

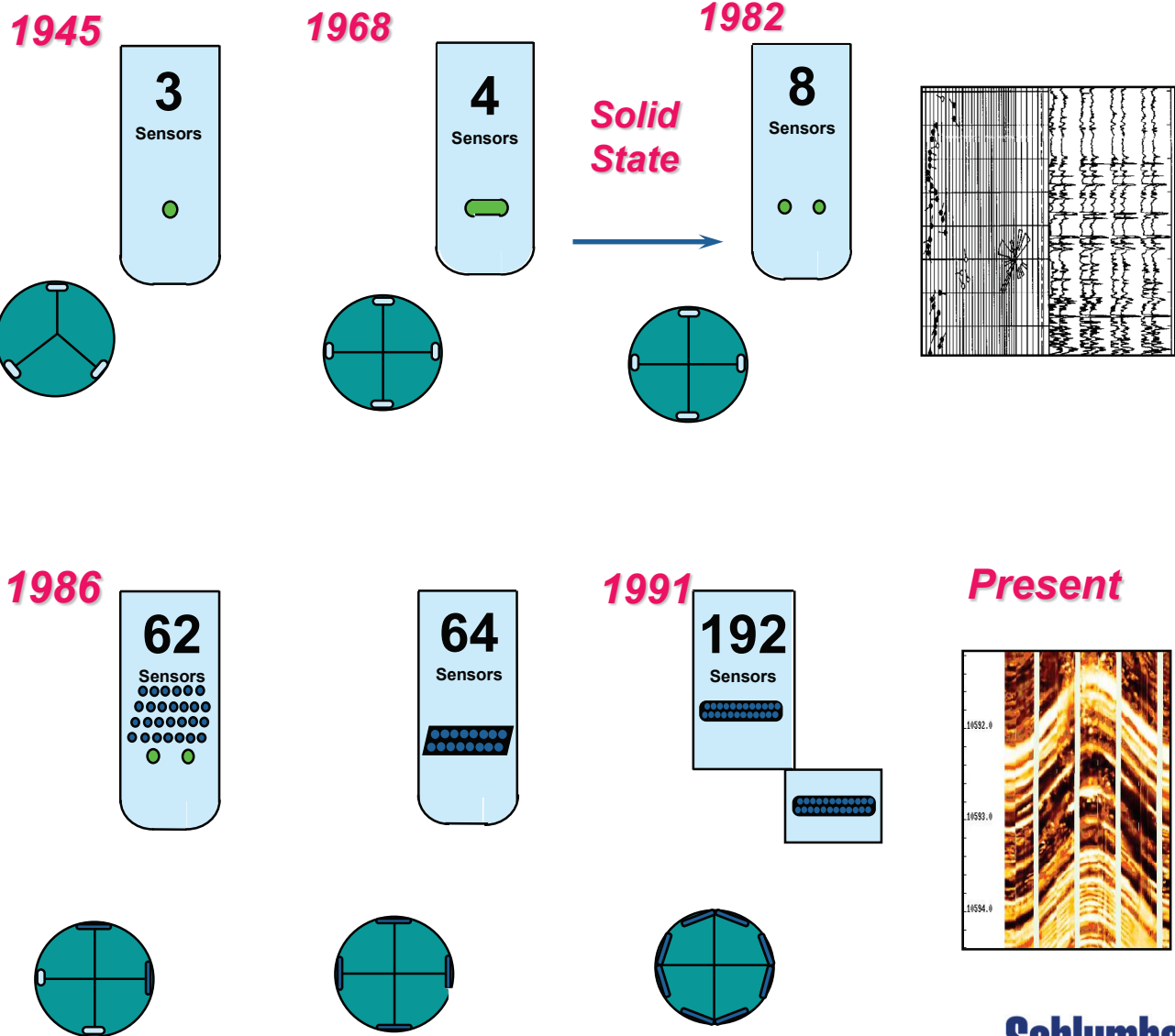
Identification & Characterization of Faults & Folds Using Borehole Electrical Images

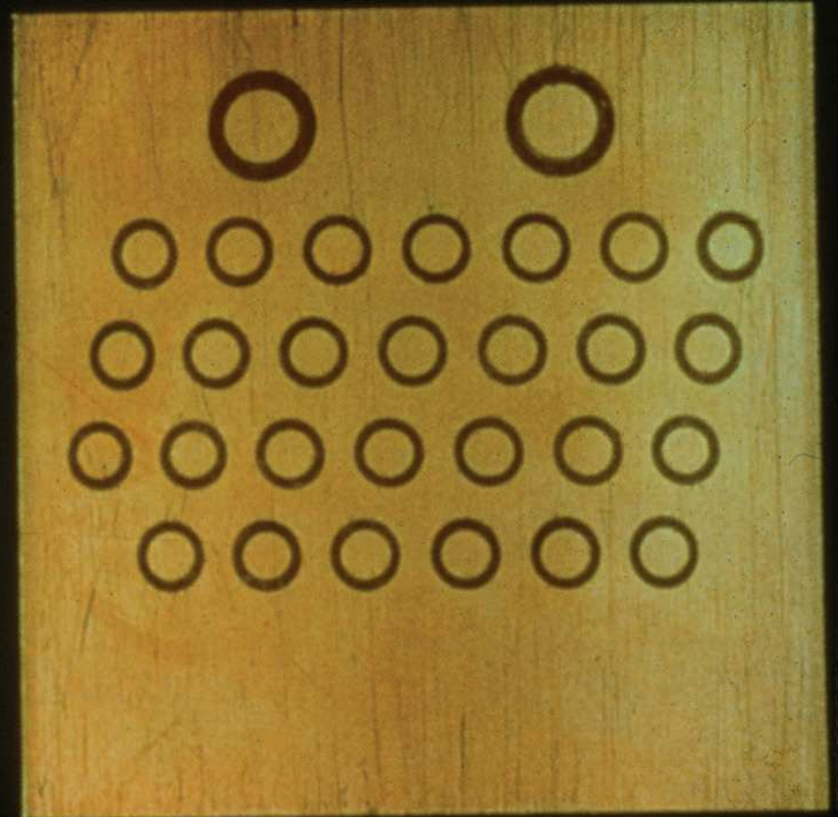
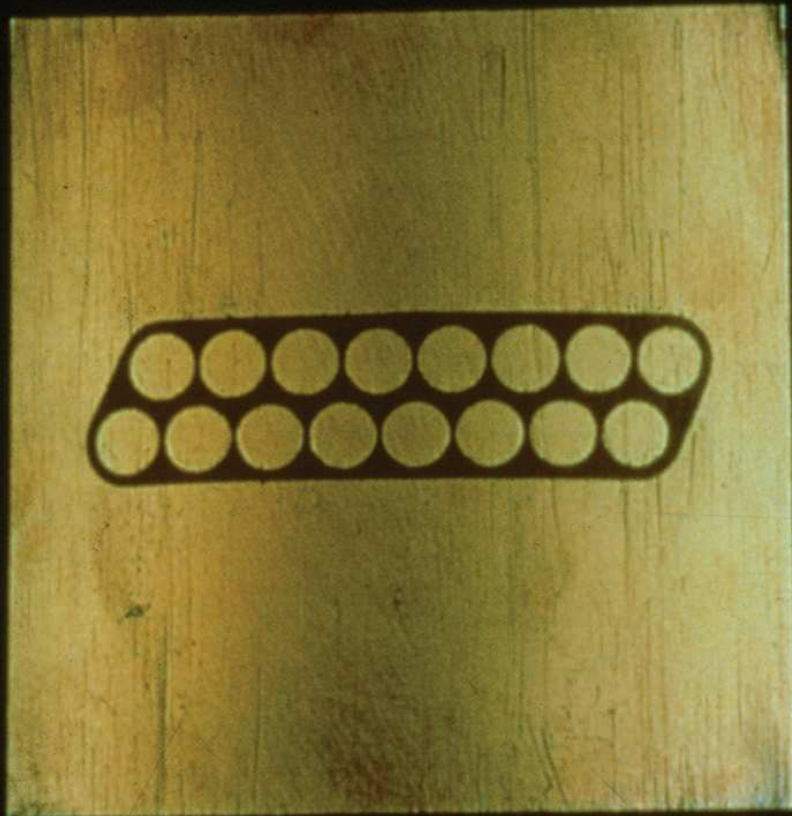


My Schlumberger Career

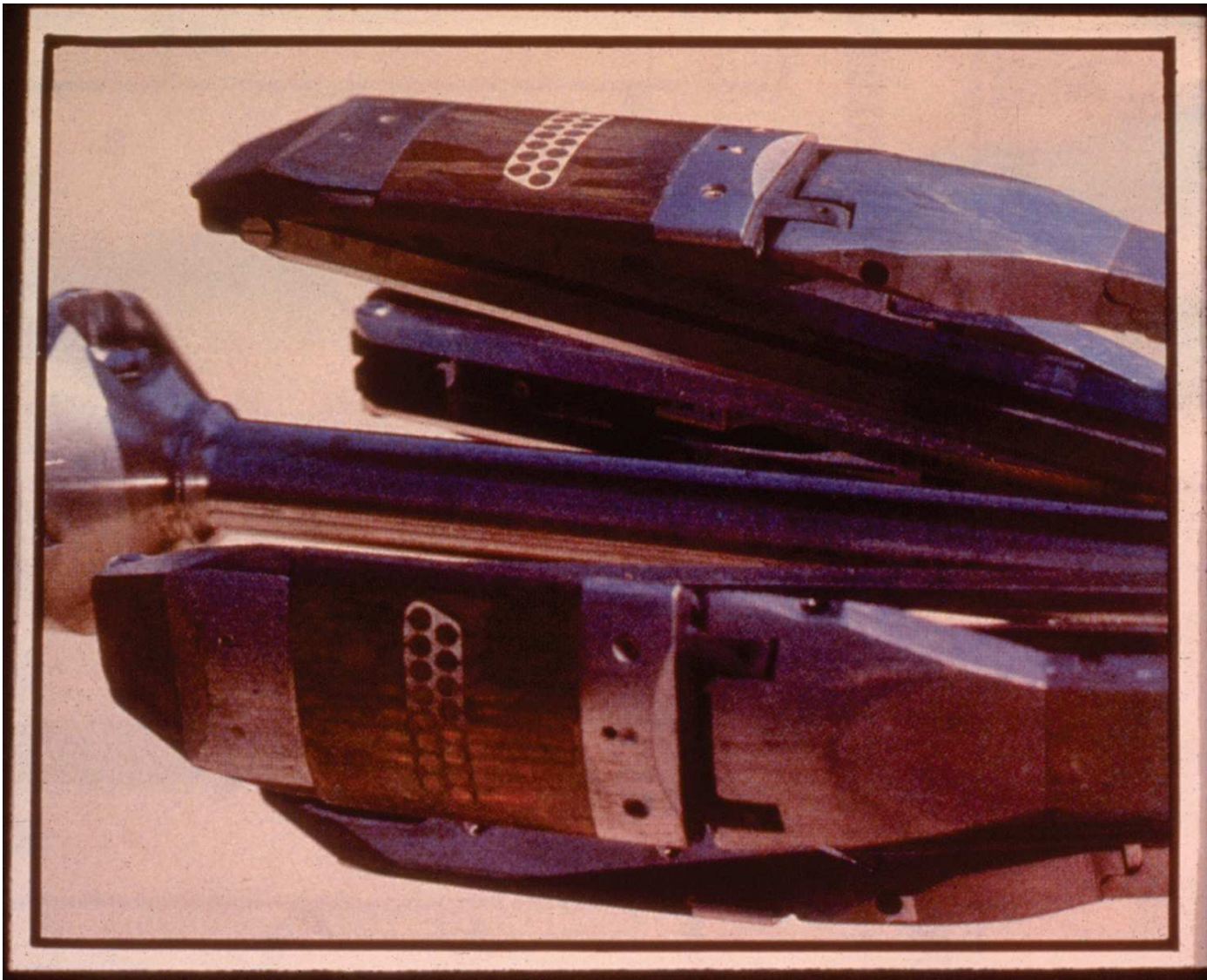
- 1977-1981 Wireline Field Engineer-Morgan City
- 1981-1984 Wireline Field Service Manager-Larose
- 1984-1986 Wireline District Manager-Bradford
- 1986-1990 Wireline Senior Sales-Bradford
- 1990-1996 Gulf Coast Division Geologist-New Orleans
- 1996-2000 Interpretation Support Manager-Jakarta
- 2000-2003 OFS Solutions Manager-Bakersfield
- 2003-2006 Borehole Geology Domain Champion-Bakersfield
- 2006-2015 Geology DCM-Oklahoma City/Norman

Evolution of Dipmeter and Imaging Tools

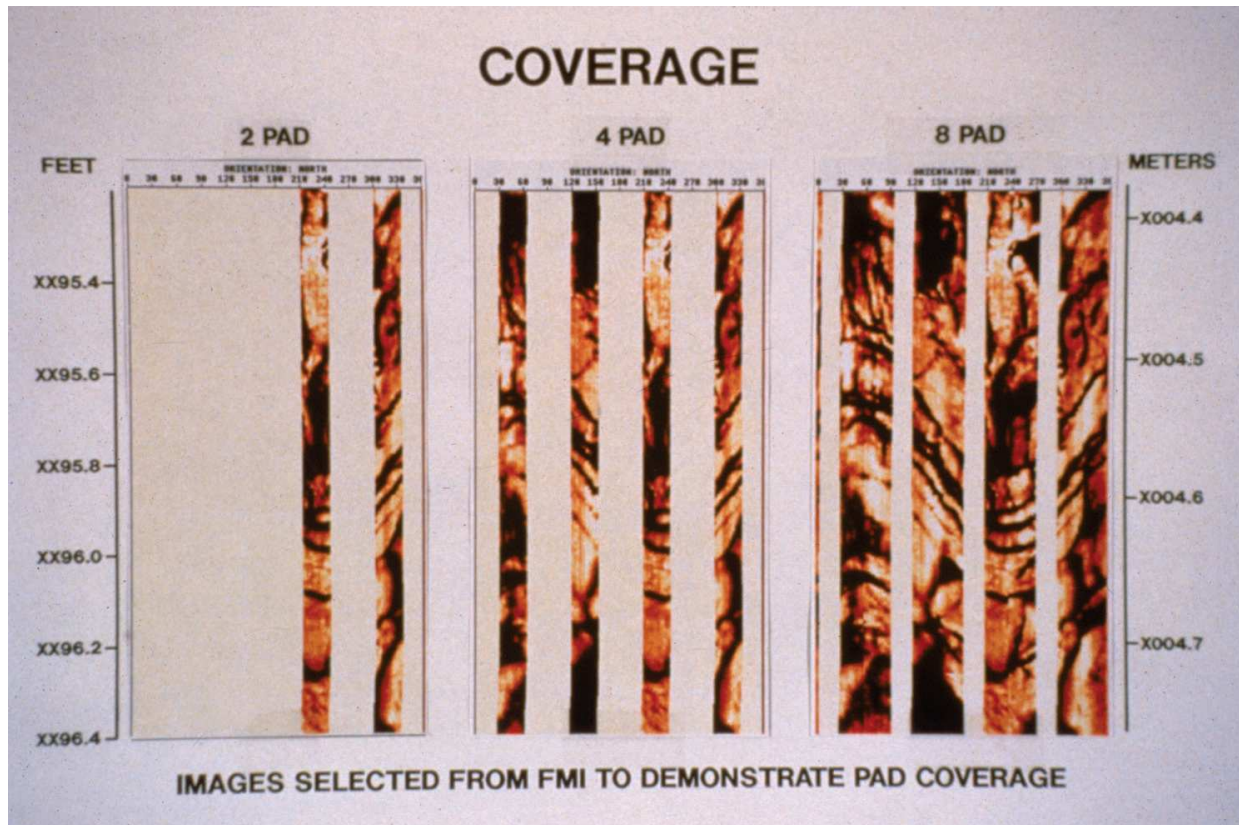
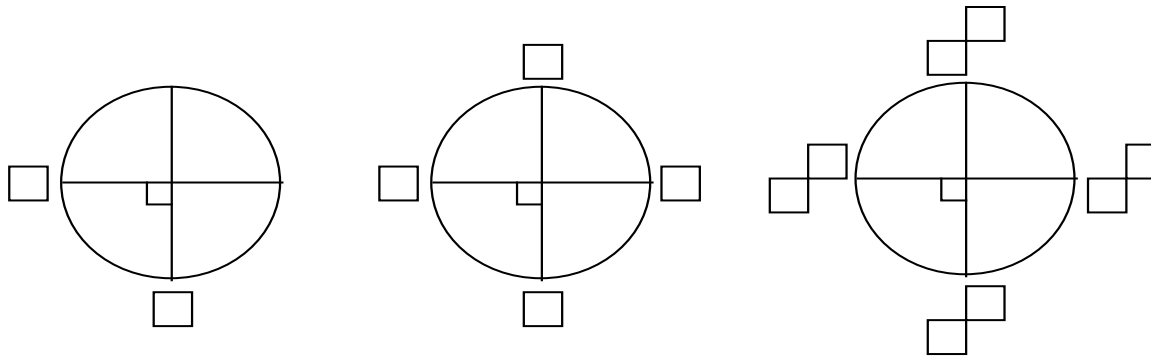




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RELATIVE RESISTIVITY SCALING

