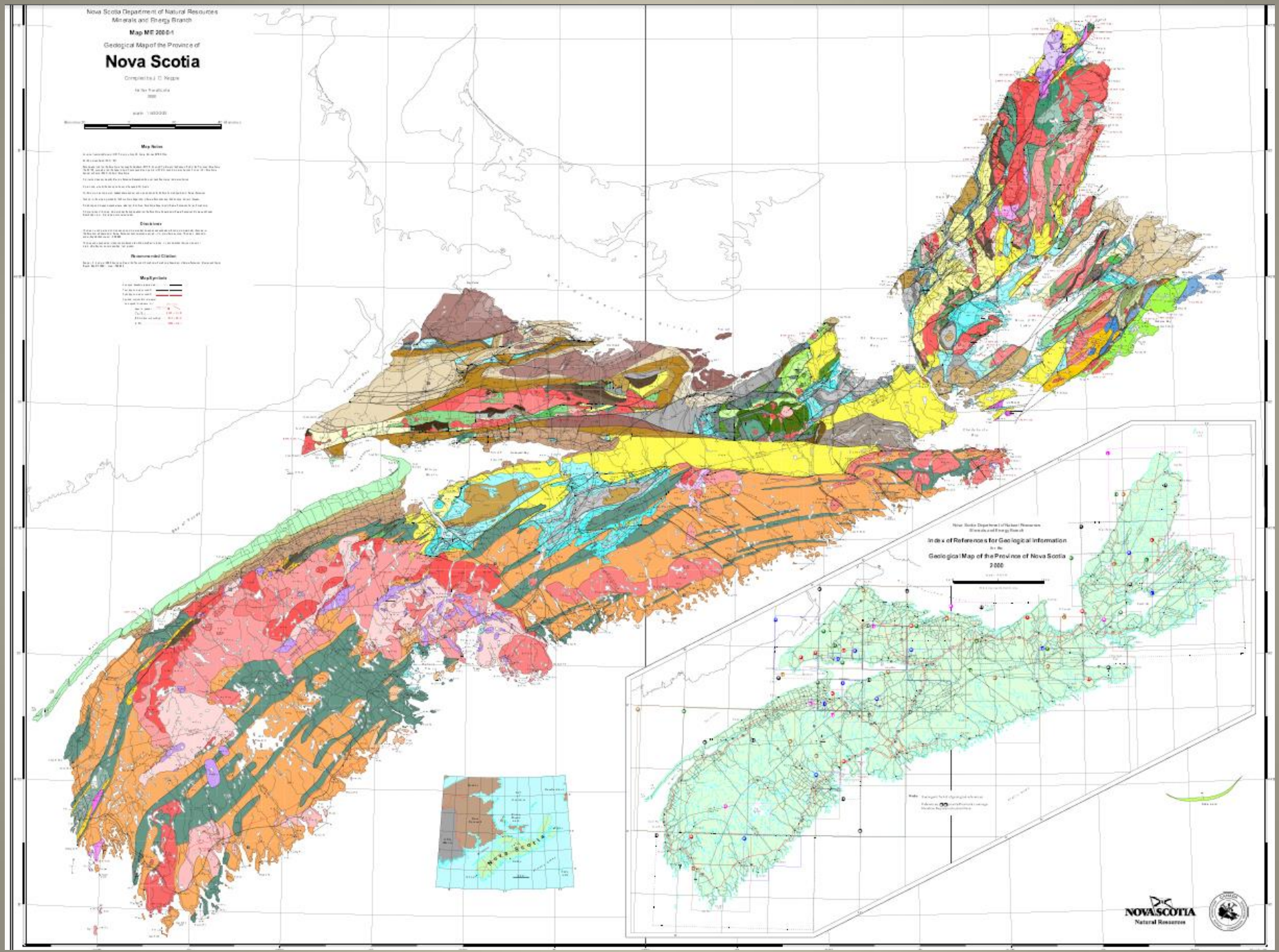
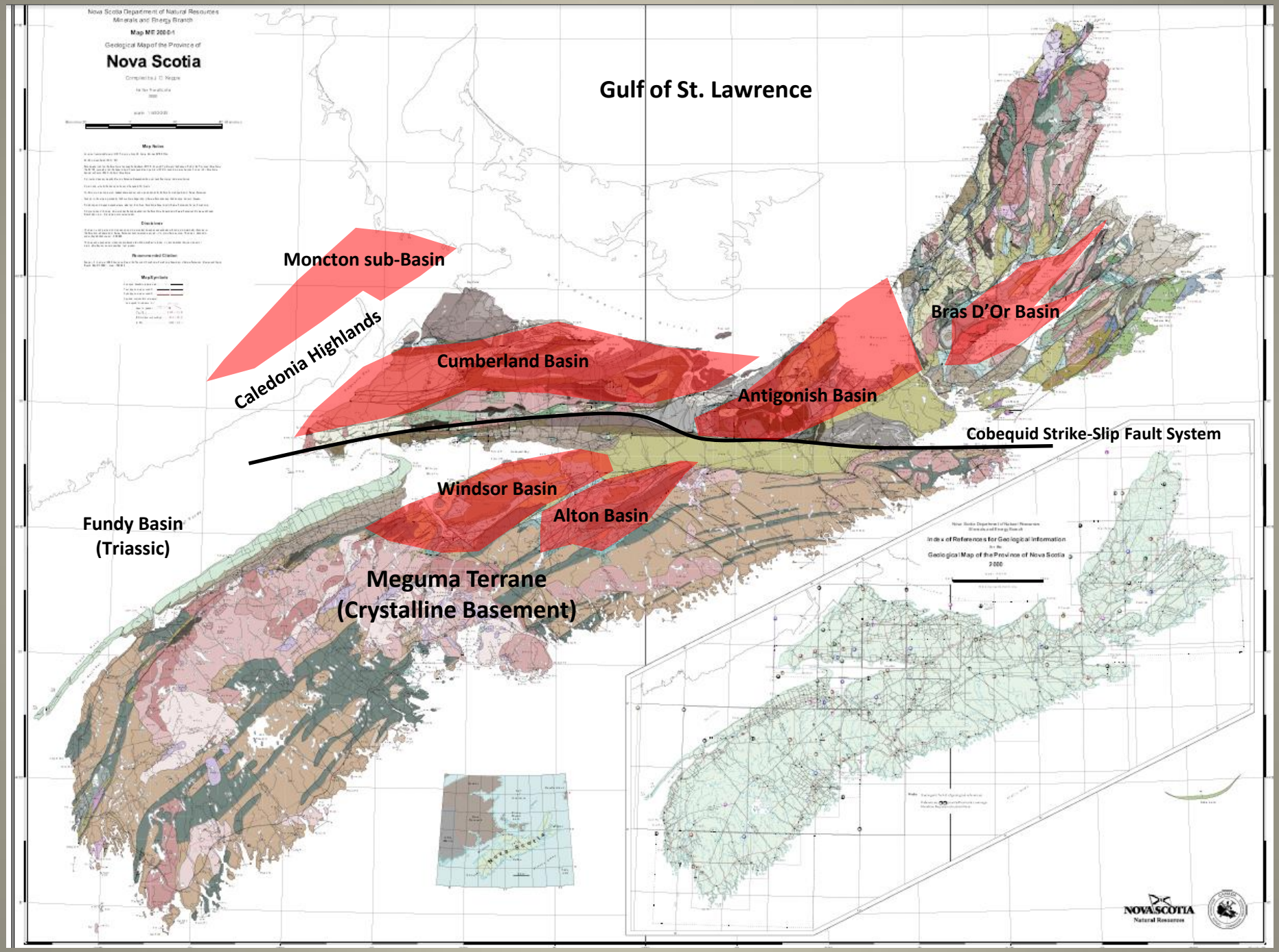
Structural Analysis of Kennetcook #1, Kennetcook #2, and N-14-A/11-E-05

