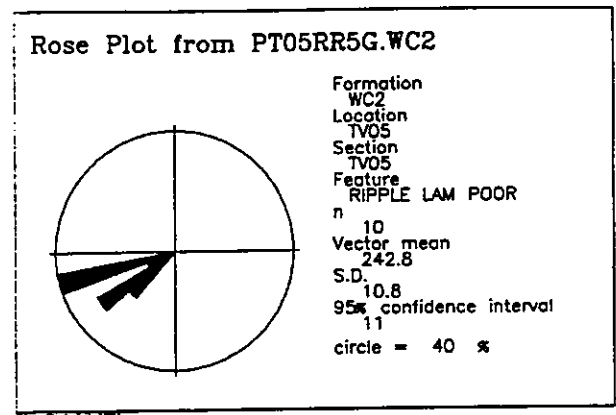
**Figure 276**



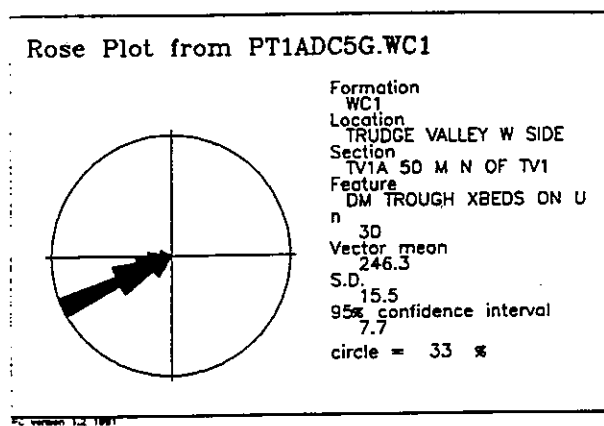
**Figure 277**



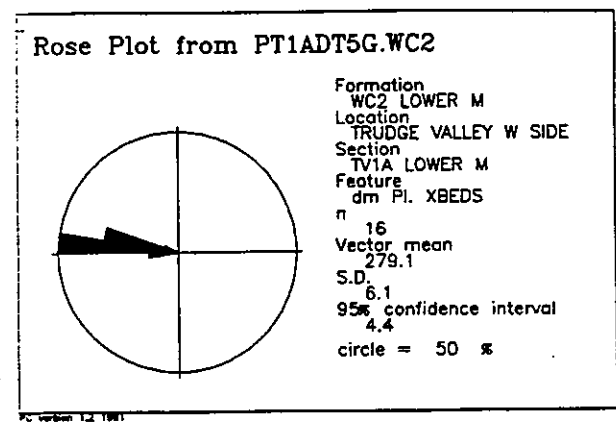
**Figure 278**



**Figure 279**



**Figure 280**



DATA FROM PT1ARR5G.WC1

LOCATION : TRUDGE VALLEY W SIDE SECTION : TV1A 50 M N OF TV1

FORMATION : WC2 LOWER 0.5

M FEATURE : RIPPLE LAM ON PLATFORMS

N : 24 VECTOR MEAN : 250.8 STANDARD DEVIATION : 12.6

273 258 232 255 247 237 270 229 245 232 270 270 253 241 257 246 265 250  
260 249 255 245 245 237

DATA FROM PT1BRR5G.WC2

LOCATION : TRUDGE VALLEY W SIDE SECTION : TV1A 50 M N OF TV1

FORMATION : WC2

FEATURE : RIPPLE LAM IN LOWER M OF

CHANNEL STK 95 DEG

N : 10 VECTOR MEAN : 247.3 STANDARD DEVIATION : 17.6

263 264 255 212 254 252 268 224 247 232

DATA FROM PT3ADC5G.WC1

LOCATION : TRUDGE VALLEY E SIDE SECTION : TV3A

FORMATION : WC1

FEATURE : DM TROUGH XBEDS IN UPPER

M

N : 14 VECTOR MEAN : 241.0 STANDARD DEVIATION : 13.6

244 247 264 235 252 243 240 237 233 250 254 242 204 228

DATA FROM PT7ADC5G.WC1

LOCATION : THE PIT

SECTION : TV07

FORMATION : WC1

FEATURE : DM TROUGH XBEDS ON

PLATFORMS

N : 30 VECTOR MEAN : 247.1 STANDARD DEVIATION : 10.0

271 254 270 232 250 249 242 258 242 243 233 251 240 252 247 237 250 246  
255 253 224 251 243 242 240 242 256 260 243 240

DATA FROM PT7ARR5G.WC1

LOCATION : THE PIT

SECTION : TV7A

FORMATION : WC1 UPPER M

FEATURE : RIPPLE LAM

N : 30 VECTOR MEAN : 245.0 STANDARD DEVIATION : 16.4

212 237 232 228 246 231 245 255 225 228 250 271 210 233 237 236 250 266  
270 257 278 263 243 233 253 246 256 251 261 249

DATA FROM PW01RR4G.WC1

LOCATION : WEST END W

SECTION : W01

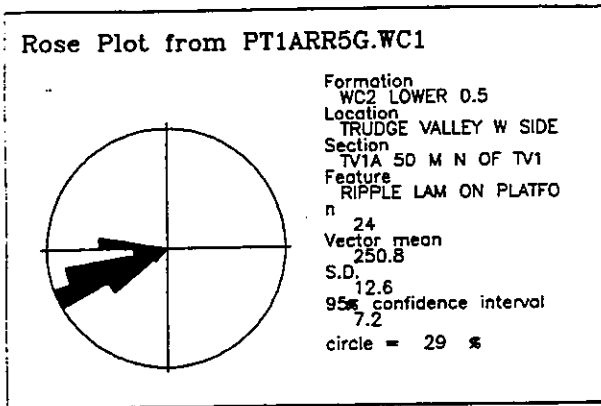
FORMATION : WC1

FEATURE : RIPPLE LAM

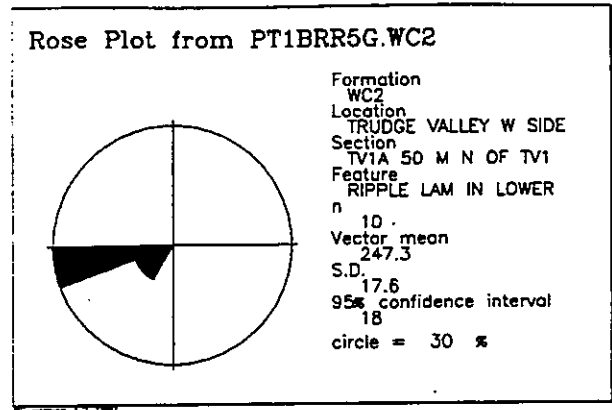
N : 30 VECTOR MEAN : 219.8 STANDARD DEVIATION : 16.1

241 243 229 234 220 214 218 224 214 203 221 214 217 226 230 228 209 199  
228 232 218 216 226 228 241 224 156 209 200 223

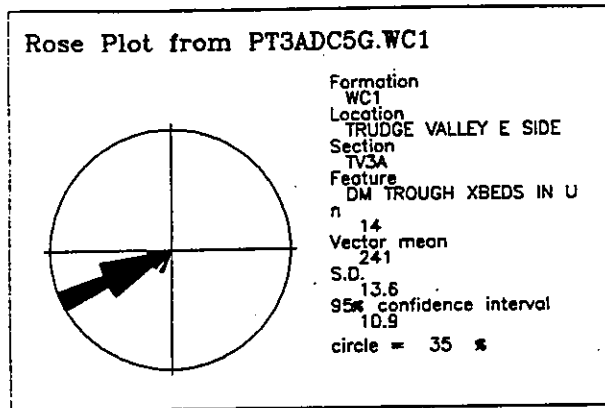
**Figure 281**



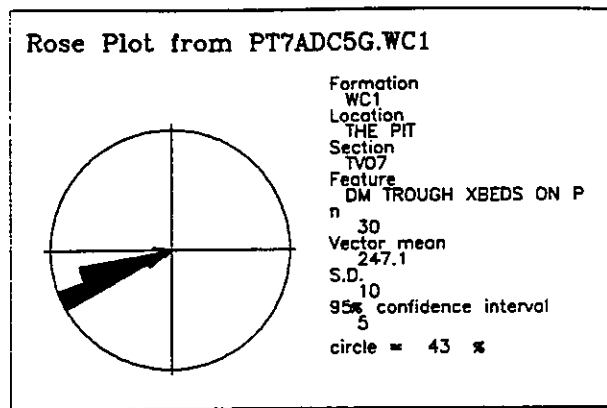
**Figure 282**



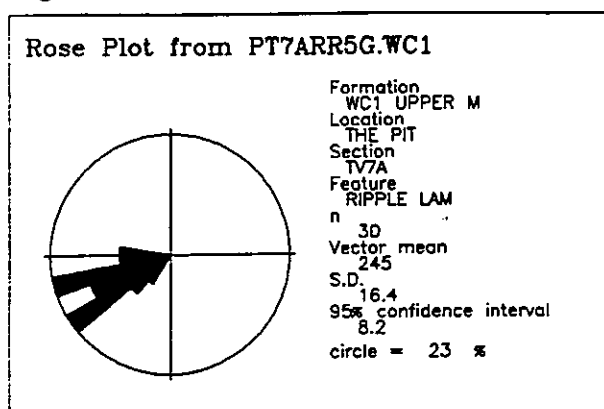
**Figure 283**



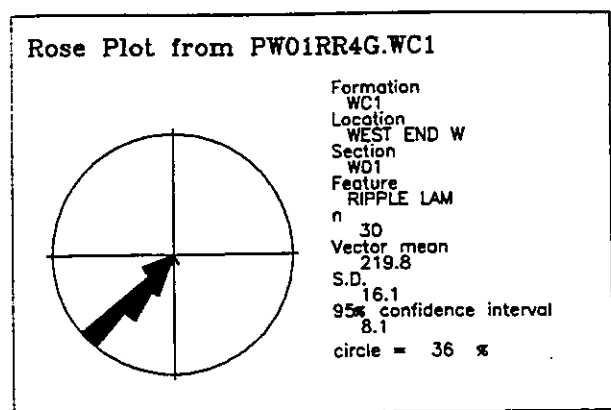
**Figure 284**



**Figure 285**



**Figure 286**



DATA FROM PW02DC4G.WC1  
LOCATION : WEST END MID SECTION : W02  
FORMATION : WC1 FEATURE : DM TROUGH XBEDS  
N : 28 VECTOR MEAN : 235.4 STANDARD DEVIATION : 8.0  
224 228 231 236 235 217 230 225 237 234 232 243 238 238 231 246 237 237  
244 251 237 235 246 231 225 252 232 242

DATA FROM PW02PL4G.WC1  
LOCATION : WEST END MID SECTION : W02  
FORMATION : WC1 FEATURE : PARTING LIN  
N : 22 VECTOR MEAN : 241.8 STANDARD DEVIATION : 7.3  
253 249 240 247 252 238 250 241 245 237 248 243 245 247 247 243 243 231  
230 233 232 227

DATA FROM PW02RR4G.WC2  
LOCATION : WEST END MID SECTION : W02  
FORMATION : WC2 FEATURE : RIPPLE LAM  
N : 10 VECTOR MEAN : 237.4 STANDARD DEVIATION : 7.6  
244 247 238 249 230 230 228 228 243 238

DATA FROM PW03DC4G.WC1  
LOCATION : WEST END BY FOREST SECTION : W03  
FORMATION : WC1 FEATURE : DM TOUGH XBEDS ON  
PLATFORM  
N : 12 VECTOR MEAN : 219.8 STANDARD DEVIATION : 11.7  
220 244 208 208 212 208 211 219 214 231 237 227

DATA FROM PW03RR4G.WC1  
LOCATION : WEST END BY FOREST SECTION : W03  
FORMATION : WC1 FEATURE : RIPPLE LAM ON PLATFORM  
N : 20 VECTOR MEAN : 232.7 STANDARD DEVIATION : 7.3  
251 233 224 242 240 228 239 230 221 230 231 219 239 231 240 229 233 236  
229 231

DATA FROM PW03RR4G.WC2  
LOCATION : WEST END BY FOREST SECTION : W03  
FORMATION : WC2 FEATURE : RIPPLE LAM THIN BEDS IN MST  
N : 16 VECTOR MEAN : 232.3 STANDARD DEVIATION : 5.8  
241 241 232 241 221 233 235 236 234 227 225 234 230 232 223 232

Figure 287

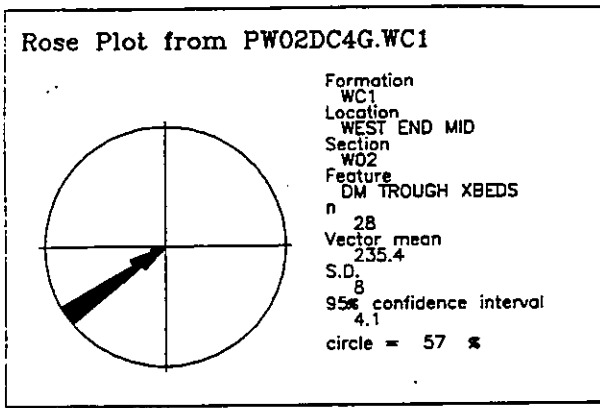


Figure 288

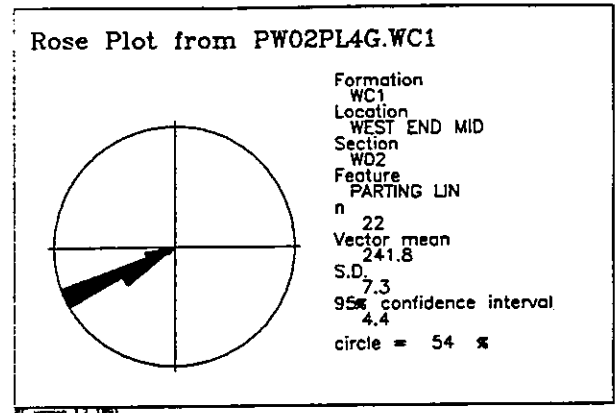


Figure 289

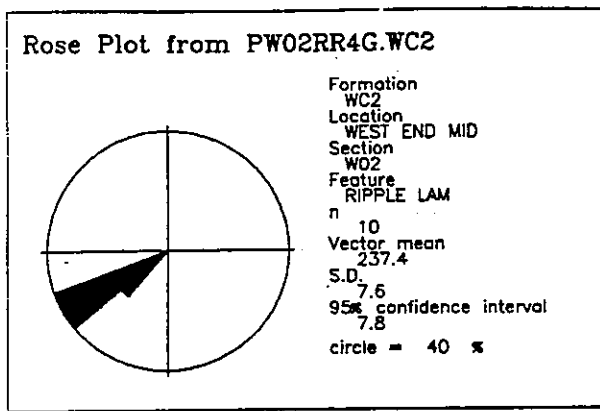


Figure 290

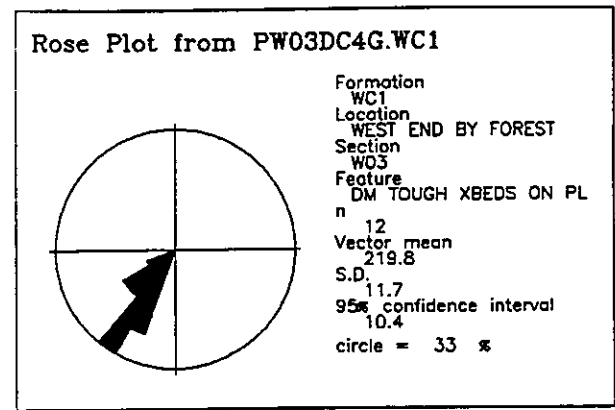


Figure 291

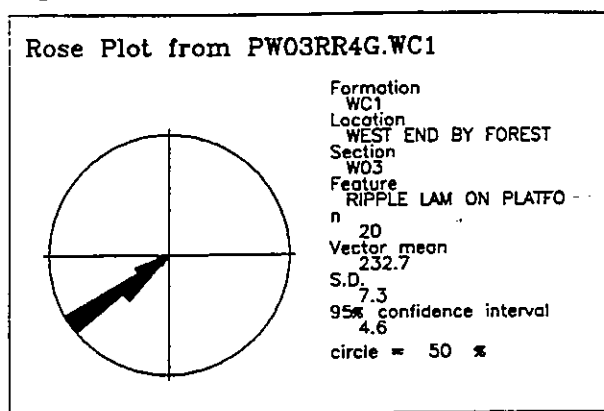
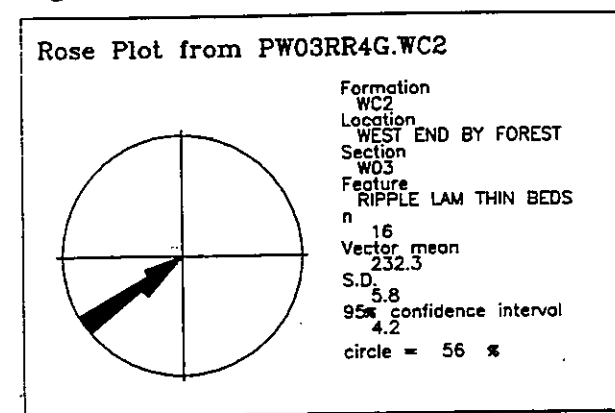


Figure 292



DATA FROM PW06RR4G.WC1

LOCATION : WEST END N OF FOREST      SECTION : W06  
FORMATION : WC1 10 CM THICK      FEATURE : RIPPLE LAM  
N : 10 VECTOR MEAN : 227.4      STANDARD DEVIATION : 8.3  
236 227 231 212 217 218 233 236 236 228

DATA FROM PW1ARR4G.WC1

LOCATION : WEST END S      SECTION : 50 M E OF W1  
FORMATION : WC1      FEATURE : RIPPLE LAM  
N : 30 VECTOR MEAN : 232.6      STANDARD DEVIATION : 9.2  
214 228 225 235 235 229 249 246 231 238 244 229 247 220 234 232 223 219  
230 228 218 231 242 228 239 235 249 225 243 233



Figure 293

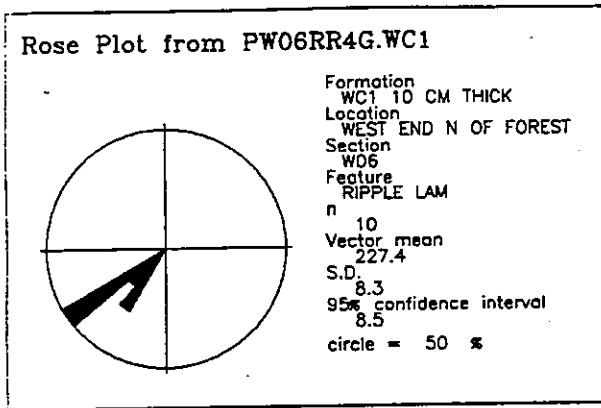
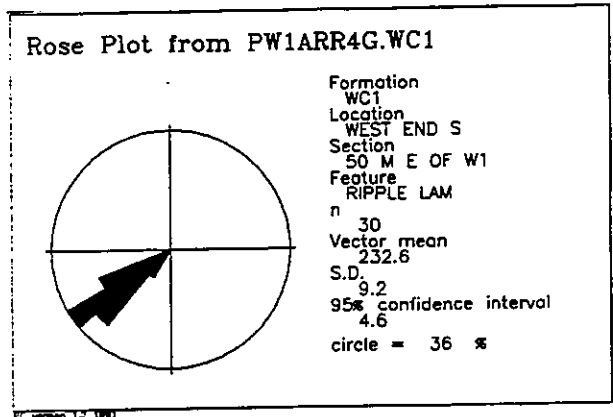
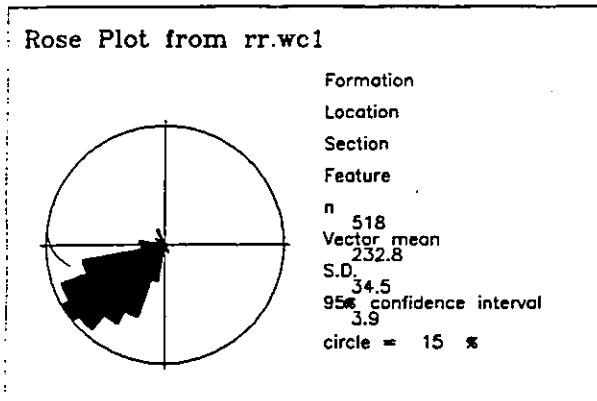


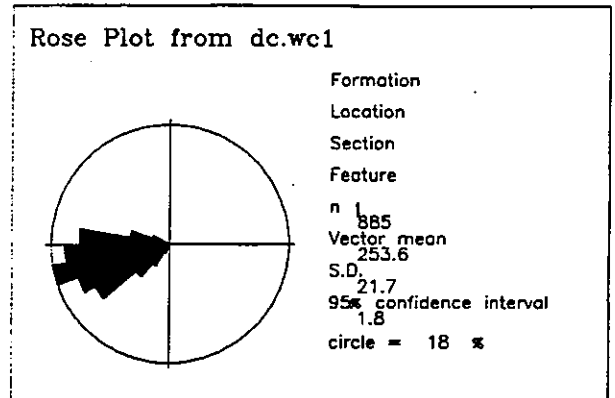
Figure 294



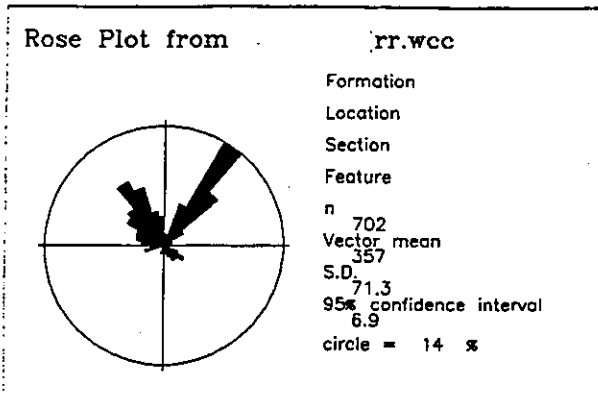
**SECTION 3**  
**SELECTED COMPOSITE DIAGRAMS FROM ALLAN HILLS**



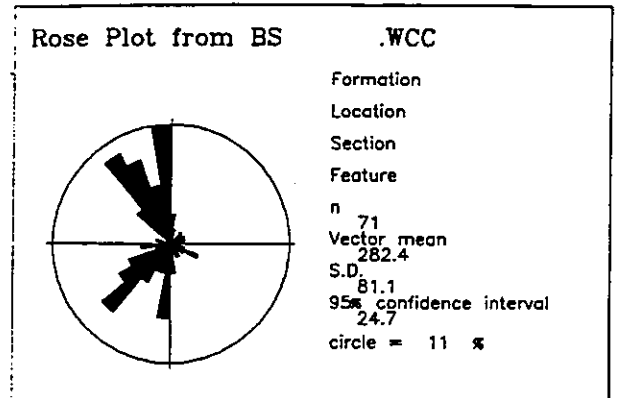
**Figure 295** Ripples from wc1 (rr.wc1).