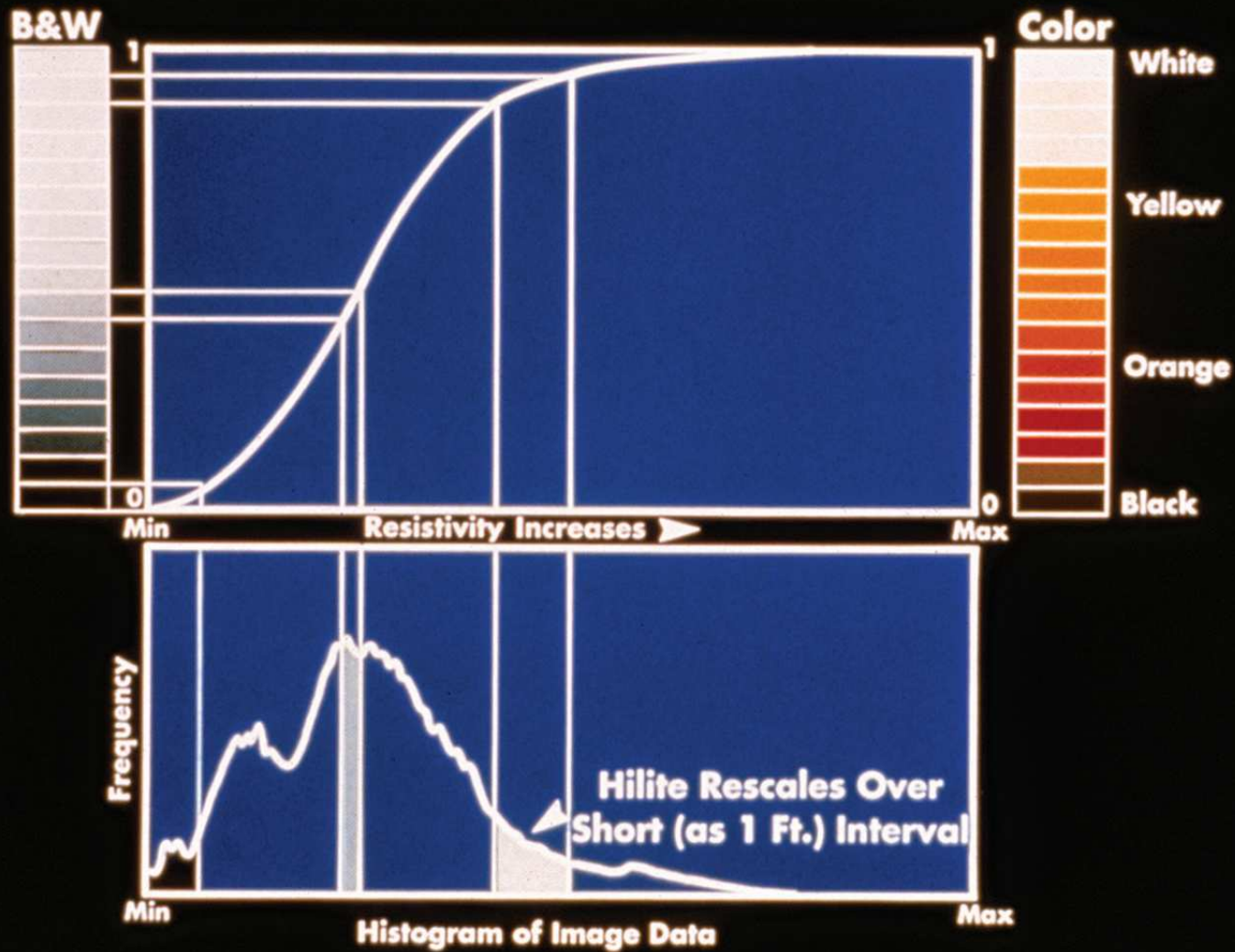
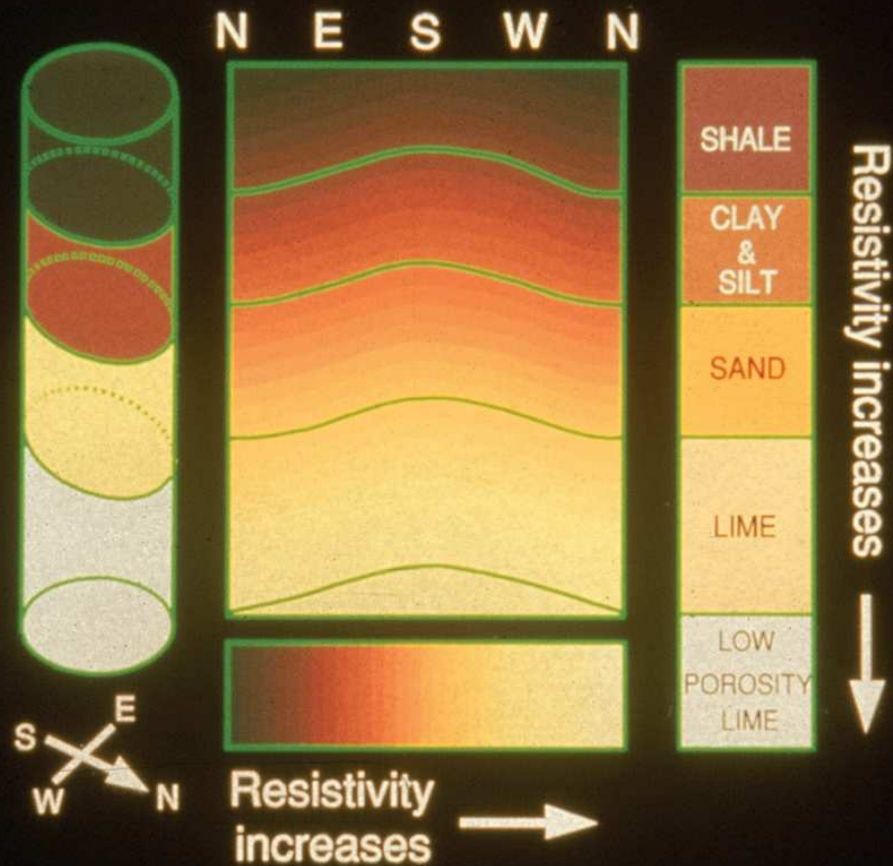
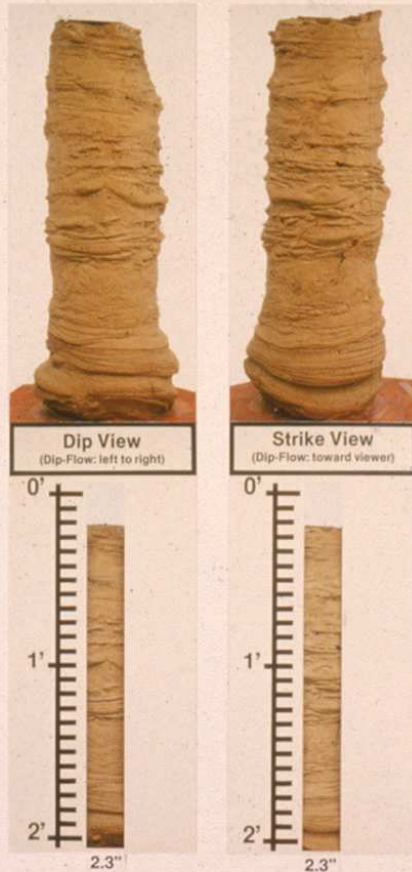


