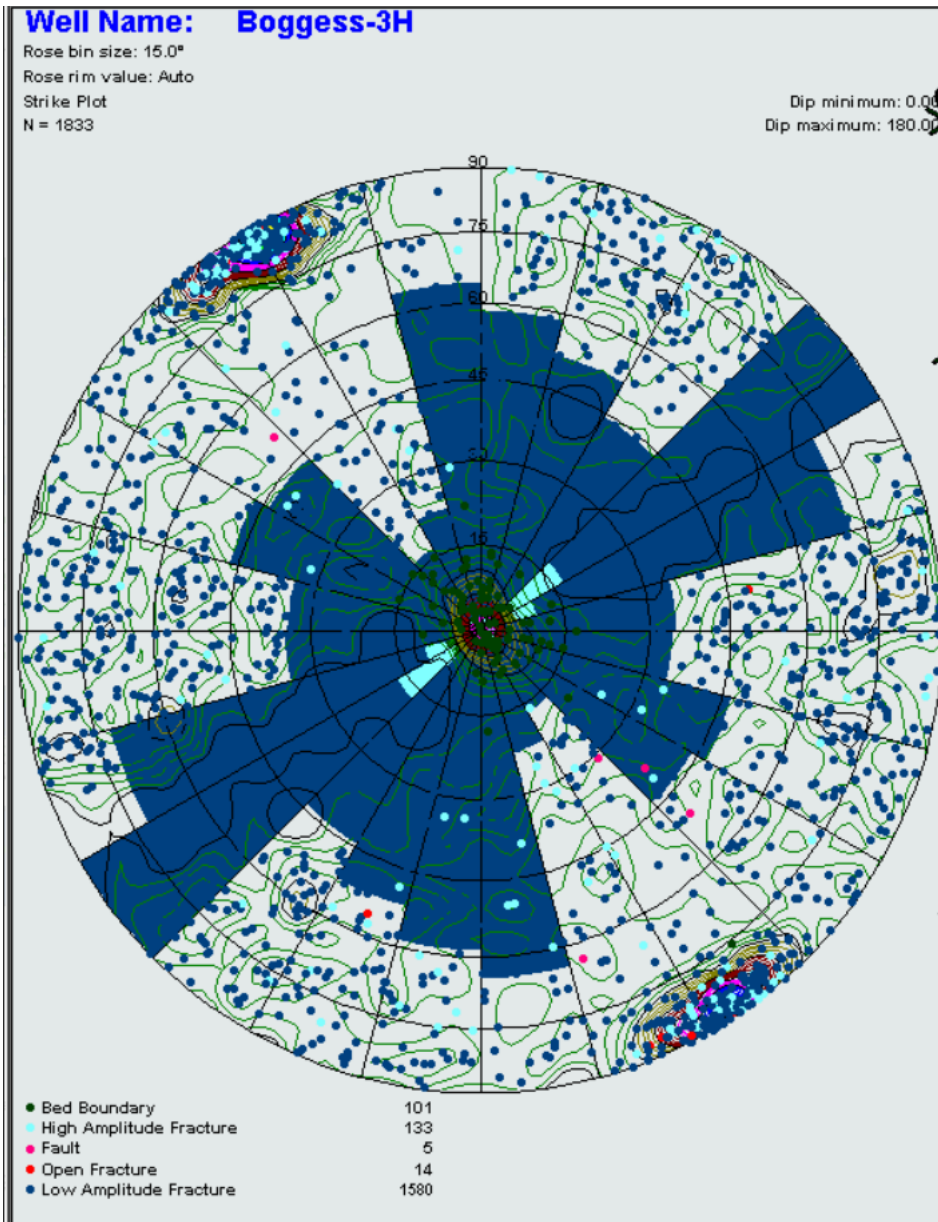


Fracture Interpretation Summary – Boggess-3H

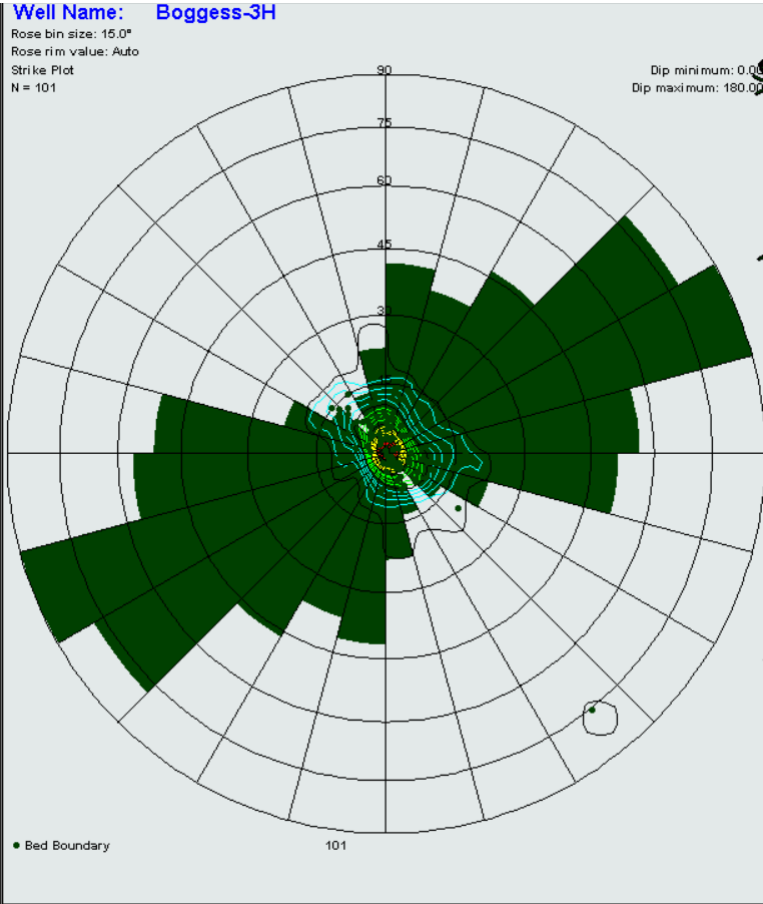
(Preliminary version, date July-8th-2019)