**Figure 296** Decimetre-scale trough crossbeds from wc1 (dc.wc1).



**Figure 297** Ripples from wcc (rr.wcc).



**Figure 298** Epsilon crossbeds from wcc (BS.WCC).

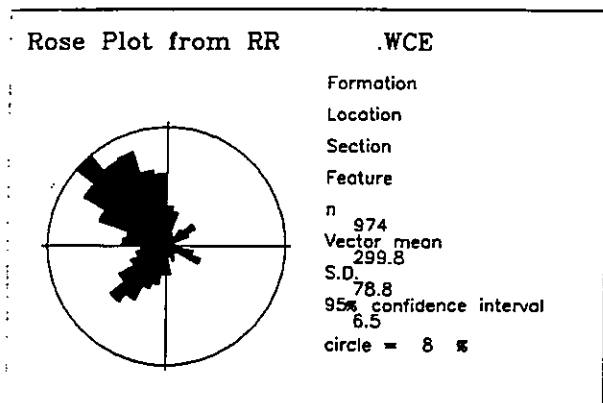


Figure 299 Ripples from wce (????rr?.wce).

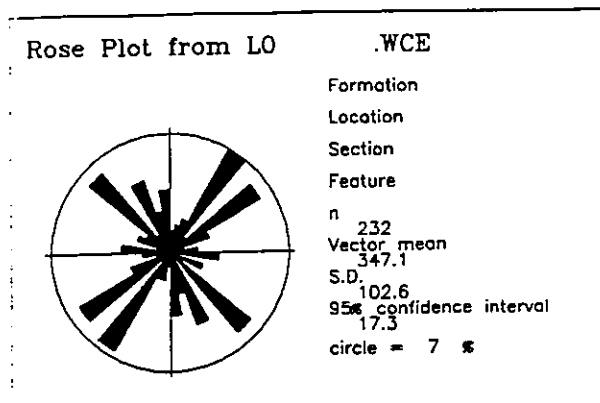


Figure 300 Logs from wce (????lo?.wce).

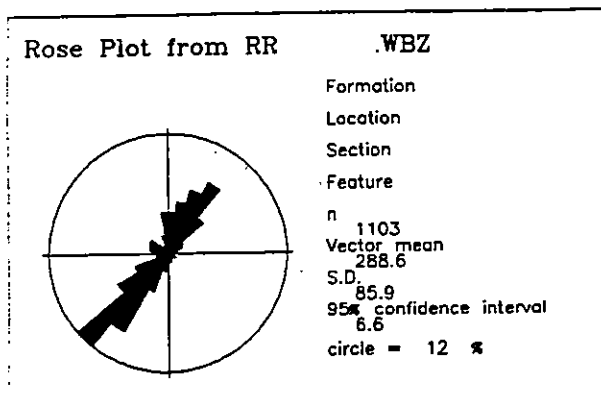


Figure 301 Ripples from wbz (????rr?.wbz).

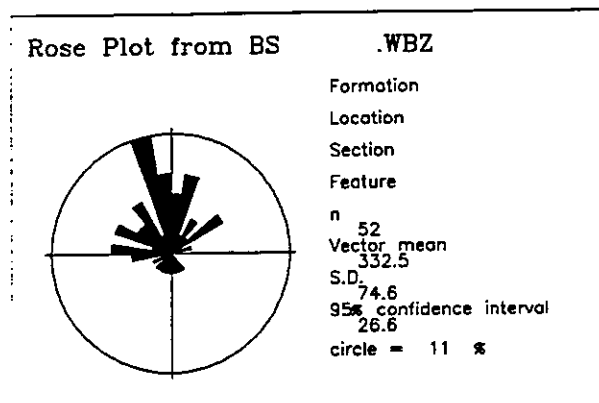


Figure 302 Epsilon crossbeds from wbz (????bs?.wbz).

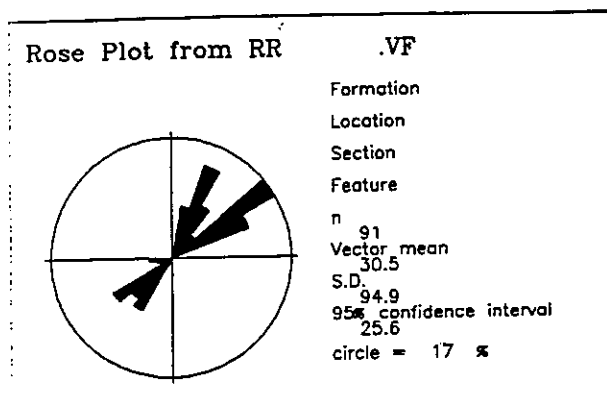


Figure 303 Ripples from vf (????rr?.vf).

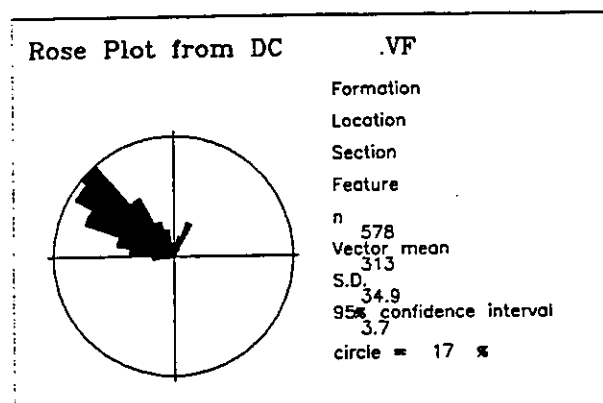


Figure 304 Decimetre-scale trough crossbeds from vf (????dc?.vf).

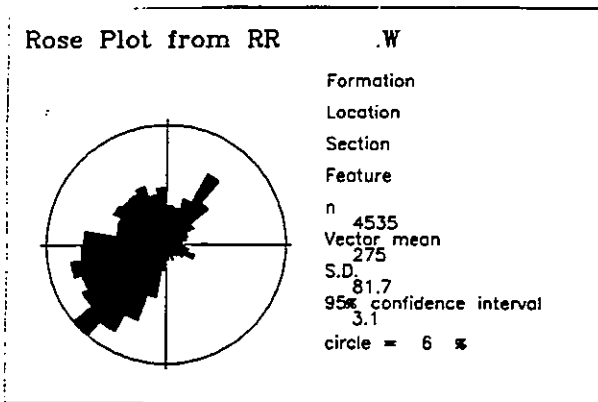


Figure 305 Ripples from Weller Coal Measures at Allan Hills (????rr?.w??).

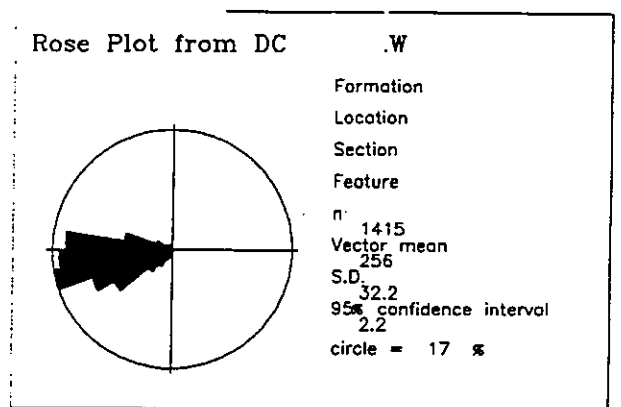


Figure 306 Decimetre-scale trough crossbeds from Weller Coal Measures at Allan Hills (????dc?.w??).

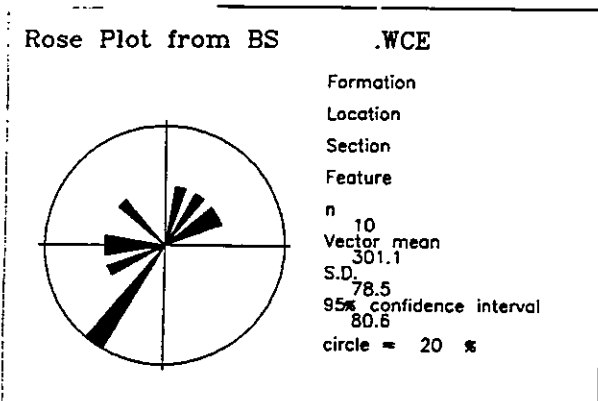


Figure 307 Epsilon crossbeds from Weller Coal Measures at Allan Hills (????bs?.wce).

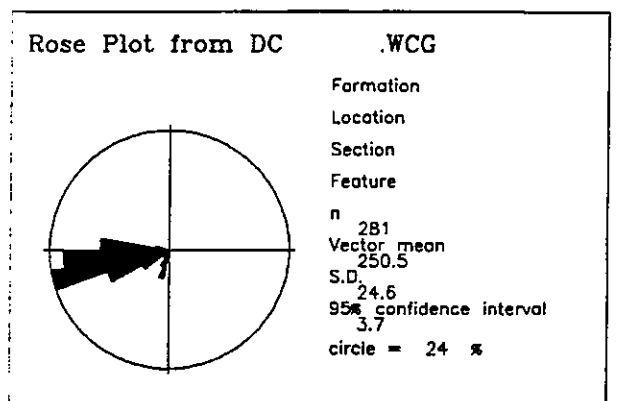


Figure 308 Decimetre-scale trough crossbeds from Weller Coal Measures at Allan Hills (???dc?.wcg).

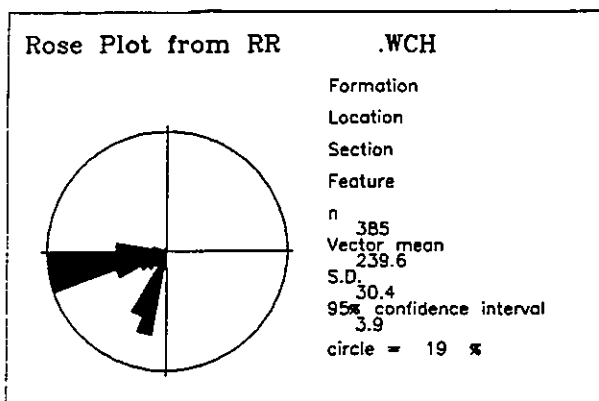


Figure 309 Ripples from Weller Coal Measures at Allan Hills (????rr?.wch).

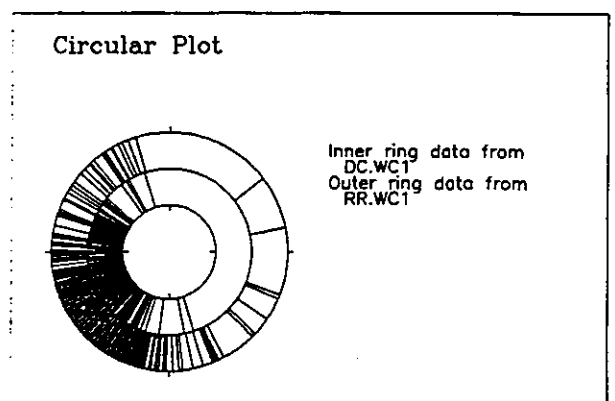
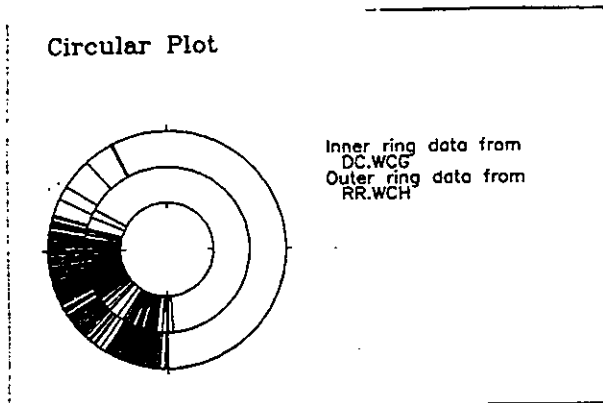
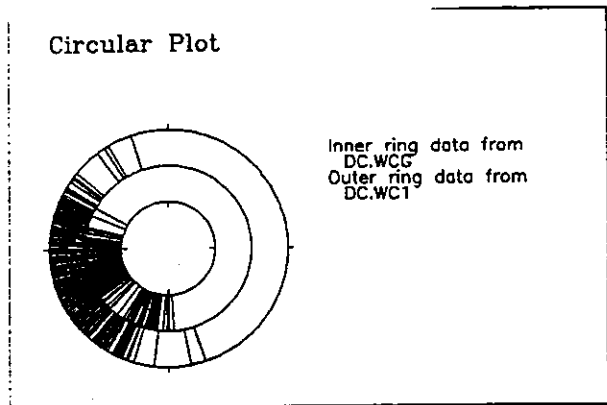


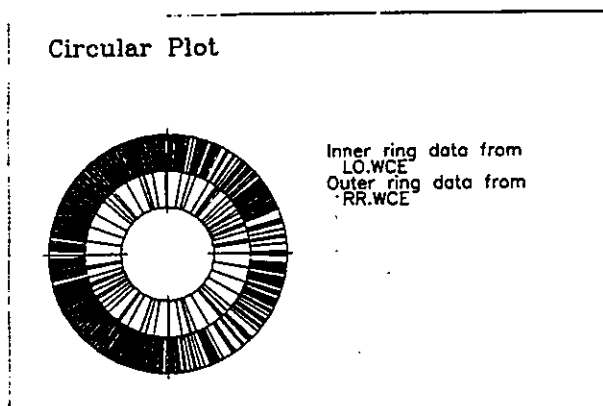
Figure 310 Comparison between ripples and trough crossbeds in Weller Coal Measures at Allan Hills (wc1).



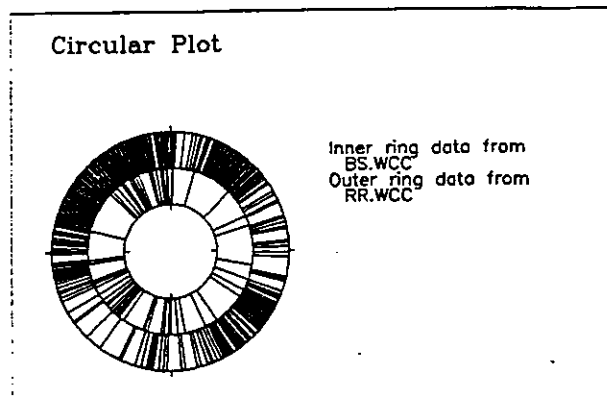
**Figure 311** Comparison between trough crossbeds in wcg and ripples in the overlying unit (wch).



**Figure 312** Comparison between trough crossbeds in wc1 and wcg.



**Figure 313** Comparison between log orientations and ripples in wce.



**Figure 314** Comparison between epsilon crossbed orientation and ripples in wcc.

**SECTION 4  
PALEOCURRENT DATA FROM OTHER LOCALITIES  
IN SOUTHERN VICTORIA LAND**

Collected by K. J. Woolfe<sup>1</sup> with assistance from M. J. Arnot<sup>2</sup> and D. P. Zwartz<sup>3</sup>.

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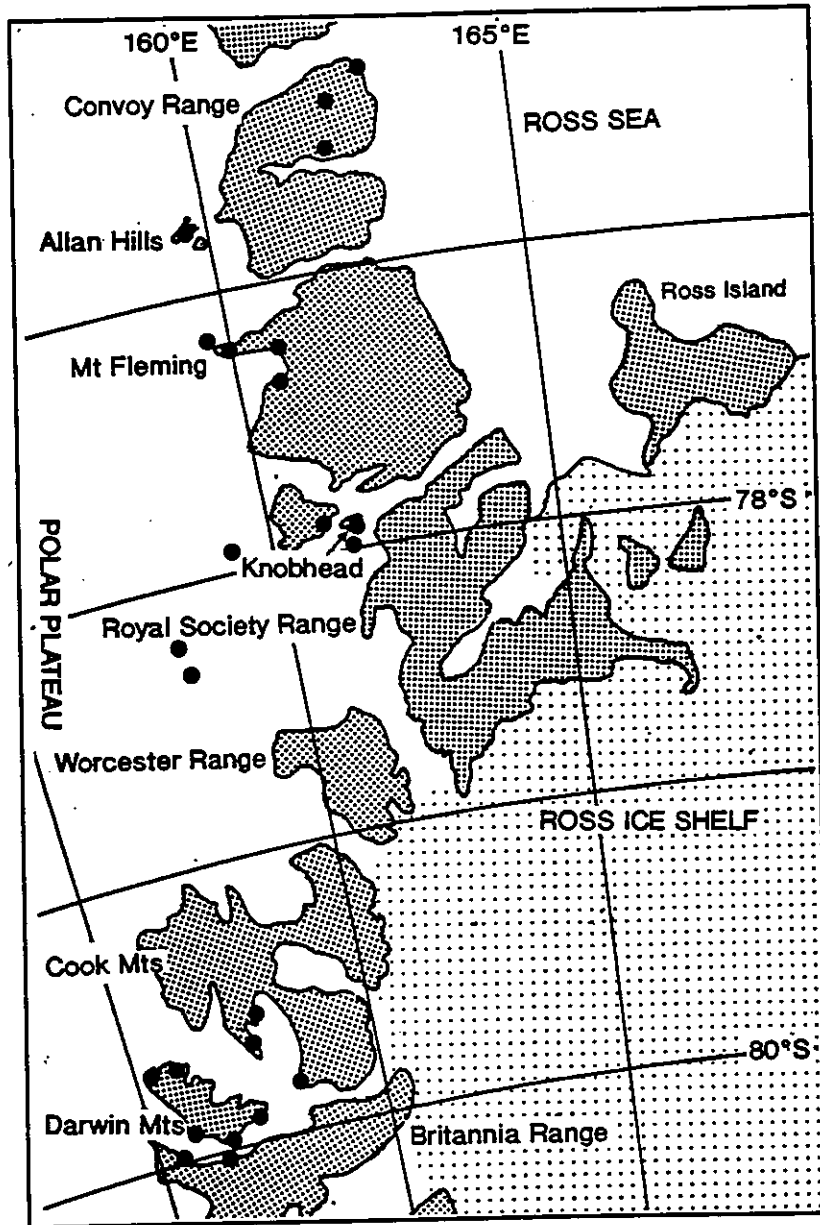


Figure 315 Map showing localities visited during the collection of paleocurrent data. Dark stipple shows areas of high relief, light stipple shows the Ross Ice Shelf.

AGE	LITHOLOGY	FORMATION	THICKNESS (m)	DESCRIPTION
TAYLOR GROUP DEVONIAN		Aztec Siltstone	~ 220	Interbedded mudstone and medium sandstone, well developed paleosols and locally abundant freshwater fish remains.
		Beacon Heights Orthoquartzite	~ 330	Homogeneous quartzose medium sandstone, subordinate shale and pebble conglomerate. Trace fossils include scattered <u>Beaconites</u> and <u>Skolithos</u> , and stems of <u>Haplosigma irregulare</u> .
		Arena Sandstone	~ 385	Homogeneous fine to medium quartzose sandstone with clay cements interbedded with subordinate shale. Diverse trace fossil assemblage include <u>Beaconites</u> , <u>Diplichnites gouldi</u> , <u>Skolithos</u> , <u>Didymaulichnus</u> , <u>Didymaulichnus</u> and <u>Cruziana</u> .
		Altar Mountain Formation	~ 235	Interbedded quartzose sandstone with subordinate shale. Basal unit forms Odin Arkose member, consisting of coarse quartz sandstone and granule conglomerate. Trace fossils <u>Skolithos</u> , <u>Beaconites</u> , <u>Diplichnites gouldi</u> , <u>Didymaulichnus</u> spp., and <u>Cruziana</u> spp.
		New Mountain Sandstone	~ 250	Quartzose sandstone with nearly ubiquitous cross bedding. Granule conglomerate occurs locally at base. Abundant trace fossils include <u>Heimdallia chatwini</u> , <u>Skolithos linearis</u> and <u>Diplichnites gouldi</u> .
		Terra Cotta Siltstone	~ 80	Alternating paper shale and sandstone. Trace fossils <u>Cruziana</u> spp., <u>Rusophycus</u> spp., <u>Didymaulichnus</u> spp., rare <u>Diplichnites gouldi</u> , <u>Heimdallia chatwini</u> .
		Windy Gully Sandstone	~ 80	
			Basement	

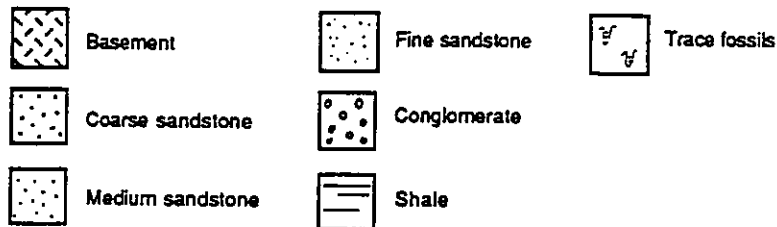


Figure 316(i) Stratigraphic summary of the Taylor Group (lower Beacon Supergroup) in southern Victoria Land (from Arnot 1991<sup>1</sup>).



AGE	LITHOLOGY	FORMATION	THICKNESS (m)	DESCRIPTION
VICTORIA GROUP	TRIASSIC	Member D	~ 520	Member A dominated by alternating medium to fine sandstone and shale. Rootlet horizons and rare paleosols.
		Member C		Member B massive horizontally laminated or trough cross-bedded sandstone.
		Member B		Member C interbedded medium sandstone and shale, subordinate carbonaceous shales and coal and rootlet horizons.
		Member A		Member D massive cross stratified medium sandstone.
		Feather Conglomerate		Trough crossbedded coarse to fine sandstone, lower part conglomeratic especially in the south, well developed paleosols. Rare fossil wood and peat.
PERMIAN	Weller Coal Measures	Member C	~ 250	Interbedded sandstone, sandy mudstone, carbonaceous shale and coal. Fossil wood and leaves from Glossopteris and Gangamopteris flora.
		Member B		Member A interbedded sandstone sheets and coal, Maya Arkose at base.
		Member A		Member B sandy mudstone and shale. Member C interbedded sandstone sheets carbonaceous mudstone, mudstone and coal.
CARBONIFEROUS		Metschel Tillite	~ 70	Massive diamictite, minor varvoid sediments and fluvial sandstone.
		Aztec Siltstone	70 +	





	Sandstone		Coal
	Shale		
	Diamictite		

Figure 316(ii) Stratigraphic summary of the Victoria Group in southern Victoria Land (from Arnot 1991<sup>1</sup>).