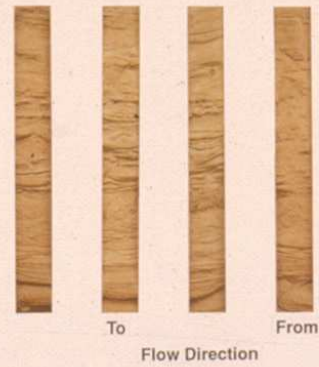
Image Generation



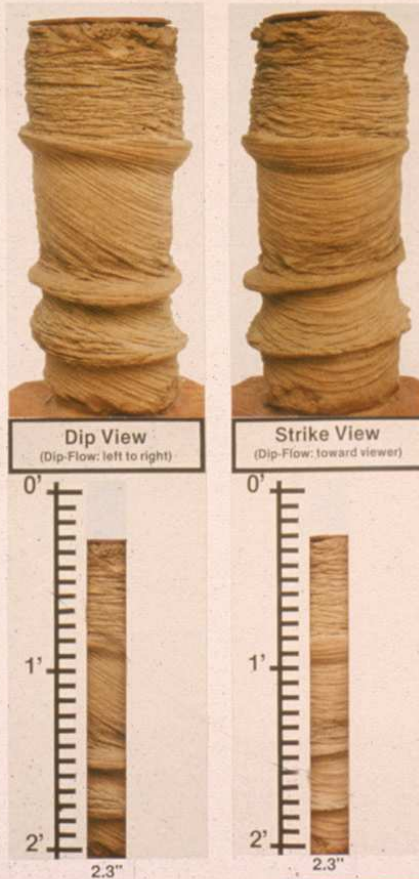
Barrier



Pseudo-images

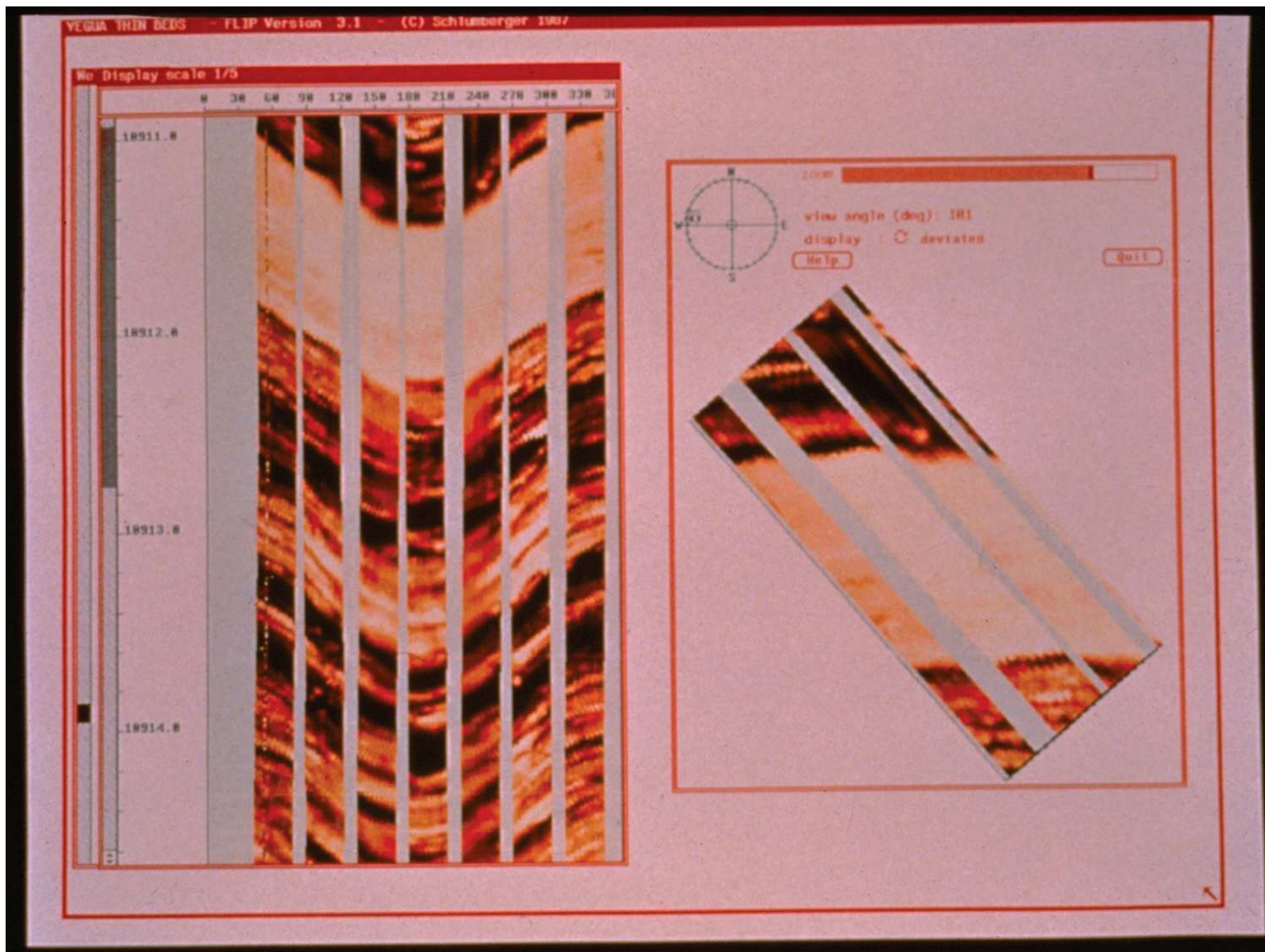


Fluvial

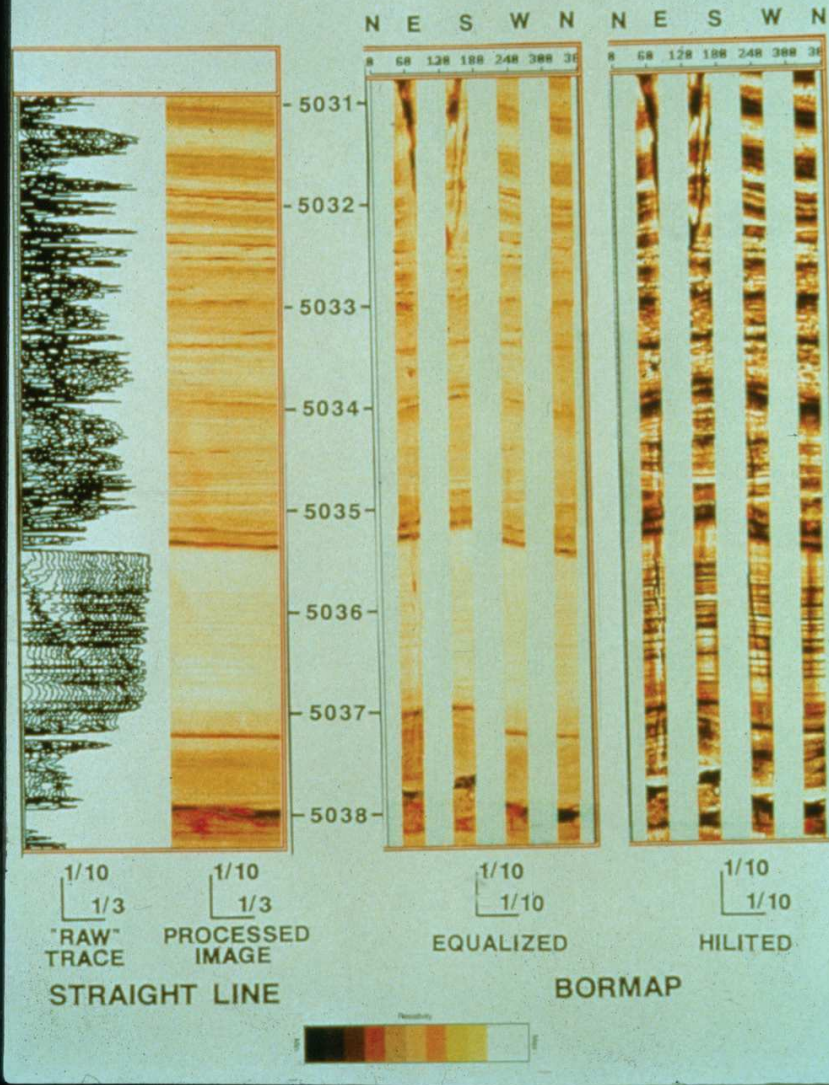


Pseudo-images





FMS IMAGE EXAMINER WORKSTATION



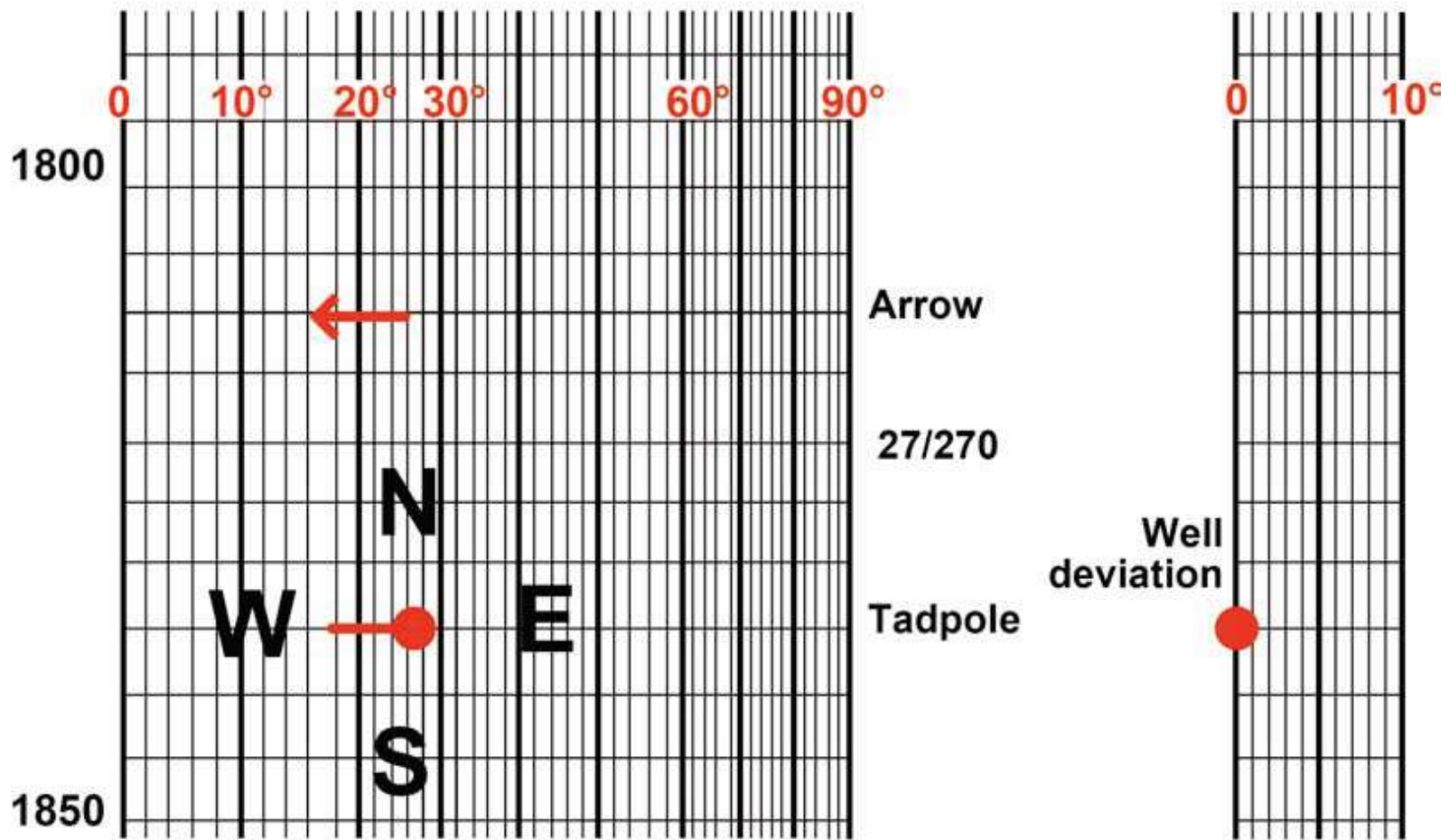
Borehole Image Applications

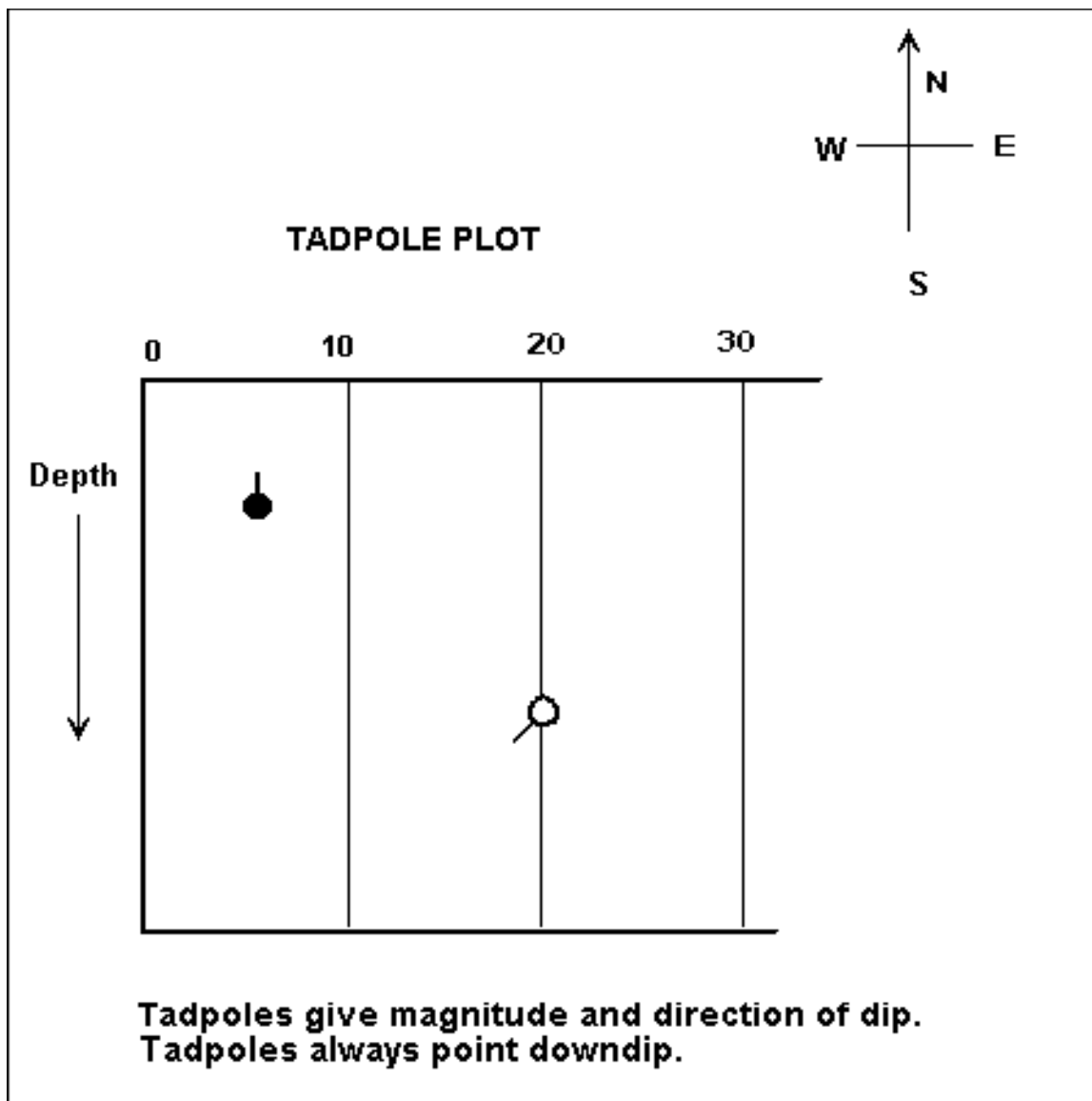
- Structural
 - Structural Dip - Verify MSD
 - Faults – Depth, Strike, Downthrown, Angle
 - Breaks – Unconformities, Sequence Boundaries
- Stratigraphic
 - Depositional Environment / System
 - Orientation (Flow / Progradation)

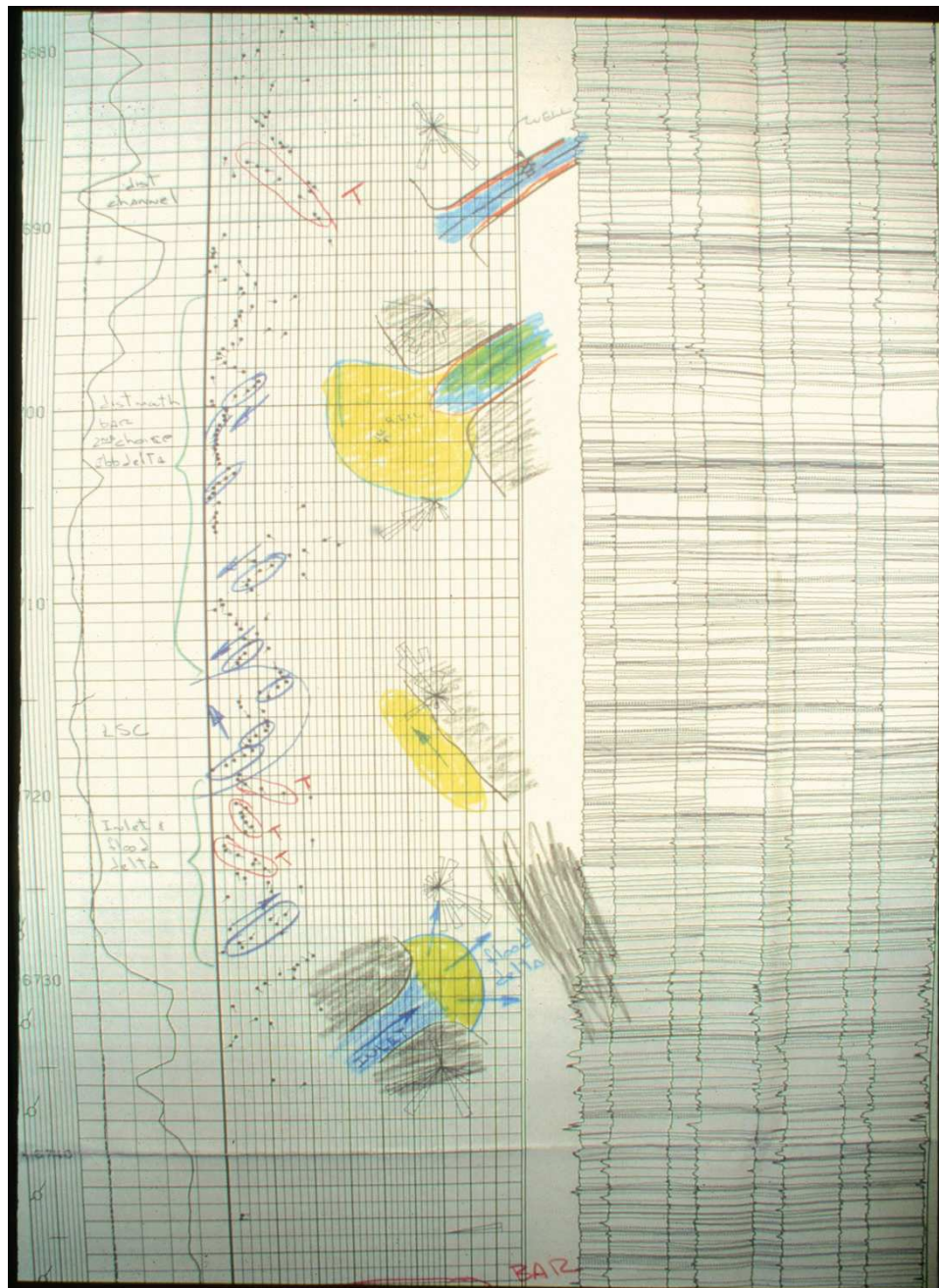
Borehole Image Applications

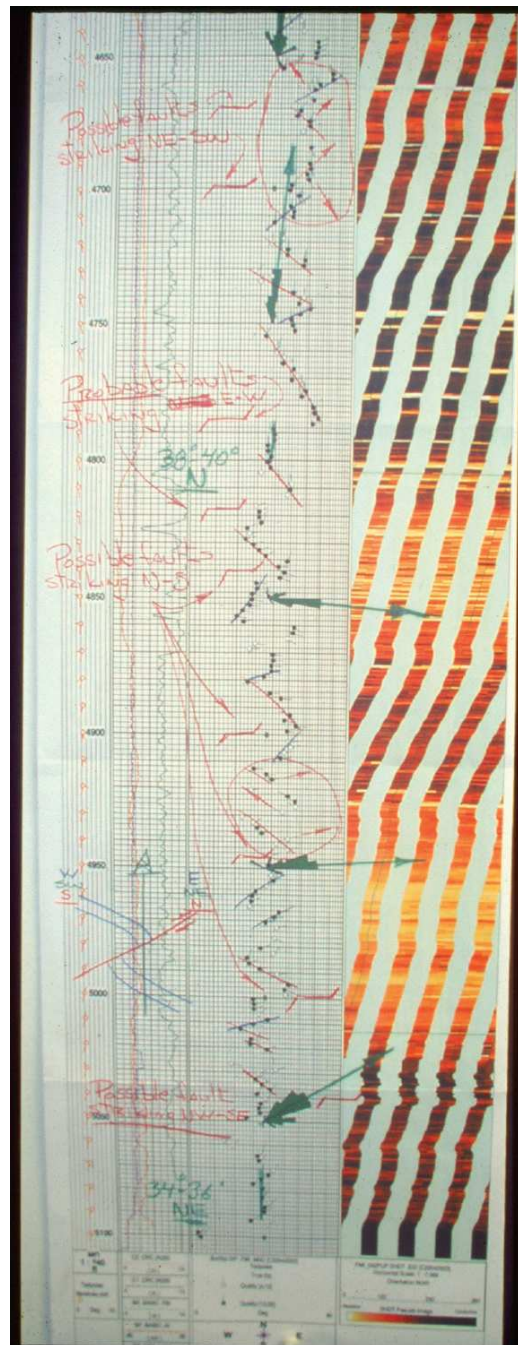
- Reservoir Engineer
 - Thin Beds
 - Calibration to/from Whole Core
 - Permeability Trends/Barriers
 - Fractures
 - Borehole Geometry / In-Situ Stress Orientation