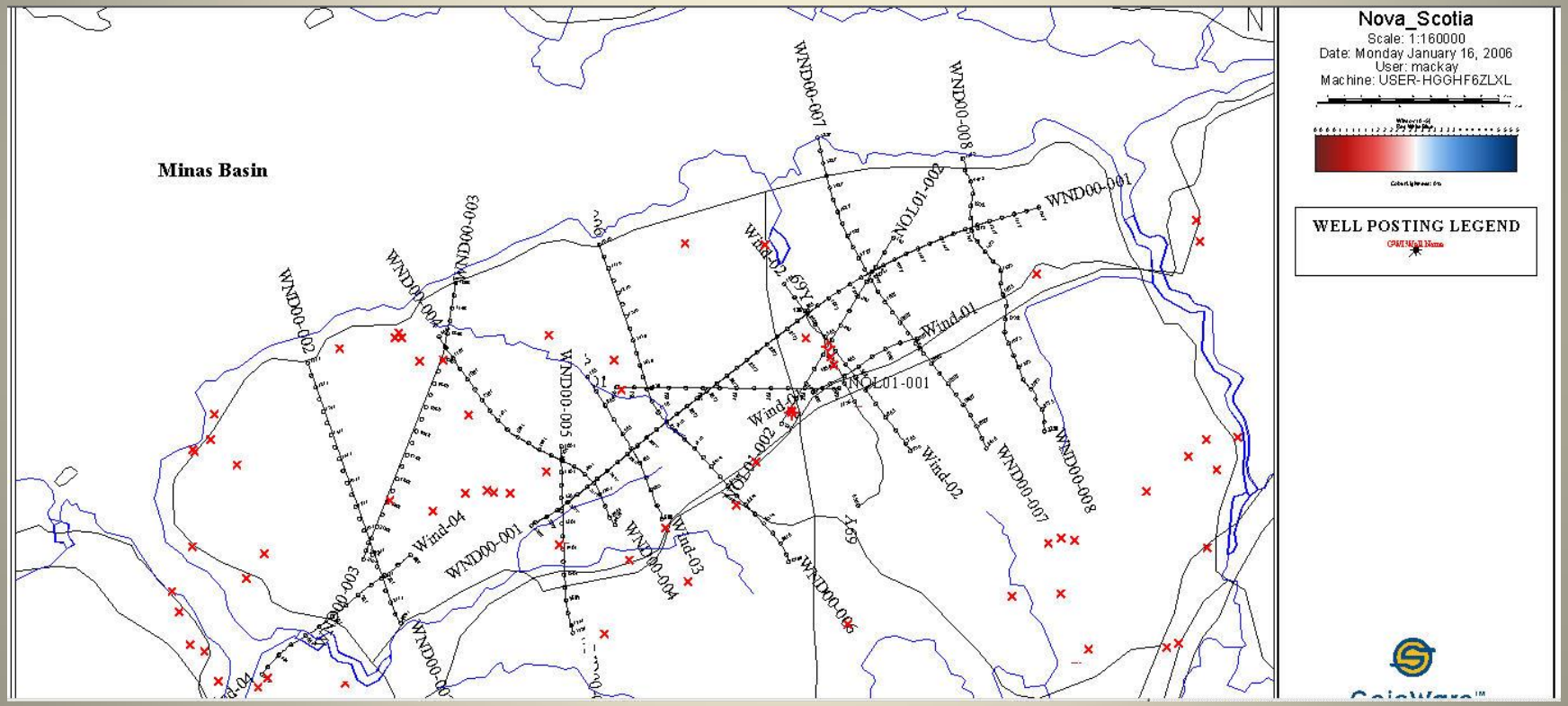
Figures

By: Paul A. MacKay

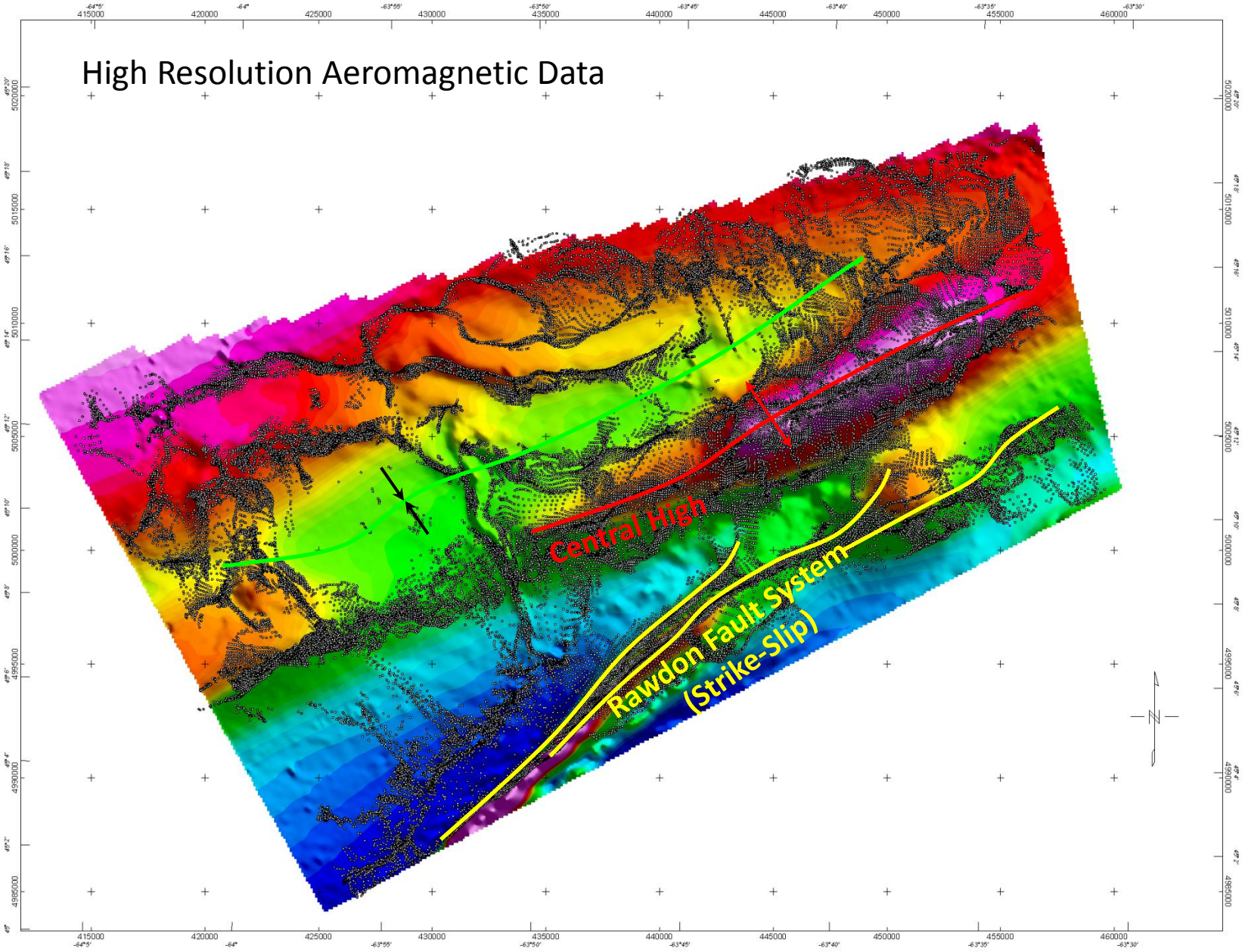

Nova Scotia Department of Natural Resources
Minerals and Energy Branch
Map ME 2000-1
Geological Map of the Province of
Nova Scotia
Map Notes
Disclaimer
Recommended Citation
Map Symbols
Index of References for Geological Information
Geological Map of the Province of Nova Scotia
2000
NOVA SCOTIA
Natural Resources


Nova Scotia Department of Natural Resources
Minerals and Energy Branch
Map ME 2000-1
Geological Map of the Province of
Nova Scotia
Gulf of St. Lawrence
Moncton sub-Basin
Caledonia Highlands
Cumberland Basin
Antigonish Basin
Bras D'Or Basin
Cobequid Strike-Slip Fault System
Windsor Basin
Alton Basin
Fundy Basin
(Triassic)
Meguma Terrane
(Crystalline Basement)
Index of References for Geological Information
Geological Map of the Province of Nova Scotia
2000
NOVA SCOTIA
Natural Resources

Seismic Data Base



High Resolution Aeromagnetic Data



Scale 1:100000

North Star - Nova Scotia

Euler solutions on TMI (colour shaded)
Euler window size of 20x20 points

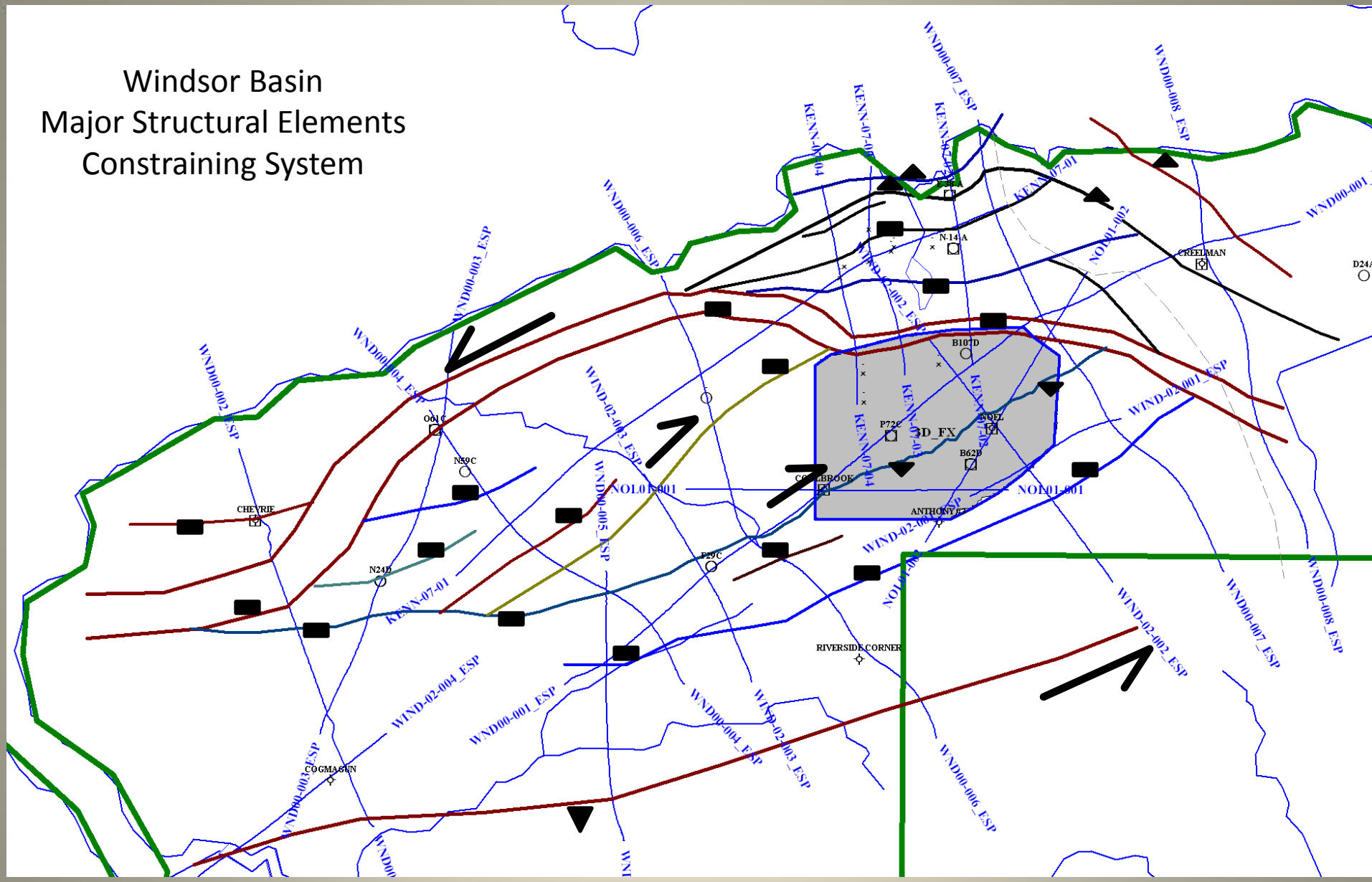

Windsor Basin
Major Structural Elements
Constraining System
WND00-007_ESP
WND00-008_ESP
KENN-07-01
NOL01-002
CREELMAN
N-14A
B107D
P72C
3D_FX
B62D
COLDBROOK
ANTHONY
NOL01-001
WIND-02-001_ESP
WIND-02-002_ESP
WIND-02-003_ESP
WIND-02-004_ESP
WND00-001_ESP
WND00-002_ESP
WND00-003_ESP
WND00-004_ESP
WND00-005_ESP
WND00-006_ESP
O61C
N59C
CHEVRIE
N24D
F29C
RIVERSIDE CORNER
COGMAGUN