<sup>1</sup> Arnot, M. J. 1991: C/S geochemistry of Beacon Supergroup rocks, from southern Victoria Land and the Ohio Range, Transantarctic Mountains, Antarctica. Unpublished M.Sc. thesis, Victoria University of Wellington. 72 p.

DATA FROM K200DCMF.WA

LOCATION : S Ridge Mt Fleming

SECTION : k200dcmf.wa

FORMATION : Member A

FEATURE : dm trough x beds

N : 48 VECTOR MEAN : 161.0 STANDARD DEVIATION : 239.0

284 279 290 287 134 144 142 071 135 270 279 144 129 324 346 133 165 148

136 321 315 154 320 148 114 334 326 122 315 299 288 113 277 300 295 280

147 170 088 101 340 124 136 168 165 100 100 124

DATA FROM K201DCMF.WC

LOCATION : mt fleming

SECTION :

FORMATION :

FEATURE : dm trough x beds

N : 30 VECTOR MEAN : 327.6 STANDARD DEVIATION : 49.8

273 350 312 346 358 341 346 344 343 342 338 004 330 317 240 250 265 258

240 238 236 345 030 306 050 001 350 347 016 034

DATA FROM K203RRPM.VWC

LOCATION : East ridge Portal Mtn

SECTION : 1939 m

FORMATION : vwc

FEATURE : ripples

N : 8 VECTOR MEAN : 22.4 STANDARD DEVIATION : 6.4

020 012 031 032 024 025 019 017

DATA FROM K204BSPM.VWC

LOCATION : east ridge Portal Mtn

SECTION : 1940 m

FORMATION : vwc

FEATURE : Point Bar

N : 1 VECTOR MEAN : 95.0 STANDARD DEVIATION : 0.0

095

DATA FROM K204RRPM.VWC

LOCATION : east ridge Portal Mtn

SECTION : 1940 m

FORMATION : vwc

FEATURE : ripples

N : 7 VECTOR MEAN : 160.1 STANDARD DEVIATION : 2.2

160 157 162 164 159 158 161

DATA FROM K205DMPM.VF

LOCATION : east ridge Portal Mtn

SECTION : 2040 m

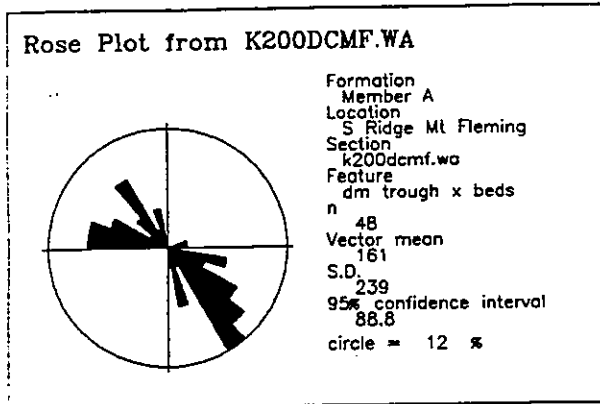
FORMATION : vf

FEATURE : dm trough xbeds

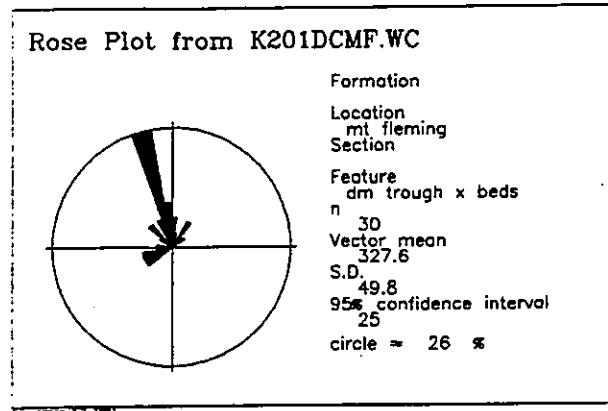
N : 10 VECTOR MEAN : 0.1 STANDARD DEVIATION : 5.6

000 002 350 002 005 351 010 359 002 000

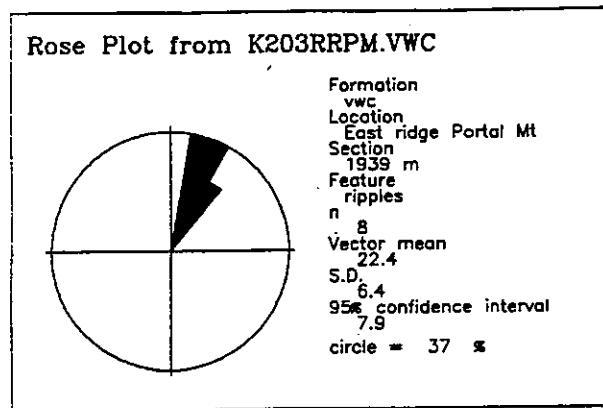
**Figure 317**



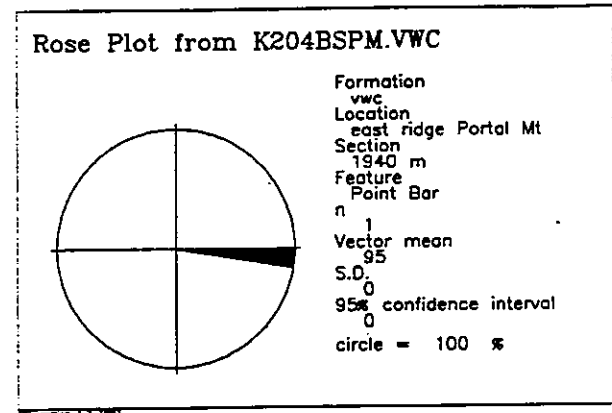
**Figure 318**



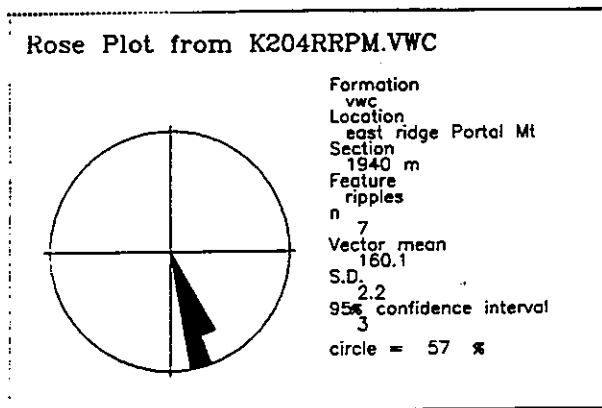
**Figure 319**



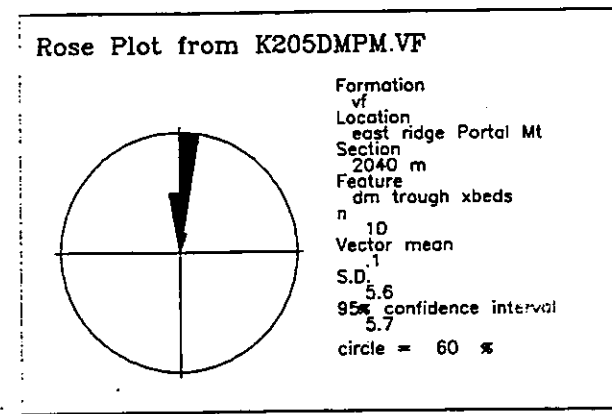
**Figure 320**



**Figure 321**



**Figure 322**



DATA FROM K206RRMC.VLB  
LOCATION : East R. Mt Cream SECTION : k206  
FORMATION : vlb FEATURE : ripples  
N : 12 VECTOR MEAN : 318.7 STANDARD DEVIATION : 10.2  
330 317 315 318 335 314 308 334 309 300 325 320

DATA FROM K207DMMC.VWC  
LOCATION : SE Ridge Mt Crean SECTION : k207  
FORMATION : vwc FEATURE : dm trough xbeds  
N : 20 VECTOR MEAN : 4.9 STANDARD DEVIATION : 8.6  
340 000 358 002 012 008 003 005 015 359 007 016 353 014 359 016 007 004  
013 008

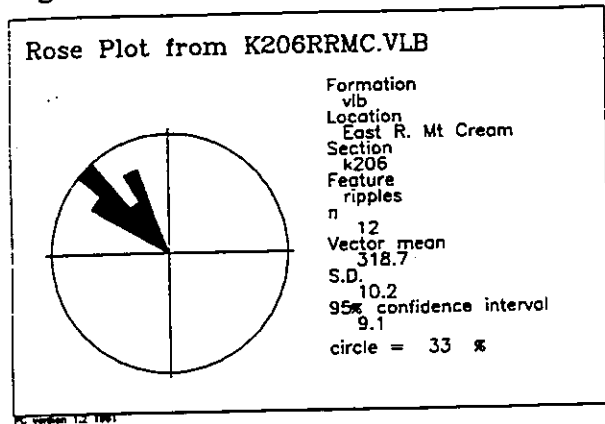
DATA FROM K208RRMC.VWC  
LOCATION : SE Ridge Mt Crean SECTION : k208 (nr 207)  
FORMATION : vwc FEATURE : ripples  
N : 20 VECTOR MEAN : 329.1 STANDARD DEVIATION : 34.0  
335 301 355 326 358 010 005 326 269 262 287 341 000 013 358 000 305 318  
313 282

DATA FROM K209DMMF.TZ  
LOCATION : N ridge Mt Fleming SECTION : basal 2-3 m  
FORMATION : tz FEATURE : dm trough xbeds  
N : 13 VECTOR MEAN : 38.4 STANDARD DEVIATION : 17.5  
077 056 044 051 038 030 011 035 020 017 039 028 055

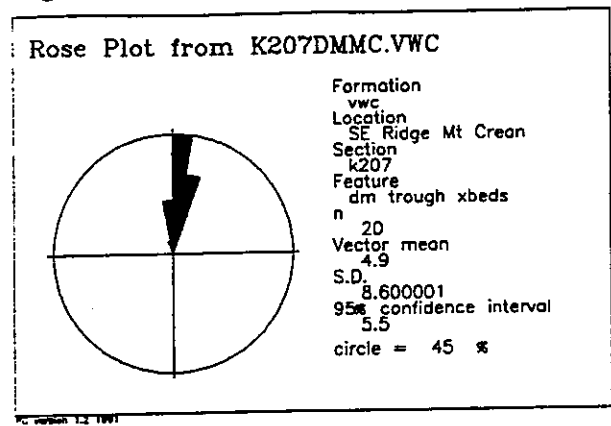
DATA FROM K210DCMF.TZ  
LOCATION : N ridge Mt Fleming SECTION : k209 + 5 m  
FORMATION : tz FEATURE : dm trough xbeds  
N : 13 VECTOR MEAN : 67.2 STANDARD DEVIATION : 16.9  
048 061 065 098 086 068 049 053 046 054 087 088 073

DATA FROM K211DCMF.TZ  
LOCATION : n ridge Mt Fleming SECTION : k210 + 300 m W  
FORMATION : tz FEATURE : dm trough xbeds  
N : 6 VECTOR MEAN : 69.7 STANDARD DEVIATION : 18.4  
045 047 072 081 076 097

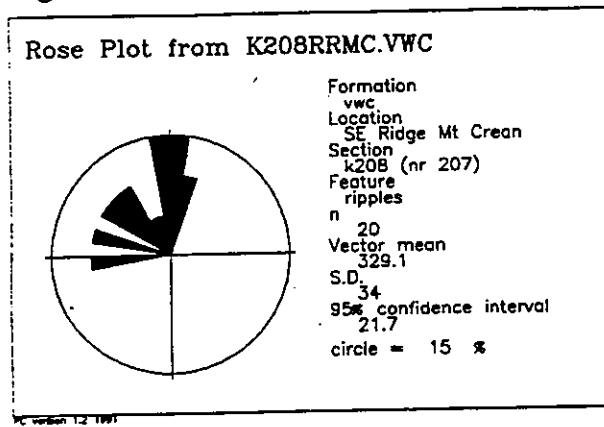
**Figure 323**



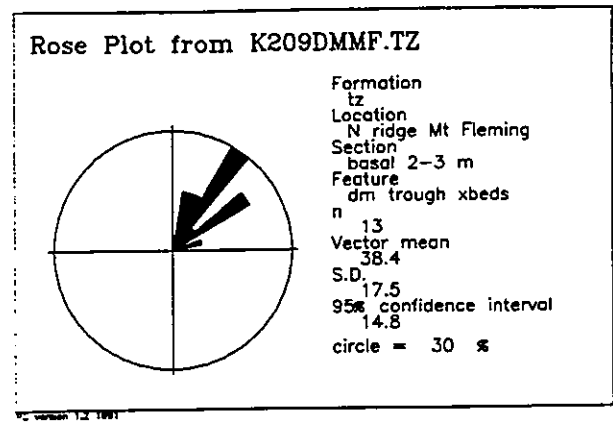
**Figure 324**



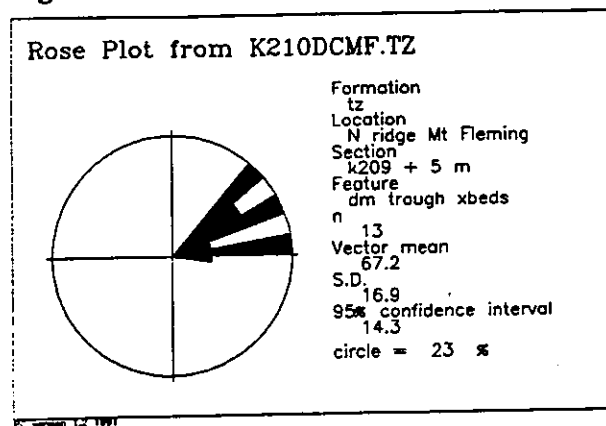
**Figure 325**



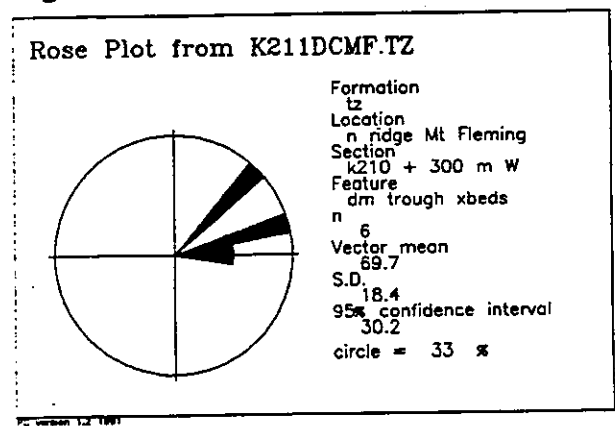
**Figure 326**



**Figure 327**



**Figure 328**



DATA FROM K212DCMF.TZ

LOCATION : Mt Fleming SECTION : K211 + 3 m  
FORMATION : tz FEATURE : dm trough xbeds  
N : 15 VECTOR MEAN : 91.0 STANDARD DEVIATION : 14.5  
104 097 077 086 102 074 098 081 059 101 113 095 109 093 075

DATA FROM K213DCMF.TZ

LOCATION : Mt Fleming SECTION : k212 + 30 m  
FORMATION : tz FEATURE : dm trough xbeds  
N : 27 VECTOR MEAN : 39.7 STANDARD DEVIATION : 13.2  
024 022 028 040 059 046 061 042 026 053 051 052 047 049 044 065 038 035  
032 036 031 040 032 056 029 010 025

DATA FROM K214DCMF.VF

LOCATION : southern R. Mt Fleming SECTION : 1908 m  
FORMATION : vf FEATURE : dm trough xbeds  
N : 10 VECTOR MEAN : 25.2 STANDARD DEVIATION : 4.8  
023 019 026 025 024 028 028 034 029 016

DATA FROM K215DCMF.VWC

LOCATION : Mt Fleming SECTION : K214 - 10 m  
FORMATION : Vwc FEATURE : dm trough xbeds  
N : 3 VECTOR MEAN : 19.6 STANDARD DEVIATION : 3.3  
019 016 024

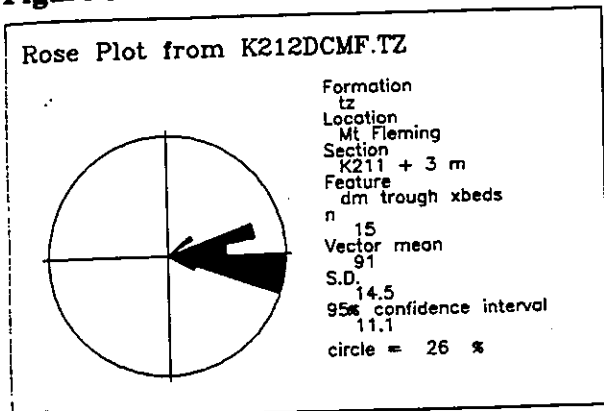
DATA FROM K216DCMF.VWA

LOCATION : mt fleming SECTION : top sst sheet  
FORMATION : vwa FEATURE : dm trough xbeds  
N : 28 VECTOR MEAN : 347.9 STANDARD DEVIATION : 38.0  
355 009 356 005 358 350 335 349 333 328 352 075 180 331 327 324 333 338  
347 346 330 339 354 345 004 357 013 342

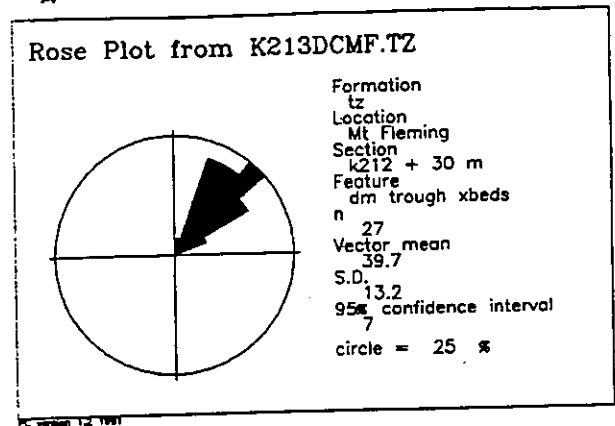
DATA FROM K217DCMF.VWA

LOCATION : mt fleming SECTION : above k200  
FORMATION : vwa FEATURE : dm trough xbeds  
N : 22 VECTOR MEAN : 139.2 STANDARD DEVIATION : 6.6  
145 130 125 138 142 147 139 135 141 144 149 144 132 136 138 135 131 133  
141 139 152 148

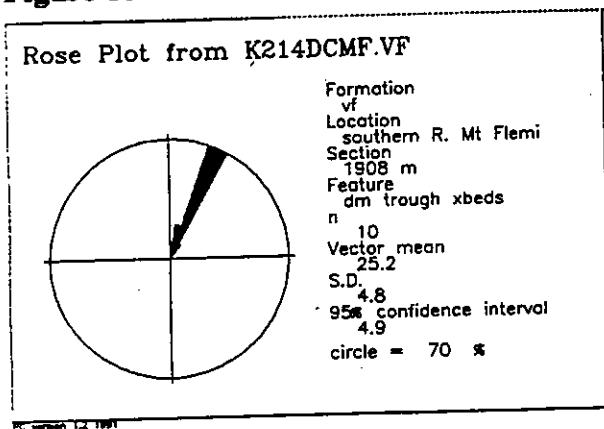
**Figure 329**



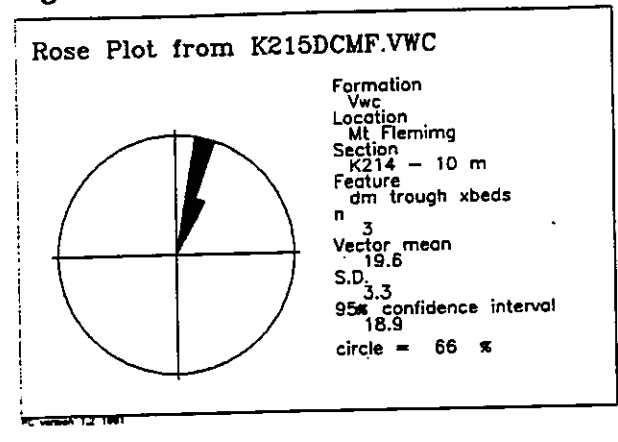
**Figure 330**



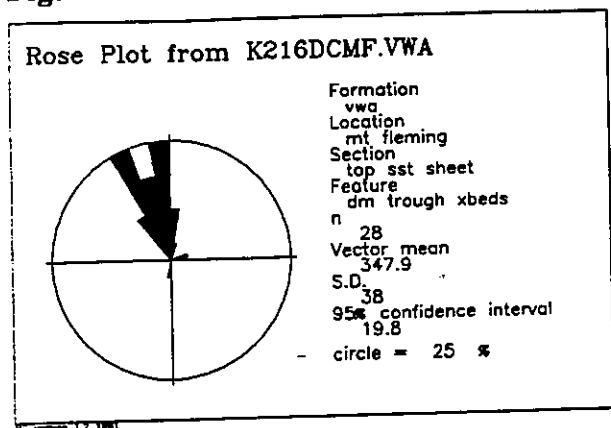
**Figure 331**



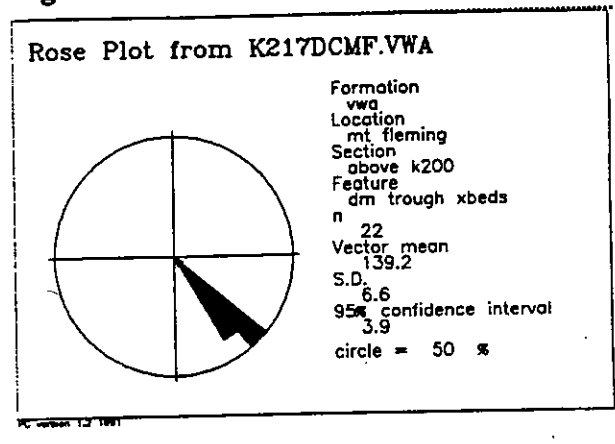
**Figure 332**



**Figure 333**



**Figure 334**



DATA FROM K218DCMF.VF

LOCATION : mt fleming camp

SECTION : camp + 4m (1894 m)

FORMATION : vf

FEATURE : dm trough x beds

N : 76 VECTOR MEAN : 308.0 STANDARD DEVIATION : 24.5

345 315 310 328 326 301 313 324 284 276 307 304 275 271 150 292 297 306  
295 291 311 327 346 313 308 321 310 320 312 283 314 285 313 309 276 310  
309 304 308 317 326 273 288 294 316 321 331 289 297 328 318 329 313 321  
329 315 312 316 304 323 297 318 291 295 307 316 314 273 313 309 308 331  
289 320 313 328