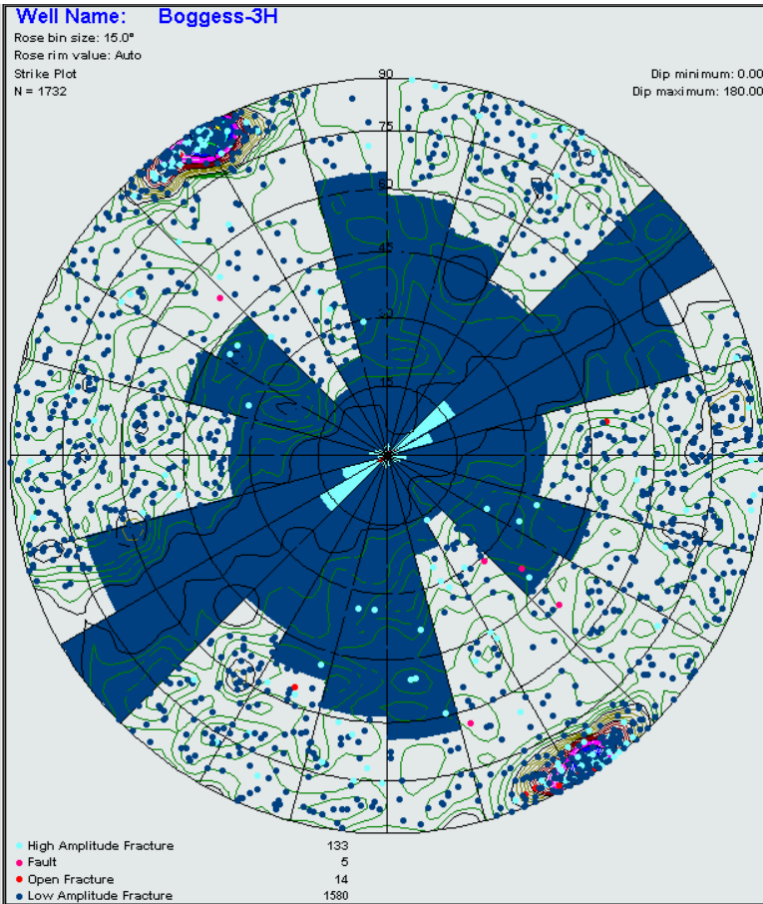
**Rose diagram (strike plot)
 summary for all fractures,
 faults and bedding dip**