Figure 1

Stress conditions associated with fractures

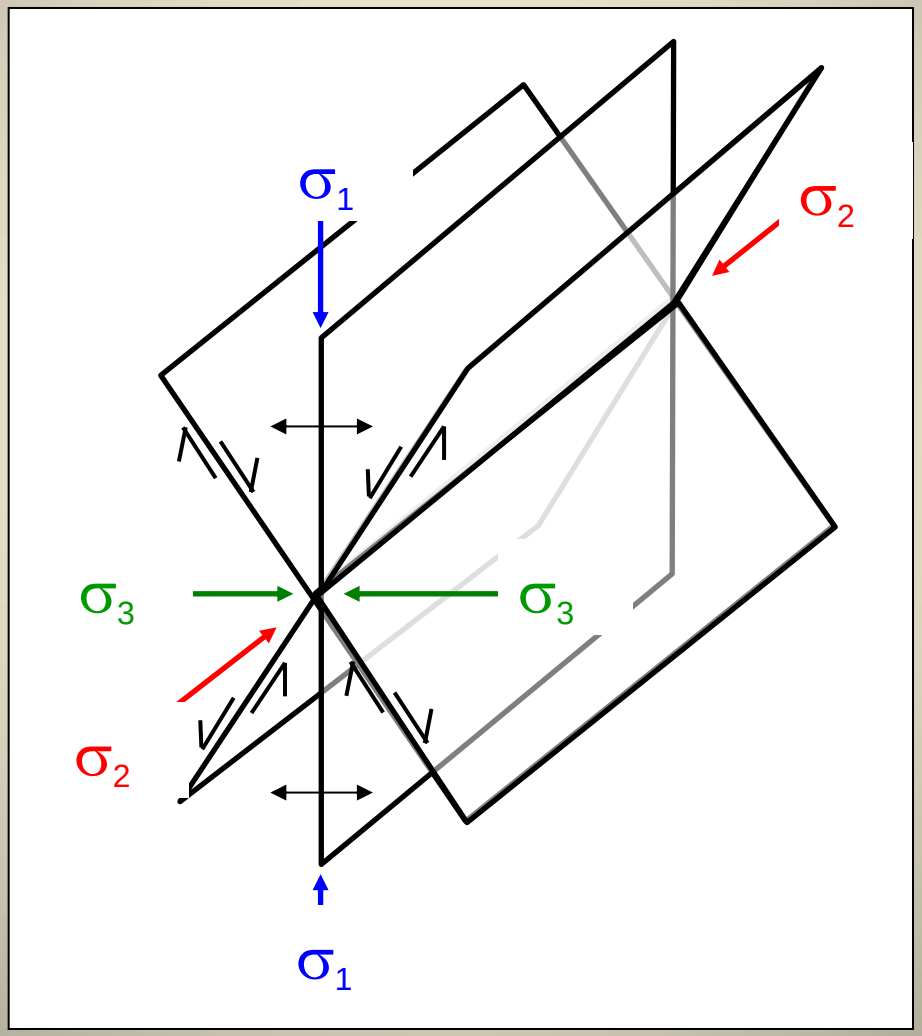


Figure 2

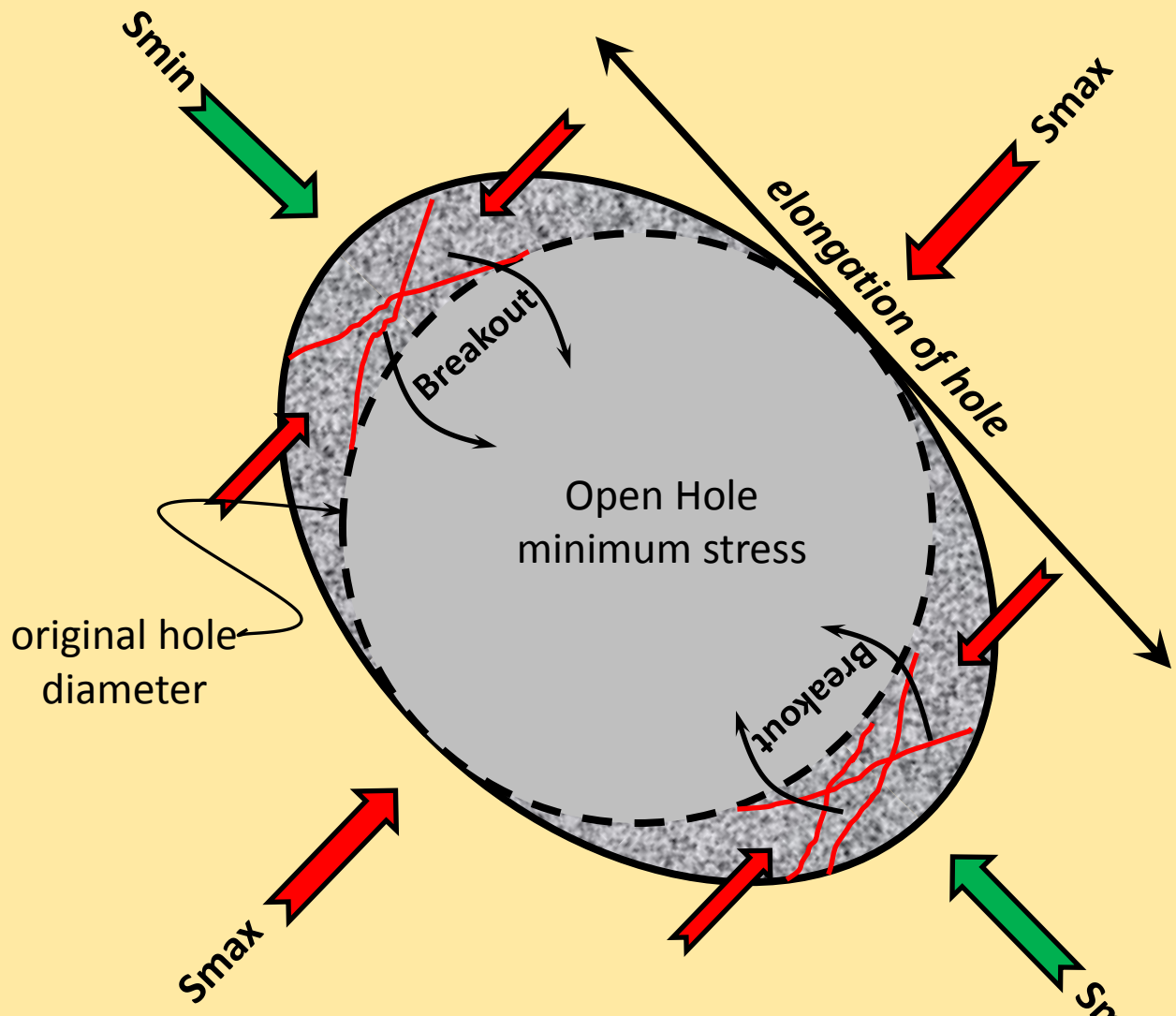
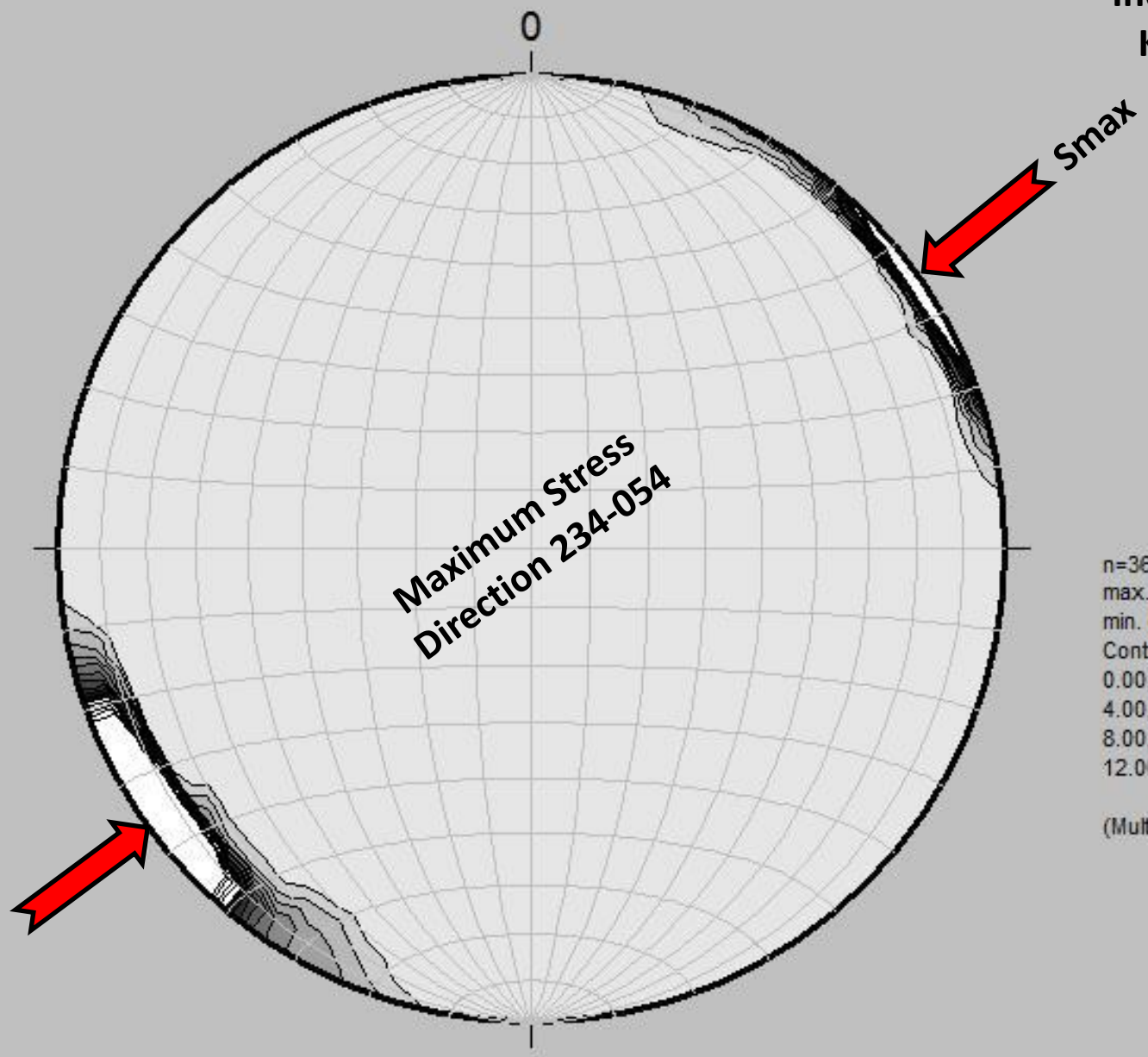

Smin
Smax
elongation of hole
Breakout
Open Hole
minimum stress
original hole
diameter
Breakout
Smax
Smin

Figure 3

Induced Fractures
Kennetcook #2



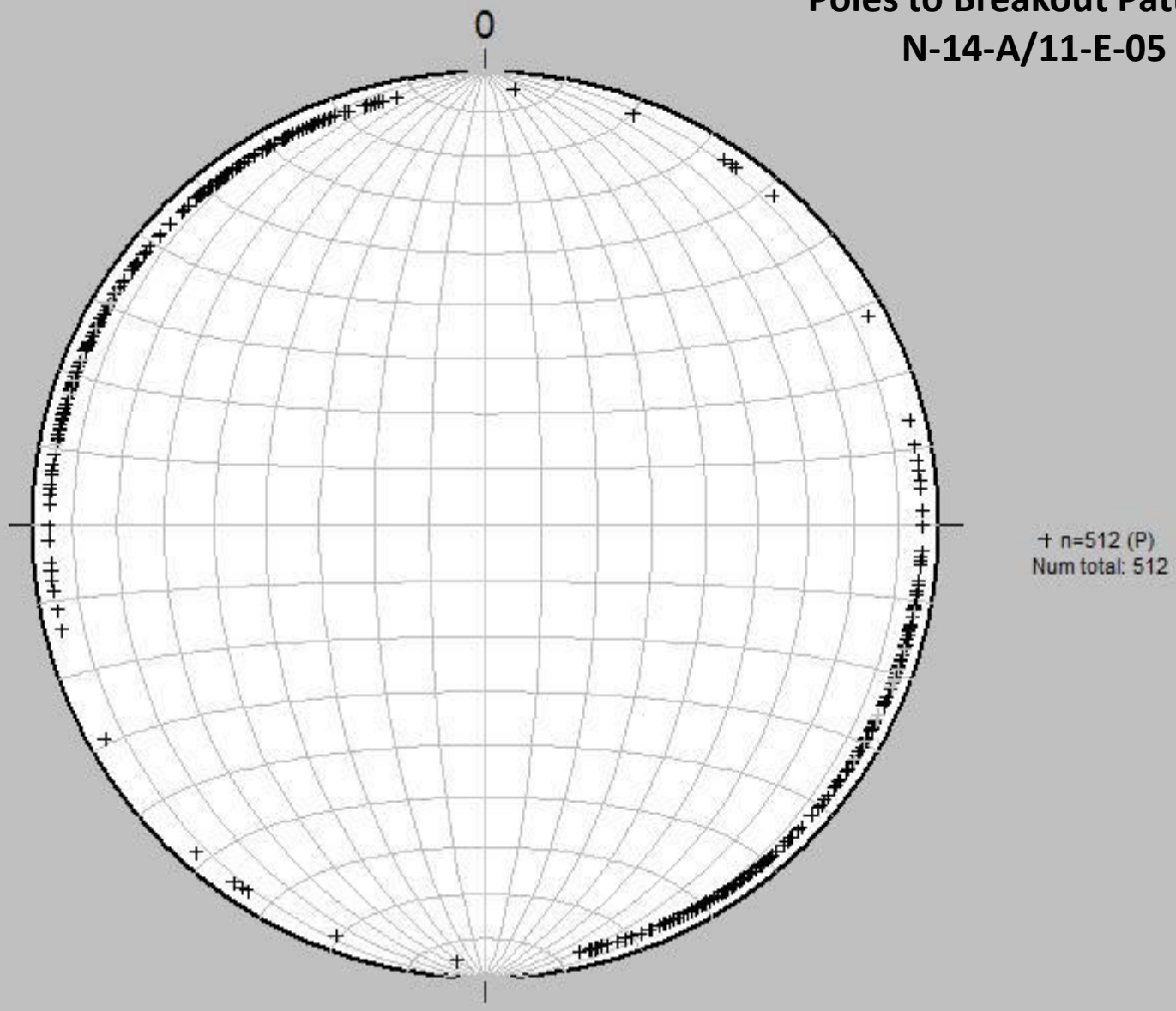
n=36
max. dens.=38.13 (at 236/ 6)
min. dens.=0.00
Contours at:
0.00,1.00,2.00,3.00,
4.00,5.00,6.00,7.00,
8.00,9.00,10.00,11.00,
12.00,13.00,14.00,15.00,