DATA FROM K219DCMF.VF

LOCATION : mt fleming

SECTION : above 218 (1896 m)

FORMATION : vf

FEATURE : dm trough xbeds

N : 18 VECTOR MEAN : 307.6 STANDARD DEVIATION : 12.2

304 317 315 324 325 318 309 321 296 275 290 314 305 301 306 310 308 299

DATA FROM K220DCMF.VF

LOCATION : mt fleming

SECTION : 1920 m above k219

FORMATION : vf

FEATURE : dm trough xbeds

N : 19 VECTOR MEAN : 303.8 STANDARD DEVIATION : 12.3

278 305 295 338 319 313 304 300 296 306 289 302 299 291 312 304 306 314  
303

DATA FROM K221DCMF.VF

LOCATION : mt fleming

SECTION : above k220 1942 m

FORMATION : vf

FEATURE : dm trough xbeds

N : 15 VECTOR MEAN : 300.0 STANDARD DEVIATION : 11.9

289 316 297 305 332 304 293 299 315 296 291 288 295 293 290

DATA FROM K222DCMF.VF

LOCATION : mt fleming

SECTION : 1970 m

FORMATION : vf

FEATURE : dm trough xbeds

N : 8 VECTOR MEAN : 292.6 STANDARD DEVIATION : 11.7

304 292 281 308 280 301 275 300

DATA FROM K223DCMF.VF

LOCATION : mt fleming

SECTION : 2012 m

FORMATION : vf

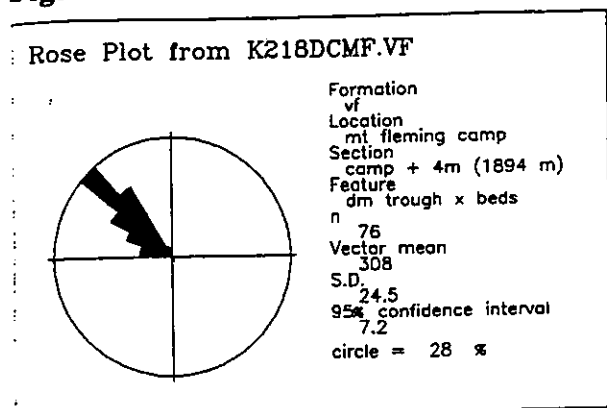
FEATURE : dm trough xbeds

N : 11 VECTOR MEAN : 306.8 STANDARD DEVIATION : 18.7

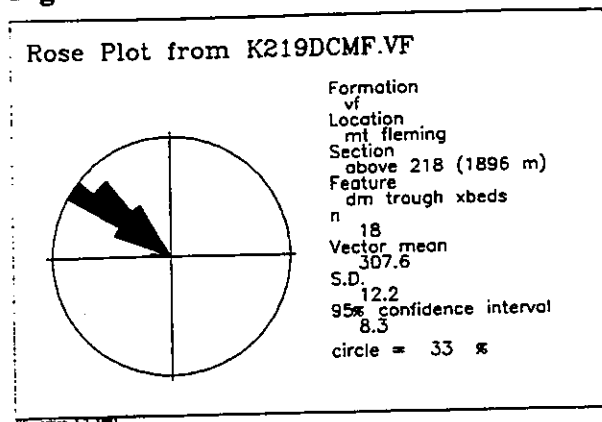
303 341 313 309 306 314 294 263 298 305 327



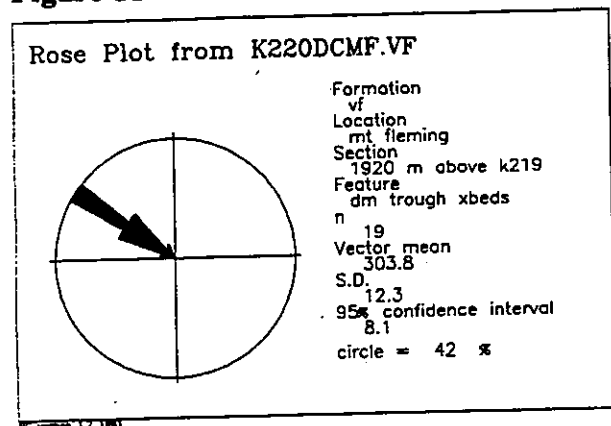
**Figure 335**



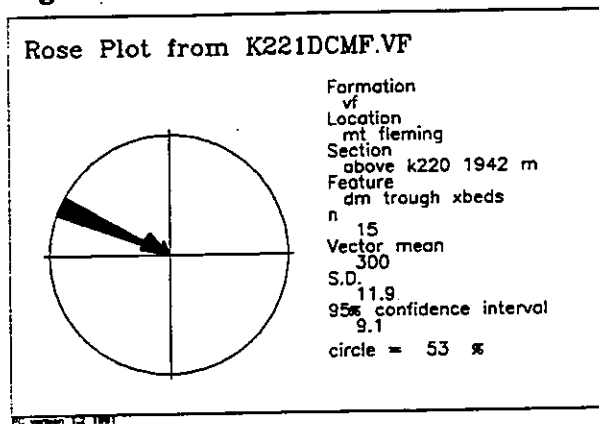
**Figure 336**



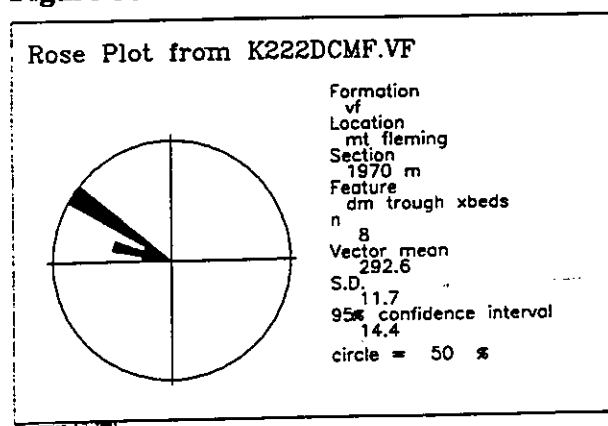
**Figure 337**



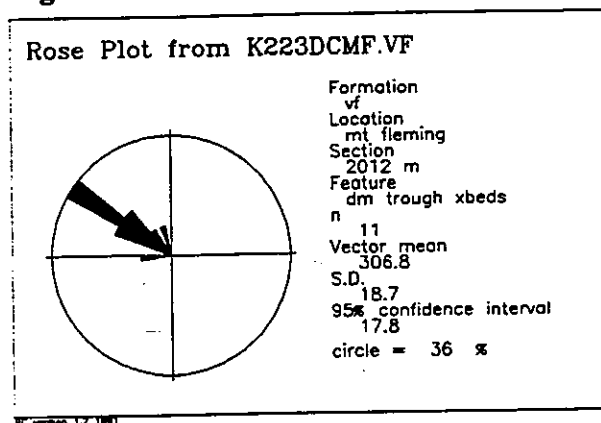
**Figure 338**



**Figure 339**



**Figure 340**



DATA FROM K224DCMF.VF

LOCATION : mt fleming SECTION : 2041  
FORMATION : vf FEATURE : dm trough xbeds  
N : 6 VECTOR MEAN : 69.8 STANDARD DEVIATION : 16.6  
080 084 079 075 035 064

DATA FROM K225MTMF.VF

LOCATION : mt fleming SECTION : 2050 m  
FORMATION : vf FEATURE : m trough xbeds (av)  
N : 1 VECTOR MEAN : 260.0 STANDARD DEVIATION : 0.0  
260

DATA FROM K225DCMF.VF

LOCATION : mt fleming SECTION : 2050  
FORMATION : vf FEATURE : dm trough xbeds  
N : 4 VECTOR MEAN : 333.1 STANDARD DEVIATION : 10.4  
324 328 330 351

DATA FROM K226DCMF.VF

LOCATION : mt fleming SECTION : 2054 m  
FORMATION : vf FEATURE : dm trough xbeds  
N : 9 VECTOR MEAN : 330.4 STANDARD DEVIATION : 6.8  
330 336 324 335 331 324 326 323 345

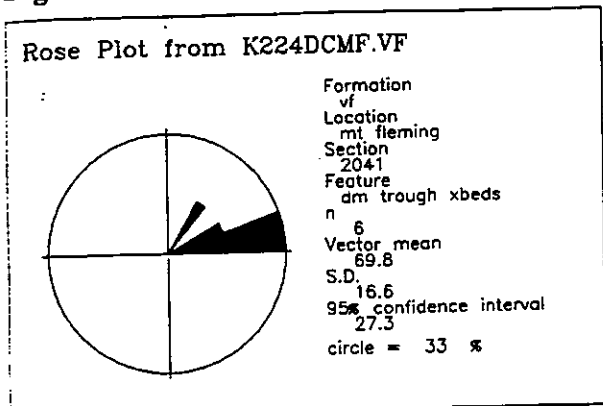
DATA FROM K226BSMF.VF

LOCATION : mt fleming SECTION : 2054 m  
FORMATION : vf FEATURE : bar surface  
N : 1 VECTOR MEAN : 70.0 STANDARD DEVIATION : 0.0  
070

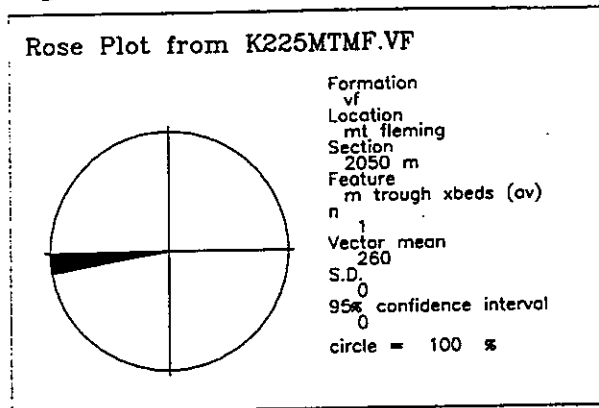
DATA FROM K227DCMF.VF

LOCATION : mt fleming SECTION : 2130 m  
FORMATION : vf FEATURE : dm trough xbeds  
N : 5 VECTOR MEAN : 326.8 STANDARD DEVIATION : 22.4  
348 317 314 358 298

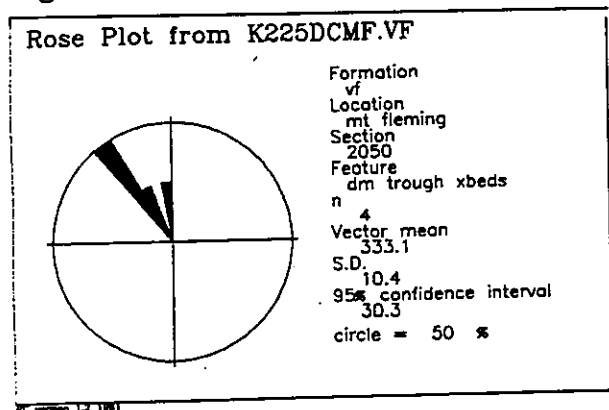
**Figure 341**



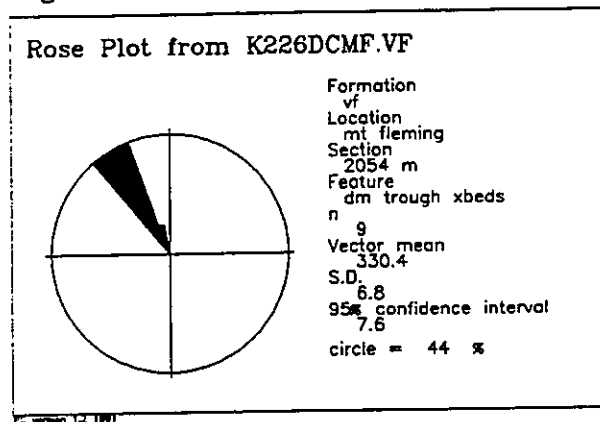
**Figure 342**



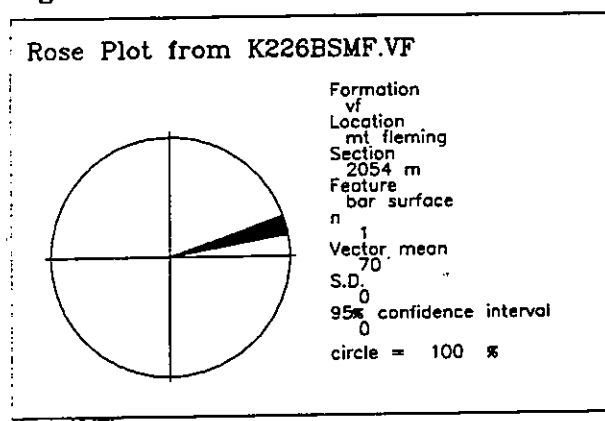
**Figure 343**



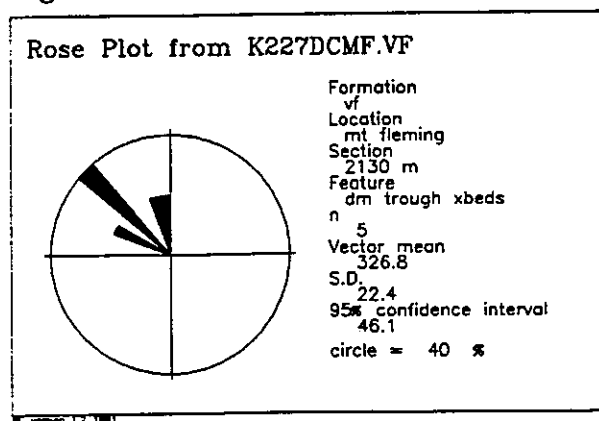
**Figure 344**



**Figure 345**



**Figure 346**



DATA FROM K228DCHS.VLB

LOCATION : horseshoe mtn

SECTION : k228dchs.vlb

FORMATION : vlb

FEATURE : dm trough xbeds

N : 112 VECTOR MEAN : 230.3 STANDARD DEVIATION : 66.7

228 209 233 238 253 224 222 210 039 042 018 009 045 228 223 241 230 227  
054 229 243 189 249 358 026 011 193 212 150 002 024 009 354 020 023 340  
041 021 246 224 226 224 210 238 224 209 195 251 234 234 243 254 271 252  
220 226 224 257 250 250 234 216 252 225 213 222 209 210 199 203 224 221  
225 226 214 205 197 221 225 226 222 214 205 197 204 199 231 224 217 193  
228 219 202 206 206 239 224 213 230 224 218 220 211 219 207 271 220 262  
225 355 354 025

DATA FROM K229DCHS.VLB

LOCATION : horseshoe mtn

SECTION : k229dchs.vlb

FORMATION : vlb

FEATURE : dm trough xbeds

N : 4 VECTOR MEAN : 276.9 STANDARD DEVIATION : 54.8

301 322 180 270

DATA FROM K230DCTM.TN

LOCATION : Table Mtn

SECTION : k230dctm.tn 2180 m

FORMATION : tn

FEATURE : dm trough xbeds

N : 8 VECTOR MEAN : 102.8 STANDARD DEVIATION : 13.7

090 121 092 085 102 127 104 102

DATA FROM K231DCTM.TN

LOCATION : table mtn

SECTION : 2182 m

FORMATION : tn

FEATURE : dm trough xbeds

N : 14 VECTOR MEAN : 259.7 STANDARD DEVIATION : 42.7

274 270 265 284 150 150 262 268 270 277 261 264 260 271

DATA FROM K232MTTM.TN

LOCATION : table mtn

SECTION : 2190

FORMATION : tn

FEATURE : m trough xbeds

N : 8 VECTOR MEAN : 273.3 STANDARD DEVIATION : 10.5

275 280 282 290 260 257 267 276

DATA FROM K233RRTM.TN

LOCATION : table mt

SECTION : 2198 m

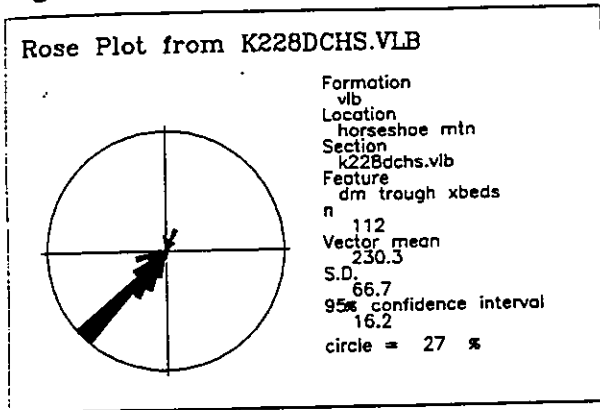
FORMATION : tn

FEATURE : ripples

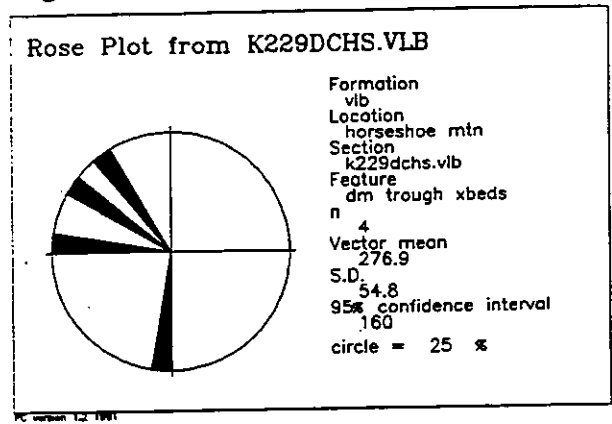
N : 3 VECTOR MEAN : 21.9 STANDARD DEVIATION : 1.6