**Total number of features
 interpreted in the entire well**

Rose diagram (strike plot) summary for all bedding dips

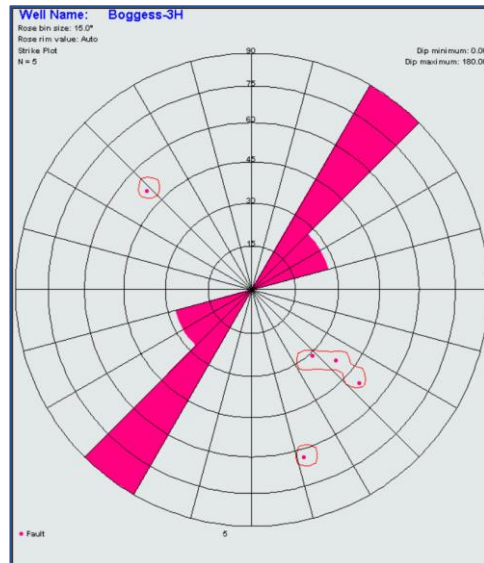


Rose diagram (strike plot) summary for all fracture/fault dips

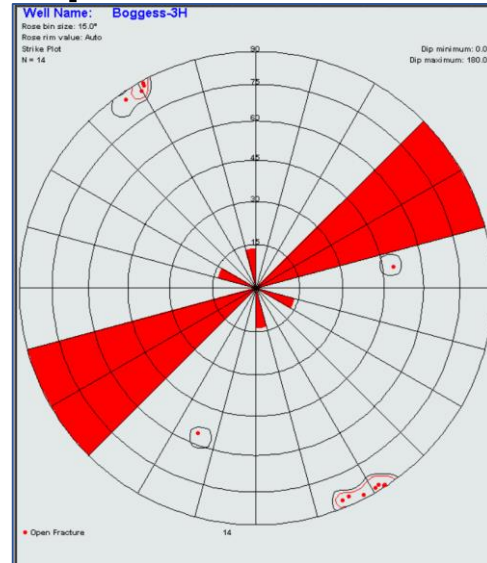


Rose diagram (strike plot) summary for each fracture/fault type

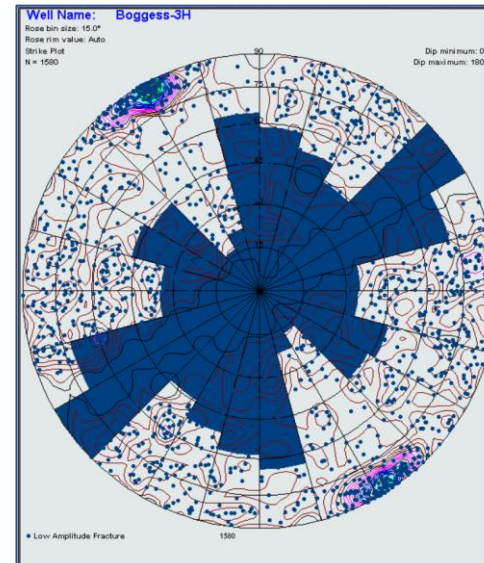
Fault



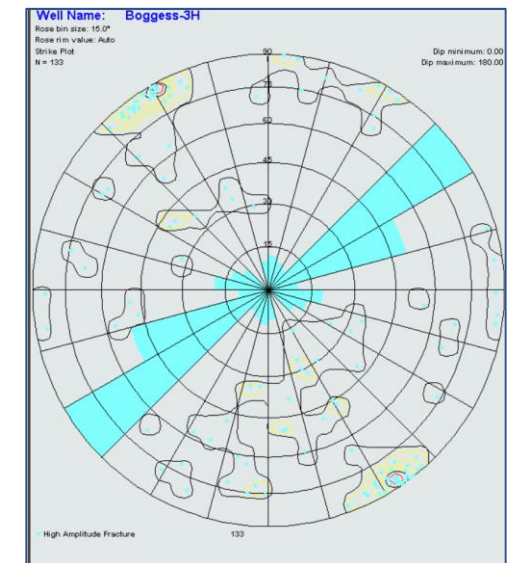
Open Fractures

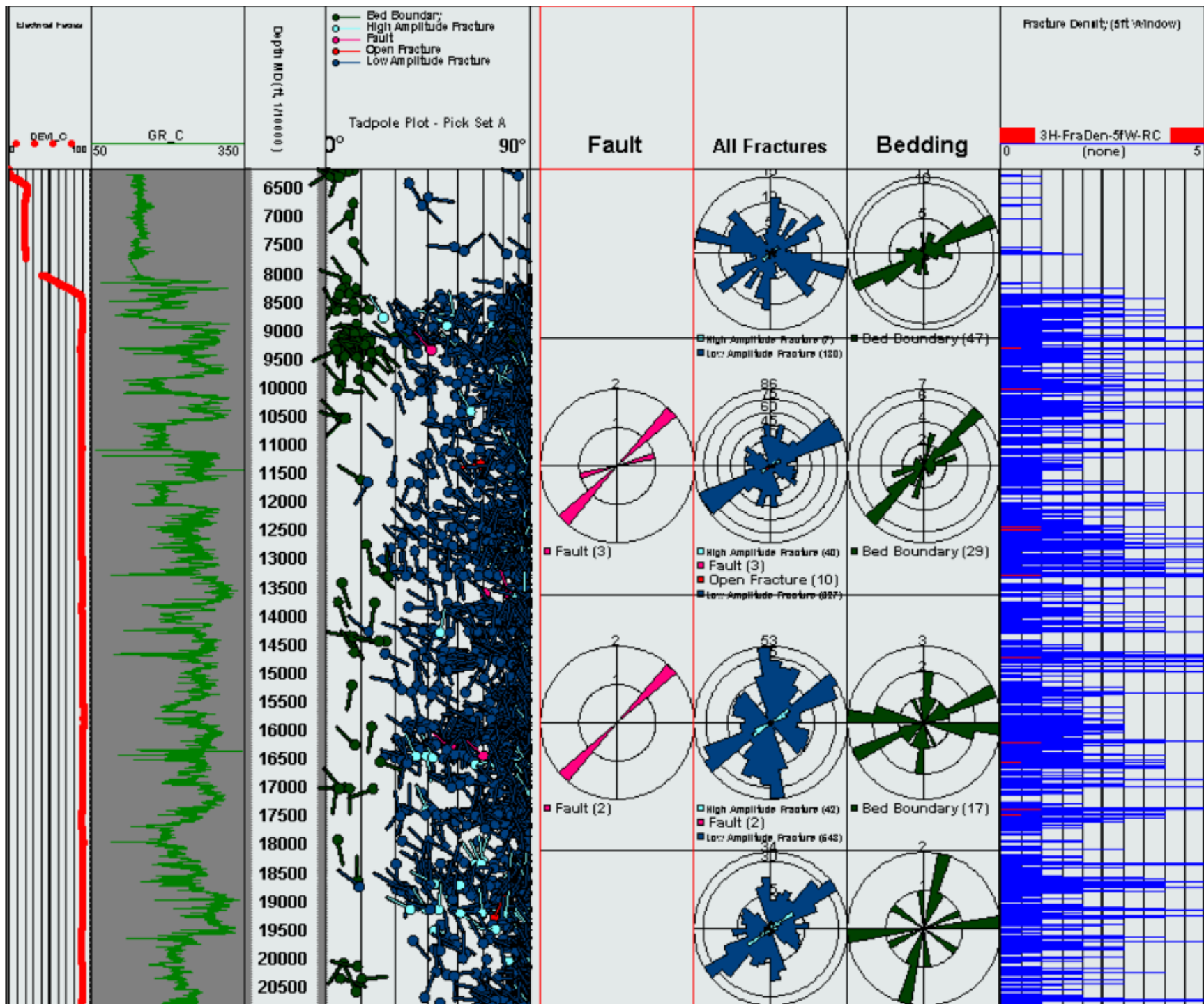


Low Amplitude Fractures



High Amplitude Fractures

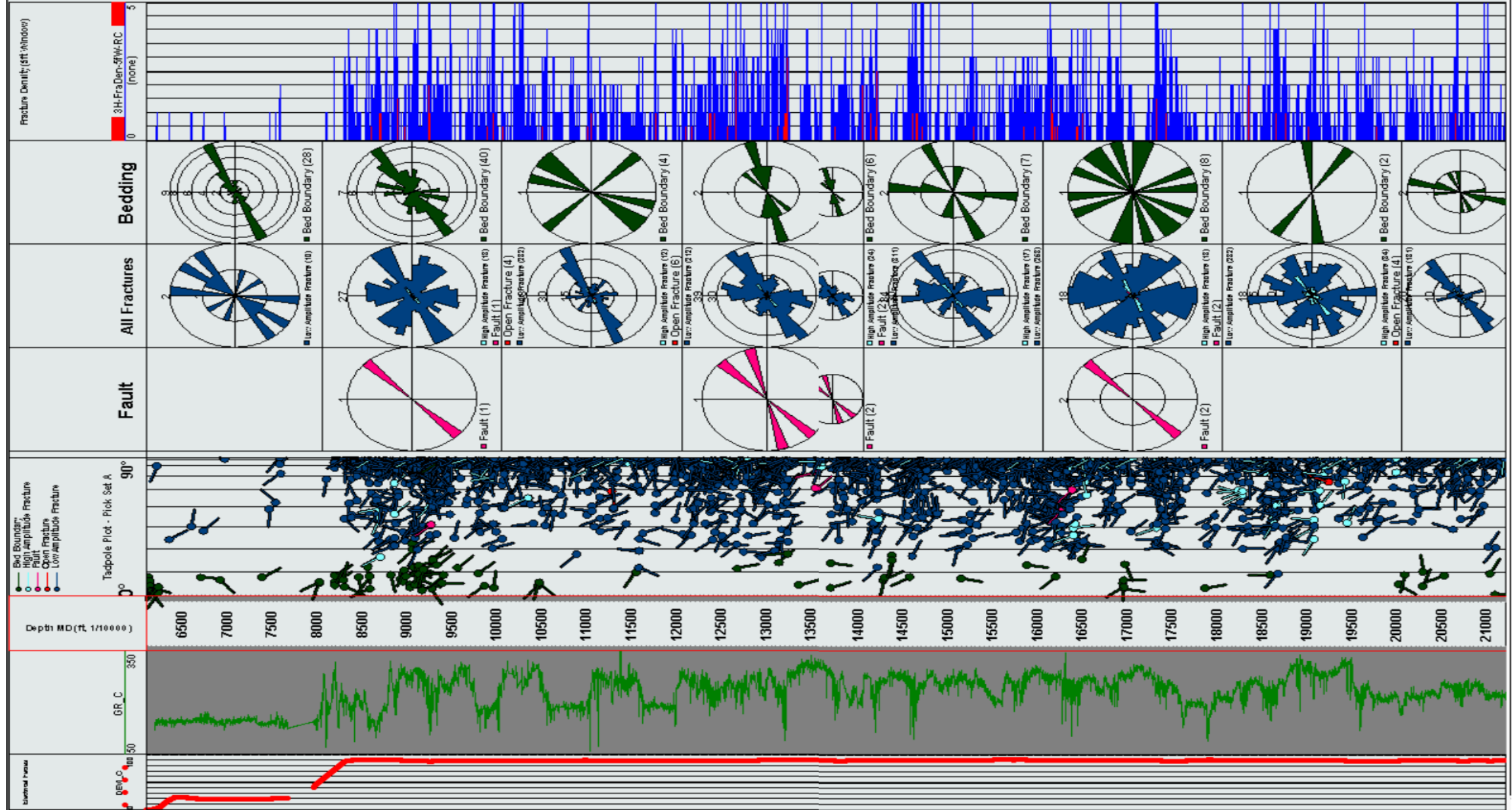