(Multiples of random distribution)

Equal area projection, lower hemisphere

Figure 4

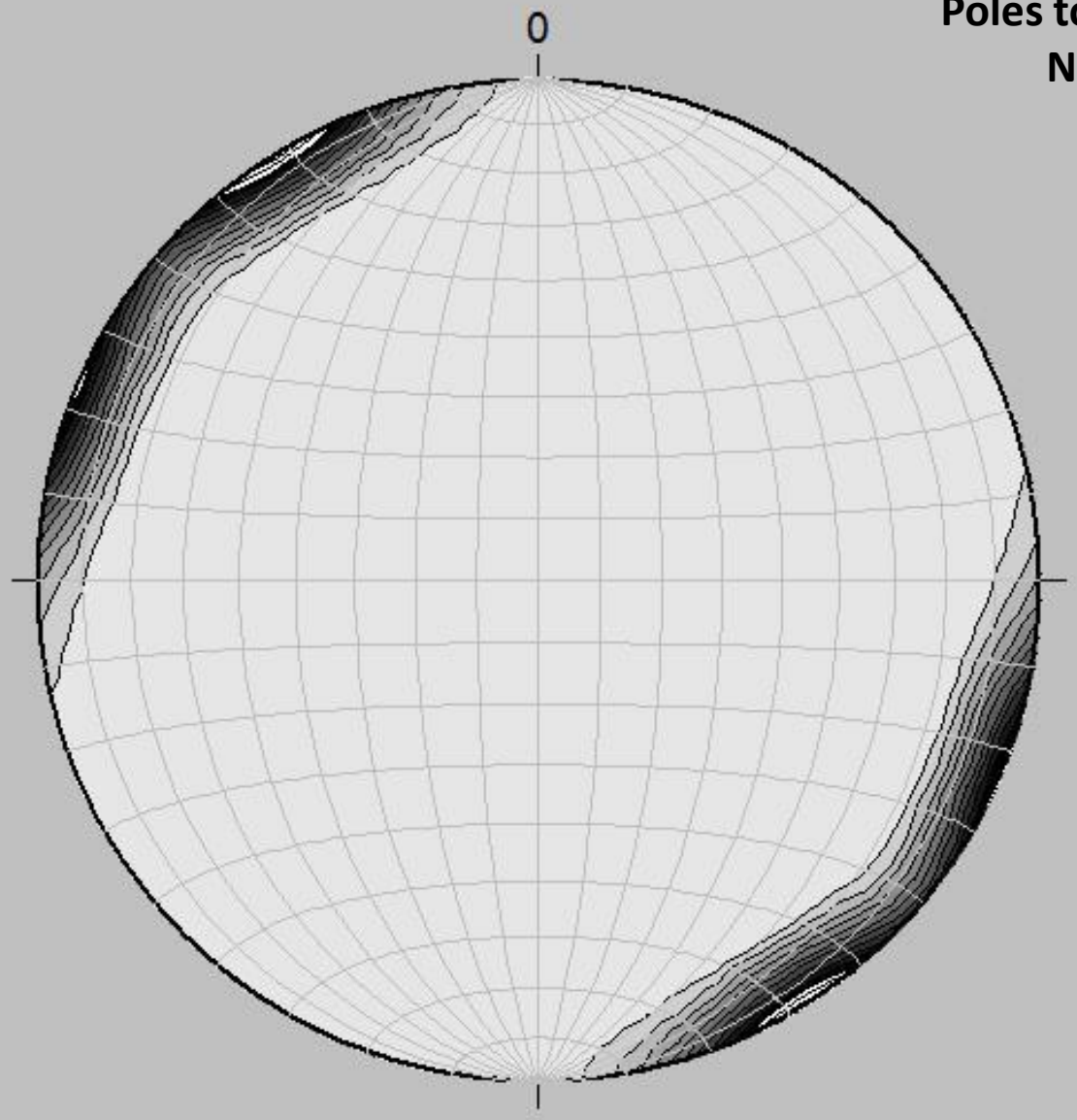
Poles to Breakout Patterns
N-14-A/11-E-05



Equal area projection, lower hemisphere

Figure 5

Poles to Breakout Patterns
N-14-A/11-E-05
Density Plot



n=512
max. dens.=14.02 (at 148/ 0)
min. dens.=0.00
Contours at:
0.00,1.00,2.00,3.00,
4.00,5.00,6.00,7.00,
8.00,9.00,10.00,11.00,
12.00,13.00,14.00,
(Multiples of random distribution)

Equal area projection, lower hemisphere

Figure 6

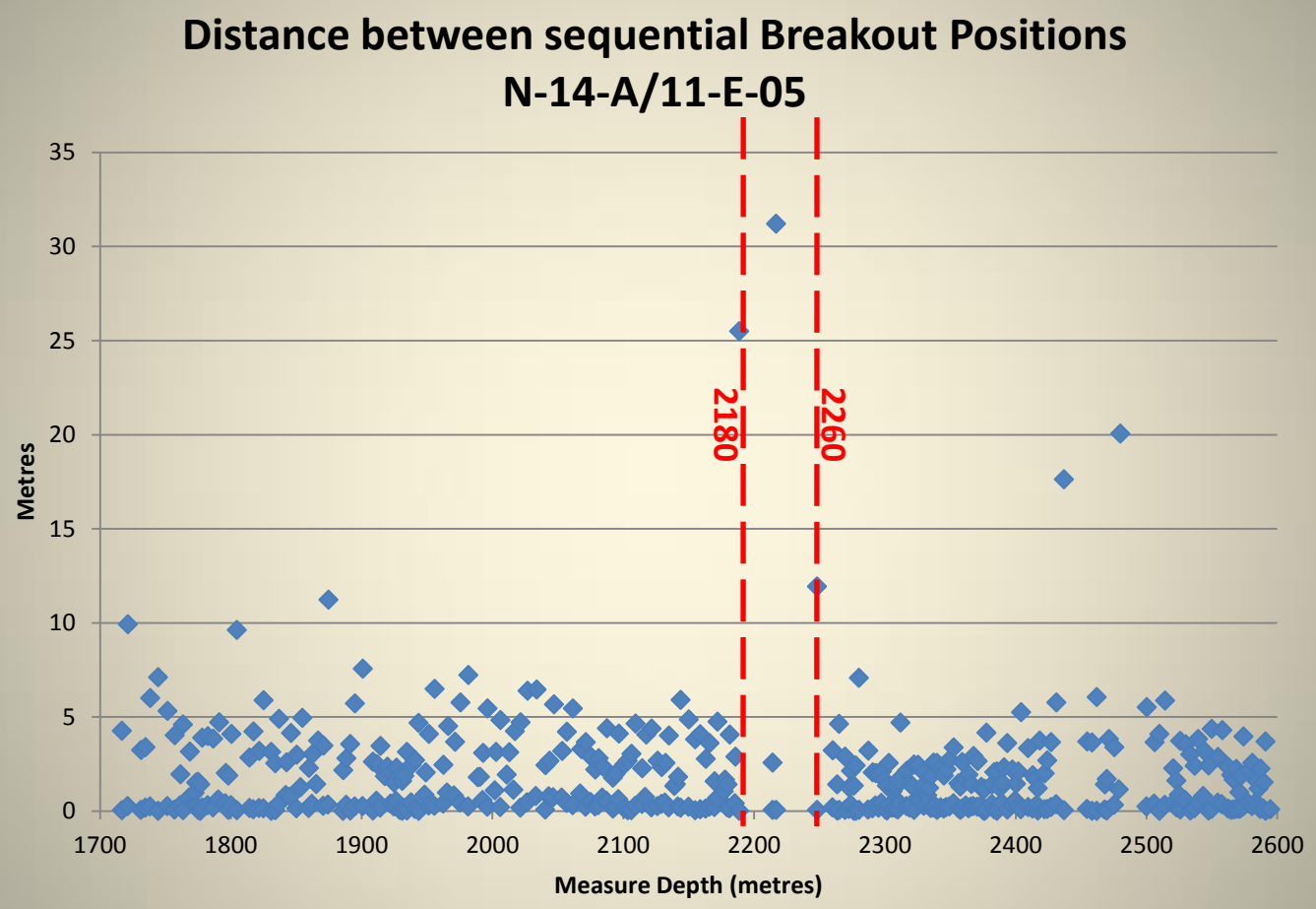

Distance between sequential Breakout Positions
N-14-A/11-E-05
Metres
35
30
25
20
15
10
5
0
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
Measure Depth (metres)
2180
2260