020 022 024

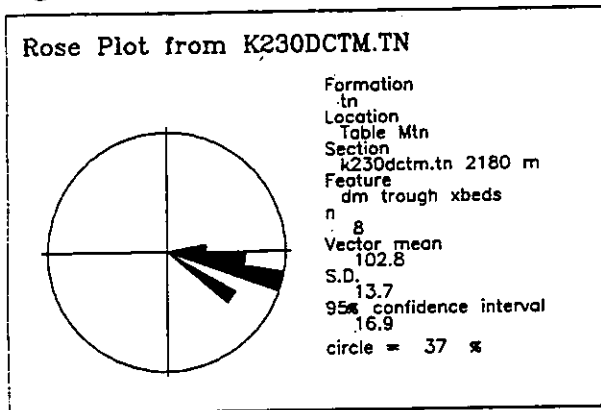
**Figure 347**



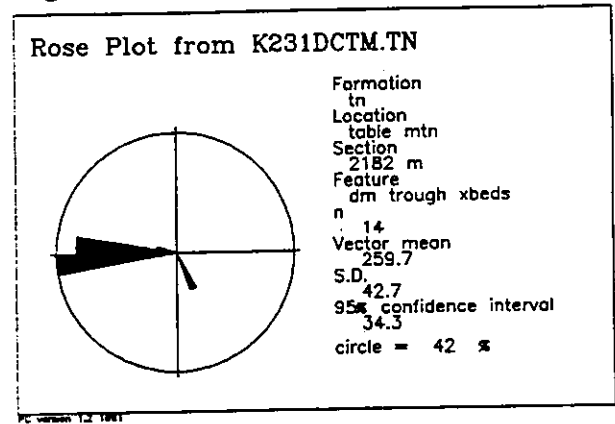
**Figure 348**



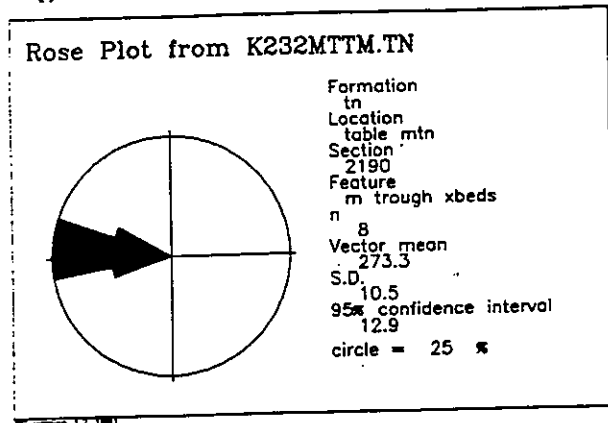
**Figure 349**



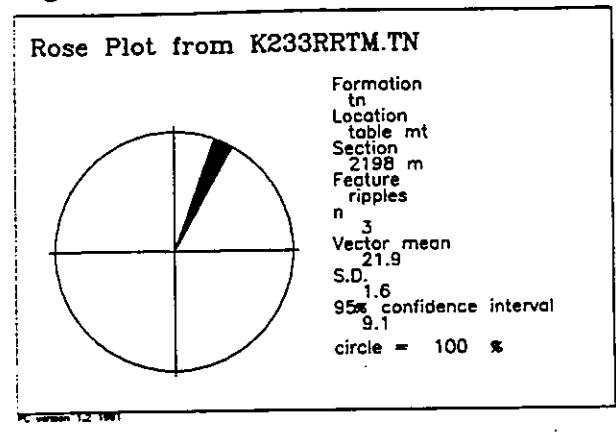
**Figure 350**



**Figure 351**



**Figure 352**



DATA FROM K223BSTM.TN

LOCATION : table mtn

SECTION : 2190 m

FORMATION : tn

FEATURE : bar surface

N : 1 VECTOR MEAN : 270.0  
270

STANDARD DEVIATION : 0.0

DATA FROM K234MTTM.TN

LOCATION : table mtn

SECTION : 2198 m =K233

FORMATION : tn

FEATURE : m trough xbeds

N : 8 VECTOR MEAN : 263.0

STANDARD DEVIATION : 19.1

290 250 282 279 234 271 257 241

DATA FROM K235MTTM.TN

LOCATION : table mtn

SECTION : 2260 m

FORMATION : tn

FEATURE : m trough xbeds

N : 12 VECTOR MEAN : 281.3

STANDARD DEVIATION : 34.4

304 311 288 251 242 237 332 234 269 282 291 339

DATA FROM K236DCER.TB

LOCATION : elkhorn ridge

SECTION : k236dcer.tb

FORMATION : tb

FEATURE : dm trough xbeds

N : 7 VECTOR MEAN : 23.3

STANDARD DEVIATION : 11.4

010 017 044 031 023 010 029

DATA FROM K237DCER.TB

LOCATION : elkhorn ridge

SECTION : k237dcer.tb

FORMATION : tb

FEATURE : dm trough xbeds

N : 2 VECTOR MEAN : 4.9

STANDARD DEVIATION : 5.0

000 010

Figure 353

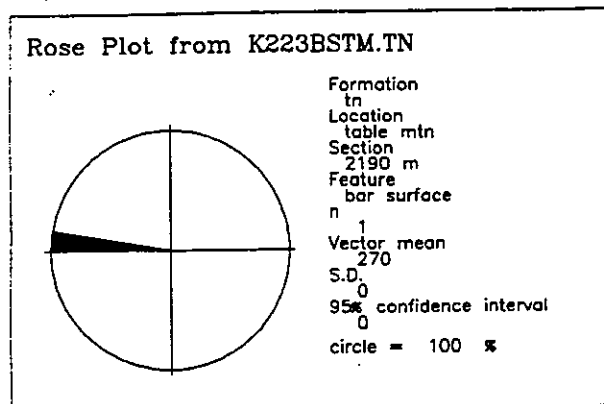


Figure 354

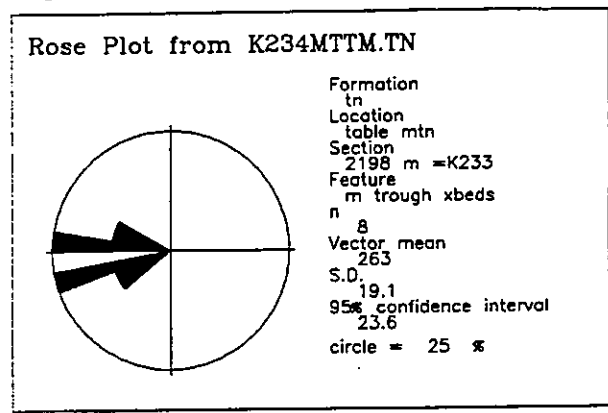


Figure 355

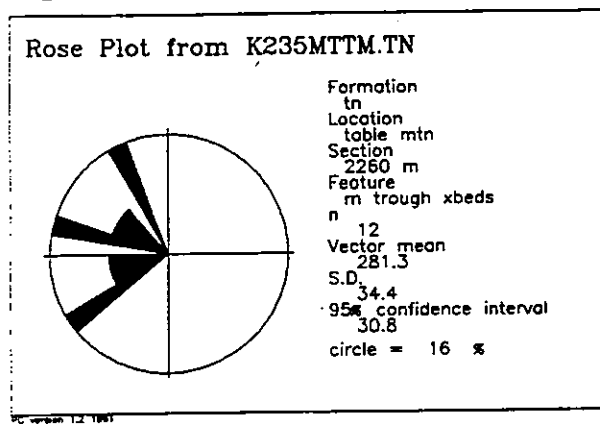


Figure 356

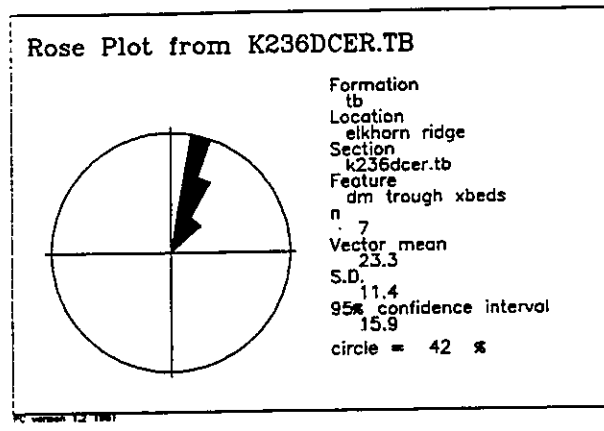
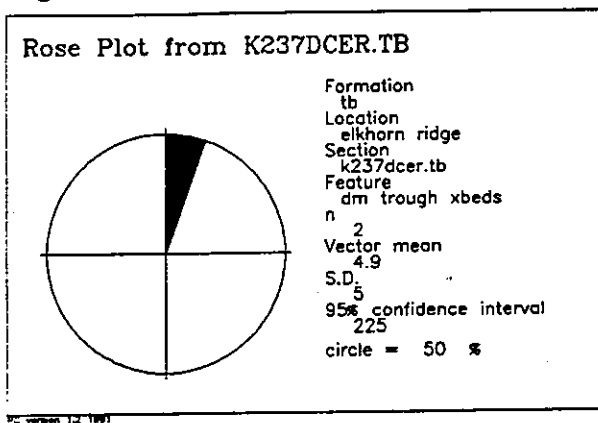


Figure 357







**SECTION 5**  
**PALEOCURRENT DATA FROM THE DARWIN MOUNTAINS AREA**

Collected by K. J. Woolfe<sup>1</sup>

Current address:

<sup>1</sup> Geology Dept, James Cook University, Townsville, Queensland 4811, Australia.  
Email: K\_WOOLFE@trout.jcu.edu.au

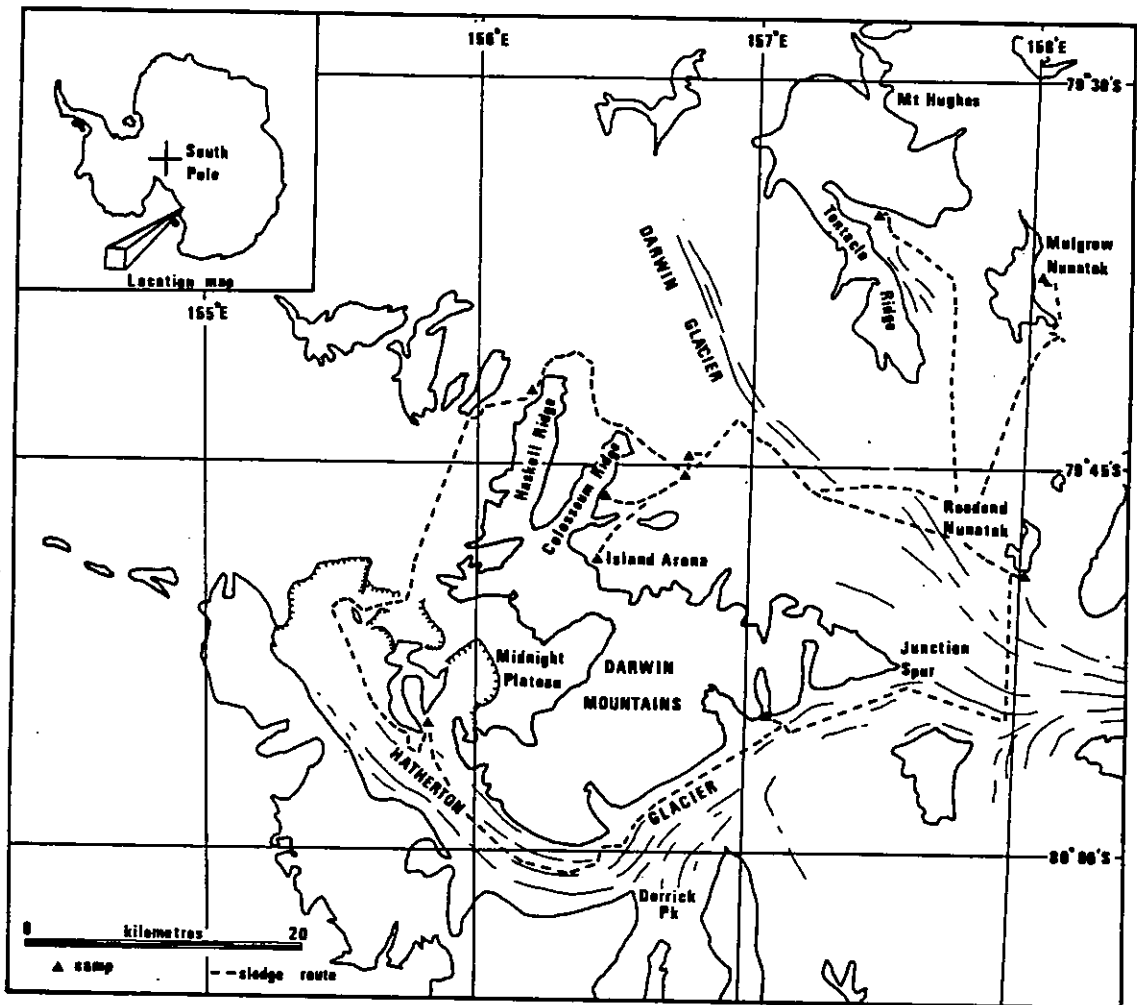
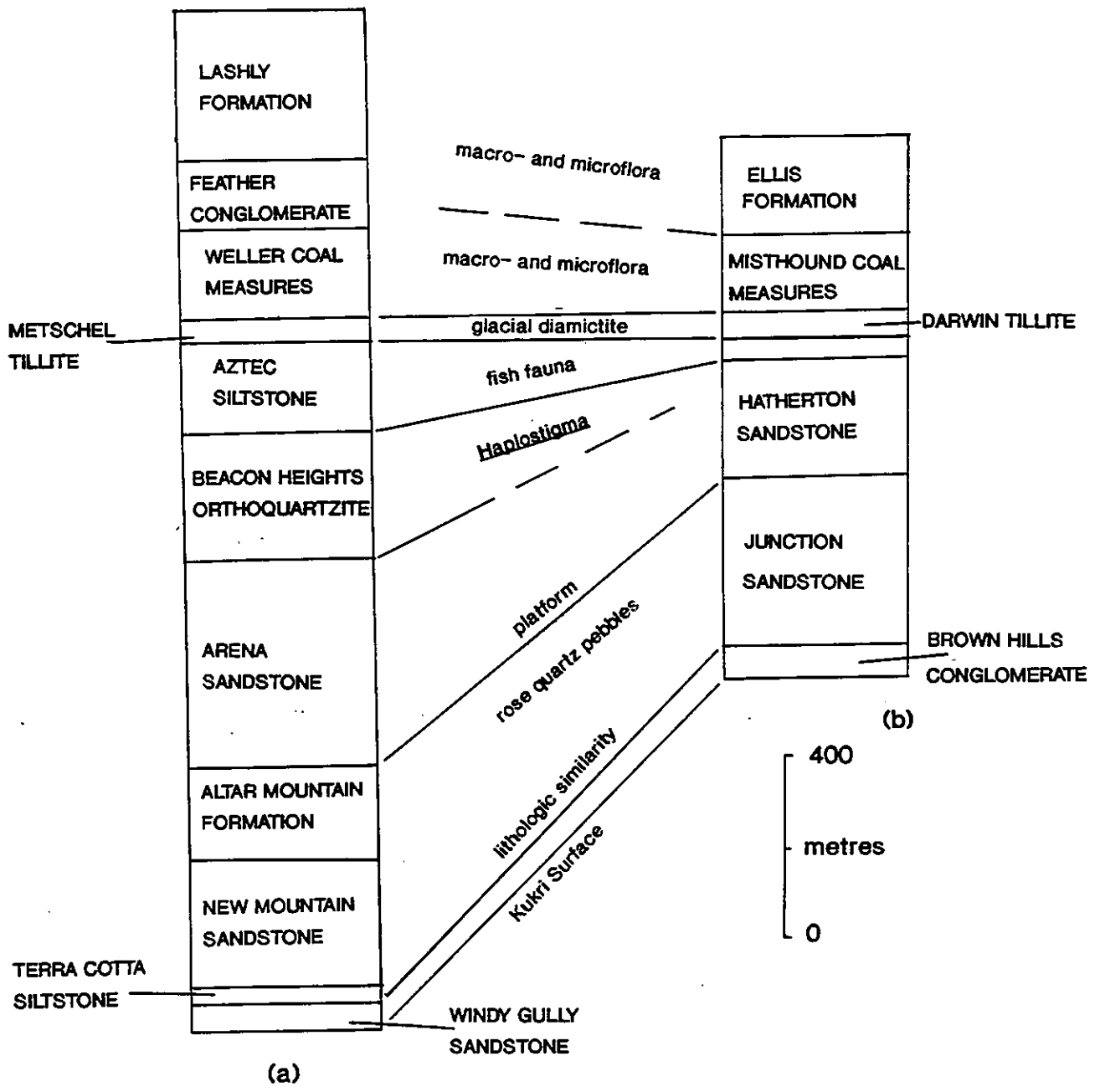


Figure 358 Map of Darwin Mountains area showing sledge routes and camp sites used during data collection.



**Figure 359** Generalised stratigraphic column for the Darwin Mountains showing correlations made to the southern Victoria Land sequence (from Woolfe 1991<sup>1</sup>).

<sup>1</sup> Woolfe, K. J. 1991: History of the Ross Sea Sector of Antarctica as recorded by the Beacon Supergroup in southern Victoria Land and the Darwin Mountains. Unpublished PhD thesis, Victoria University of Wellington. 173 p.

DATA FROM K300MTCR.TH  
LOCATION : Colosseum Ridge SECTION : 1272 m  
FORMATION : th FEATURE : m trough xbeds  
N : 12 VECTOR MEAN : 28.2 STANDARD DEVIATION : 7.1  
030 026 024 034 029 025 035 019 044 031 026 016

DATA FROM K301DCCR.TH  
LOCATION : Colo Ridge SECTION : 1332 m  
FORMATION : th FEATURE : dm trough xbeds  
N : 6 VECTOR MEAN : 27.4 STANDARD DEVIATION : 6.9  
020 026 022 033 024 040

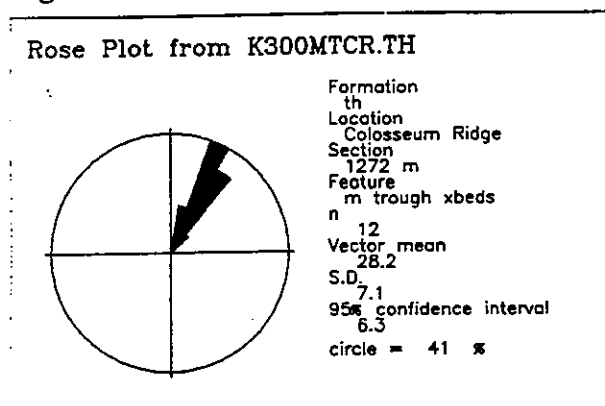
DATA FROM K302MTCR.TH  
LOCATION : colosseum ridge SECTION : 1484 m  
FORMATION : th FEATURE : m trough xbeds  
N : 15 VECTOR MEAN : 54.2 STANDARD DEVIATION : 6.1  
045 047 064 053 055 057 046 052 055 056 066 057 059 046 056

DATA FROM K303MTCR.TH  
LOCATION : colosseum ridge SECTION : 1512 m  
FORMATION : th FEATURE : m trough xbeds  
N : 15 VECTOR MEAN : 31.7 STANDARD DEVIATION : 11.3  
015 026 039 046 022 030 041 016 049 024 027 032 019 045 046

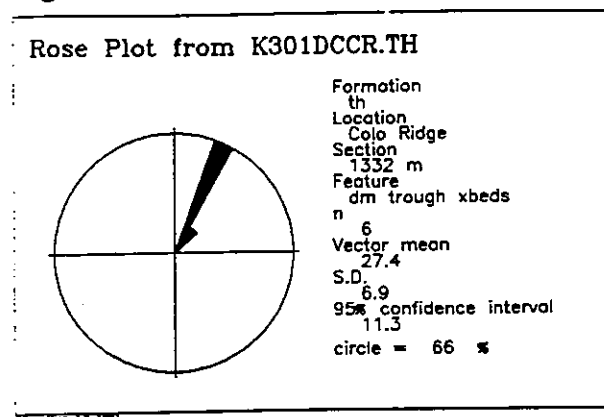
DATA FROM K304MTCR.TH  
LOCATION : colosseum ridge SECTION : 1512 m  
FORMATION : th FEATURE : m trough x bed  
N : 1 VECTOR MEAN : 75.0 STANDARD DEVIATION : 0.0  
075

DATA FROM K304MTCR.VMC  
LOCATION : colosseum ridge SECTION : 1590 m  
FORMATION : misthound coal measures FEATURE : m trough xbeds  
N : 9 VECTOR MEAN : 145.5 STANDARD DEVIATION : 18.4  
162 145 171 176 135 133 125 123 141