Dipmeter Plot



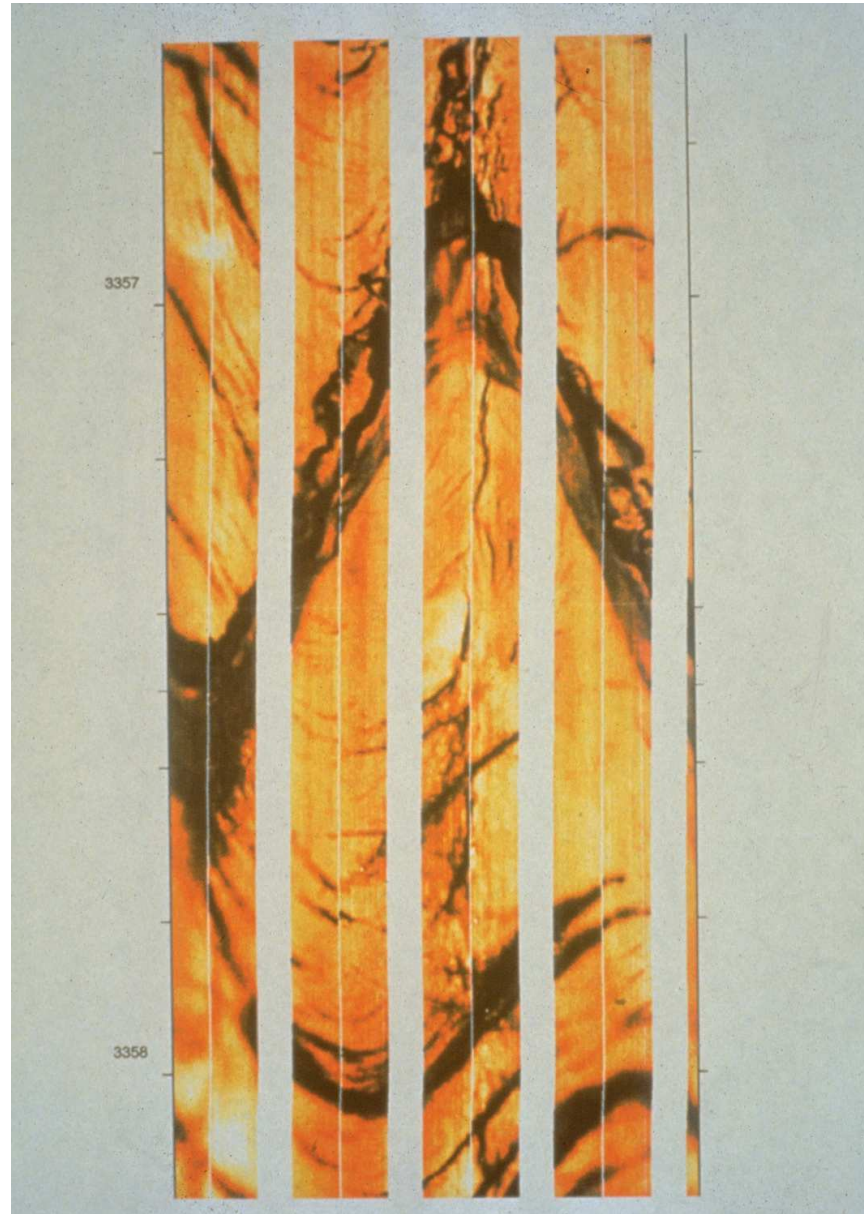












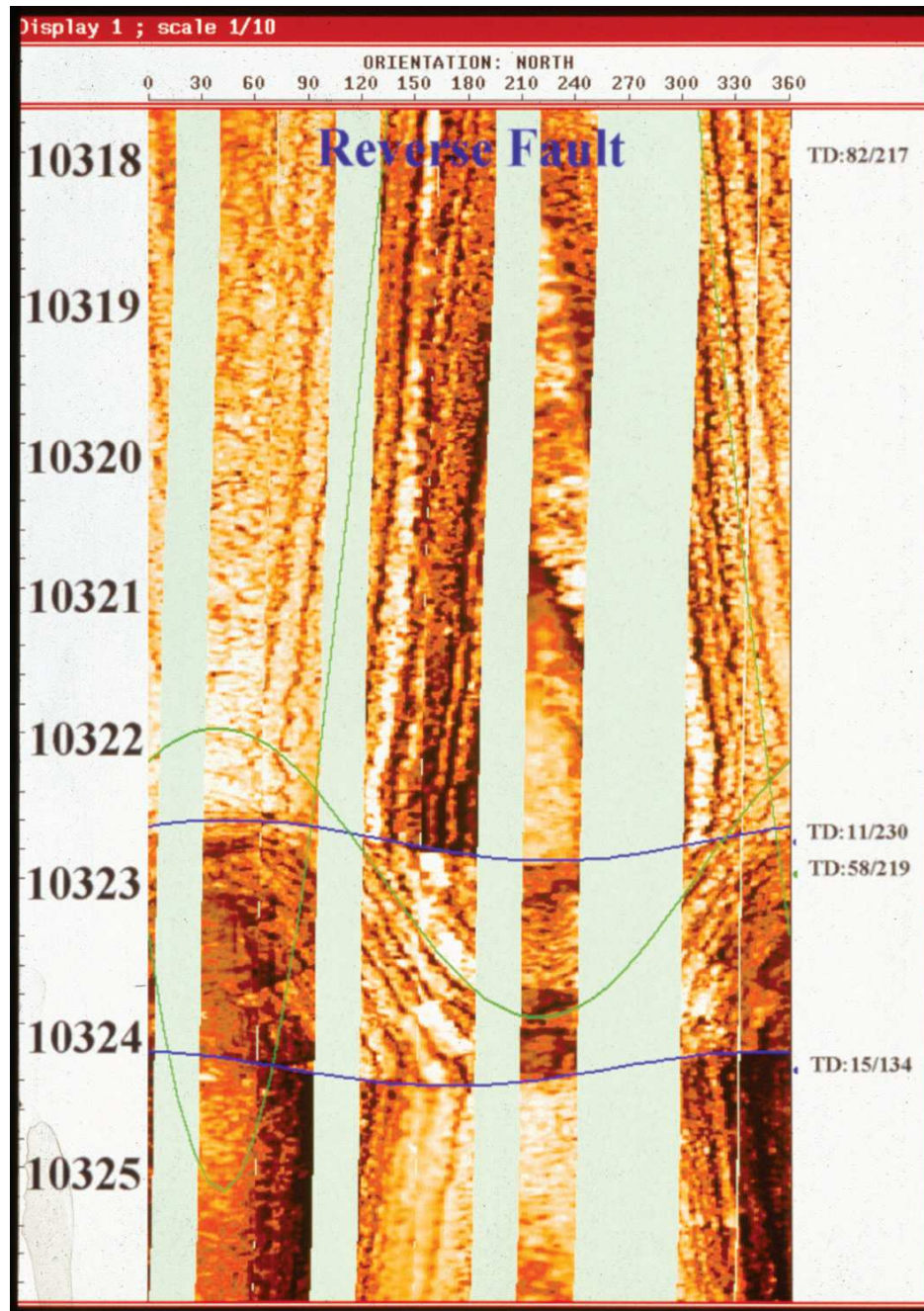


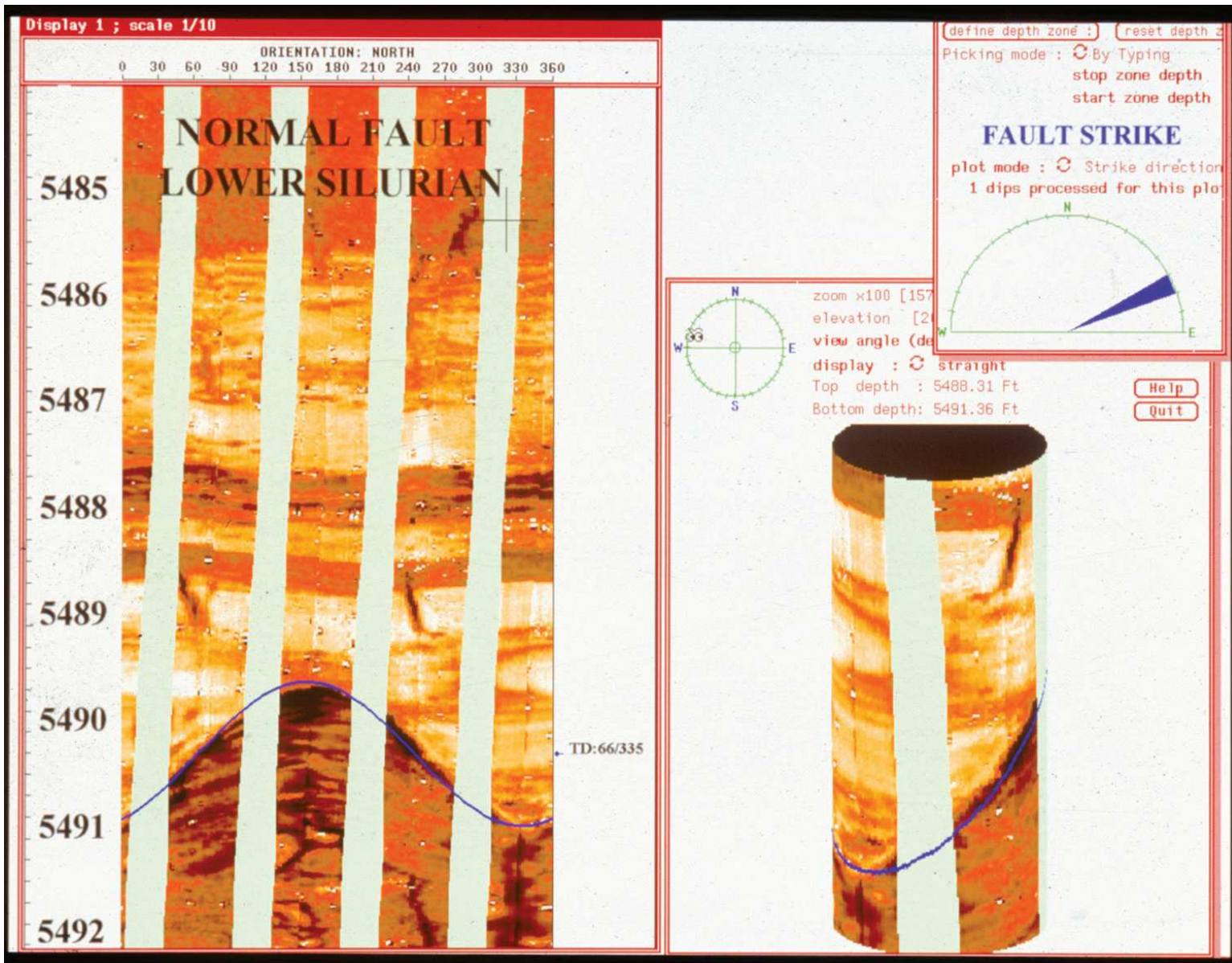


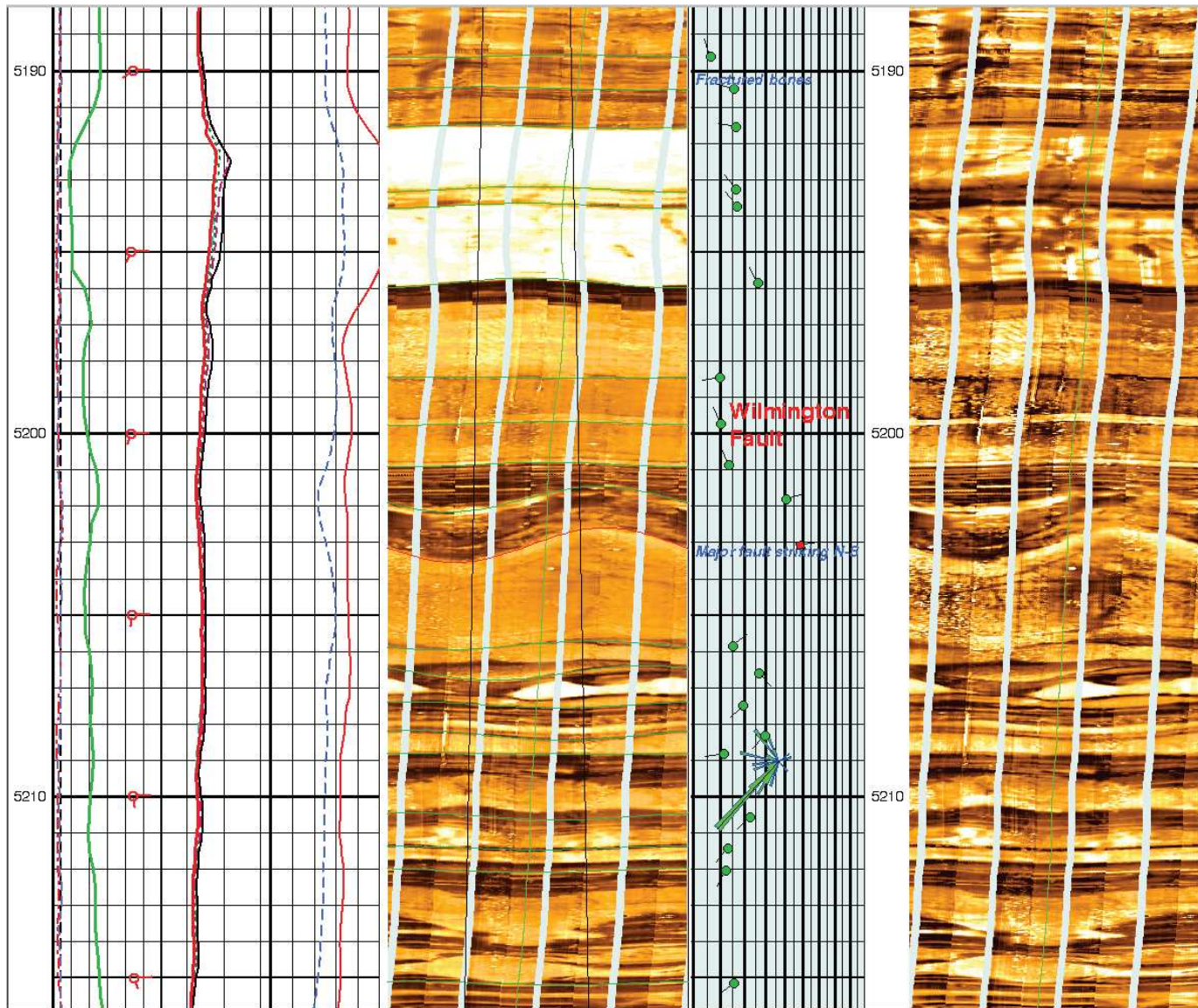
FMI — FAULT EXAMPLE

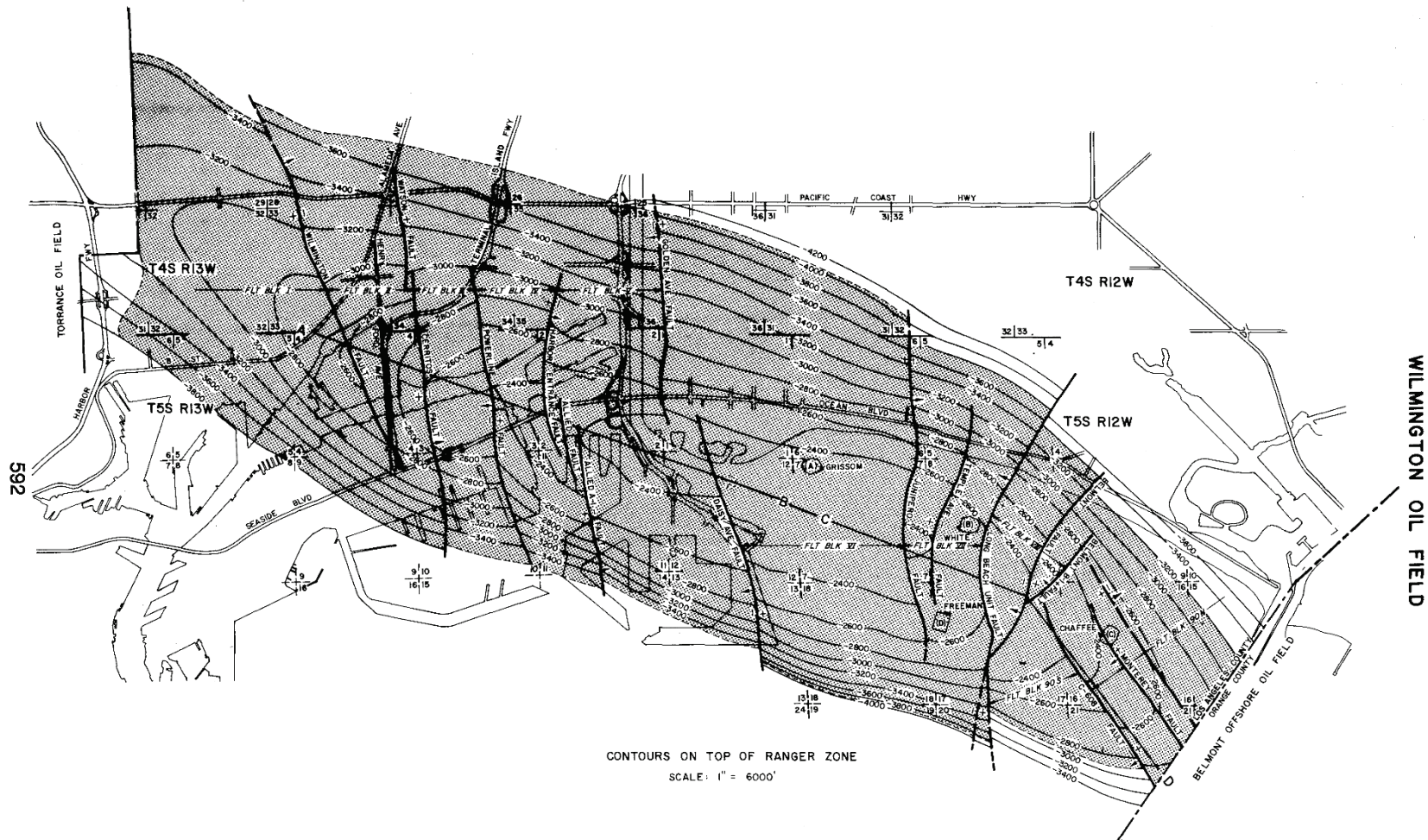
724

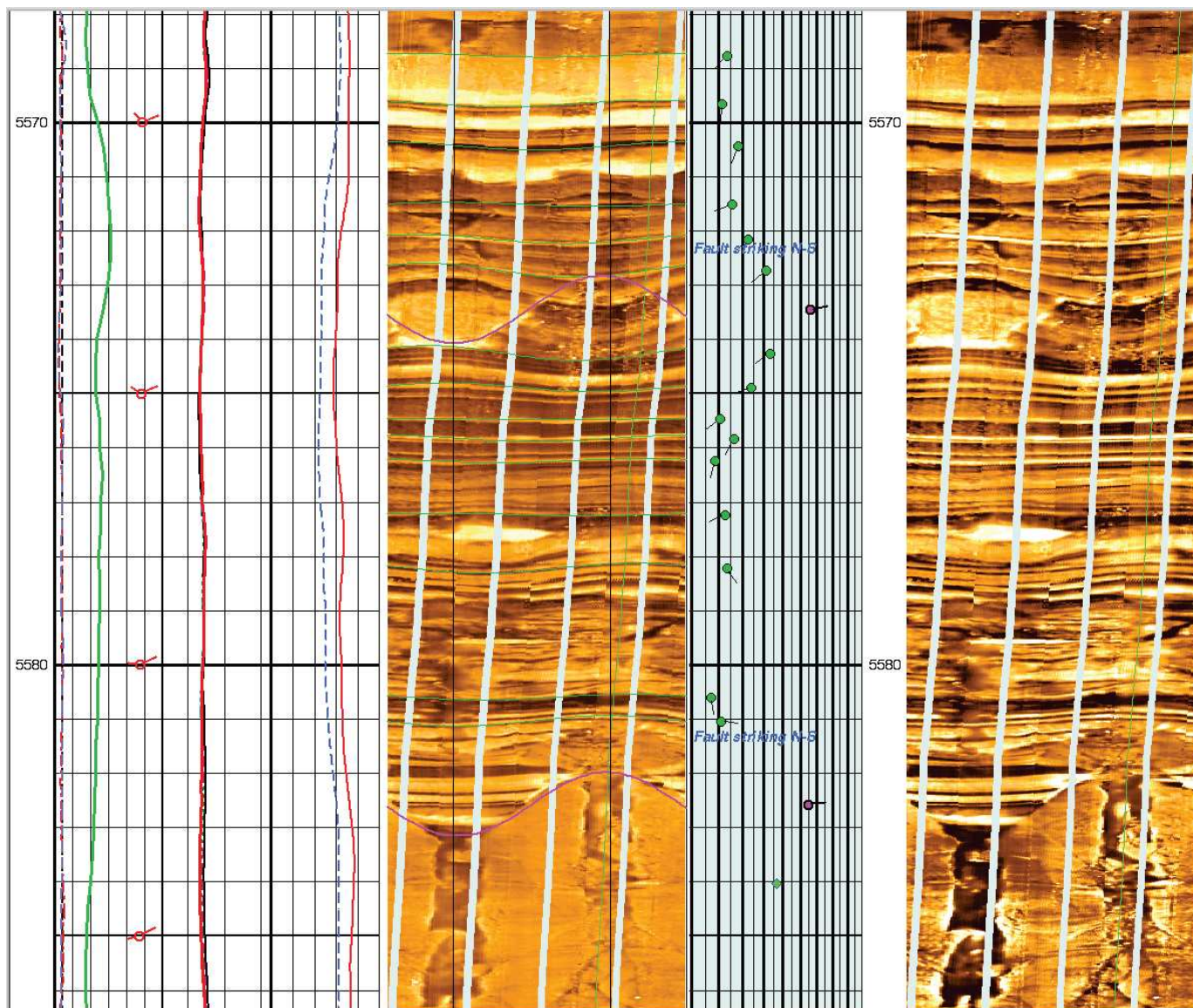






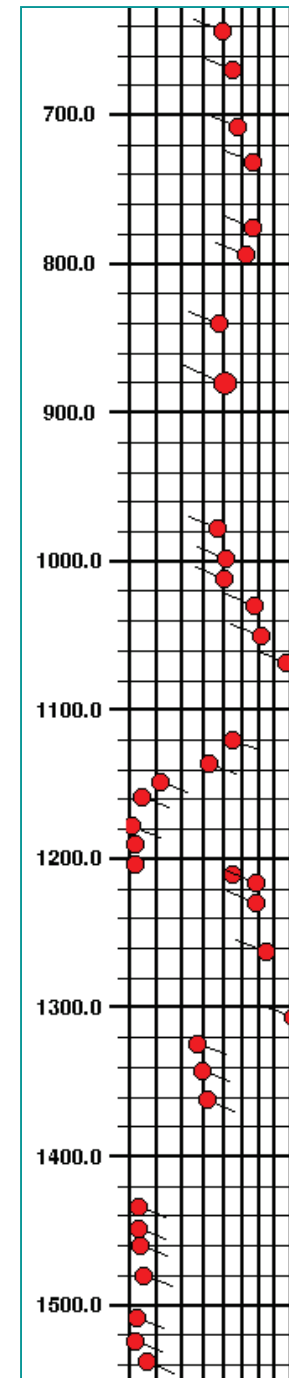




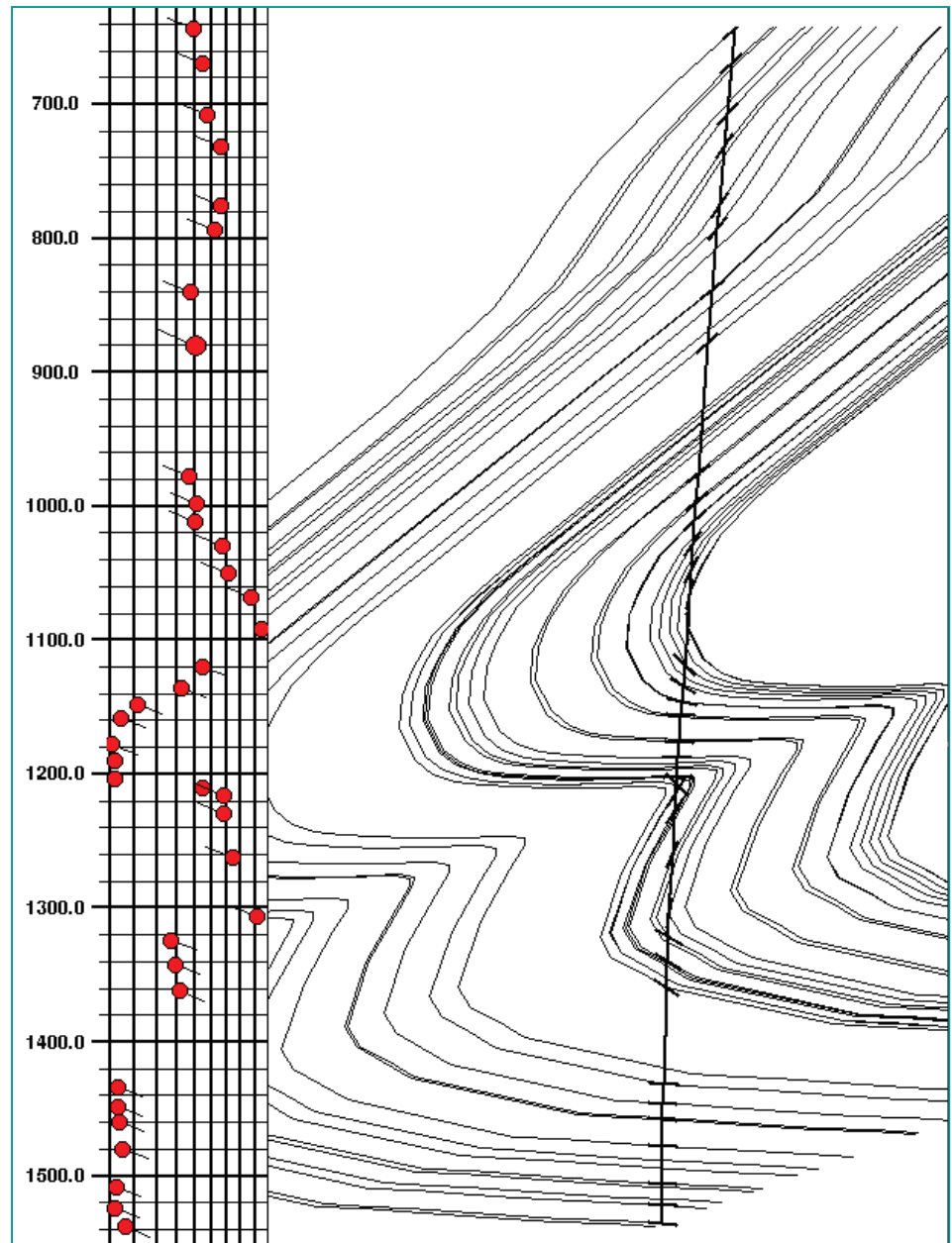