Figure 8

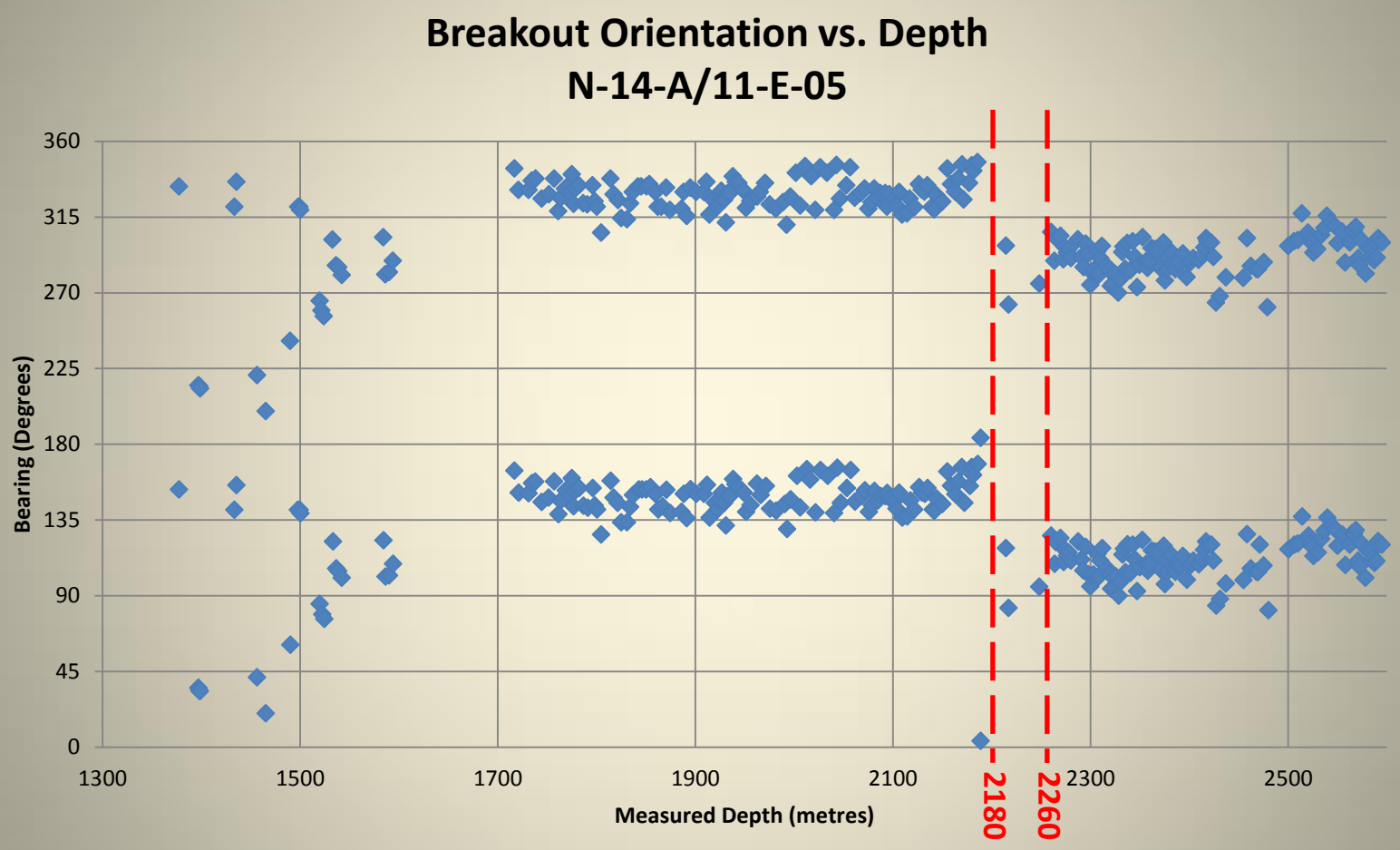

Breakout Orientation vs. Depth
N-14-A/11-E-05
Bearing (Degrees)
360
315
270
225
180
135
90
45
0
1300
1500
1700
1900
2100
2180
2260
2300
2500
Measured Depth (metres)

Figure 7

Poles to Breakout Patterns
N-14-A/11-E-05
Rose Diagram

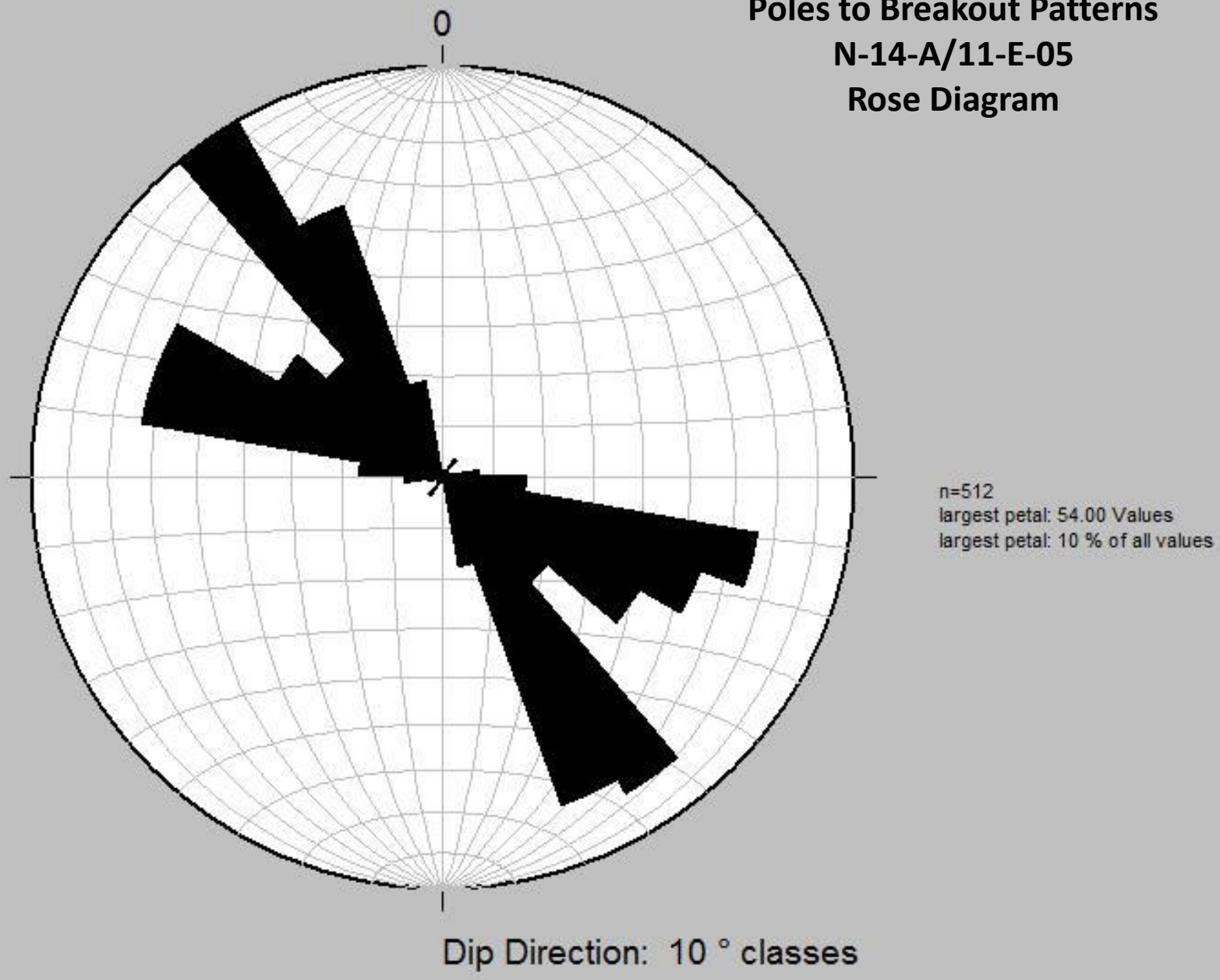


Figure 9

N-14-A/11-E-05
Breakout patterns indicate rotation of maximum stress orientation with depth

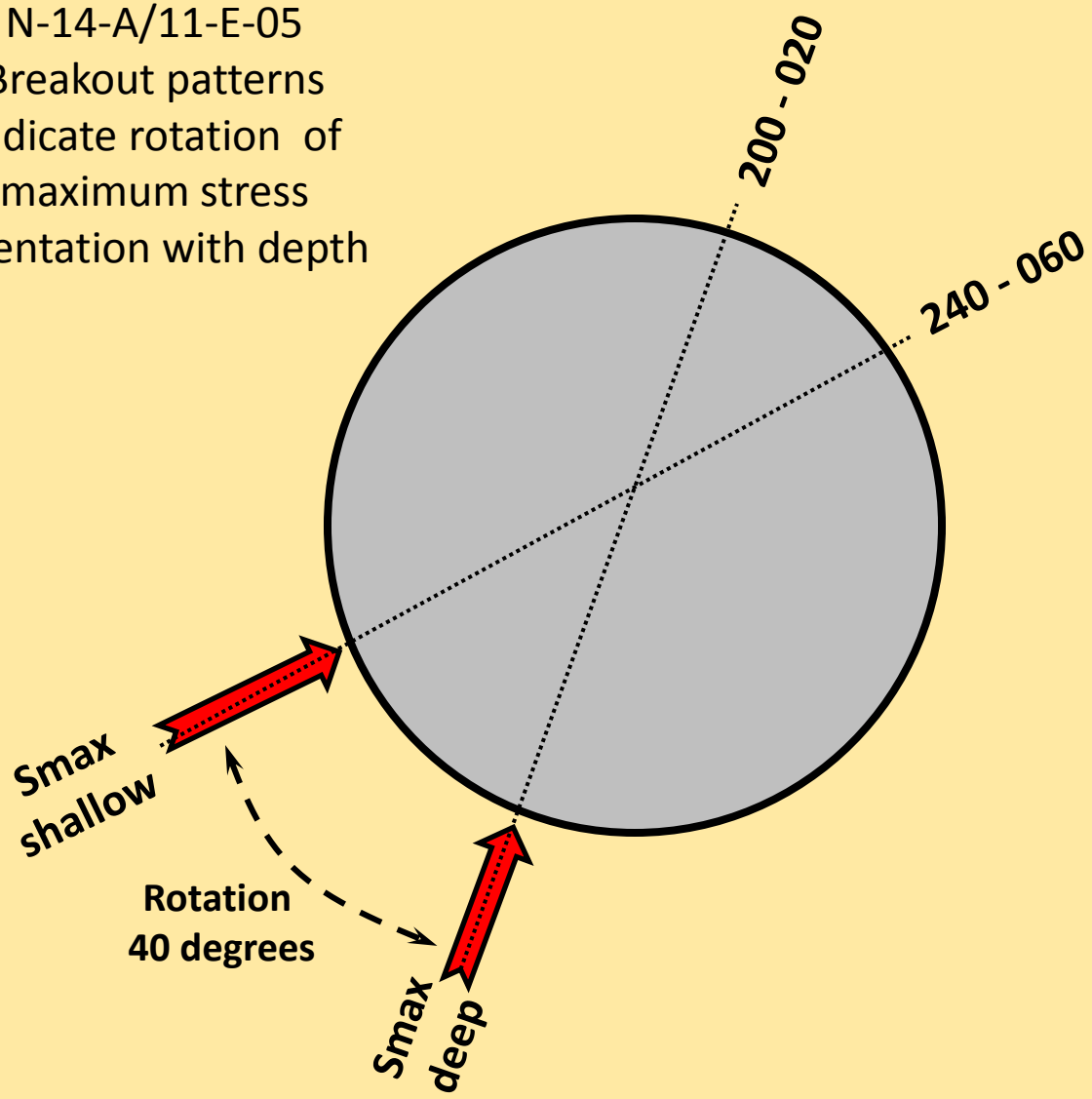
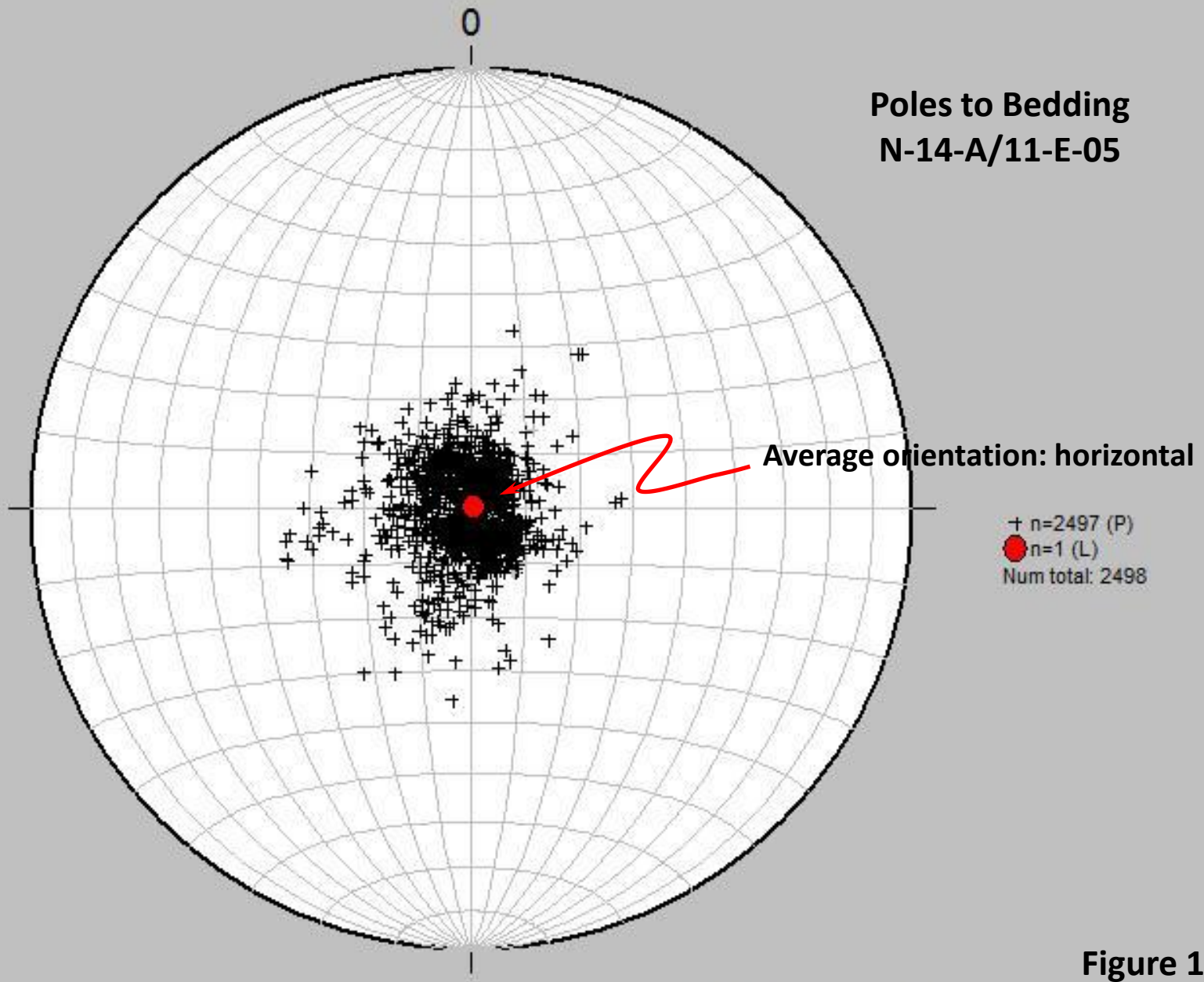