**Fracture density
along the wellbore**
(vertical presentation view)

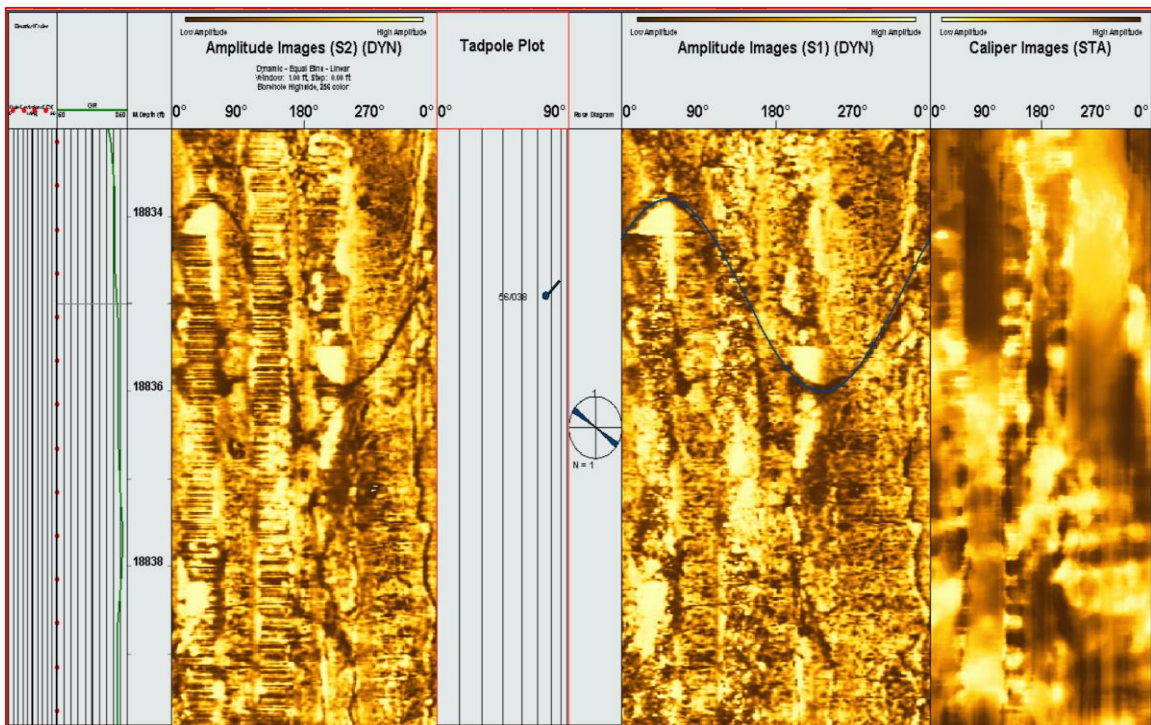
Fracture density along the wellbore

(Horizontal presentation view)



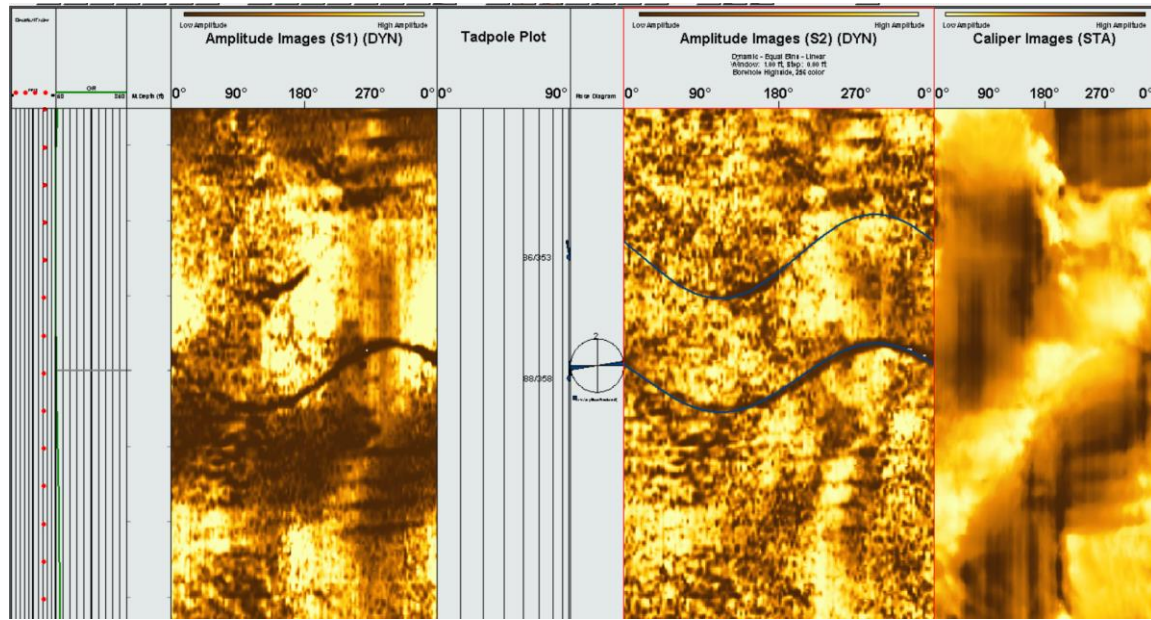
3-D view of all fractures and faults along wellbore – Boggess-3H



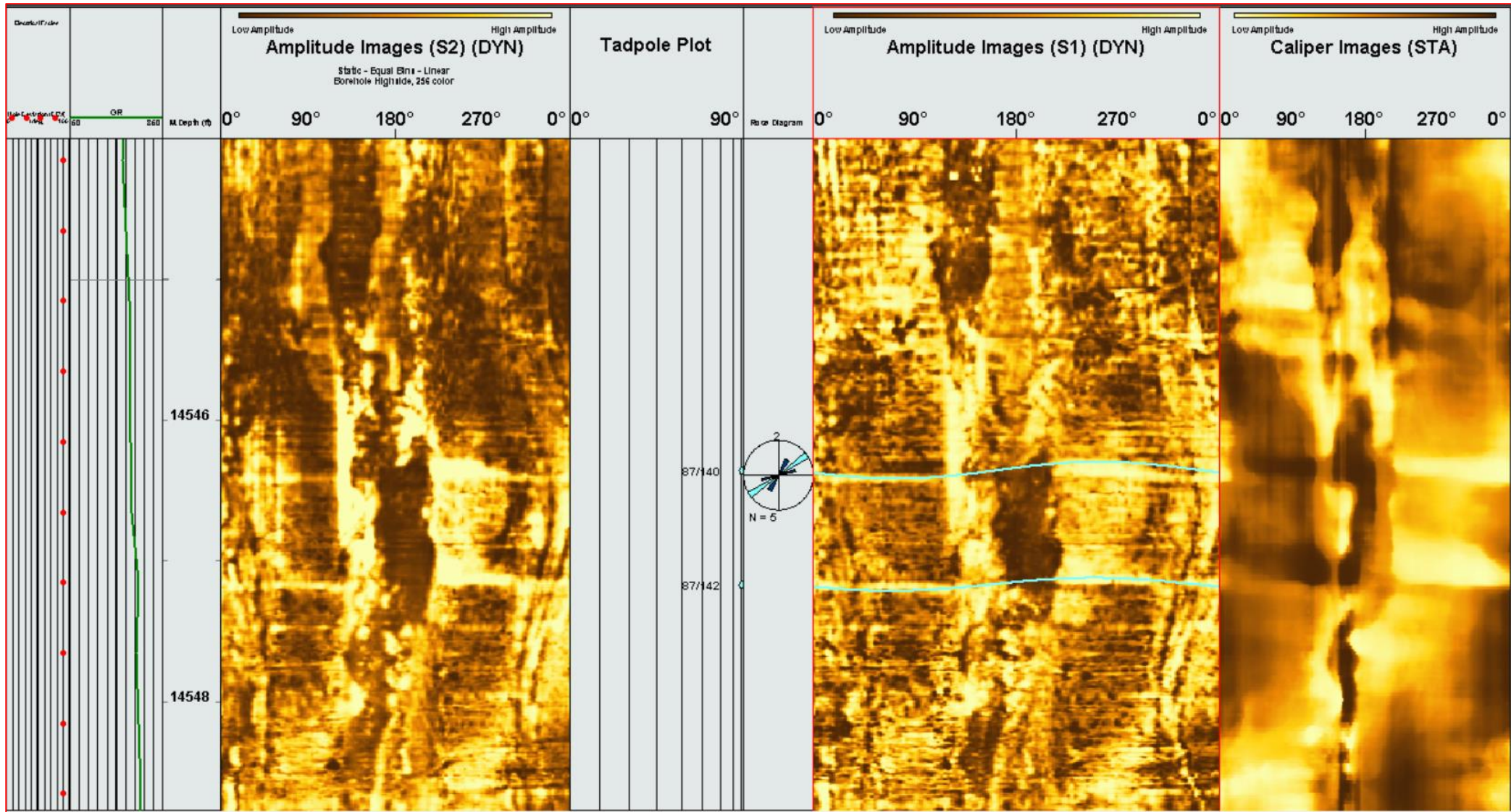


Fracture Type – Low Amplitude Fracture

- A low amplitude fracture which is not evident on caliper images
- It maybe a feature crossing the entire wellbore (upper example), or a feature interact part of the wellbore only (lower example)