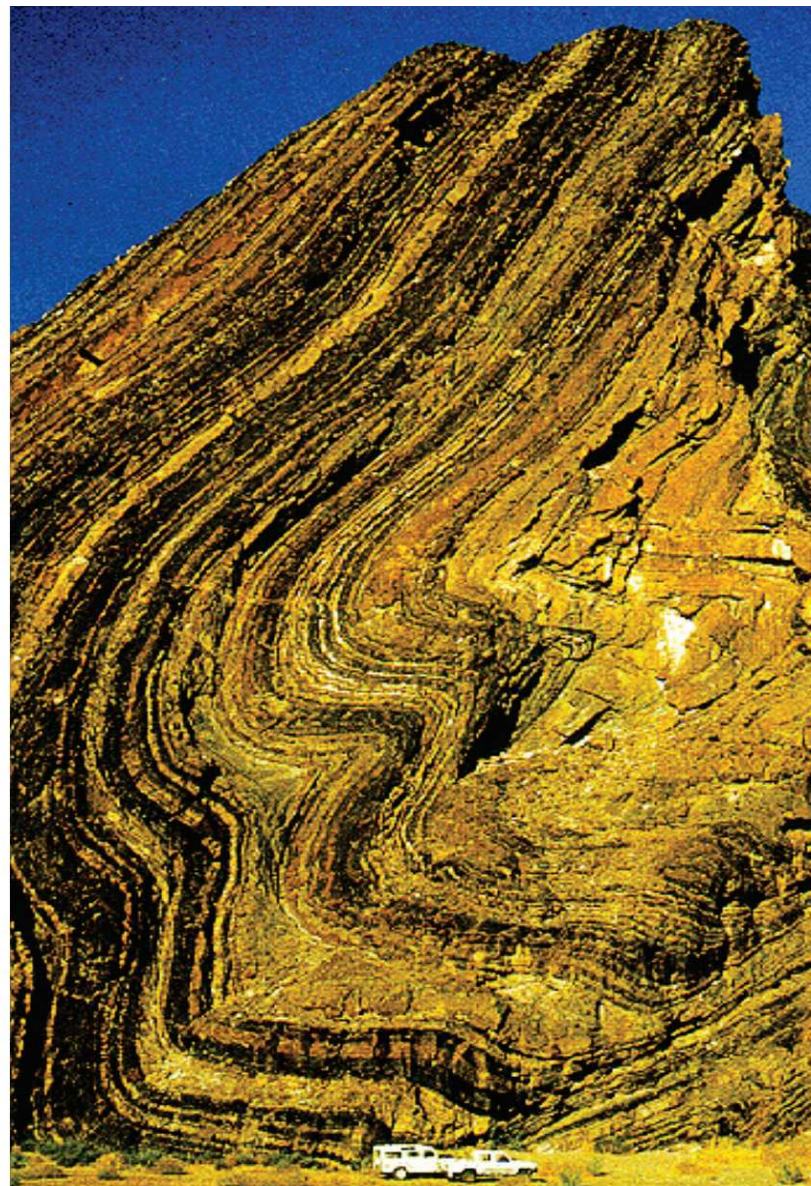
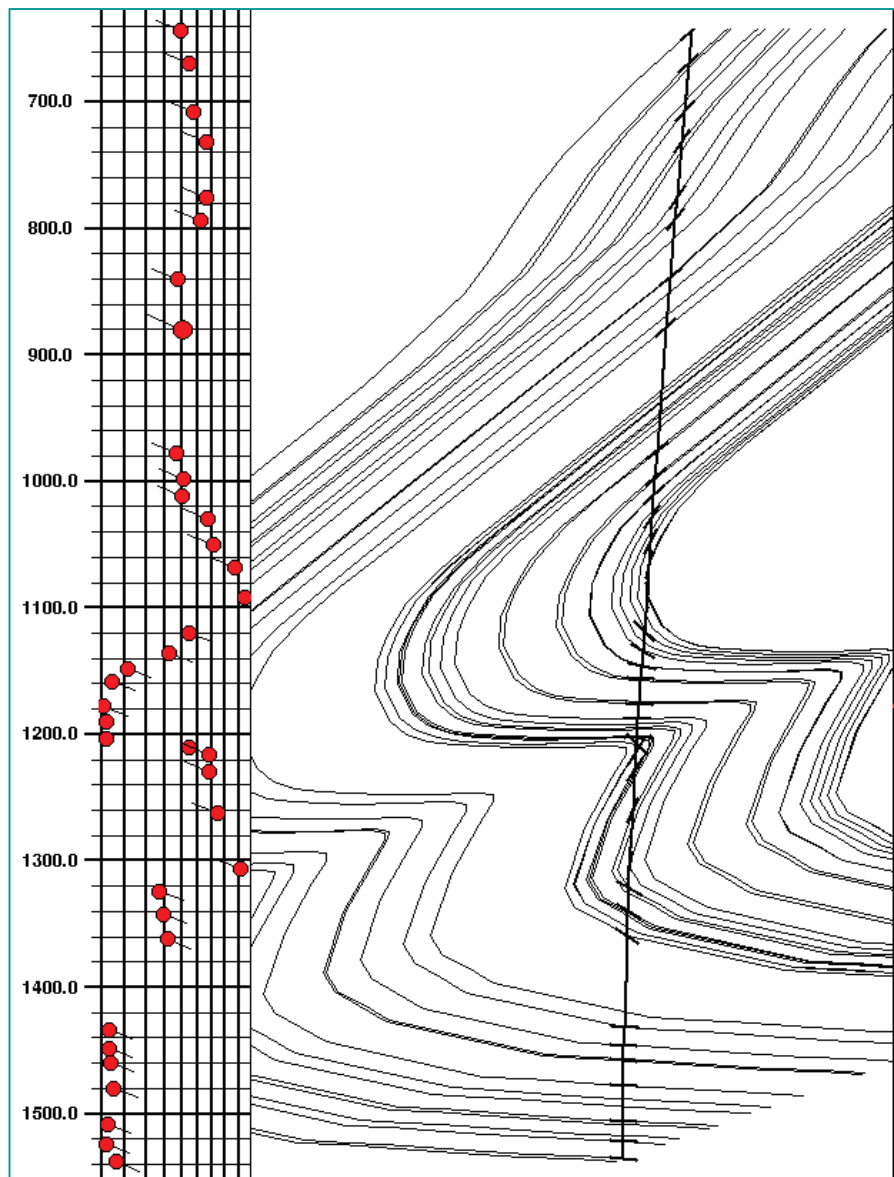
StrucView

What structure corresponds to this dip log?



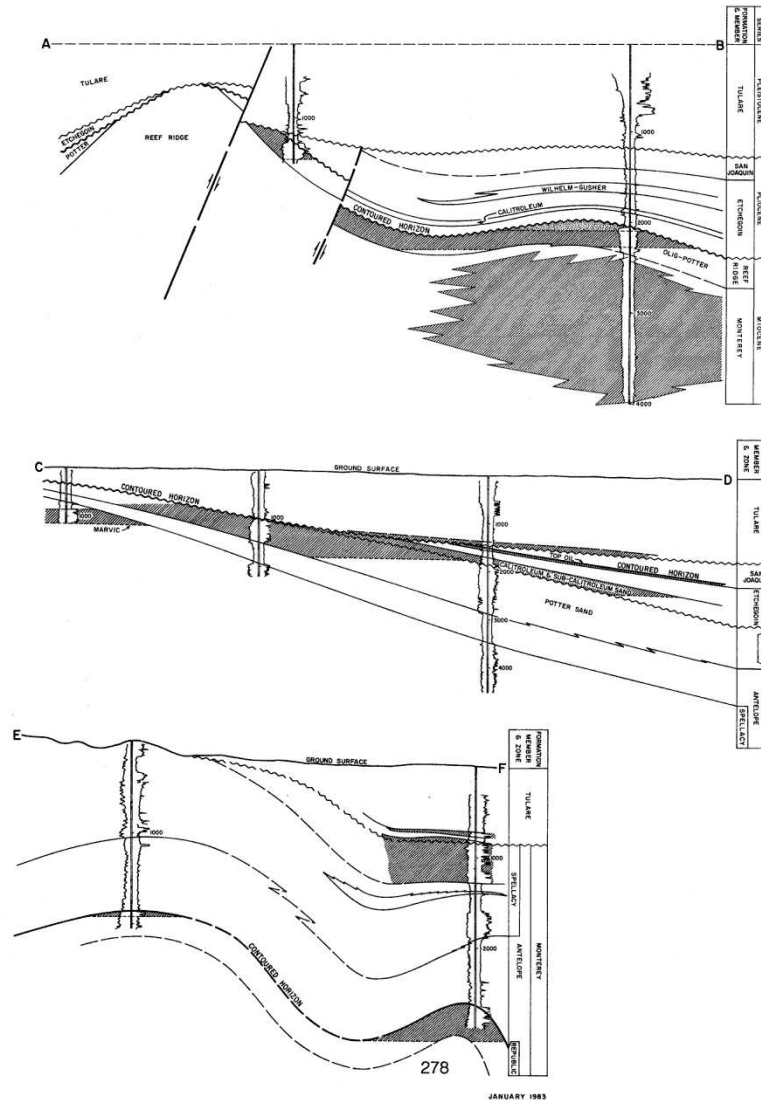
Model from StrucView assuming similar fold



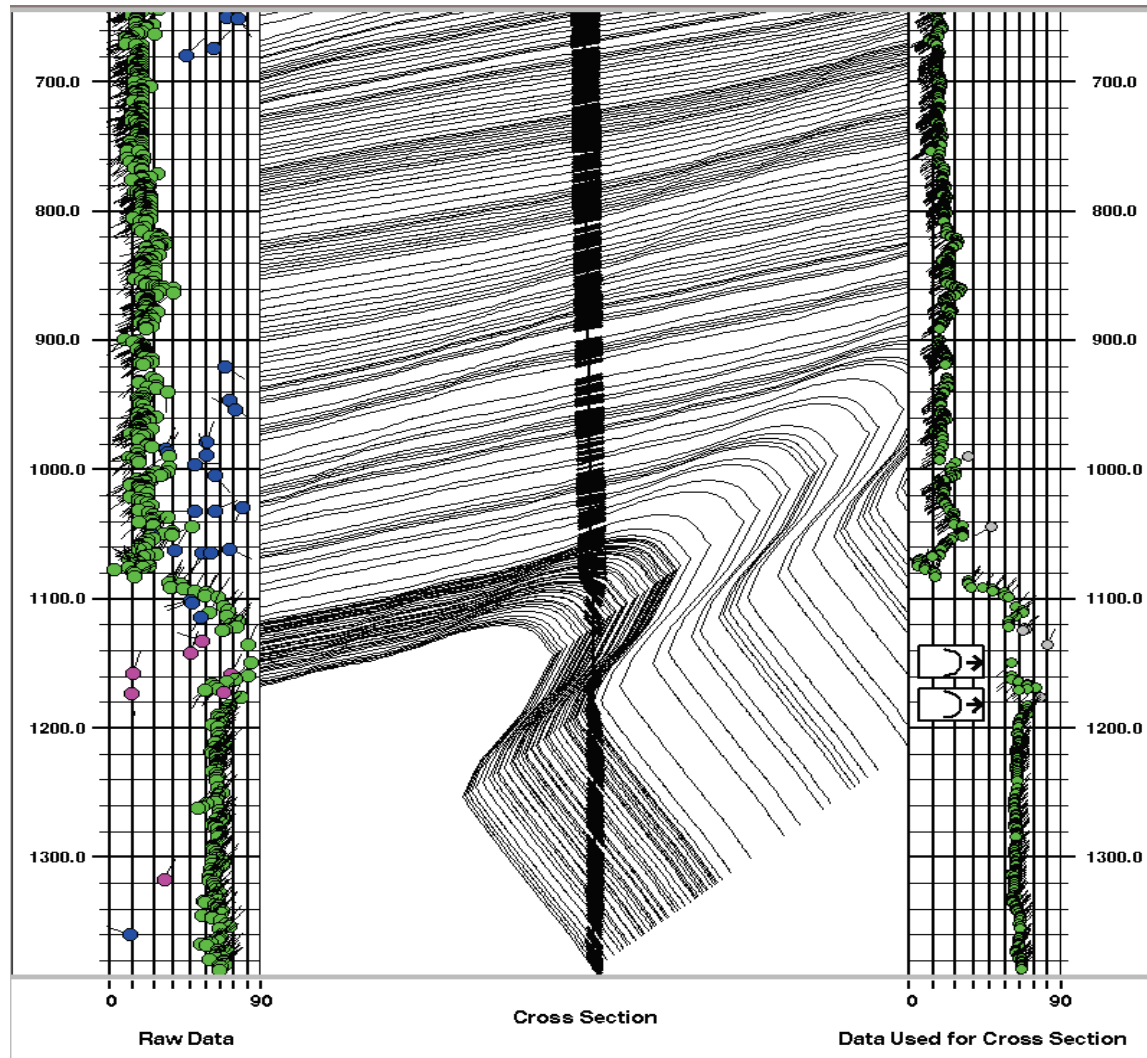


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Midway Sunset Field Cross Section