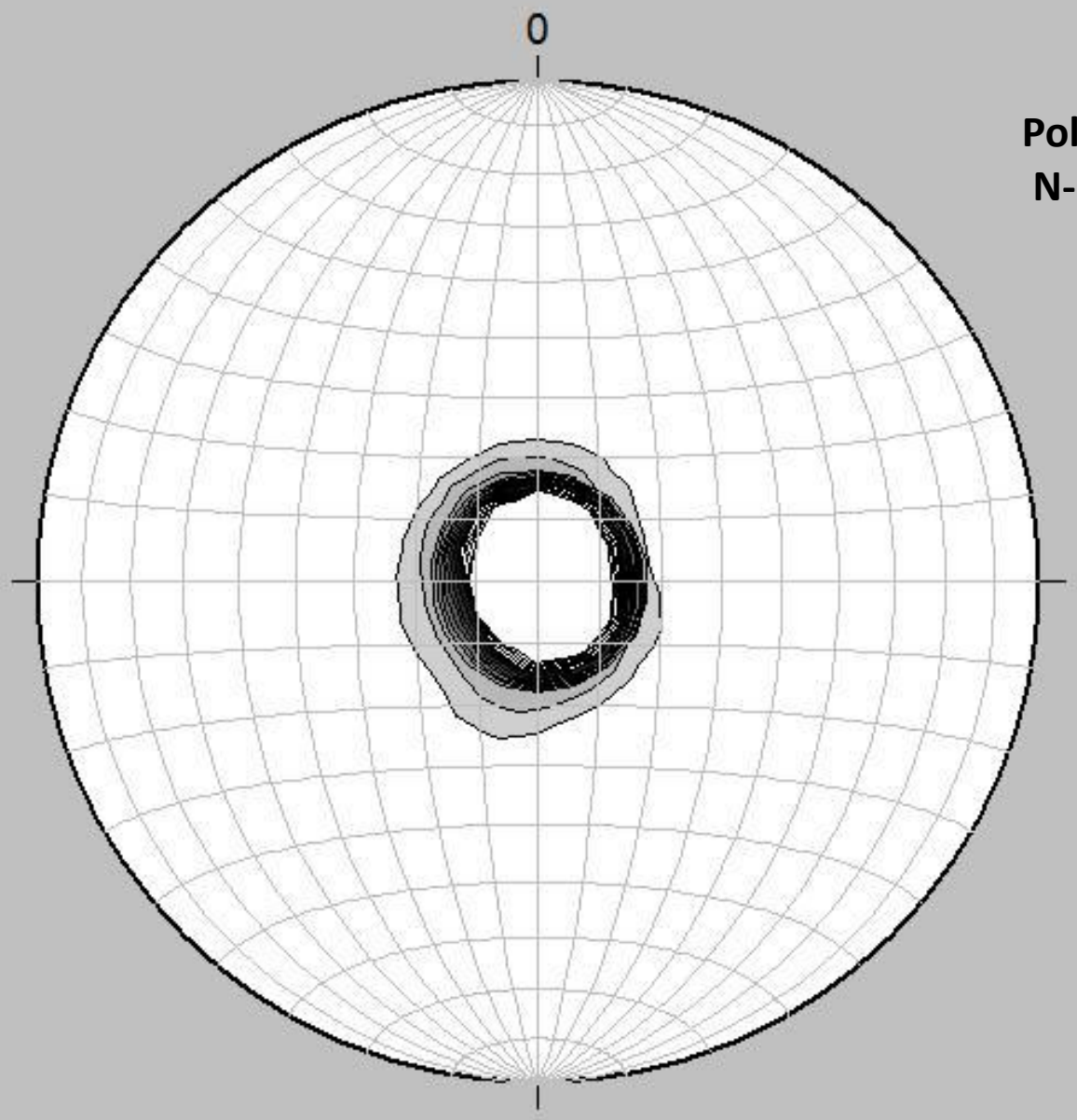
Figure 10



Poles to Bedding
N-14-A/11-E-05

Figure 11

Equal area projection, lower hemisphere



Poles to Bedding
N-14-A/11-E-05

n=2498
max. dens.=91.19 (at 0/ 90)
min. dens.=0.00
Contours at:
0.00,1.00,2.00,3.00,
4.00,5.00,6.00,7.00,
8.00,9.00,10.00,11.00,
12.00,13.00,14.00,15.00,

(Multiples of random distribution)

Equal area projection, lower hemisphere

Figure 12

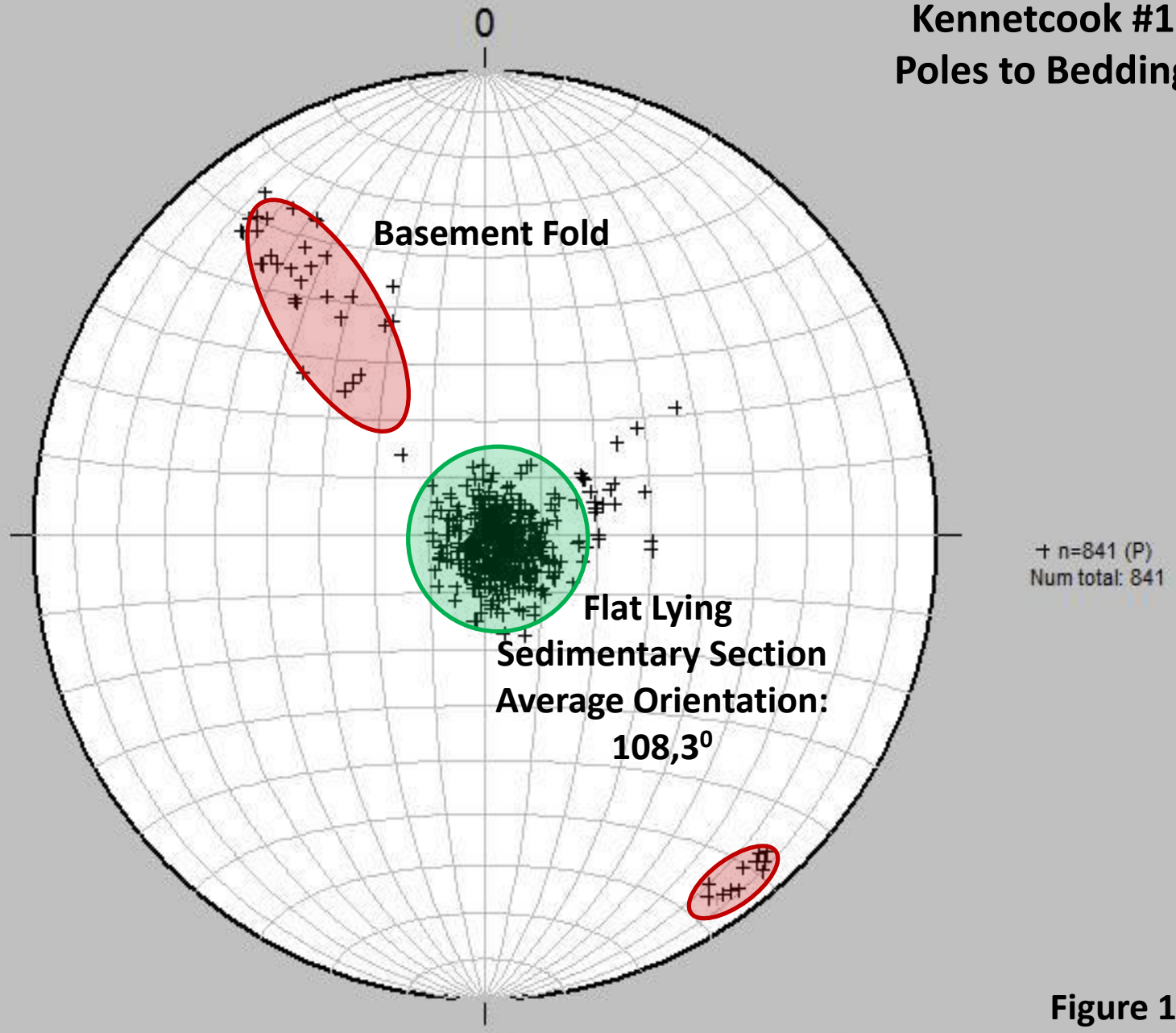
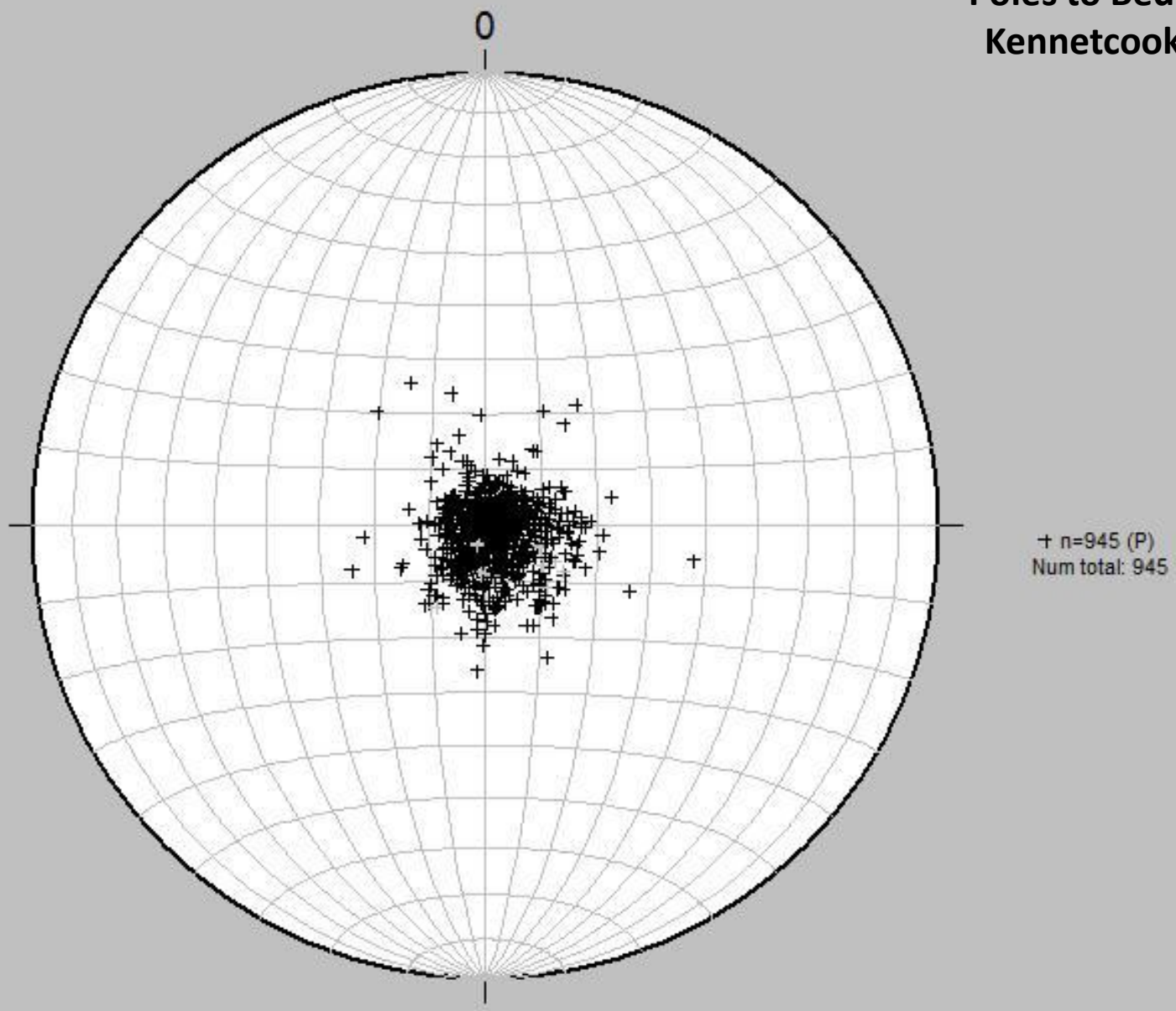