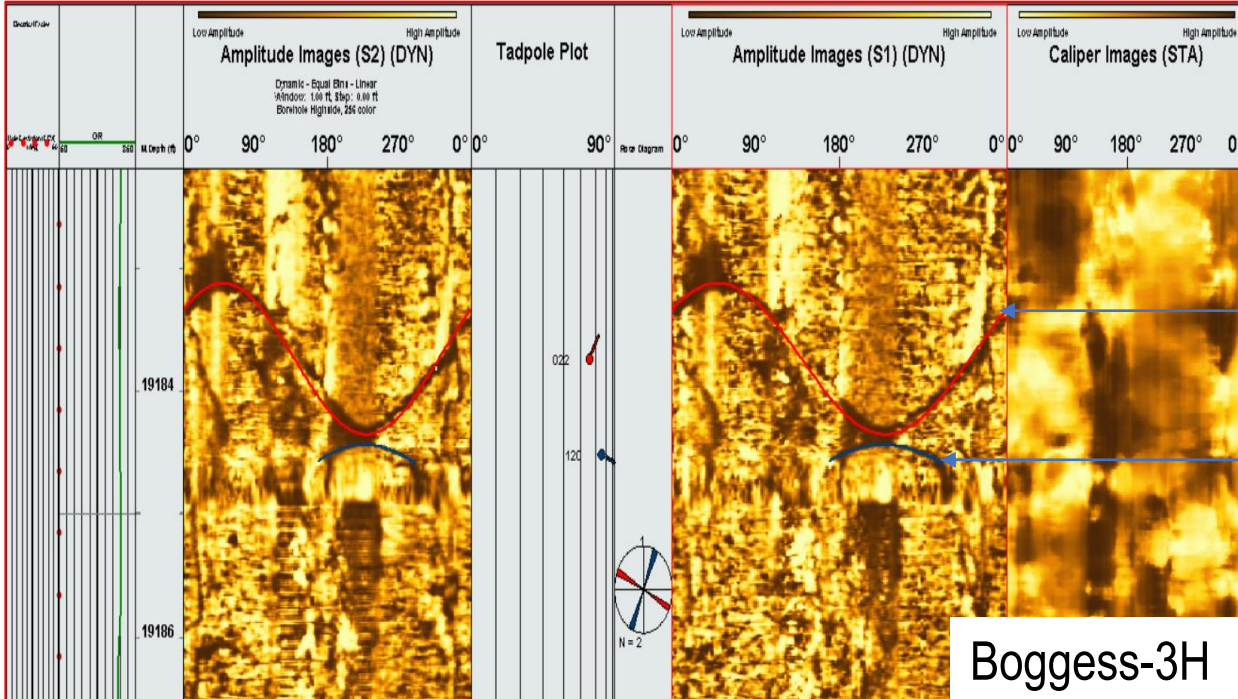
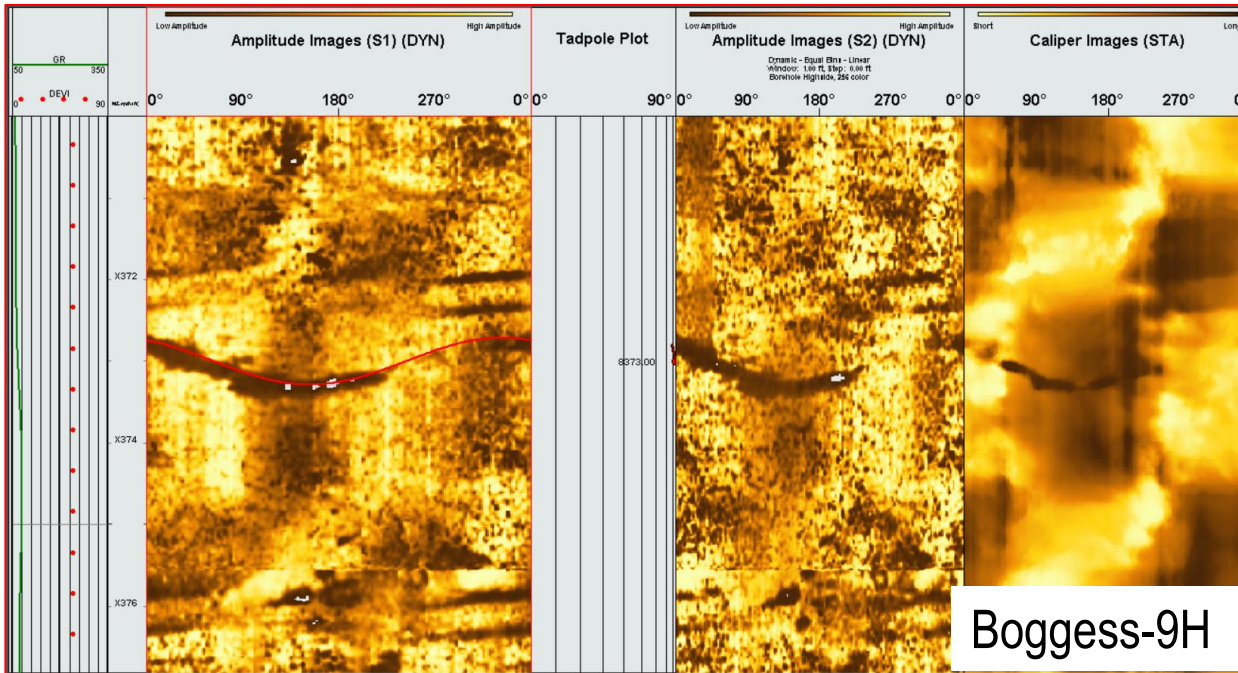


Fracture Type – High Amplitude Fracture



Fracture Type – Open Fracture

The open fracture is defined if a low amplitude fracture is also evident on caliper images as a “longer caliper” feature (darker)