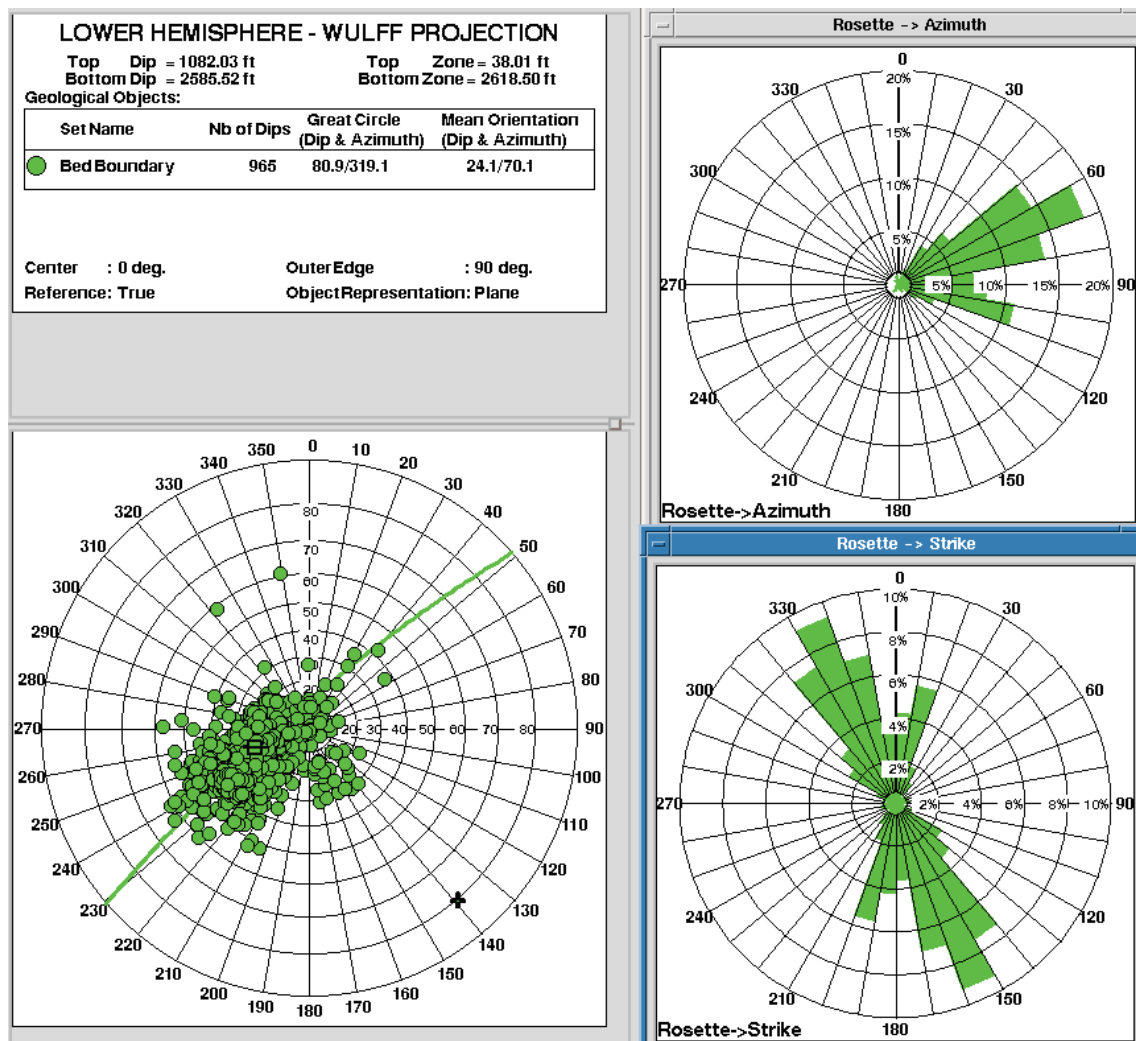
Midway Sunset Fold



Midway Sunset Analog



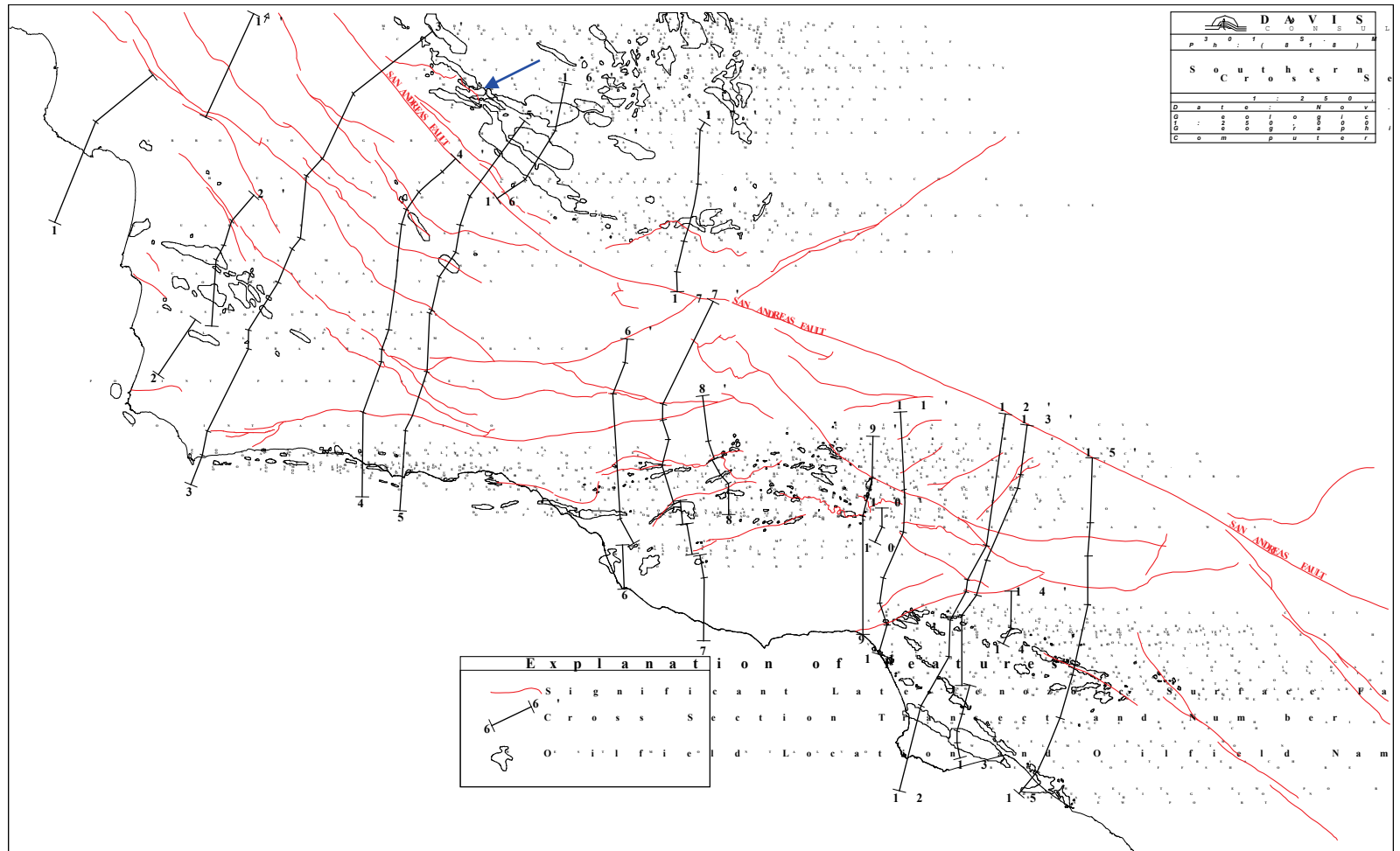
Stereonet



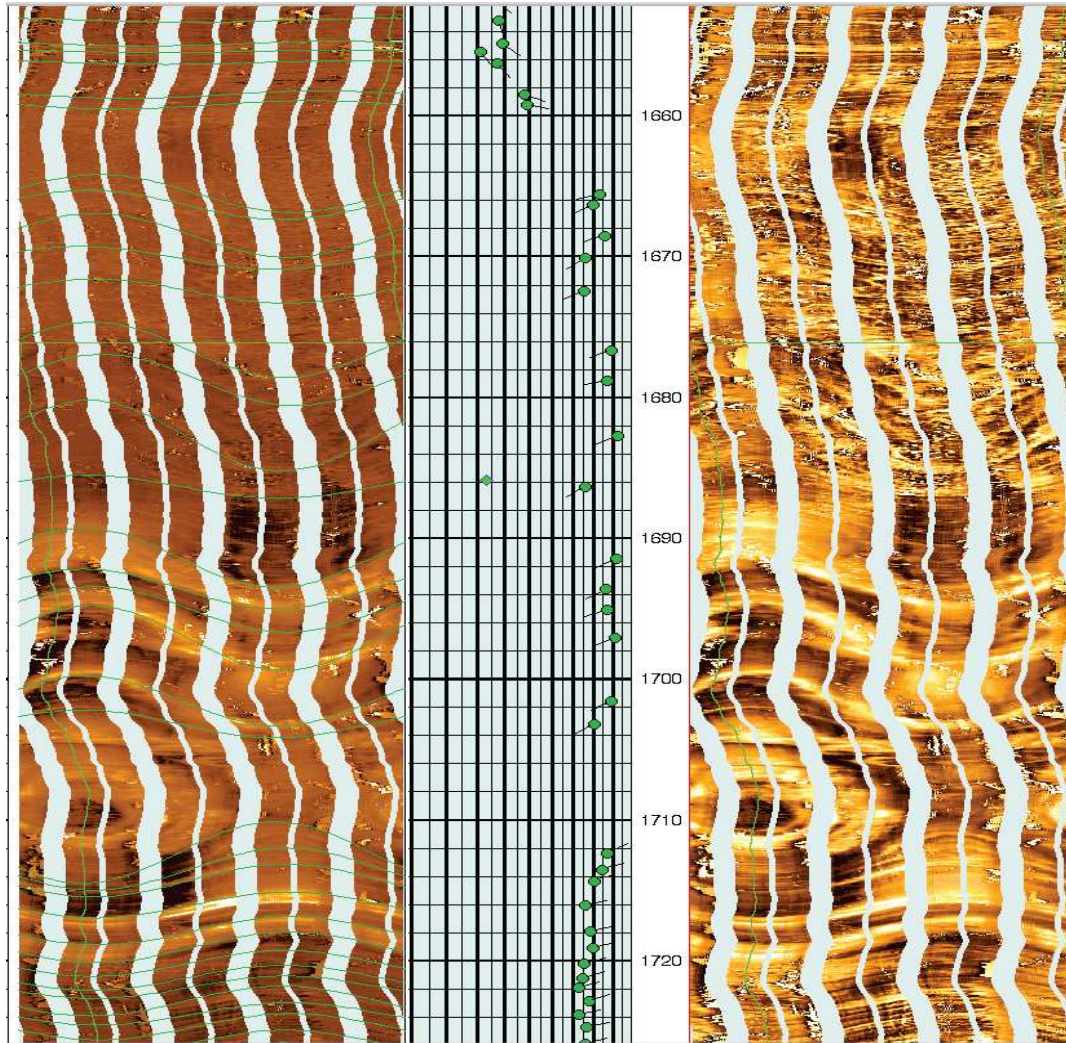
Plunging Anticline



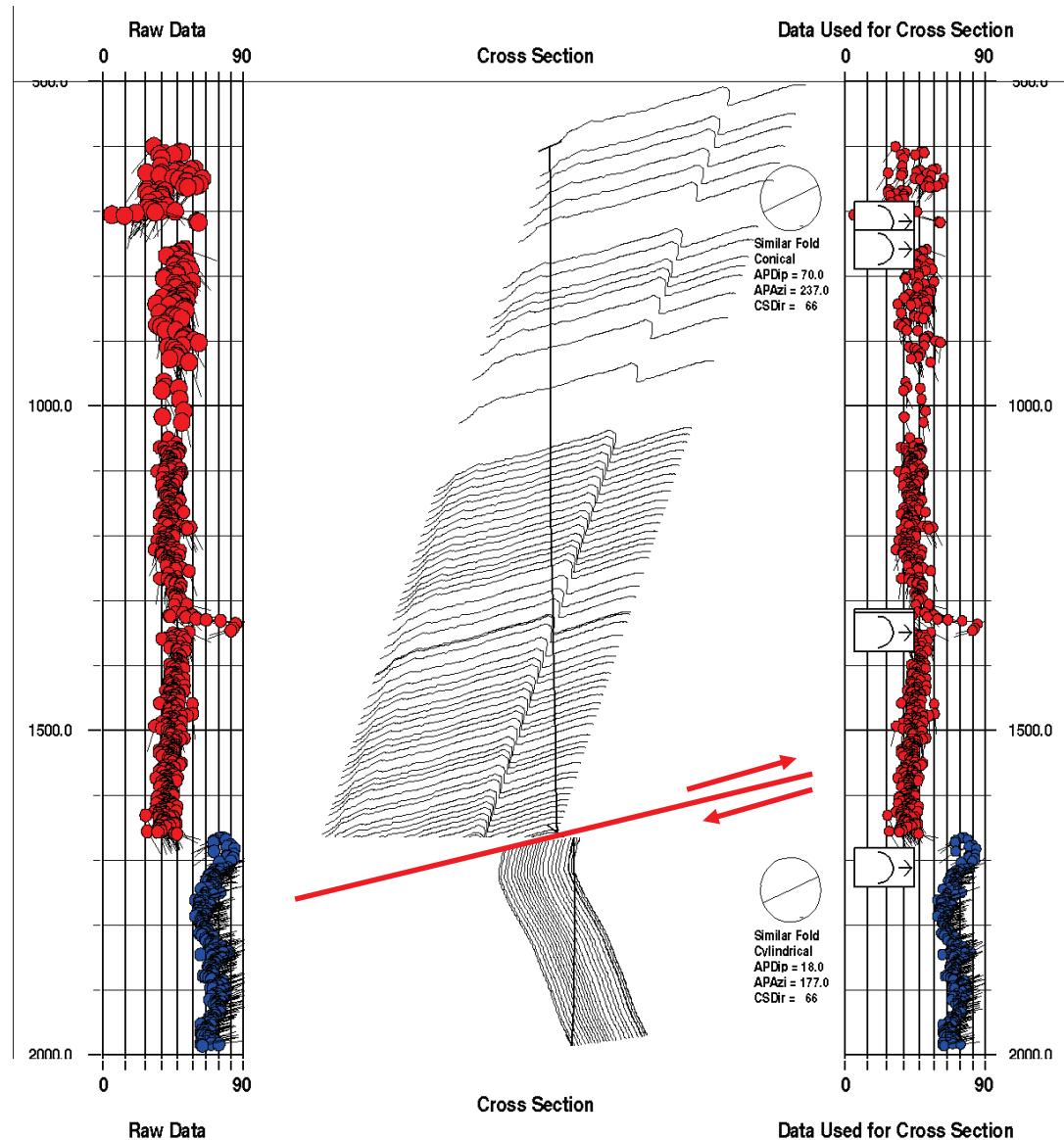
Cymric & McKittrick Fields



McKittrick Thrust Fault



McKittrick Thrust Fault



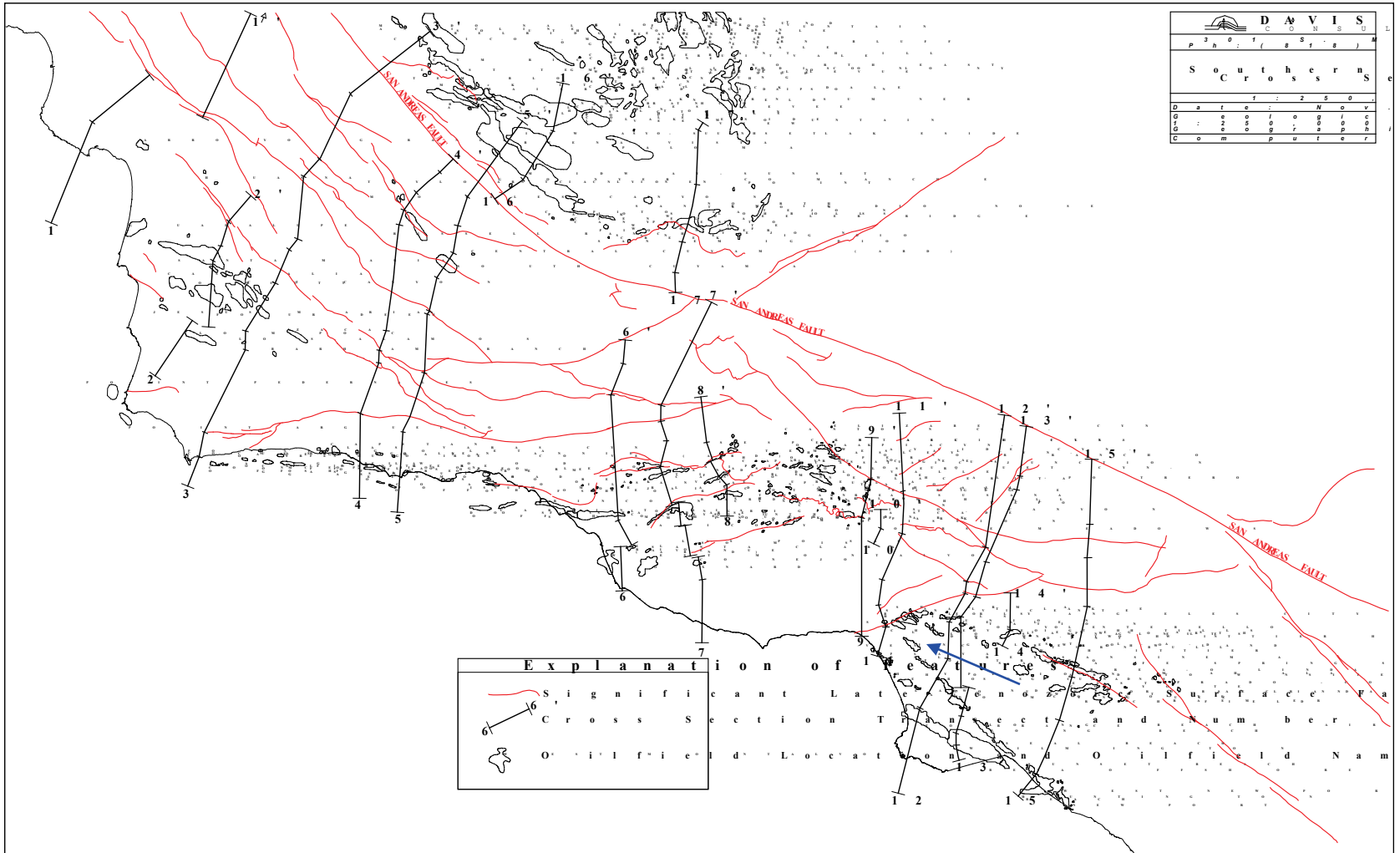
McKittrick Thrust Analog



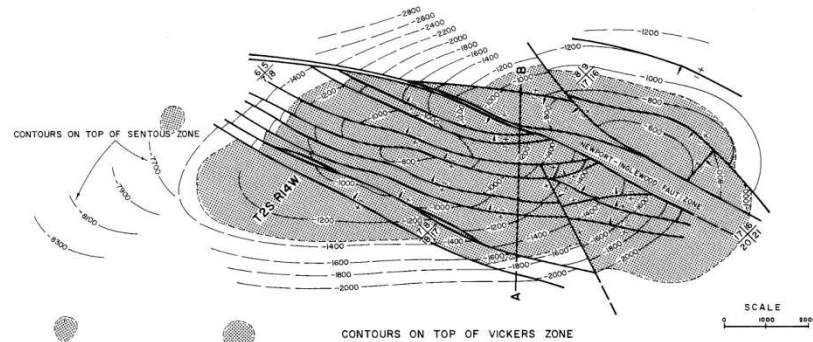
Hollywood Magic