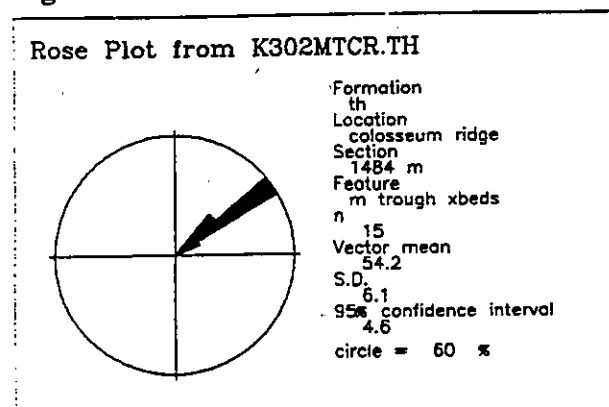
**Figure 360**



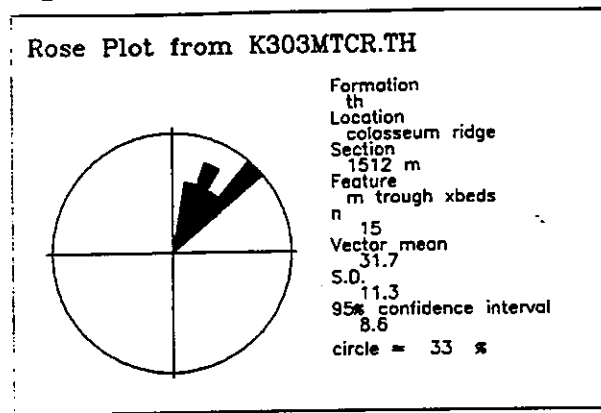
**Figure 361**



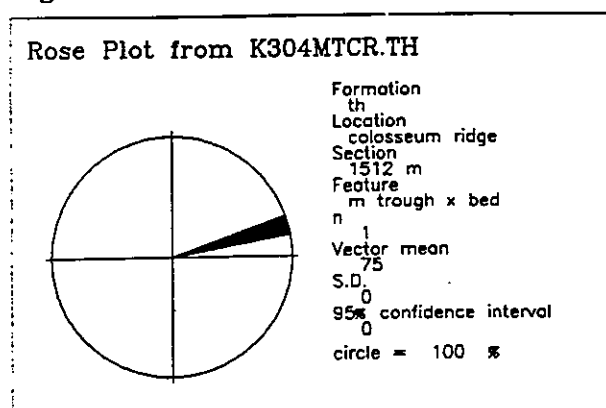
**Figure 362**



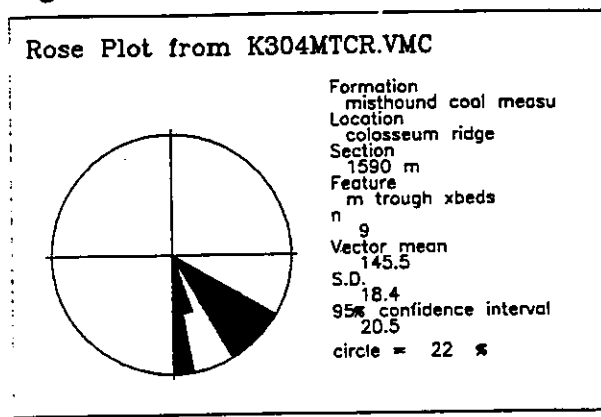
**Figure 363**



**Figure 364**



**Figure 365**



DATA FROM K305MTCR.VMC

LOCATION : colosseum ridge

FORMATION : vmc

N : 3 VECTOR MEAN : 157.3  
193 182 065

SECTION : 1590 m

FEATURE : m trough xbeds

STANDARD DEVIATION : 58.8

DATA FROM K306DCCR.TH

LOCATION : colosseum ridge

FORMATION : th

N : 15 VECTOR MEAN : 56.1

055 037 074 058 059 046 066 047 056 060 054 067 046 064 053

SECTION : 1679 m

FEATURE : dm trough x beds

STANDARD DEVIATION : 9.2

DATA FROM K307MTCR.TH

LOCATION : colosseum ridge

FORMATION : th

N : 5 VECTOR MEAN : 69.0

070 075 063 058 079

SECTION : 1533 m

FEATURE : m trough xbeds

STANDARD DEVIATION : 7.6

DATA FROM K308MTCR.TH

LOCATION : colosseum ridge

FORMATION : th

N : 4 VECTOR MEAN : 76.5

073 080 090 063

SECTION : 1490 m

FEATURE : m through xbeds

STANDARD DEVIATION : 9.8

DATA FROM K309MTHR.TH

LOCATION : haskel ridge

FORMATION : th

N : 6 VECTOR MEAN : 50.6

054 042 056 049 046 057

SECTION : k309mthr.th

FEATURE : m trough xbeds

STANDARD DEVIATION : 5.4

DATA FROM K310DCHR.VMC

LOCATION : haskel ridge

FORMATION : vmc

N : 6 VECTOR MEAN : 85.0

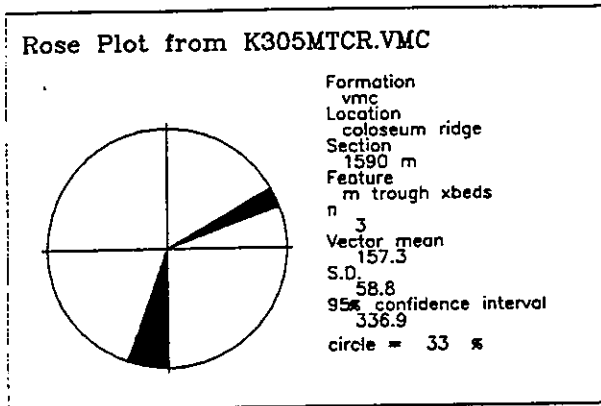
065 105 074 096 079 091

SECTION : k310dchr.vmc

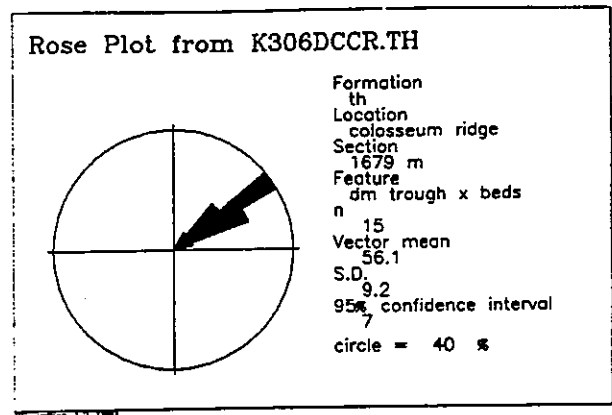
FEATURE : dm trough xbeds

STANDARD DEVIATION : 13.6

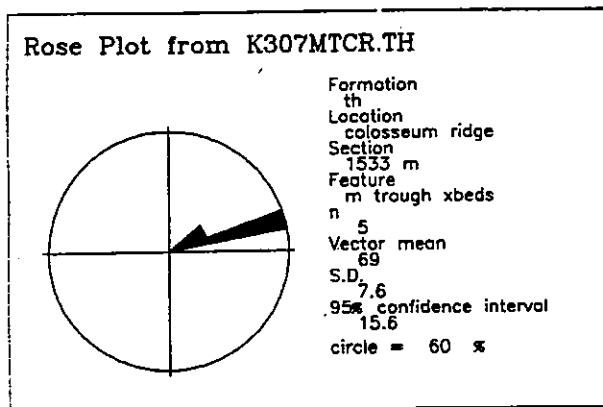
**Figure 366**



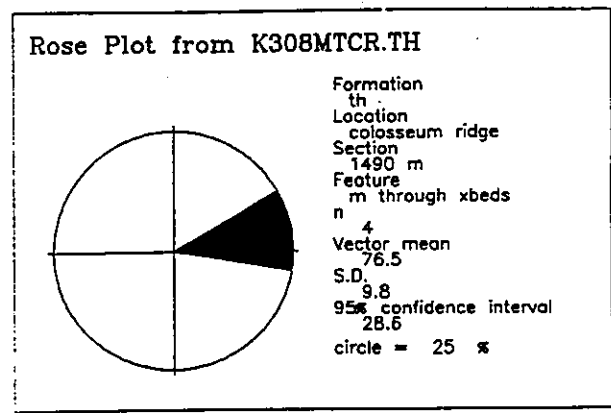
**Figure 367**



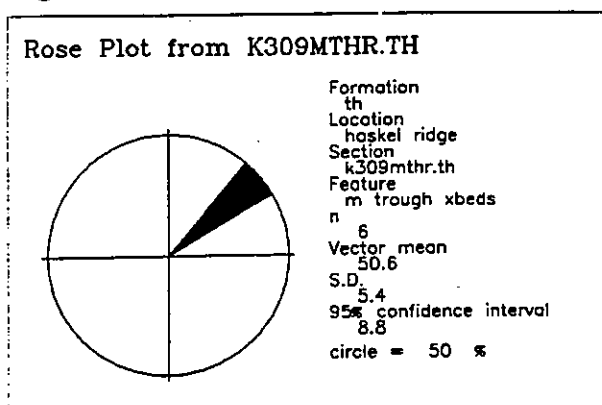
**Figure 368**



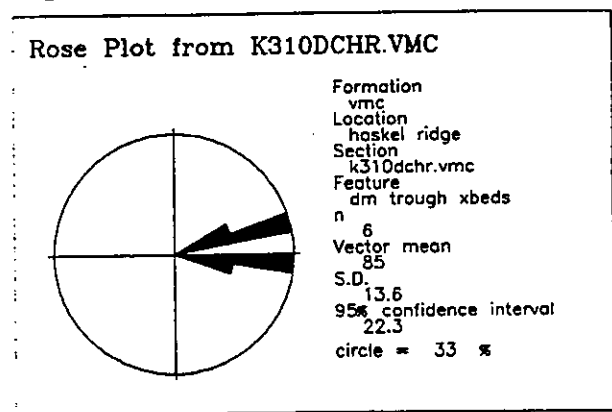
**Figure 369**



**Figure 370**



**Figure 371**



DATA FROM K311MTHR.TH

LOCATION : haskel ridge SECTION : 1489 m  
FORMATION : th FEATURE : m trough xbeds  
N : 12 VECTOR MEAN : 68.6 STANDARD DEVIATION : 57.3  
090 115 245 035 090 075 039 106 035 046 057 066

DATA FROM K312DCNU.TH

LOCATION : Nunatak w of k311 SECTION : 1618 m  
FORMATION : th FEATURE : dm trough xbeds  
N : 12 VECTOR MEAN : 54.8 STANDARD DEVIATION : 22.3  
026 105 049 073 086 035 051 057 035 046 064 037

DATA FROM K313DMNU.TH

LOCATION : nunatak w of k311 SECTION : 1622 m  
FORMATION : th FEATURE : dm trough xbeds  
N : 5 VECTOR MEAN : 64.7 STANDARD DEVIATION : 5.3  
065 059 074 066 060

DATA FROM K314MTNU.TH

LOCATION : nunatak west of k311 SECTION : 1622 m  
FORMATION : th FEATURE : m trough xbeds  
N : 1 VECTOR MEAN : 80.0 STANDARD DEVIATION : 0.0  
080

DATA FROM K315MTHG.TH

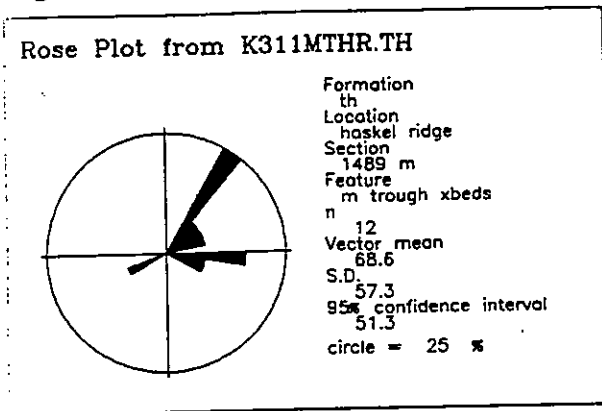
LOCATION : upper hatherton gl. SECTION : 1364 m (J2-J3)  
FORMATION : th FEATURE : m trough xbeds  
N : 10 VECTOR MEAN : 109.7 STANDARD DEVIATION : 5.6  
105 113 112 115 104 110 097 112 112 117

DATA FROM K316MTHG.TH

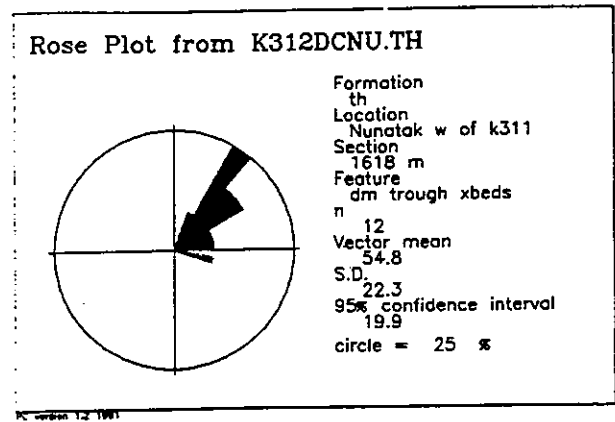
LOCATION : upper hatherton gl SECTION : 1364 m  
FORMATION : th FEATURE : m trough xbed  
N : 1 VECTOR MEAN : 85.0 STANDARD DEVIATION : 0.0  
085



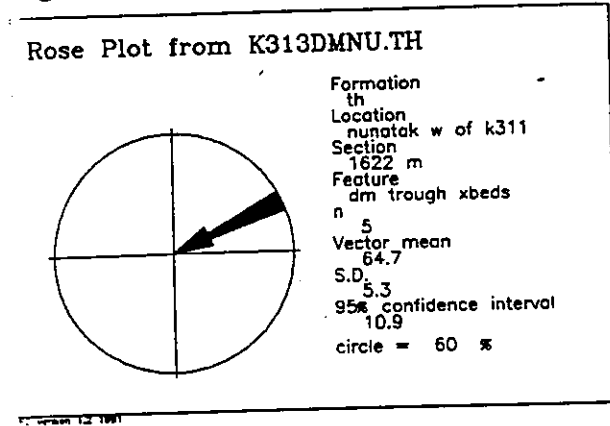
**Figure 372**



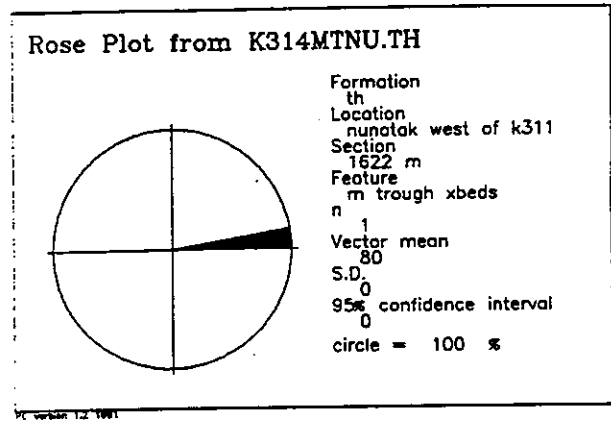
**Figure 373**



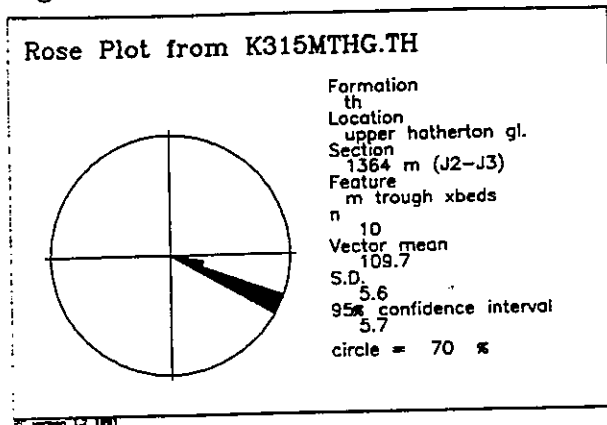
**Figure 374**



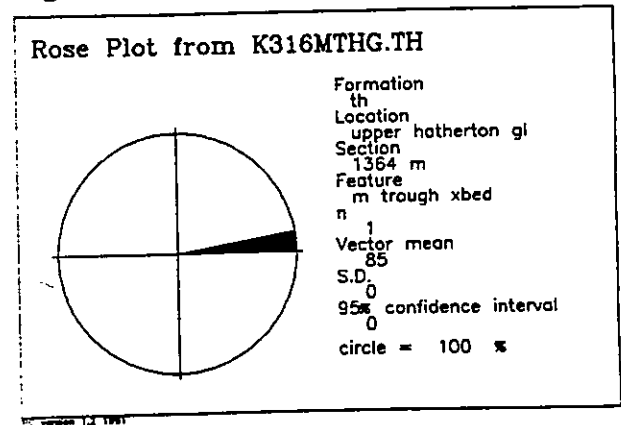
**Figure 375**



**Figure 376**



**Figure 377**



DATA FROM K317MTHG.TH

LOCATION : haven mtn

FORMATION : th

N : 7 VECTOR MEAN : 66.0

064 068 066 070 063 055 076

SECTION : 1380 m

FEATURE : m trough xbeds

STANDARD DEVIATION : 6.0

DATA FROM K318MTHG.VD

LOCATION : haven mtn

FORMATION : darwin tillite

N : 1 VECTOR MEAN : 76.9

077

SECTION : 1445 m

FEATURE : m trough xbed

STANDARD DEVIATION : 0.1

DATA FROM K319MTHG.TH

LOCATION : 090 from u Hatherton Camp SECTION : 1362 m

FORMATION : th

FEATURE : m trough xbeds

N : 10 VECTOR MEAN : 314.0

STANDARD DEVIATION : 59.3

205 025 277 326 358 337 246 232 347 357

DATA FROM K320MTHG.TH

LOCATION : 090 from top camp

FORMATION : th

N : 4 VECTOR MEAN : 119.9

125 130 110 115

SECTION : 1377 m

FEATURE : m trough xbeds

STANDARD DEVIATION : 7.9

DATA FROM K321MTHG.TH

LOCATION : 090 from upper camp

FORMATION : th

N : 6 VECTOR MEAN : 72.6

078 067 079 081 064 067

SECTION : 1408 m

FEATURE : m trough xbeds

STANDARD DEVIATION : 6.7

DATA FROM K322MTHG.TH

LOCATION : 090 from hatherton top camp SECTION : 1411 m

FORMATION : th

FEATURE : m trough xbed

N : 1 VECTOR MEAN : 86.9

STANDARD DEVIATION : 0.1

087

Figure 378

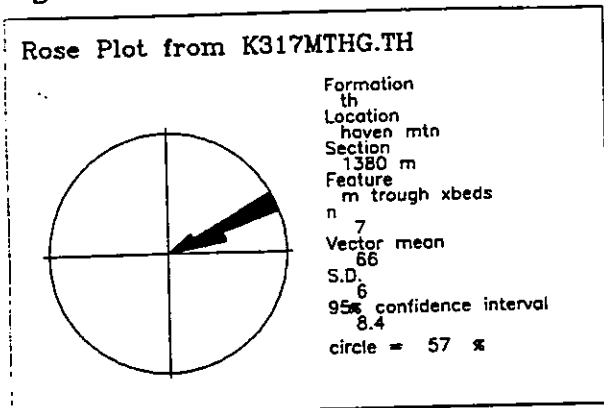


Figure 379

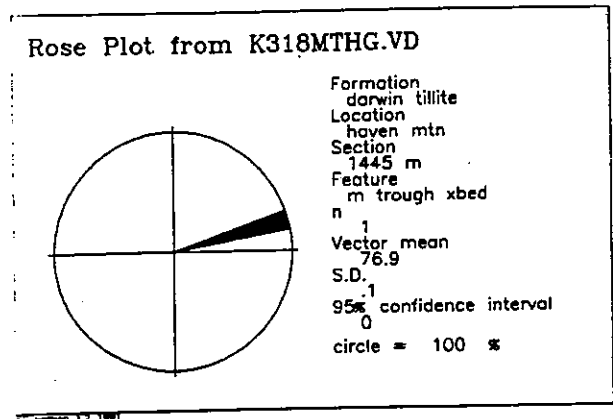


Figure 380

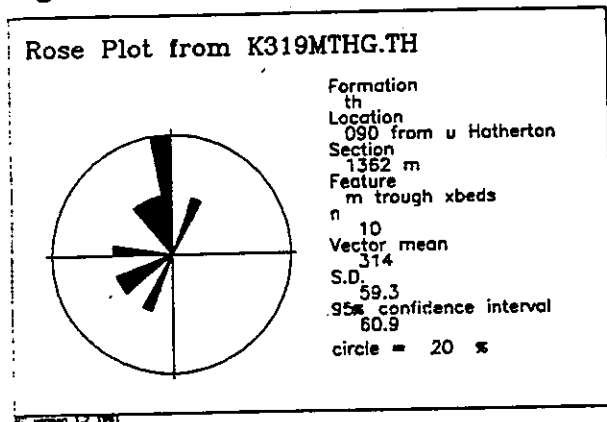


Figure 381

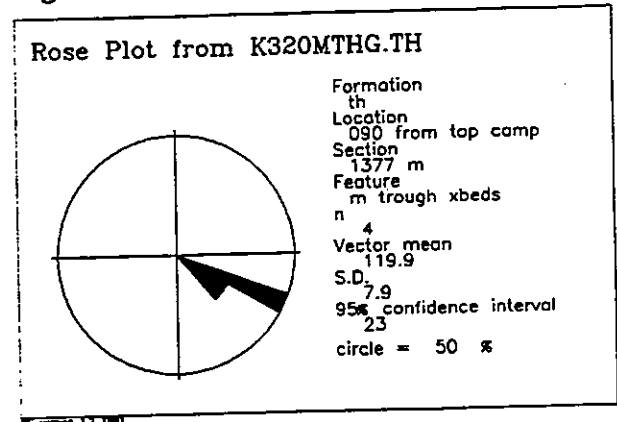


Figure 382

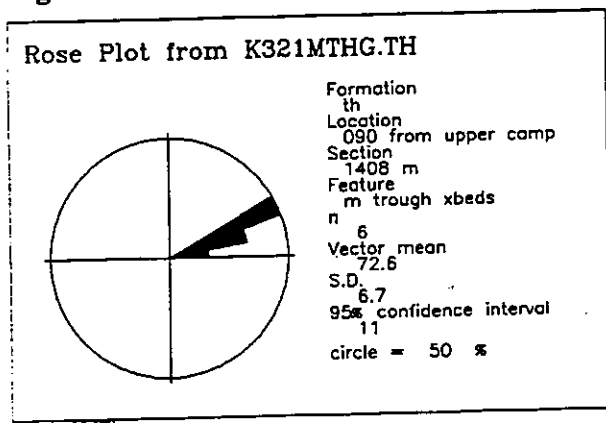
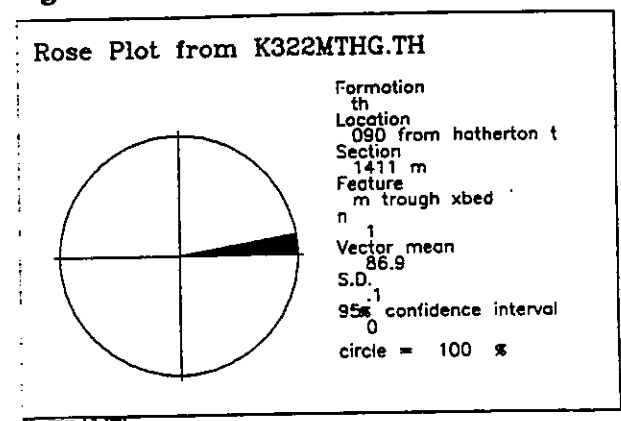


Figure 383



DATA FROM K323MTHG.TH  
LOCATION : 090 from top camp  
FORMATION : th  
N : 1 VECTOR MEAN : 75.0  
075

SECTION : 1412 m  
FEATURE : m trough xbed  
STANDARD DEVIATION : 0.0

DATA FROM K324MTHG.TH  
LOCATION : 090 from top camp  
FORMATION : th  
N : 1 VECTOR MEAN : 86.9  
087

SECTION : 1436 m  
FEATURE : m trough xbed  
STANDARD DEVIATION : 0.1

DATA FROM K325RRHG.VD  
LOCATION : 090 from top camp  
FORMATION : vd  
N : 15 VECTOR MEAN : 176.9  
166 165 276 186 167 177 182

SECTION : 1481 m  
FEATURE : ripples  
STANDARD DEVIATION : 27.0  
176 155 172 173 182 181 168 170

DATA FROM K326RRHG.VD  
LOCATION : 090 from camp  
FORMATION : vd  
N : 3 VECTOR MEAN : 186.3  
184 185 190

SECTION : 1486 m  
FEATURE : ripples  
STANDARD DEVIATION : 2.6

DATA FROM K327STHG.VD  
LOCATION : 090 from top camp  
FORMATION : vd  
N : 7 VECTOR MEAN : 157.8  
158 160 155 157 158 158 159

SECTION : 1500 m  
FEATURE : permian striae  
STANDARD DEVIATION : 1.4

DATA FROM K328RRHG.VD  
LOCATION : 090 from camp  
FORMATION : vd  
N : 6 VECTOR MEAN : 194.1  
195 192 199 197 196 186

SECTION : 1498 m  
FEATURE : ripples  
STANDARD DEVIATION : 4.2

Figure 384

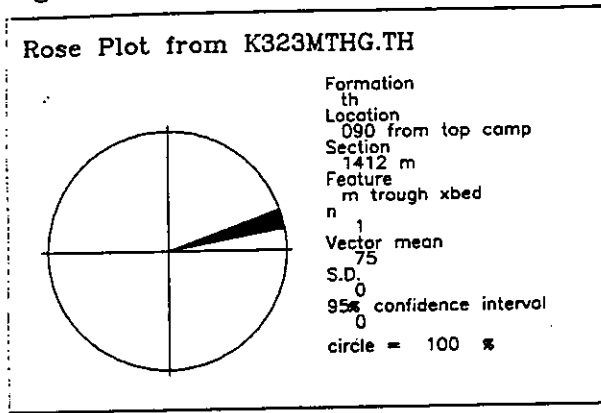


Figure 385

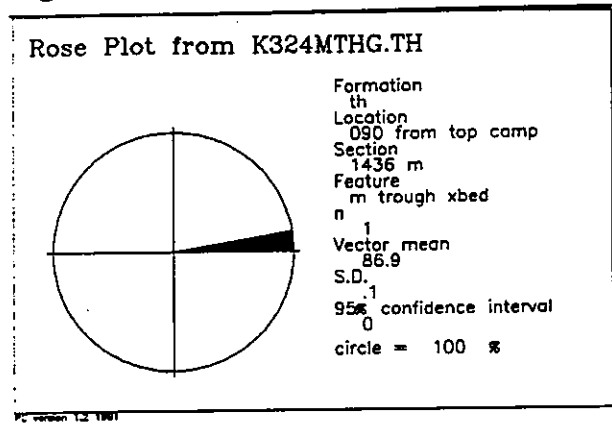


Figure 386

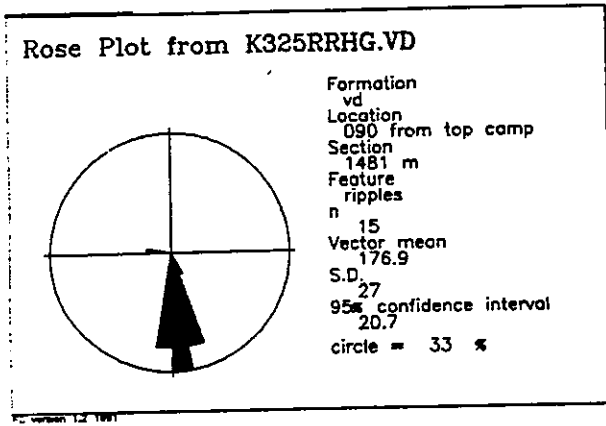


Figure 387

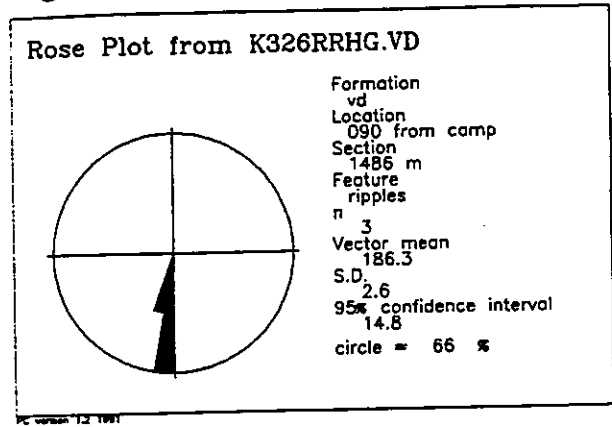


Figure 388

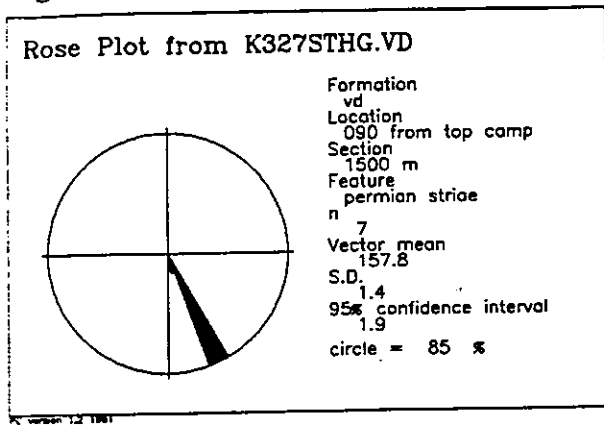
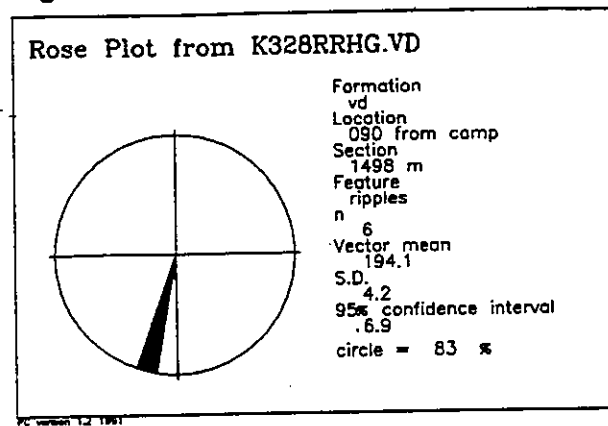