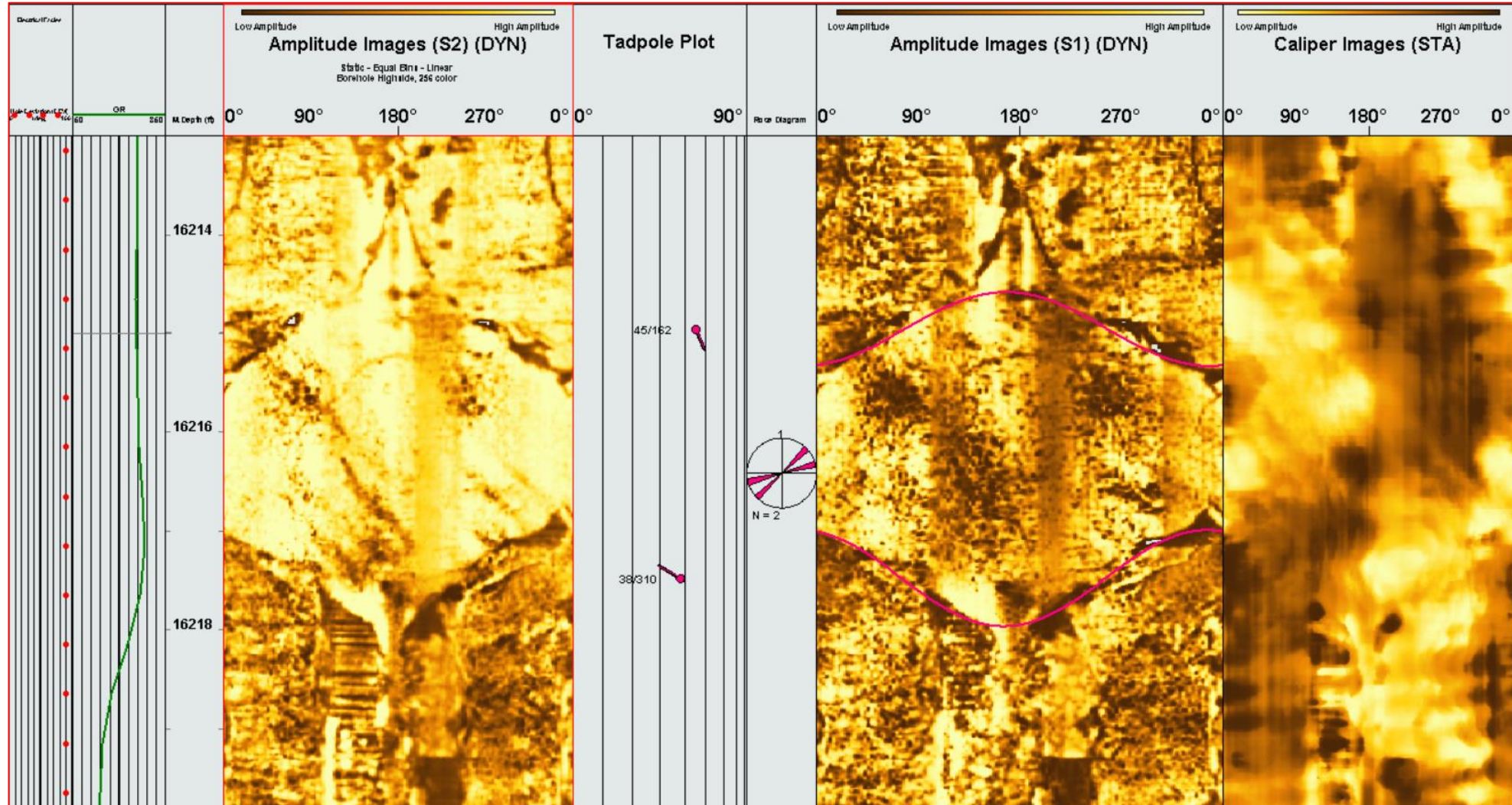


A continuous low amplitude fracture is likely partial open indicated by caliper images

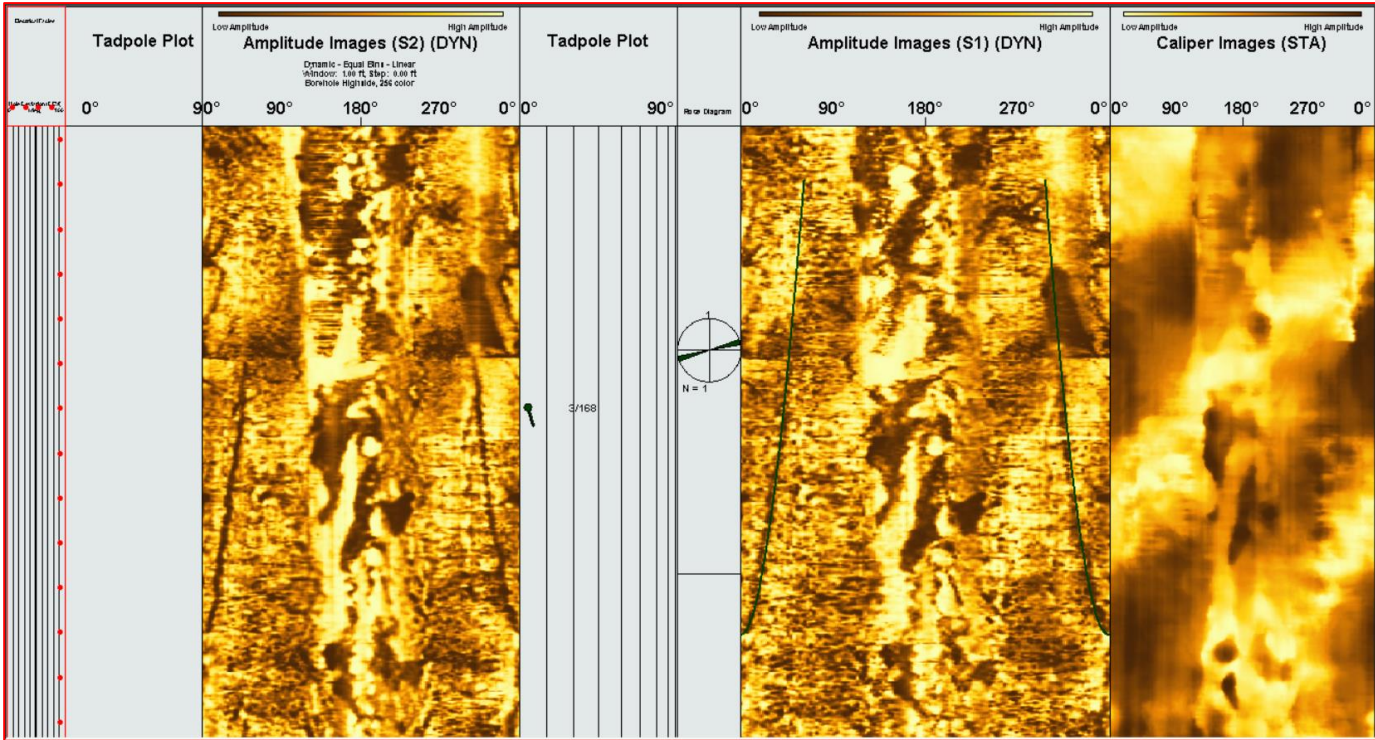
A dis-continuous low amplitude fracture which is evident on part of the wellbore only. This is the predominant fracture type in the well.