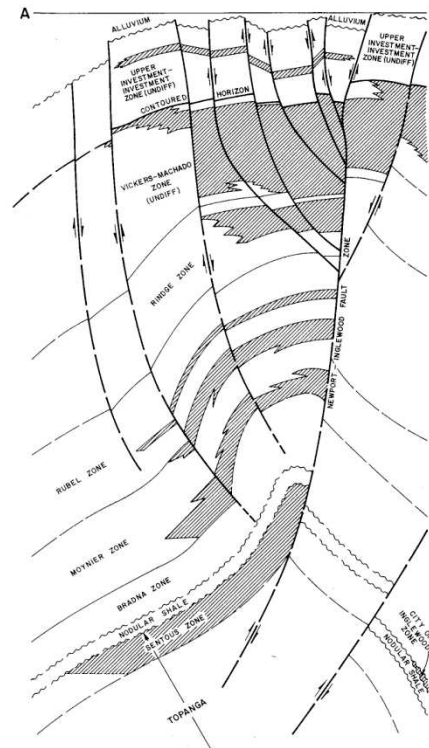
Inglewood Field



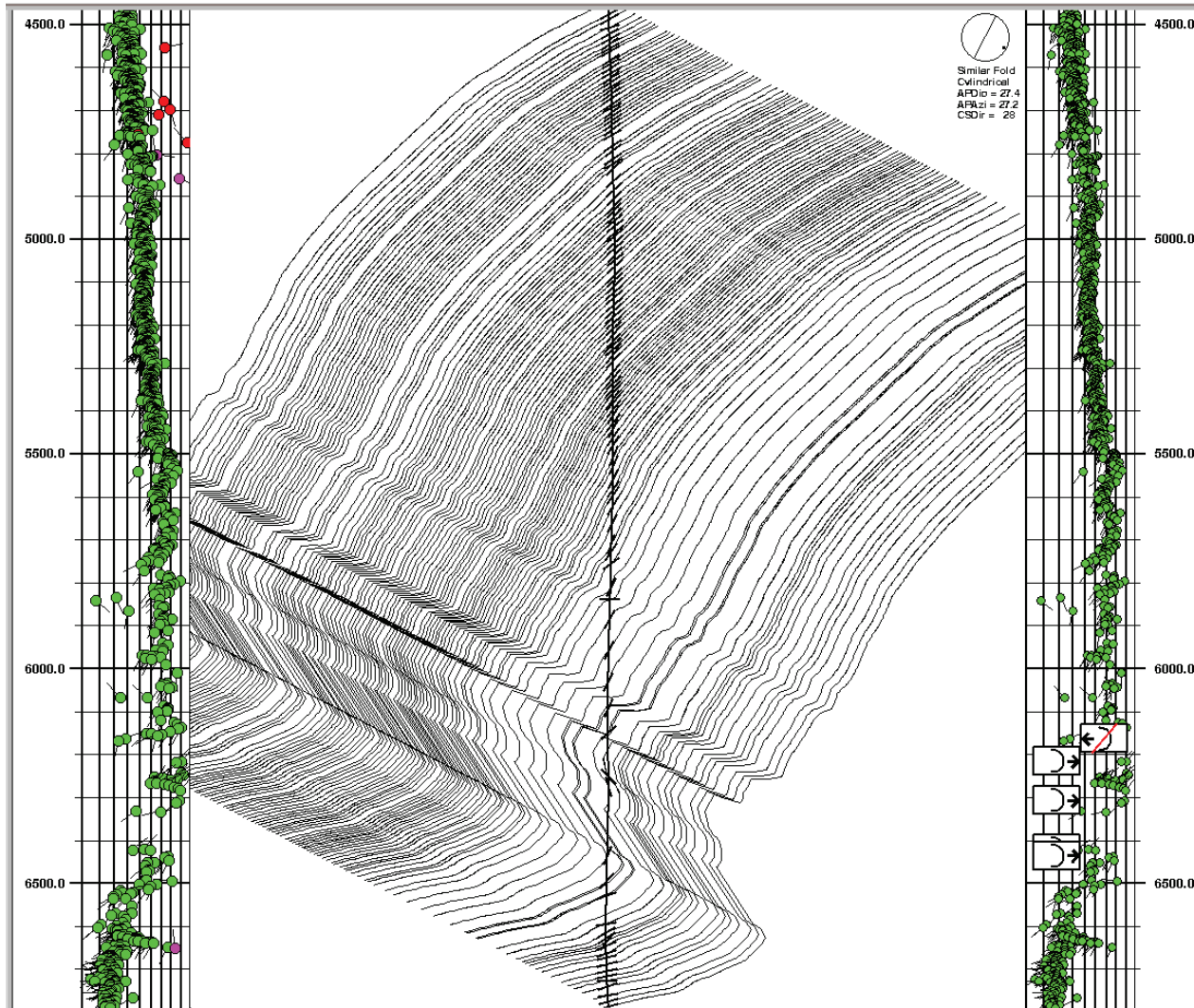
Inglewood Field Cross Section



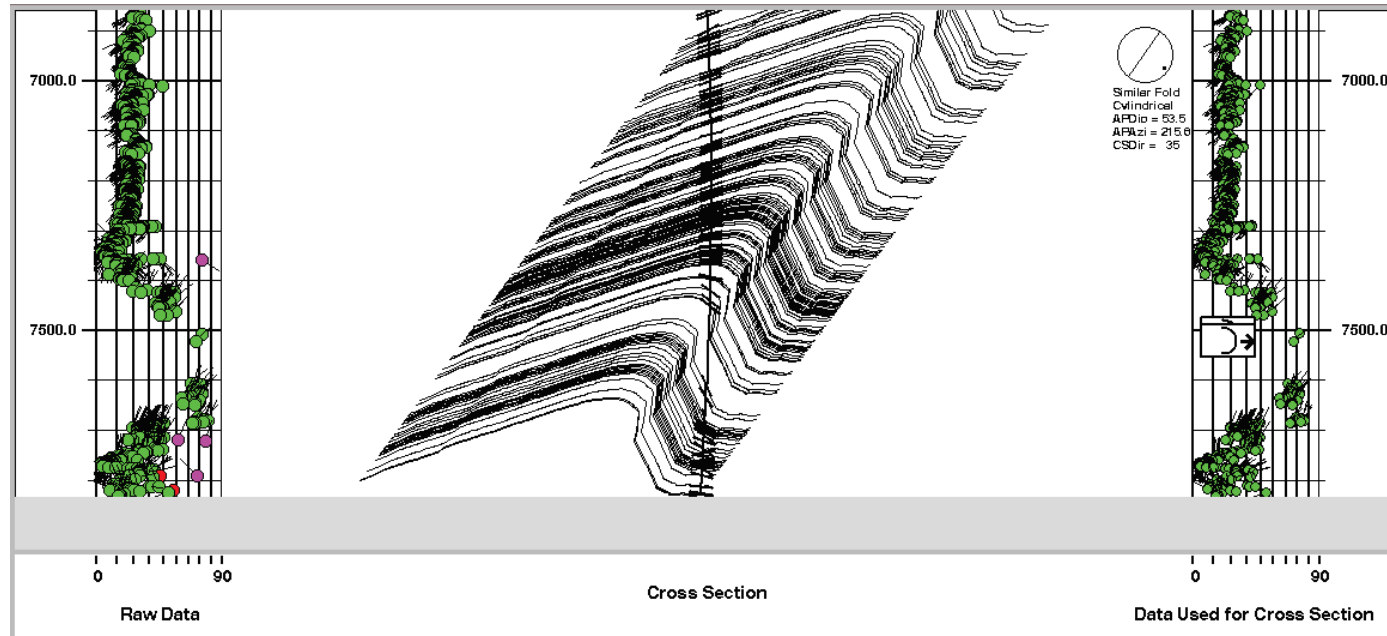
SERIES	FORMATION MEMBER & ZONE	COMPOSITE ELECTRIC LOG
QUATERNARY	ALLUVIUM	
PLEISTOCENE	UPPER INVESTMENT ZONE (UNDIFF)	
	UPPER "TICO"	
	VICKERS-MACHADO ZONE (UNDIFF)	
	RINDGE	
	RUBEL	
	UPPER MOYNER	
PLOSCENE	LOWER "REPTO"	
	BRADNA	
	CITY OF INGLEWOOD	
	NODULAR SHALE	
MIOCENE	SANTOS	
MIDDLE TOPIANGA		