Figure 389



DATA FROM K329RRHG.VD

LOCATION : 090 from top camp SECTION : 1490 m  
FORMATION : vd FEATURE : average ripple dir  
N : 1 VECTOR MEAN : 199.9 STANDARD DEVIATION : 0.0  
200

DATA FROM K330RRHG.VD

LOCATION : 090 from camp SECTION : 1490 m  
FORMATION : vd FEATURE : av ripple  
N : 1 VECTOR MEAN : 192.0 STANDARD DEVIATION : 0.0  
192

DATA FROM K331DCHG.TJ

LOCATION : saddle N of lower camp SECTION : 1362 m  
FORMATION : junction sandstone tj FEATURE : dm trough xbeds  
N : 10 VECTOR MEAN : 63.0 STANDARD DEVIATION : 10.3  
075 067 048 046 072 060 077 062 054 069

DATA FROM K332MTHG.TJ

LOCATION : lower hatherton glacier SECTION : 1369 m  
FORMATION : tj FEATURE : m trough xbeds  
N : 9 VECTOR MEAN : 18.2 STANDARD DEVIATION : 4.3  
020 015 022 026 013 019 021 012 016

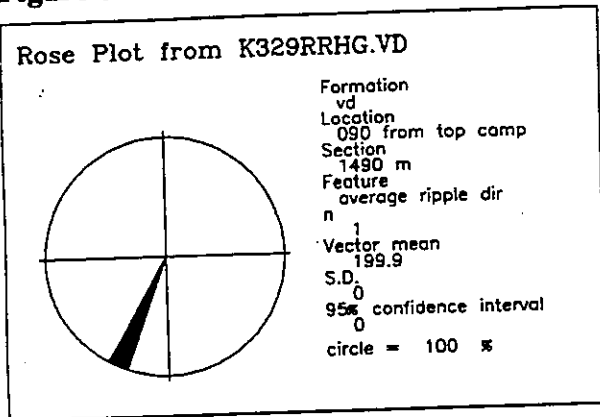
DATA FROM K333MTHG.TJ

LOCATION : lower hatherton glacier SECTION : 1388 m  
FORMATION : tj FEATURE : m trough xbeds  
N : 3 VECTOR MEAN : 31.6 STANDARD DEVIATION : 7.4  
040 022 033

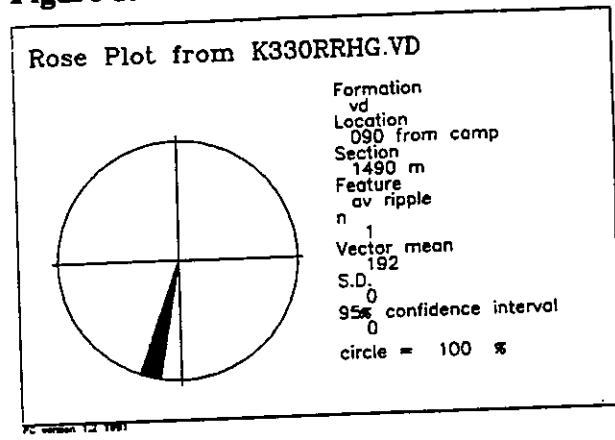
DATA FROM K334MTHG.TH

LOCATION : lower hatherton glacier SECTION : 1440 m  
FORMATION : th FEATURE : m trough xbeds  
N : 3 VECTOR MEAN : 76.7 STANDARD DEVIATION : 11.8  
060 087 083

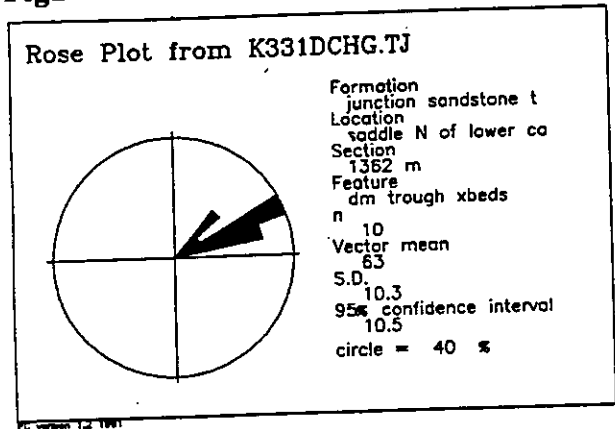
**Figure 390**



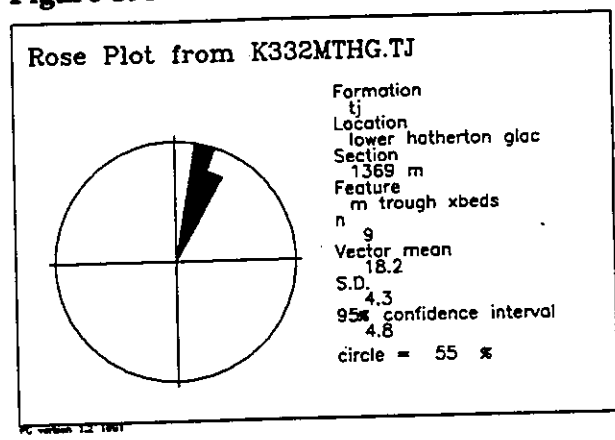
**Figure 391**



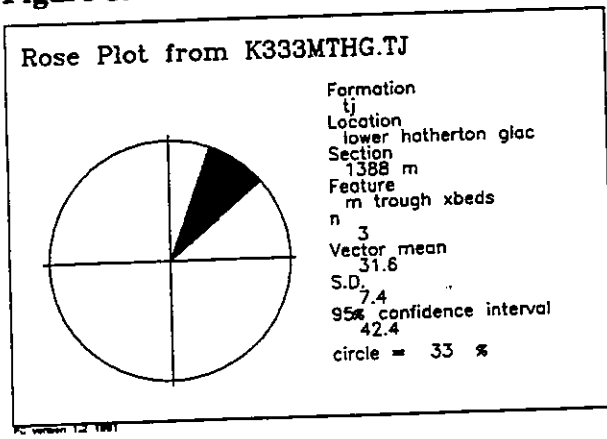
**Figure 392**



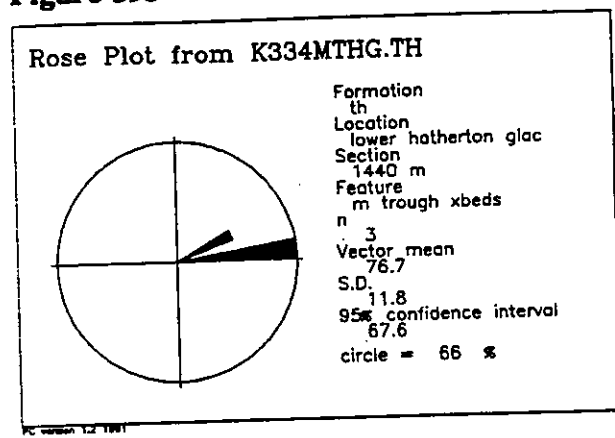
**Figure 393**



**Figure 394**



**Figure 395**



DATA FROM K335MTHG.TH  
LOCATION : lower hatherton gl.  
FORMATION : th  
N : 1 VECTOR MEAN : 78.0  
078

SECTION : 1440 m  
FEATURE : m trough xbed  
STANDARD DEVIATION : 0.0

DATA FROM K336MTHG.TH  
LOCATION : lower hatherton gl  
FORMATION : th  
N : 1 VECTOR MEAN : 48.0  
048

SECTION : 1382 m  
FEATURE : m trough xbed  
STANDARD DEVIATION : 0.0

DATA FROM K337MTHG.TH  
LOCATION : lower hatherton gl  
FORMATION : th  
N : 3 VECTOR MEAN : 48.0  
050 055 039

SECTION : 1393 m  
FEATURE : m trough xbeds  
STANDARD DEVIATION : 6.6

DATA FROM K338MTHG.TH  
LOCATION : lower hatherton gl  
FORMATION : th  
N : 1 VECTOR MEAN : 80.0  
080

SECTION : 1490  
FEATURE : m trough xbeds  
STANDARD DEVIATION : 0.0

DATA FROM K339DCHG.TJ  
LOCATION : lower hatherton gl  
FORMATION : tj  
N : 15 VECTOR MEAN : 15.8  
015 009 022 014 017 026 016

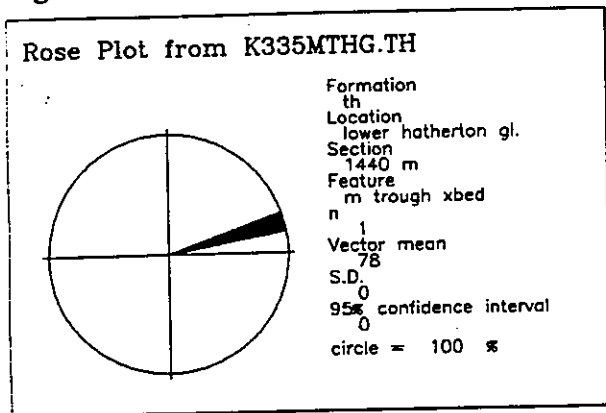
SECTION : 1160 m  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 7.3  
010 022 356 024 016 015 012 024

DATA FROM K340DCHG.TJ  
LOCATION : lower hatherton gl  
FORMATION : tj  
N : 3 VECTOR MEAN : 26.9  
020 026 035

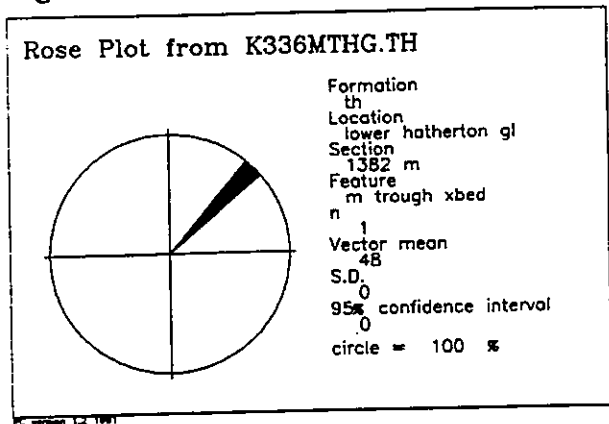
SECTION : 1245 m  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 6.1



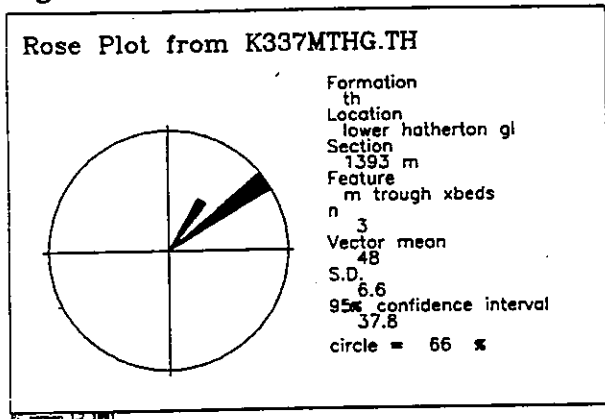
**Figure 396**



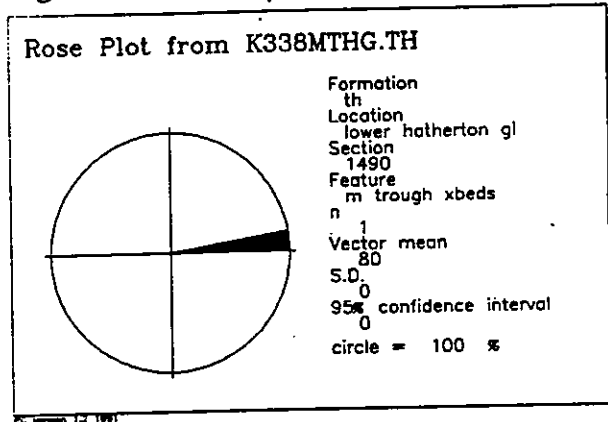
**Figure 397**



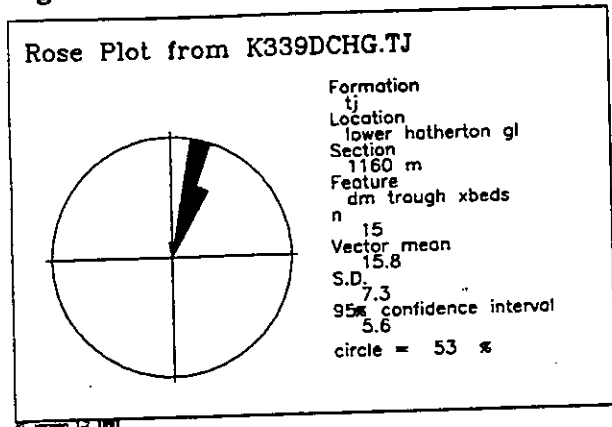
**Figure 398**



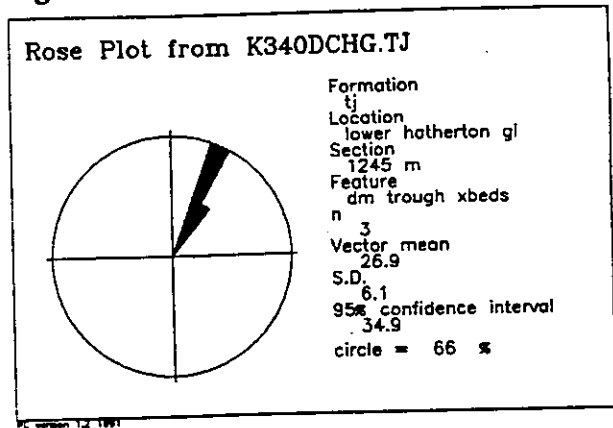
**Figure 399**



**Figure 400**



**Figure 401**



DATA FROM K341DCHG.TJ  
LOCATION : lower hatherton gl  
FORMATION : tj  
N : 6 VECTOR MEAN : 41.6  
040 045 052 041 034 038

SECTION : 1482 m  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 5.6

DATA FROM K342MTTR.TBC  
LOCATION : tentacle ridge  
FORMATION : brown hills congl.  
N : 6 VECTOR MEAN : 9.9  
005 010 011 016 009 006

SECTION : 1020 m  
FEATURE : m trough xbeds  
STANDARD DEVIATION : 3.5

DATA FROM K343MTTR.TJ  
LOCATION : tentacle ridge  
FORMATION : tj  
N : 6 VECTOR MEAN : 19.3  
015 016 020 025 026 014

SECTION : 1145 m  
FEATURE : m trough xbeds  
STANDARD DEVIATION : 4.7

DATA FROM K344DCTR.TJ  
LOCATION : tentacle ridge  
FORMATION : tj  
N : 5 VECTOR MEAN : 23.3  
022 026 035 014 020

SECTION : 1146 m  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 6.9

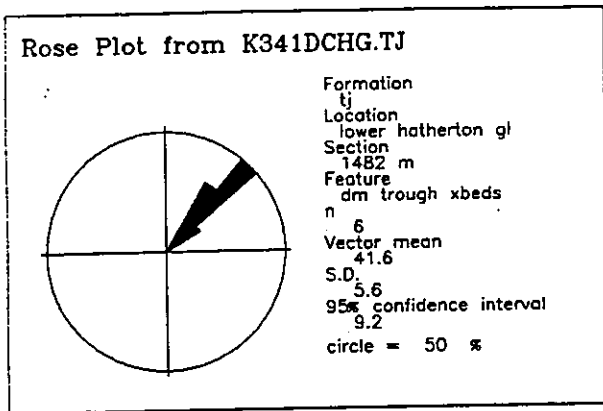
DATA FROM K345DCTR.TJ  
LOCATION : tentacle ridge  
FORMATION : tj  
N : 5 VECTOR MEAN : 23.3  
022 026 035 014 020

SECTION : 1190 m  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 6.9

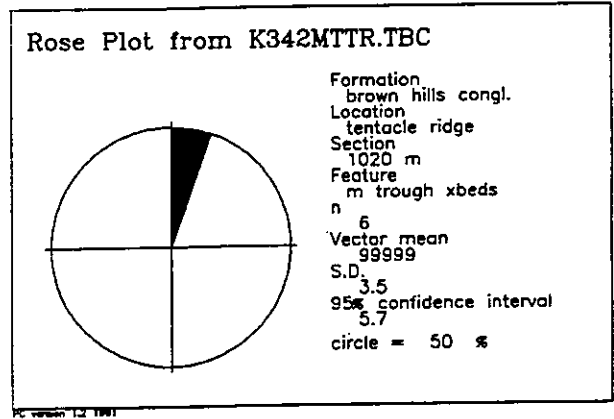
DATA FROM K346DCGH.TZ  
LOCATION : gorgons head  
FORMATION : tz  
N : 7 VECTOR MEAN : 225.4  
235 226 217 216 234 220 230

SECTION : 1793 m  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 7.3

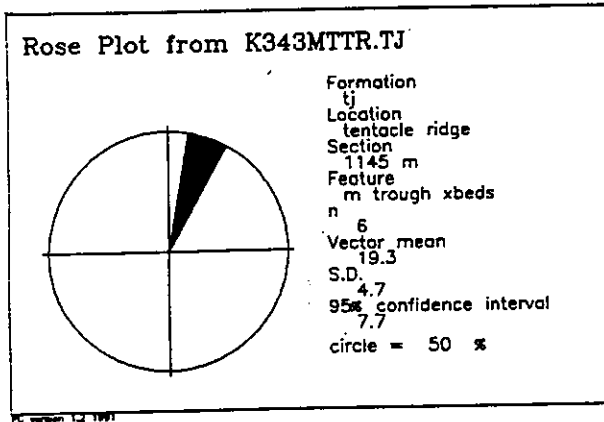
**Figure 402**



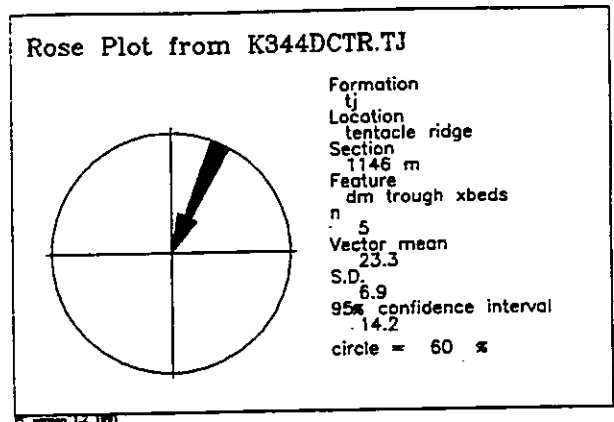
**Figure 403**



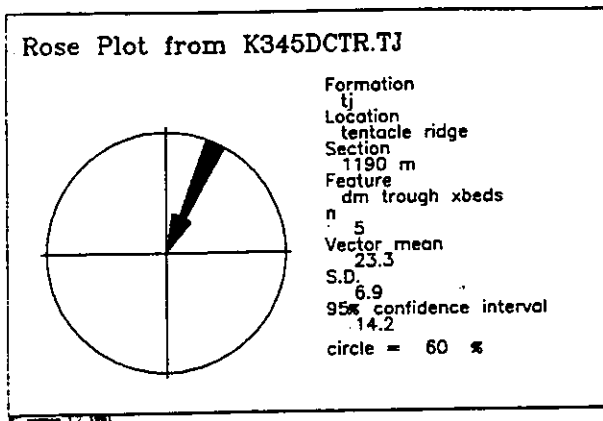
**Figure 404**



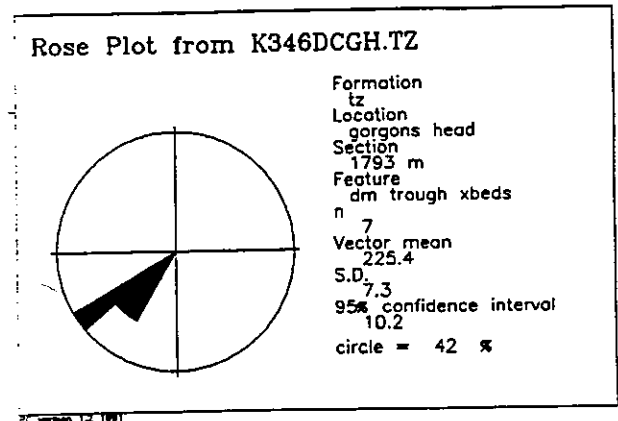
**Figure 405**



**Figure 406**



**Figure 407**



DATA FROM K347DCGH.TZ

LOCATION : gorgons head  
FORMATION : tz  
N : 6 VECTOR MEAN : 274.6  
265 275 277 272 274 285

SECTION : 1830 m  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 5.9

DATA FROM K348MTTR.TH

LOCATION : trail ridge saddle  
FORMATION : th  
N : 6 VECTOR MEAN : 114.3  
114 112 115 116 125 104

SECTION : k348mtrr.th  
FEATURE : m trough xbeds  
STANDARD DEVIATION : 6.1

DATA FROM K349MTTR.TH

LOCATION : trail ridge  
FORMATION : th  
N : 1 VECTOR MEAN : 69.9  
070

SECTION : summit  
FEATURE : m trough xbed  
STANDARD DEVIATION : 0.1

DATA FROM K349DCRE.TBC

LOCATION : roadend nunatak  
FORMATION : tbc (Brown Hills congl.)  
N : 9 VECTOR MEAN : 22.6  
015 105 306 026 035 012 116 246 006