Fracture Type – Fault

- Obvious lithology change is observed across the medium angle fault plane (see GR)

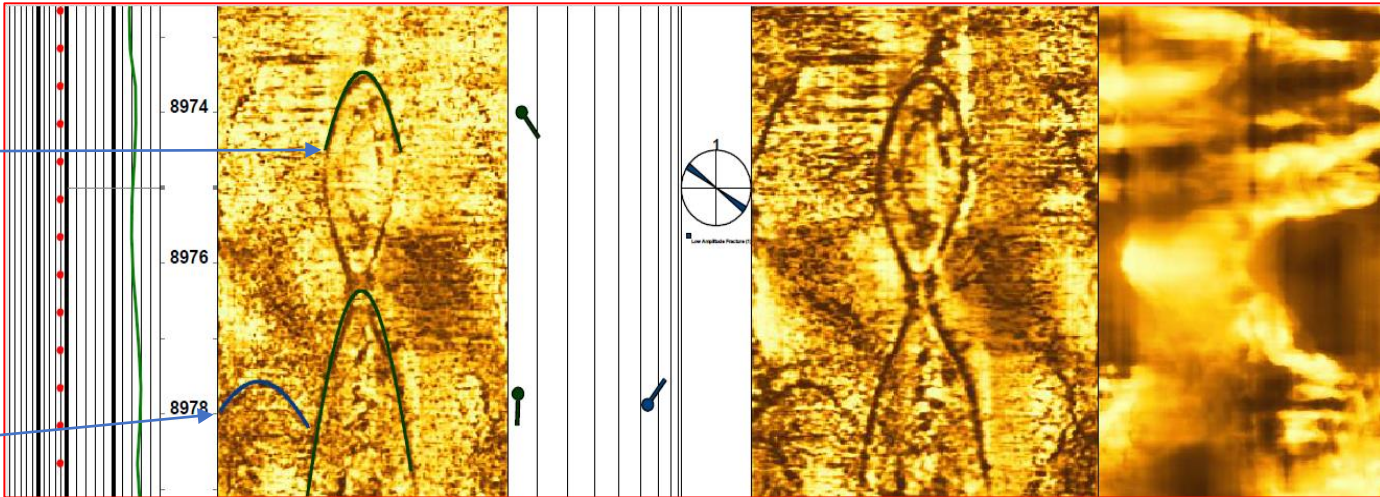


Bed boundary



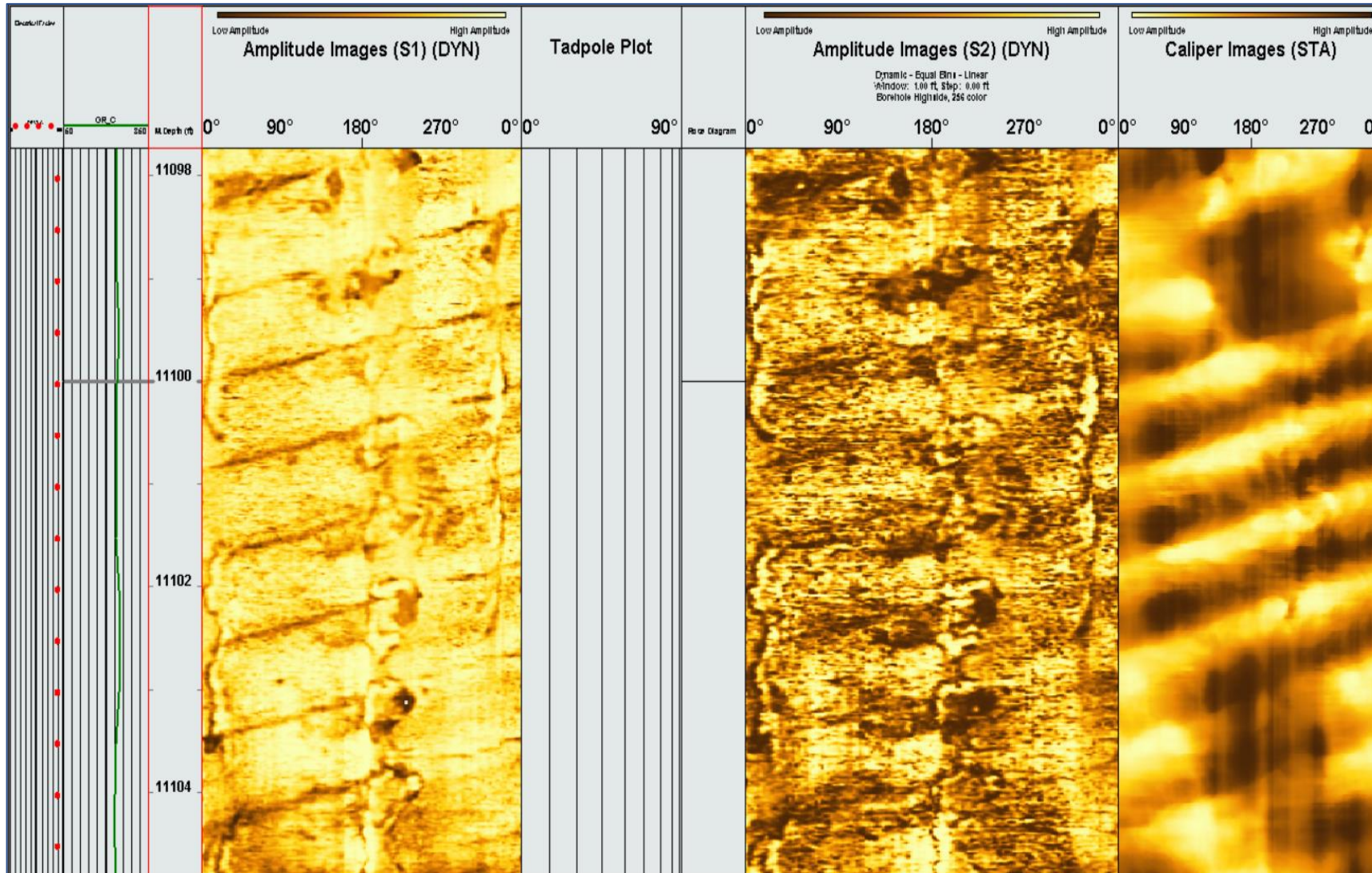
Low angle Bedding

Litho-bounded
high angle
fracture



Artifact - Spiral hole

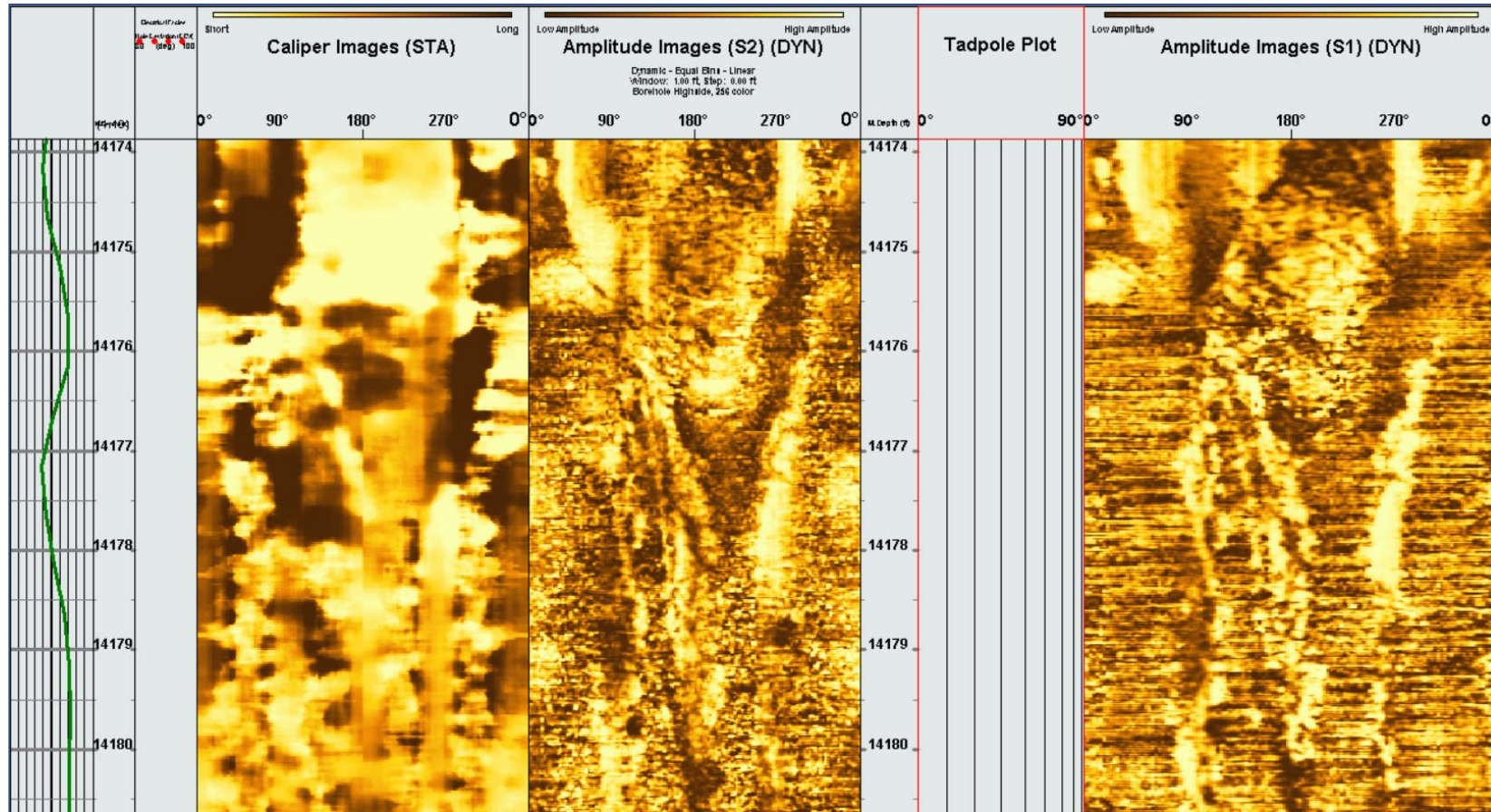
- This is observed in many sections in the wells.



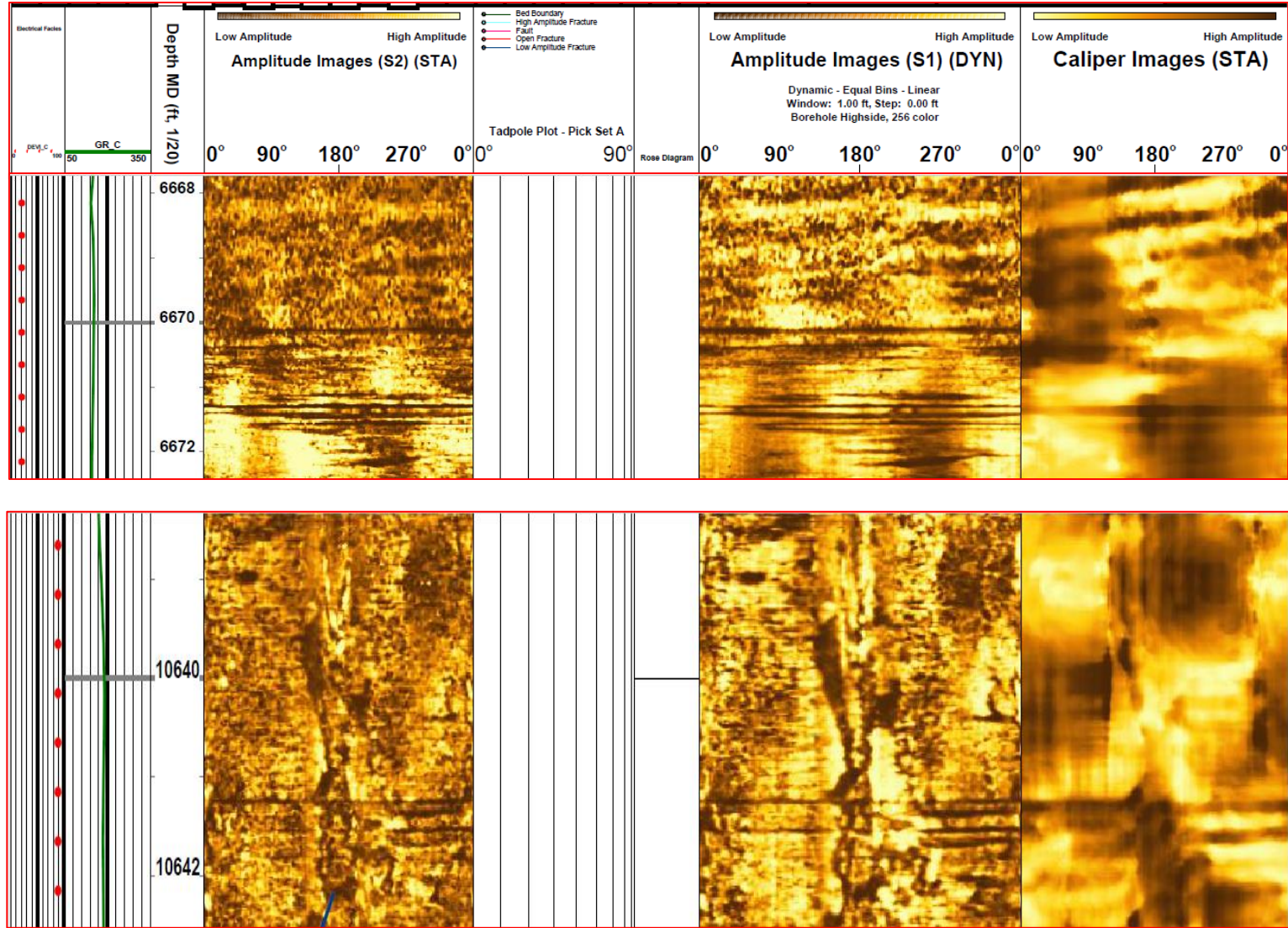
Boggess-13H

Artifact - Noise on images

- This is observed locally only and more obvious on S1 images in this example.



Artifact



- This is another type of common artifact on wellbore which is possibly caused by drill-pipe (joint?) rotation
- They are well straight across the wellbore regardless well deviation
- They are well repeated and sometimes can be correlated with the drill-pipe length between the two repeated artifacts.