Figure 13

Equal area projection, lower hemisphere

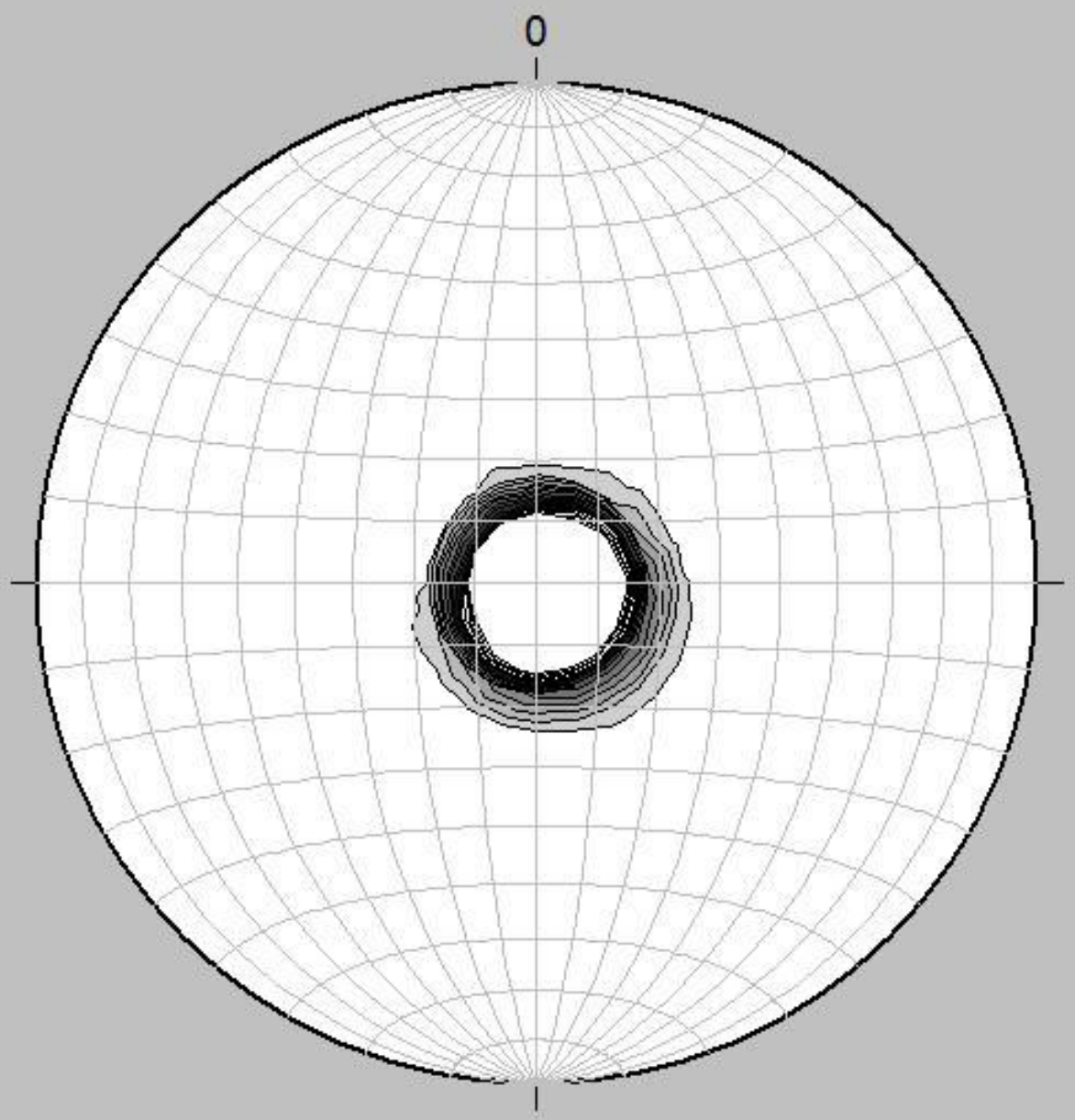
Poles to Bedding
Kennetcook #2



Equal area projection, lower hemisphere

Figure 14

Poles to Bedding
Kennetcook #2



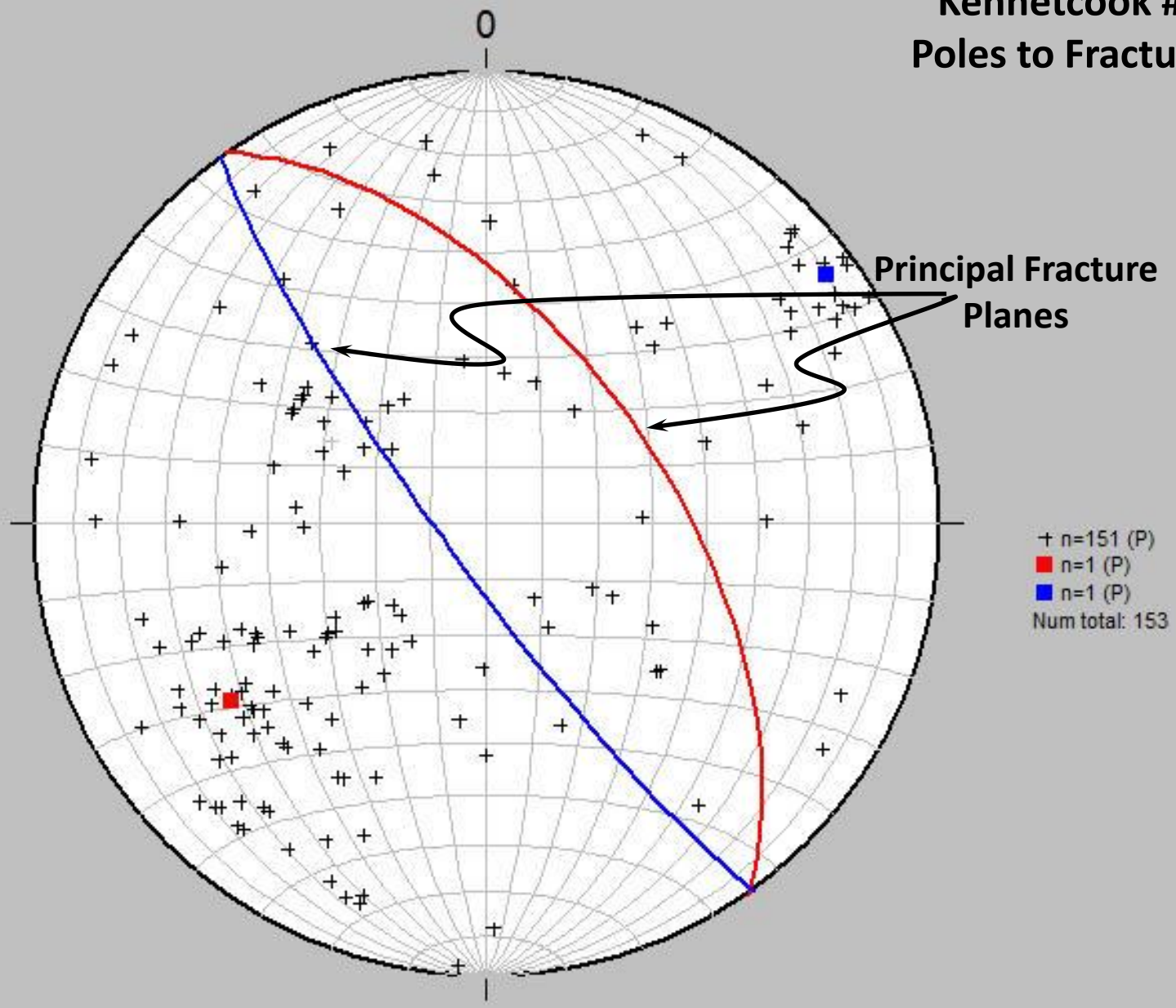
n=948
max. dens.=84.22 (at 0/ 90)
min. dens.=0.00
Contours at:
0.00,1.00,2.00,3.00,
4.00,5.00,6.00,7.00,
8.00,9.00,10.00,11.00,
12.00,13.00,14.00,15.00,

(Multiples of random distribution)