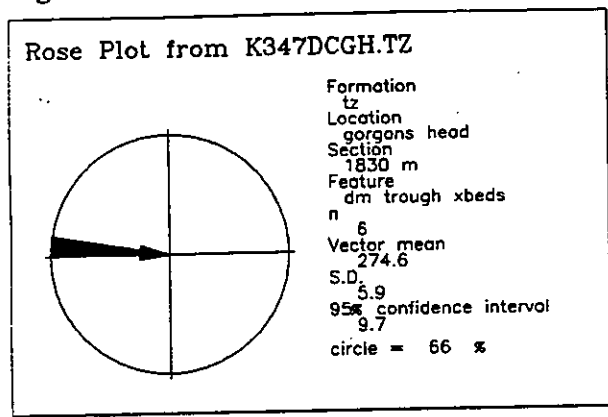
SECTION : k349dcre.tbc  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 67.2

DATA FROM K350DCMN.TJ

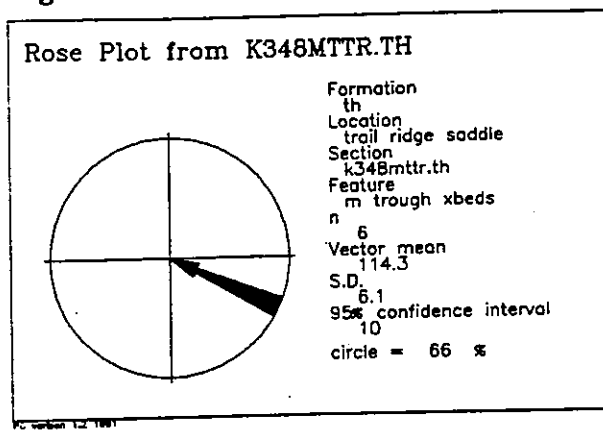
LOCATION : Mulgrew Nunatak  
FORMATION : tj  
N : 6 VECTOR MEAN : 26.8  
025 016 037 030 024 029

SECTION : k350dcmn.tj  
FEATURE : dm trough xbeds  
STANDARD DEVIATION : 6.4

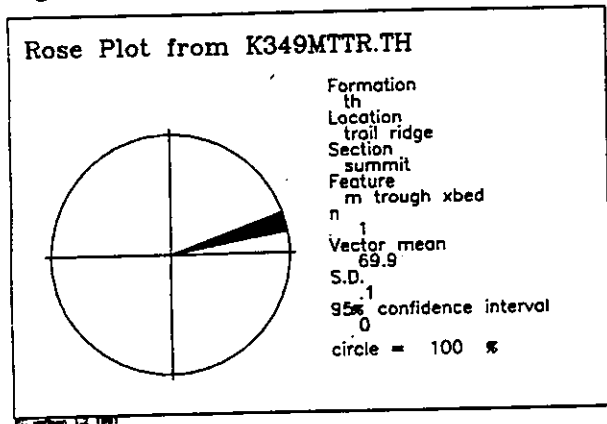
**Figure 408**



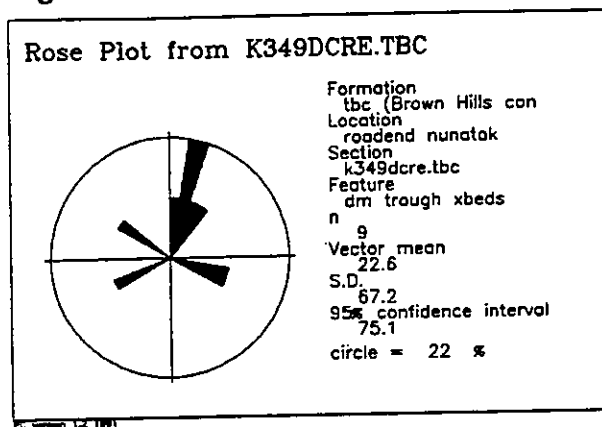
**Figure 409**



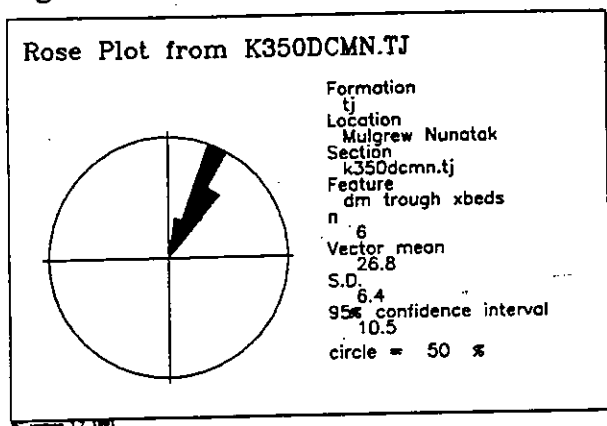
**Figure 410**



**Figure 411**



**Figure 412**





**SECTION 6 SUPPLEMENTARY PALEOCURRENT DATA FROM MEMBER A  
OF THE LASHLY FORMATION**

Collected by D. P. Zwartz<sup>1</sup>, Antarctic Research Centre, Victoria University of Wellington,  
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<sup>1</sup> Current address:

Research School of Earth Sciences, Australian National University, GPO Box 4, Canberra,  
ACT 2601, Australia.

DATA FROM D001DCPM.VLA

LOCATION : Portal Mountain SECTION : N ridge  
FORMATION : Lashly A FEATURE : dm-scale trough cross-beds  
N : 47 VECTOR MEAN : 10.9 STANDARD DEVIATION : 25.7  
037 004 076 025 332 051 009 031 020 017 358 042 357 330 010 034 004 032  
356 019 006 342 013 329 030 013 020 007 328 025 334 024 003 057 339 027  
015 355 032 001 358 347 068 346 039 353 333

DATA FROM D002DCMC.VLA

LOCATION : Mount Crean SECTION : N ridge  
FORMATION : Lashly A FEATURE : dm-scale cross trough-beds  
N : 7 VECTOR MEAN : 11.4 STANDARD DEVIATION : 9.8  
014 024 008 027 005 359 003

DATA FROM D003RRMC.VLA

LOCATION : Mount Crean SECTION : N ridge  
FORMATION : Lashly A FEATURE : ripples  
N : 8 VECTOR MEAN : 24.1 STANDARD DEVIATION : 13.2  
011 018 016 040 022 052 017 018

DATA FROM D004LOHM.VLA

LOCATION : Horseshoe Mountain SECTION : Inside horseshoe  
FORMATION : Lashly A FEATURE : log orientations  
N : 100 VECTOR MEAN : 299.8 STANDARD DEVIATION : 56.3  
286 267 278 205 335 340 344 333 185 324 344 332 243 357 348 267 188 285  
345 307 331 334 271 264 211 345 315 252 186 352 189 291 310 193 239 211  
286 183 288 181 331 322 329 276 332 315 302 356 342 275 342 329 324 316  
285 181 336 237 226 339 285 324 337 189 182 205 273 265 344 333 281 328  
279 182 336 338 251 183 295 322 314 321 320 344 332 345 262 311 263 315  
252 324 311 214 347 276 323 293 215 359

DATA FROM D005DCHM.VLA

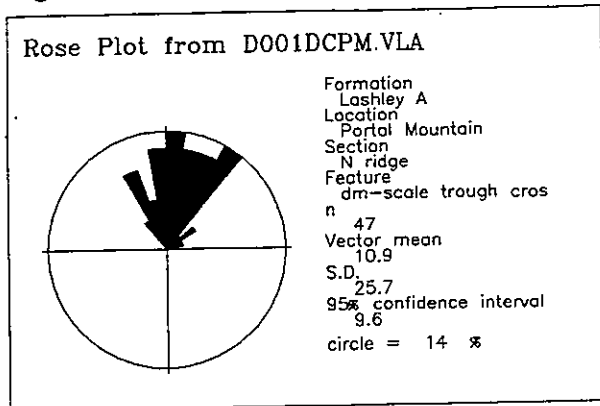
LOCATION : Horseshoe Mountain SECTION : Inside horseshoe  
FORMATION : Lashly A FEATURE : dm-scale trough cross-beds  
N : 58 VECTOR MEAN : 16.6 STANDARD DEVIATION : 72.8  
035 111 114 348 323 319 161 013 099 139 017 330 164 017 000 110 354 330  
163 014 109 117 356 313 165 034 107 354 001 314 151 033 007 327 331 319  
042 125 004 304 340 332 051 121 001 001 336 301 097 133 009 331 310 289  
095 130 342 333

DATA FROM D006DCRP.VLA

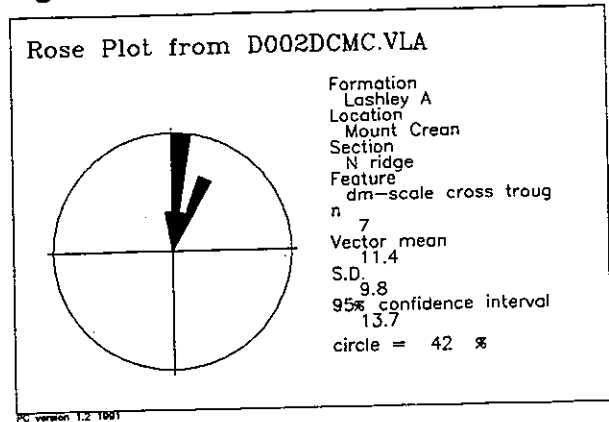
LOCATION : Robinson Peak SECTION : East face  
FORMATION : Lashly A FEATURE : dm-scale trough cross-beds  
N : 21 VECTOR MEAN : 322.3 STANDARD DEVIATION : 14.5  
315 344 320 312 316 337 311 358 296 334 318 337 320 331 312 299 316 313  
337 321 324



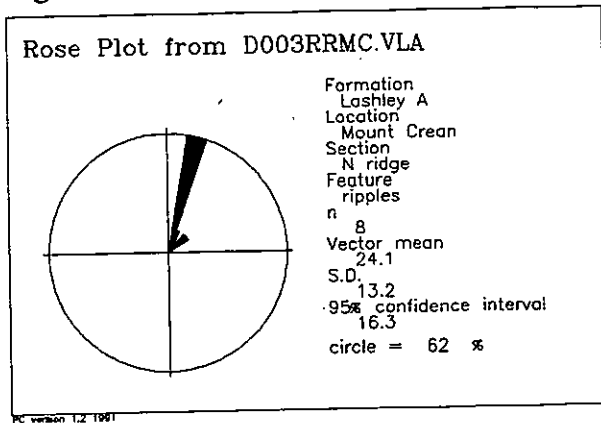
**Figure 413**



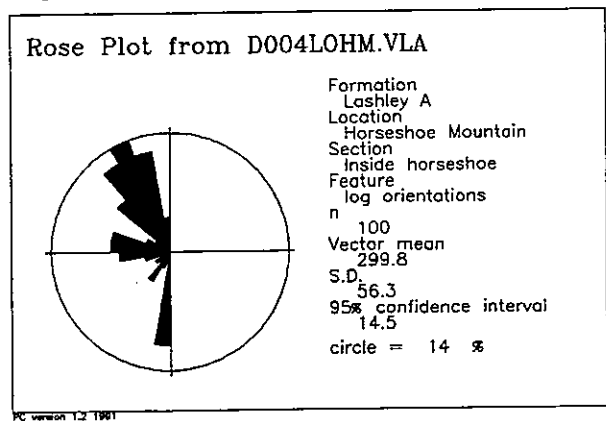
**Figure 414**



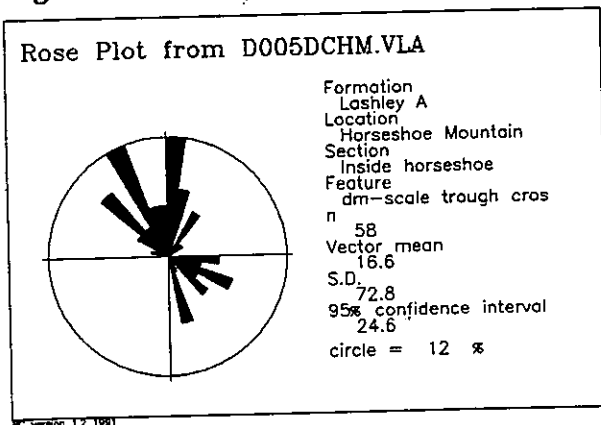
**Figure 415**



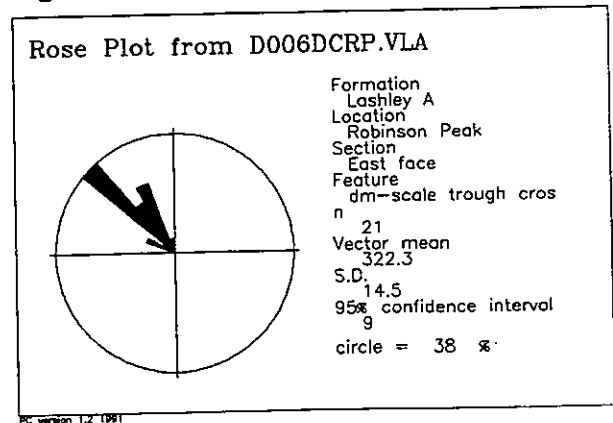
**Figure 416**



**Figure 417**



**Figure 418**



## SECTION 7

### PC 1.2 PALEOCURRENT DATA PLOTTING AND ANALYSIS RELEASE NOTES

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## INTRODUCTION

PC was written so that geological directional data acquired in the field could be stored as many small sets which could then be displayed graphically and compared either individually, or compiled into groups. This allows comparison by several criteria, for example location, position in the stratigraphic column (age), or directional feature. The capability to produce hard copy of both the graphic display and the original data file was also an important requirement.

Each data file consists of three parts. The first is a list of parameters which give a "field description" of the data: the location, formation and section the measurements were made from, the number of measurements in the set, and a description of the type of feature measured. The second part consists of the vector mean and the standard deviation of the data set, which PC calculates when the data is saved. The third part is a list of azimuth measurements.

For data plotting and comparison, PC can retain two data sets in memory, either individual files or compiled groups of files, making it possible to compare data sets using a two-ring circular diagram.

If a group of data files are frequently compiled, they can be loaded into one of PC's data sets and saved as a single file. PC asks the user for a new file name for the set, and recalculates the statistics for the combined file before saving.

High-resolution printed copy of the graphic displays can be obtained using the PLOT programme produced by Golden Software and sold as part of the GRAPHER graphing package. This software is compatible with most printers.

## DESCRIPTION OF FEATURES

PC 1.2 displays the possible commands at each stage, usually in a menu bar at the bottom of the screen. The functions should be self-explanatory, but a few notes and suggestions are included here.

### Main Menu

- 1,E        Enter new data set to save on disk.
- 2,L,C     Load, combine and print data sets.
- 3,P        Display data sets graphically as rose or circular diagrams.
- 4,D        Temporarily exit to DOS.
- 5,X        Exit PC 1.2.

### 1) Data Entry

Data sets entered here are saved as DOS text files. This means that they can subsequently be edited using a standard text editor. However, care must be taken not to alter the format or statistical values of the set, as this may cause PC to display incorrect information or make the file impossible to load.

## 2) Loading, Combining and Printing Files

The default directory for this menu is the directory from which PC was started. To select files, move the highlighted bar using the arrow keys, PgUp, PgDn, Home and End.

New directory - It is not always necessary to enter the full path name of the new directory, as PC will accept standard DOS format. For example .. and \ can be used, and subdirectory names can be used if PC is currently displaying the parent directory.

A file mask can be used to restrict the file displayed, for example if "XBEDS\*.\*" is entered, PC will display all files in the root directory which begin with "XBEDS".

Sometimes PC incorrectly gives a "File not found" message. If this occurs repeat the command, stating the full path of the directory.

Load - This command loads a file from the disk into one of PC's data sets in memory. It is not possible to add data to a set already in memory - it is necessary to select the desired files by tagging them, then loading them all at once. To do this, the group of files must all be in the same directory. If this is not the case files maybe moved or copied using a DOS shell from the main menu.

In future versions of PC, it is hoped that the load command will include an option to apply a magnetic correction to a data set as it is loaded.

The Tag/Untag and Tag/Untag All commands are used to change the tags status of individual files of all the files in a directory. Tagged files are marked with an asterisk. If any files are tagged, the load and print commands will enquire whether their operation should be performed on the group of tagged files, or just the file currently highlighted.

Print - This command prints the attributes, and statistics of the selected file(s) and a list of the directional measurements. Output can be directed either to a printer, or to a text file, which can be edited and/or incorporated into other documents.

Text files are saved in the default directory as PCFILE##.TXT, where ## is the lowest number for which the file PCFILE##.TXT does not exist. For example, if a directory already contains the files PCFILE1.TXT and PCFILE2.TXT, the next text file saved will automatically be named PCFILE3.TXT, and so on. If the default directory is full or a write protected disk is encountered, the programme may crash. This will be remedied in later versions.

Save - This command saves the contents of one of the data files in memory onto disk. This is useful for saving combined sets of data files which will be frequently used together. PC prompts the user for the path and file name to write to (<Return> gives the defaults), and asks permission to overwrite files if they already exist.

The EXit command returns the user to the main menu. On leaving the File Load Menu, PC retains the name of the current directory, and returns to it when this menu is re-entered.

### 3) Plotting Files

PC only allows the user to enter the Plot Menu if both data files are not empty. Once in the Plot Menu, there is a choice of either Rose or Circular diagrams.

If a Rose diagram is selected, PC prompts the user for the data file to plot, then produces a rose diagram with a petal width of 10 degrees, starting with 000 - 010, and so on. Future versions will allow a choice of petal widths, and the option to centre the petals around 000 (eg. 395 - 005).

The file attributes and statistics are displayed beside the rose diagram. It should be noted the standard deviation and 95% confidence interval are only relevant for unimodal distributions.

If a Circular diagram is chosen, the user is offered a choice of a one- or two-ring diagram, and prompted for which data file should occupy each ring.

From either a Rose or Circular diagram, the Plot command produces a graphics file of the display. This file is written to the current directory with the extension PLT, and can be printed on most printers using the PLOT programme from Golden Software. Files are saved as PCROSE##, or PCCIRC##, using the same naming system described above in the section on printing files.

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### ACKNOWLEDGEMENTS

PC was written at the request of Dr Peter Barrett, and was funded by an internal research grant from Victoria University of Wellington. Ken Woolfe, Peter Barrett and Malcom Arnot from the Antarctic Research Centre at VUW conducted the first field test of the programme, and their suggestions and feedback guided the production of later versions.

## DATA FILE INDEX

D001DCPM.VLA	160	K021RR5F.WC1	32	K048RR5G.WCE	48
D002DCMC.VLA	160	K022RR5F.WBZ	32	K049MC5G.WCE	48
D003RRMC.VLA	160	K023RR5F.WBZ	32	K049RR5G.WCE	50
D004LOHM.VLA	160	K024RR5G.WBZ	32	K050RR5G.WCE	50
D005DCHM.VLA	160	K025RR5F.WCC	34	K051DC5G.WCG	50
D006DCRP.VLA	160	K026RR5F.WCC	34	K051RR5G.WCH	50
J001DLXX.WCE	16	K027DC5F.WCG	34	K051RR5G.WCI	50
J001LO4F.WCE	16	K028DC5F.WCG	34	K051RR5G.WCJ	50
J001LOXX.WCE	16	K029DC5F.WCG	34	K052RR5G.WCE	52
J003LOXX.VF	16	K030DC5G.WC1	34	K052RR5G.WCH	52
J004LOXX.WCE	16	K031DC5H.VF	36	K053RR5F.WCC	52
J008LOXX.WCE	16	K032DC5H.VF	36	K053RR5F.WCE	52
J009LOXX.WCE	18	K033DC5H.VF	36	K054BS5F.WCF	52
J010LOXX.WCE	18	K034DC5H.VF	36	K054RR5F.WCF	52
J011LOXX.WCG	18	K035DC5H.VF	36	K055RR5F.WCF	54
J016LOXX.WCE	18	K036DC5H.VF	36	K056DC5F.WCG	54
J017LOXX.WCE	18	K037DC4H.WCG	38	K056RR5F.WCH	54
J018LOXX.WCE	18	K037DH4H.WCE	38	K057RR5F.WCJ	54
J020LO6F.VLC	20	K037DS4H.WCE	38	K058RR5F.WCF	54
K001RR5F.WBZ	20	K037MT4H.WCG	38	K059RR5F.WCF	54
K002BS4F.WBZ	20	K037RR4H.WCE	38	K060DC5F.WCK	56
K002RR4F.WBZ	22	K037RR4H.WCH	38	K061DC5F.WCK	56
K003BS4F.WCE	22	K037RR4H.WCJ	40	K062DC5F.WCK	56
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K004BS4F.WCE	22	K038DS4H.WCE	40	K062RR5F.WCL	56
K004RR4F.WCE	22	K038DT4H.WCE	40	K063DC6F.VF	56
K005BS4F.WCE	24	K038MH4H.WCE	40	K064DC6F.VF	58
K005RR4F.WCE	24	K038MS4H.WCE	40	K065DC6F.VF	58
K006BS4F.WCE	24	K038RR4H.WCE	42	K066DC6F.VF	58
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K007BS4F.WCE	24	K040RR4H.WCE	24	K068DC6F.VF	58
K007RR4F.WCE	26	K041DC4H.WCG	42	K069DC6F.VF	58
K008BS4F.WCE	26	K041DH4H.WCJ	42	K070DC6F.VF	60
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K011BS4F.WCE	28	K043DC4H.WCG	44	K073RR5G.WBZ	62
K011RR4F.WCE	28	K043RR4H.WCH	44	K073RR5G.WCC	62
K012BS4F.WCC	28	K043RR4H.WCJ	44	K073RR5G.WCE	62
K012RR4F.WCC	28	K044MC4G.WBZ	46	K073RR5G.WCH	62
K014DC5F.WC1	28	K044MH4G.WBZ	46	K074RR5G.WCC	62
K015DC5F.WC1	30	K044MS4G.WBZ	46	K075RR5G.WCE	62
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K017DC5G.WC1	30	K045RR4G.WBZ	46	K076RR5G.WCH	64
K018DC5F.WC1	30	K046DC4H.WCG	46	K077RR6E.WCJ	64
K019DC5F.WC1	30	K046RR4H.WCH	48	K078DC6E.VF	64
K020BS5F.WC1	30	K047DC5G.WC1	48	K079BS6E.VF	64
K020RR5F.WC1	32	K047RR5G.WC1	48	K079PL6E.VF	64
K021BS5F.WC1	32	K048MC5G.WCE	48	K079RR6E.VF	66

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 K081MC6E.VF 66  
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 K092BS4G.WCC 72  
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