Equal area projection, lower hemisphere

Figure 15

Kennetcook #1
Poles to Fractures



Equal area projection, lower hemisphere

Figure 16

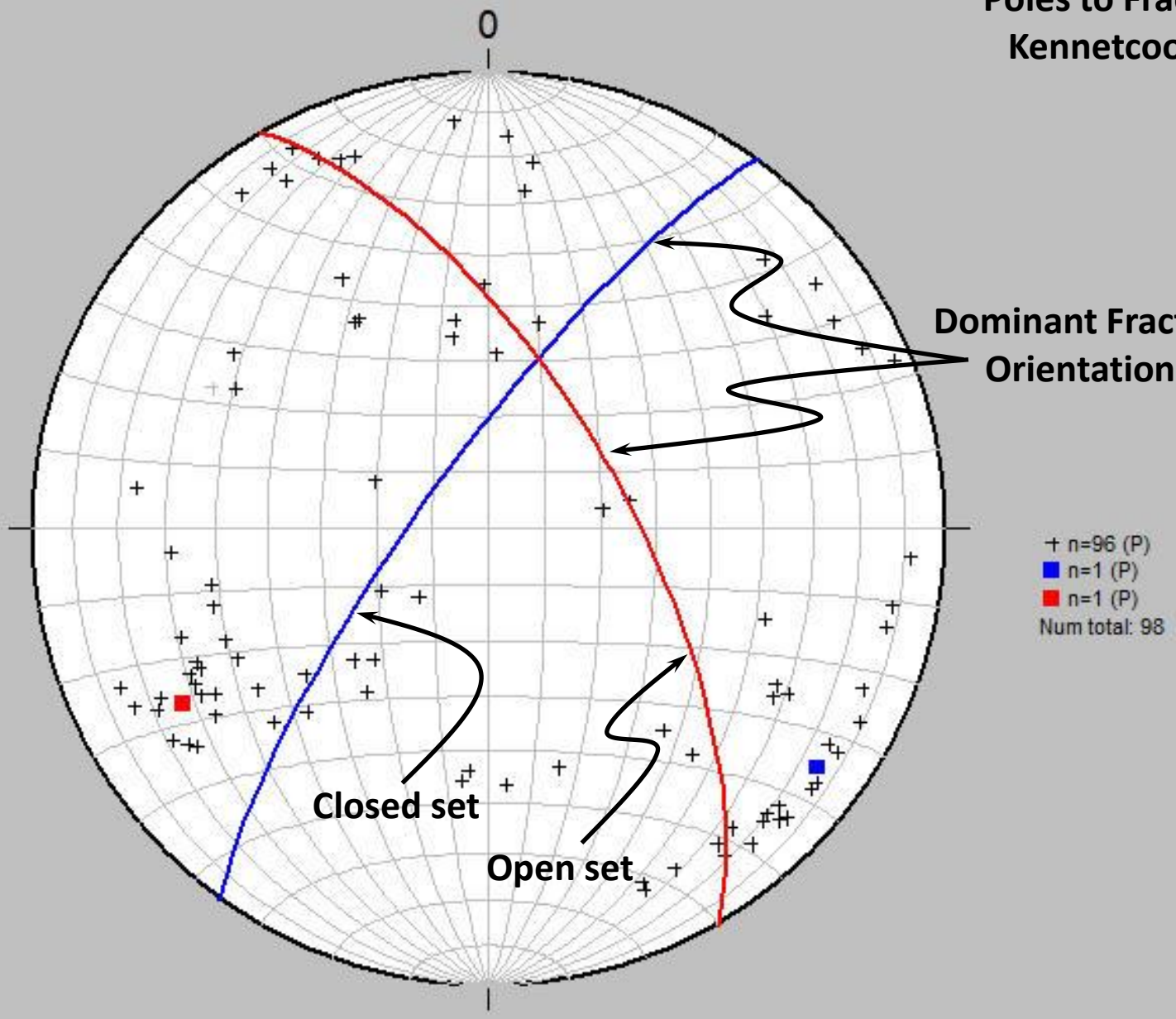

Poles to Fractures
Kennetcook #2
0
Dominant Fracture Orientations
n=96 (P)
n=1 (P)
n=1 (P)
Num total: 98
Closed set
Open set
Equal area projection, lower hemisphere

Figure 17

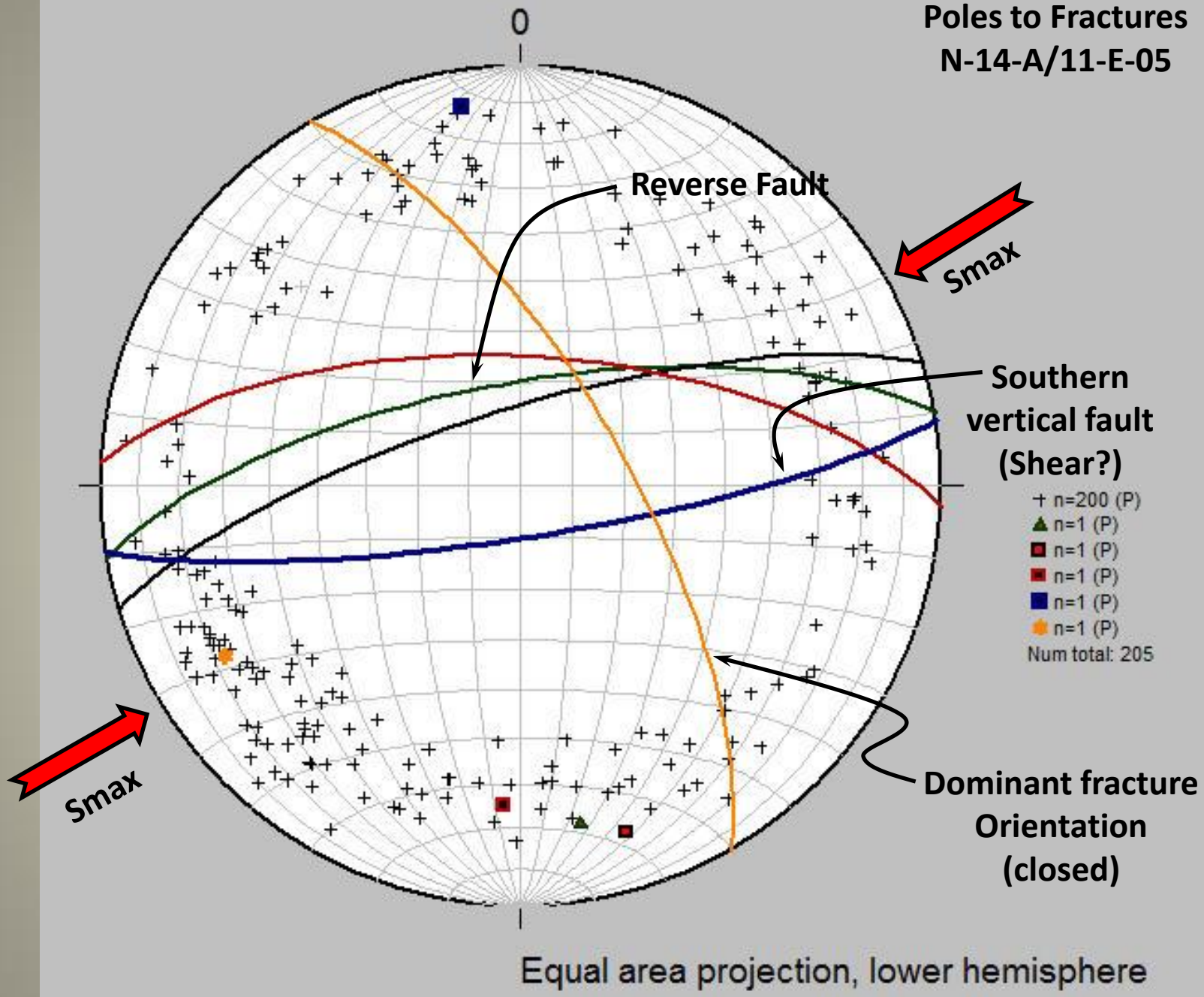
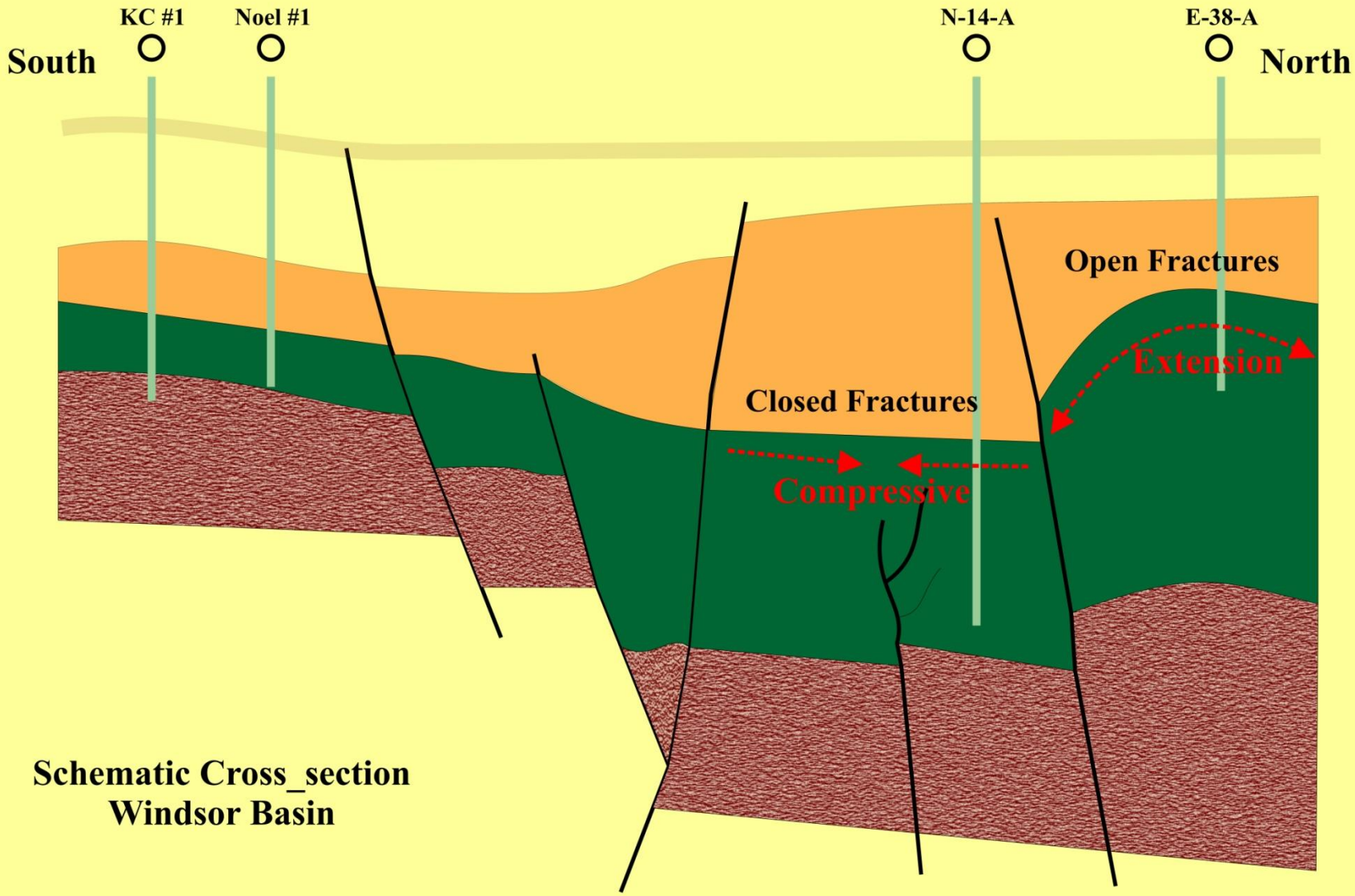

Poles to Fractures
N-14-A/11-E-05
0
Reverse Fault
Smax
Southern vertical fault (Shear?)
n=200 (P)
n=1 (P)
n=1 (P)
n=1 (P)
n=1 (P)
n=1 (P)
Num total: 205
Smax
Dominant fracture Orientation (closed)
Equal area projection, lower hemisphere

Figure 19



Schematic Cross_section
Windsor Basin

Figure 20