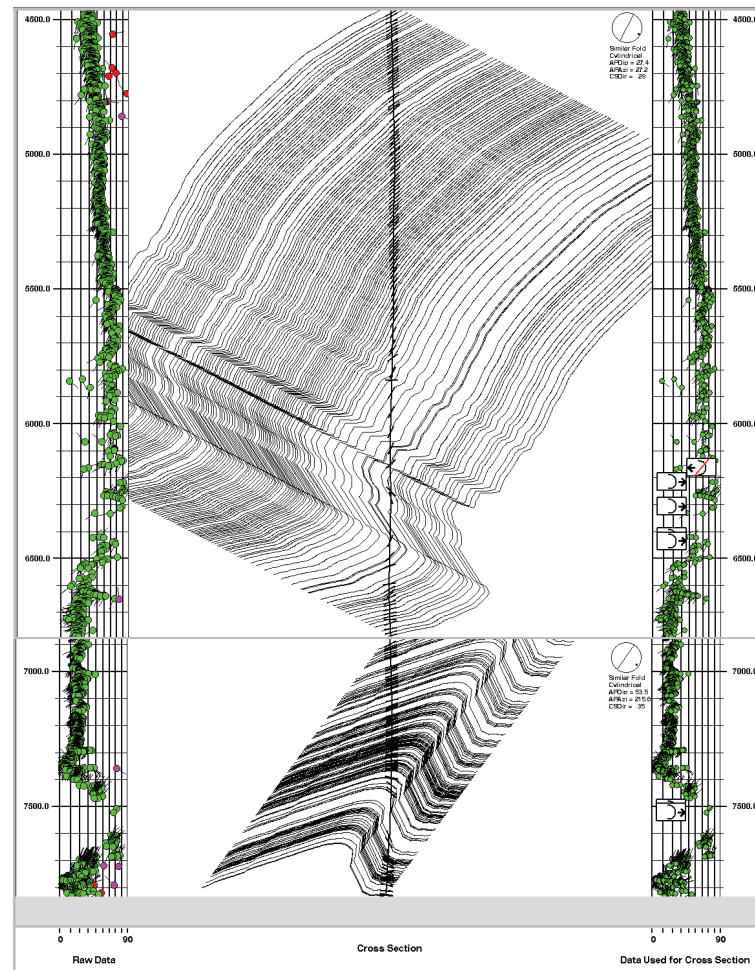
Inglewood StrucView Run 1



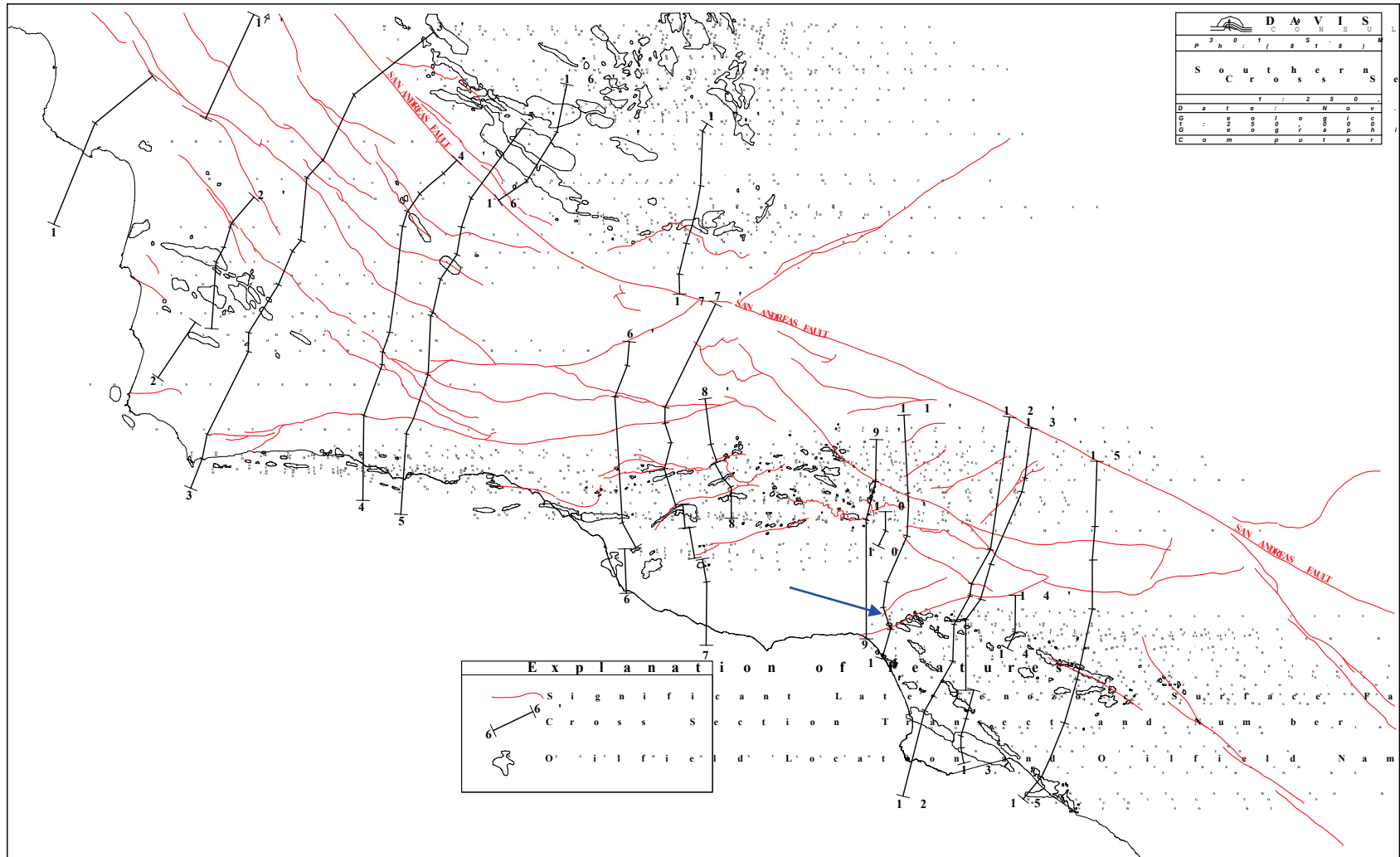
Inglewood StrucView Run 2



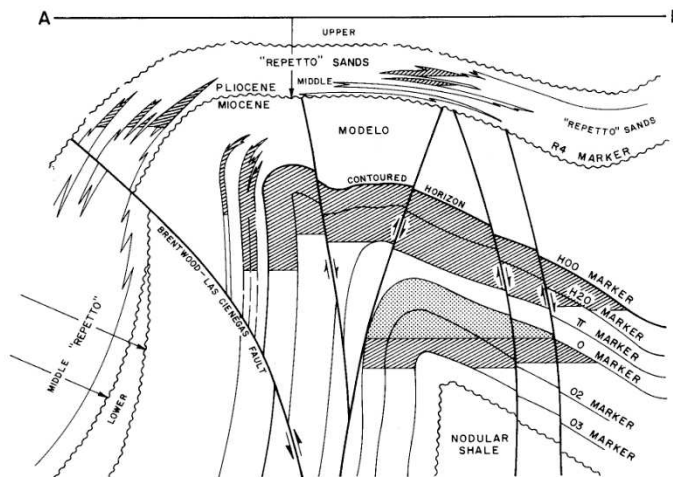
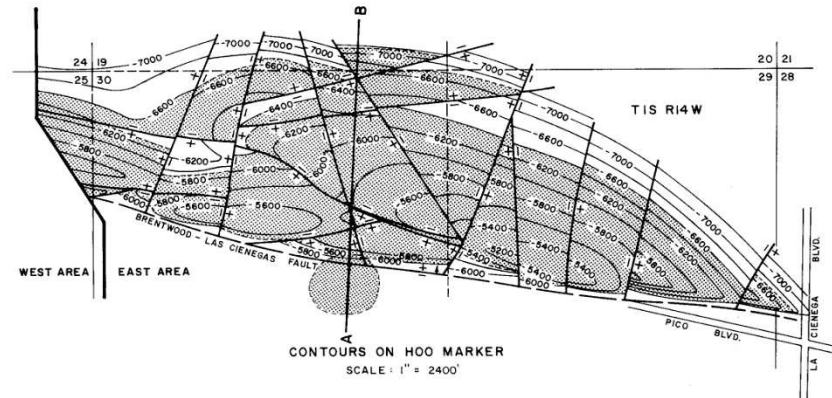
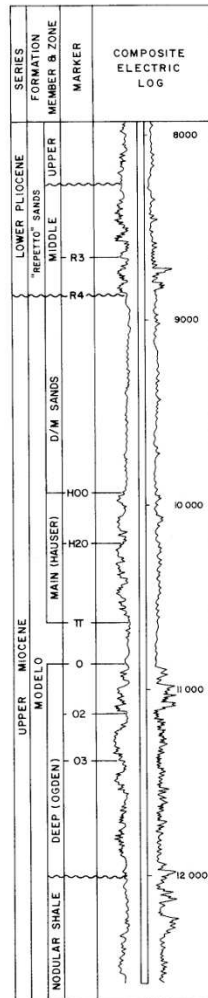
Combined StrucView Runs



East Beverly Hills Field

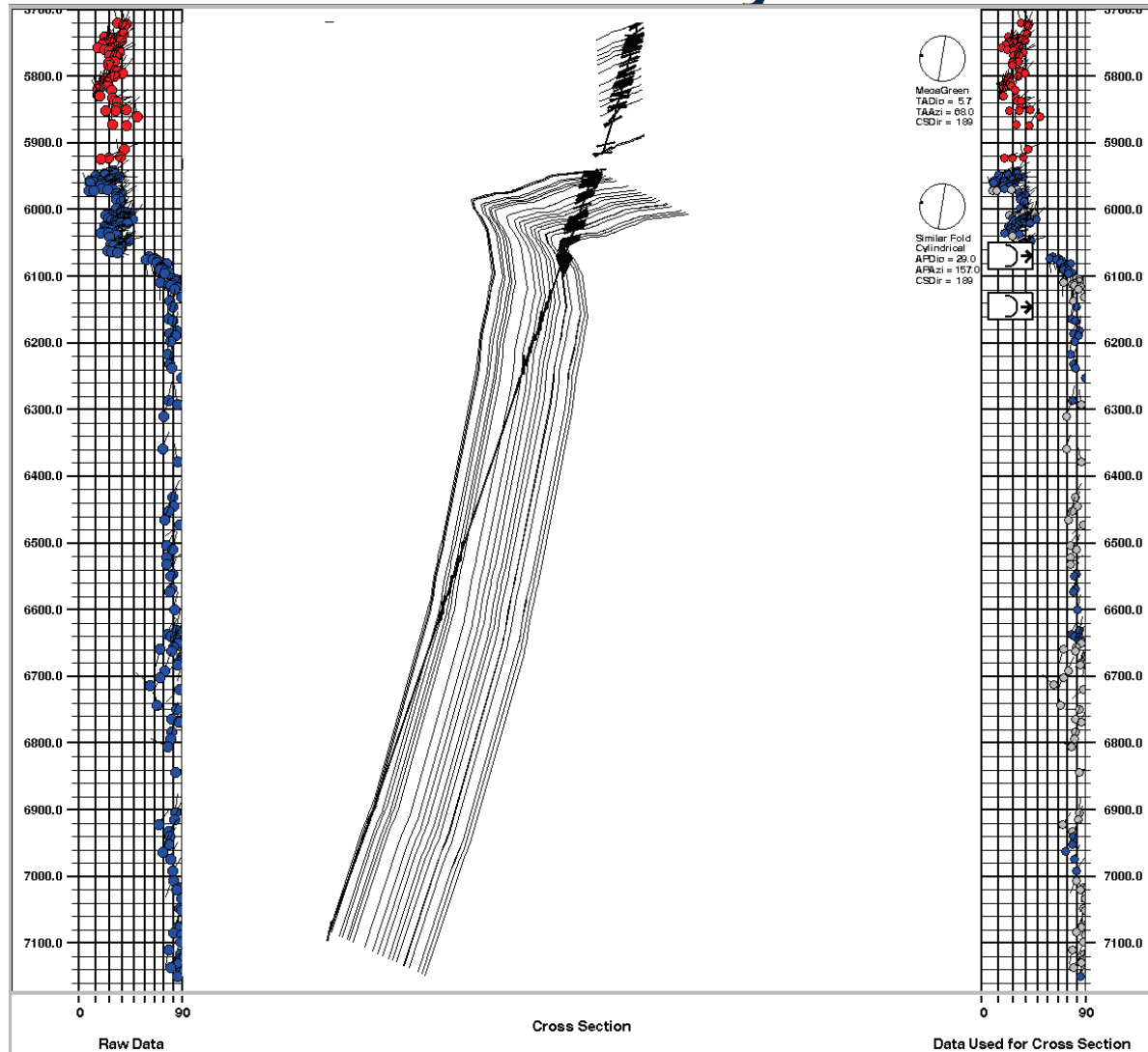


East Beverly Hills Cross Section



GENERALIZED CROSS SECTION (COURTESY OCCIDENTAL PETROLEUM CORP)

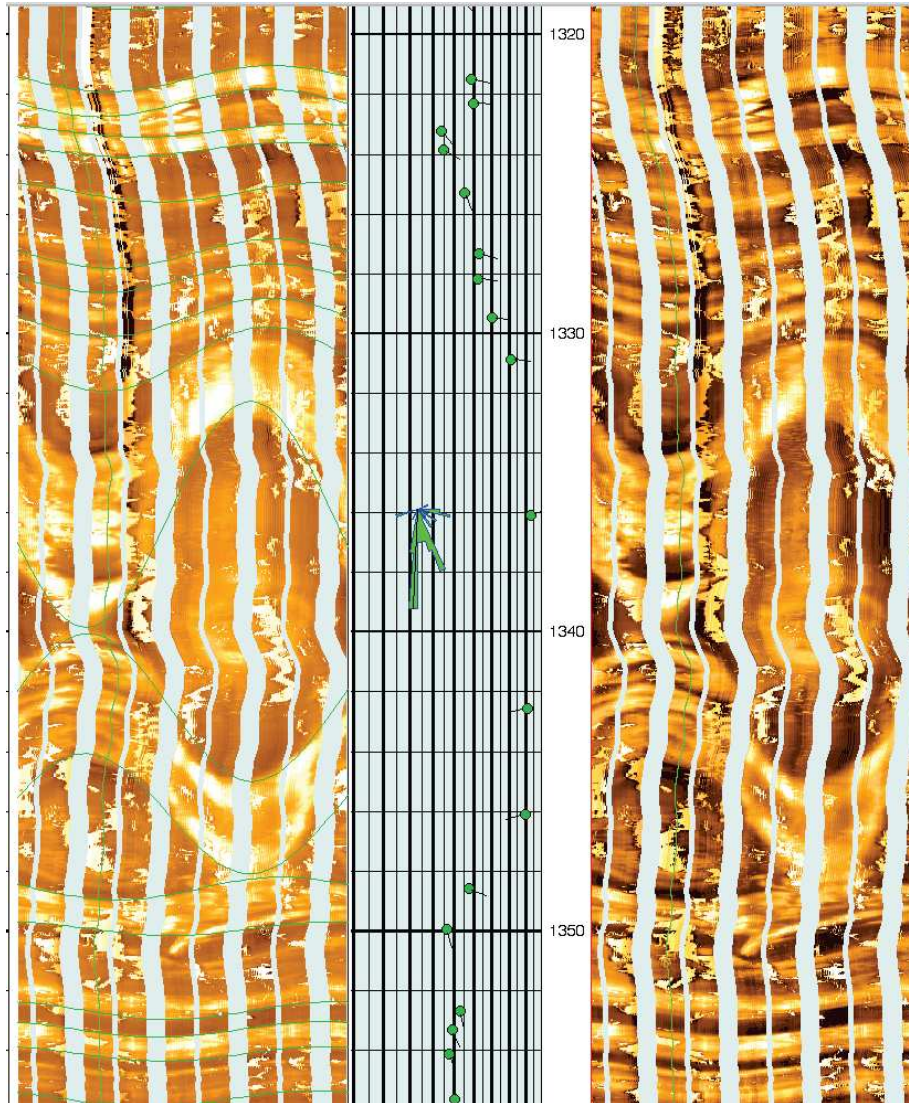
East Beverly Hills



East Beverly Hills Analog



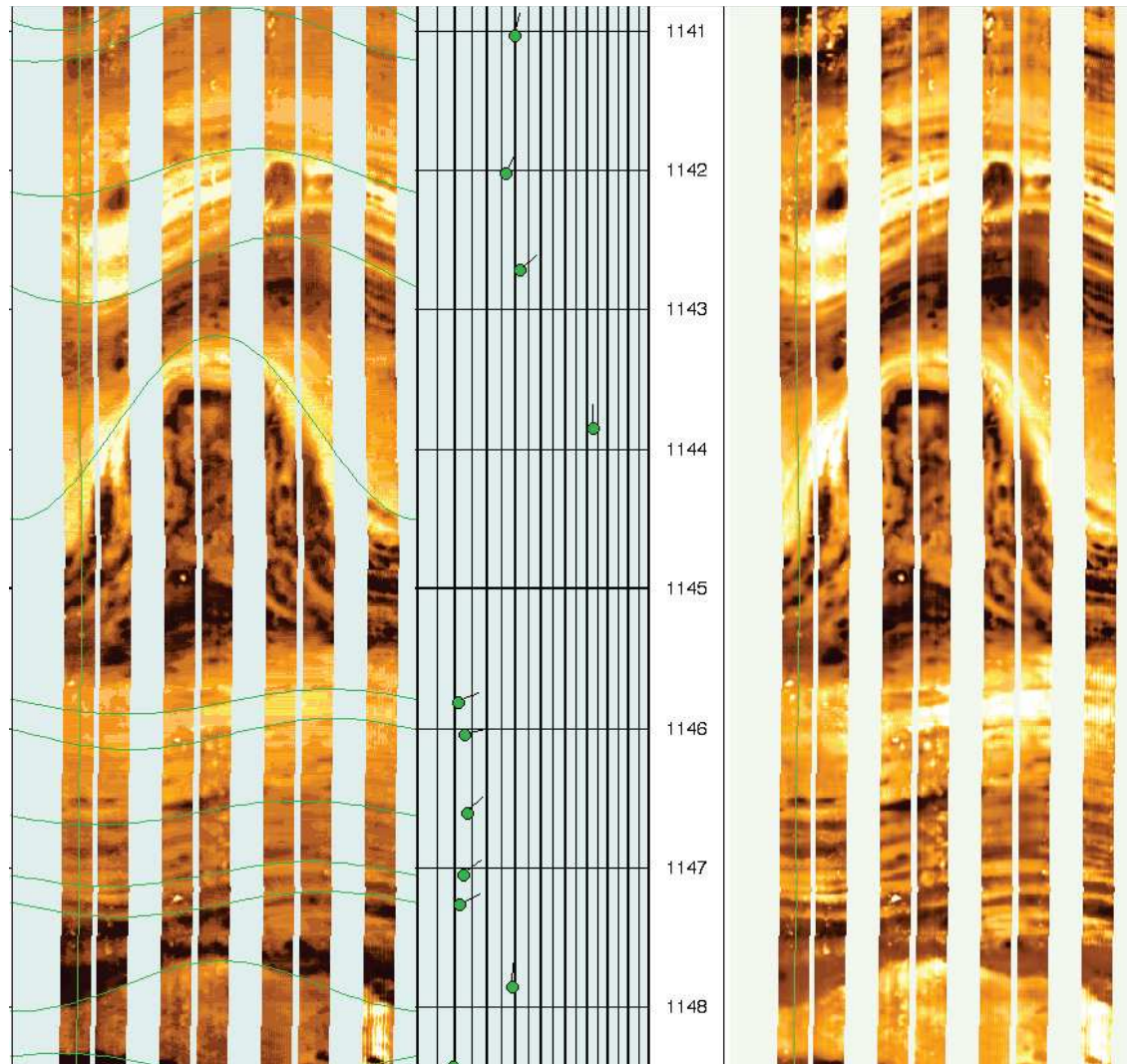
Tight Kink Fold



Tightly Folded Maverick Shale



Folded Bed



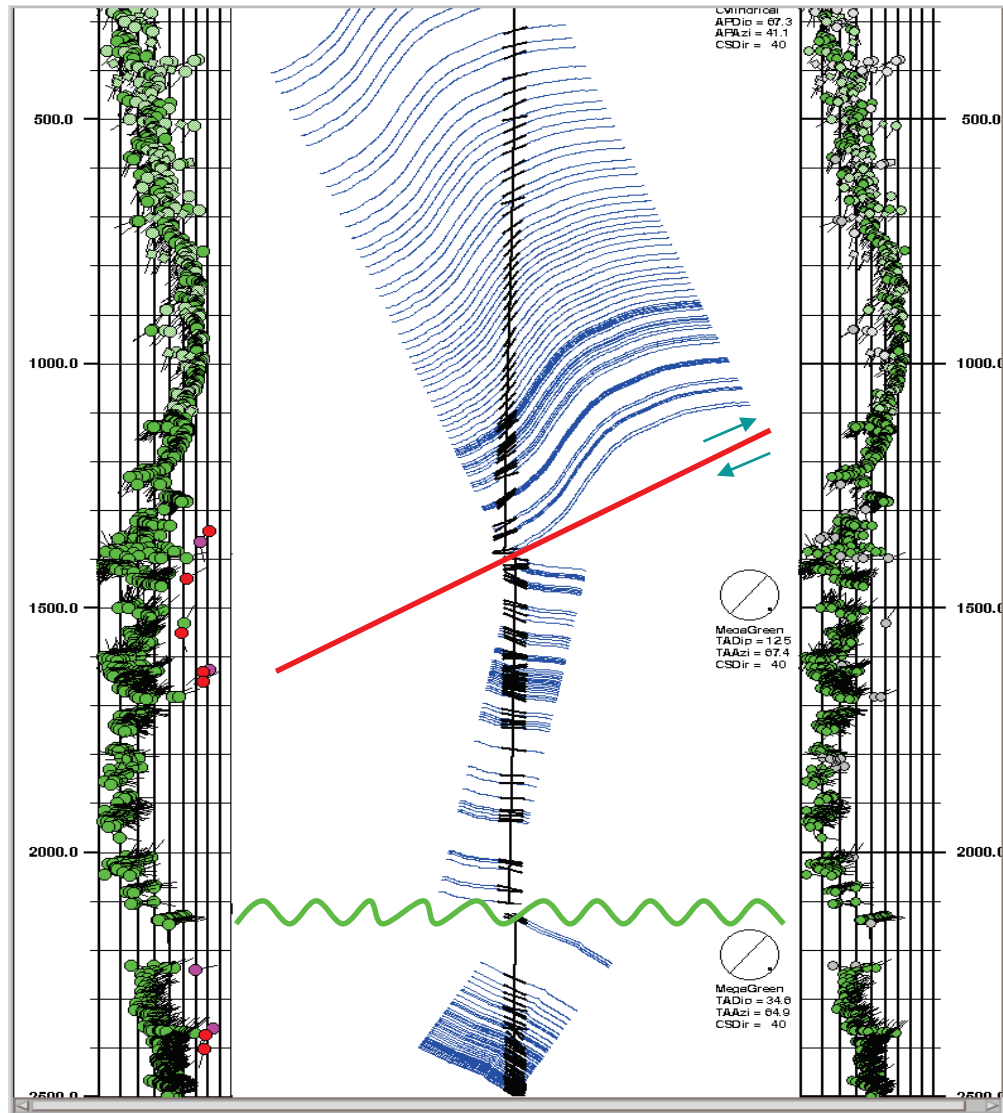
Stealth Fold Calcite Marble



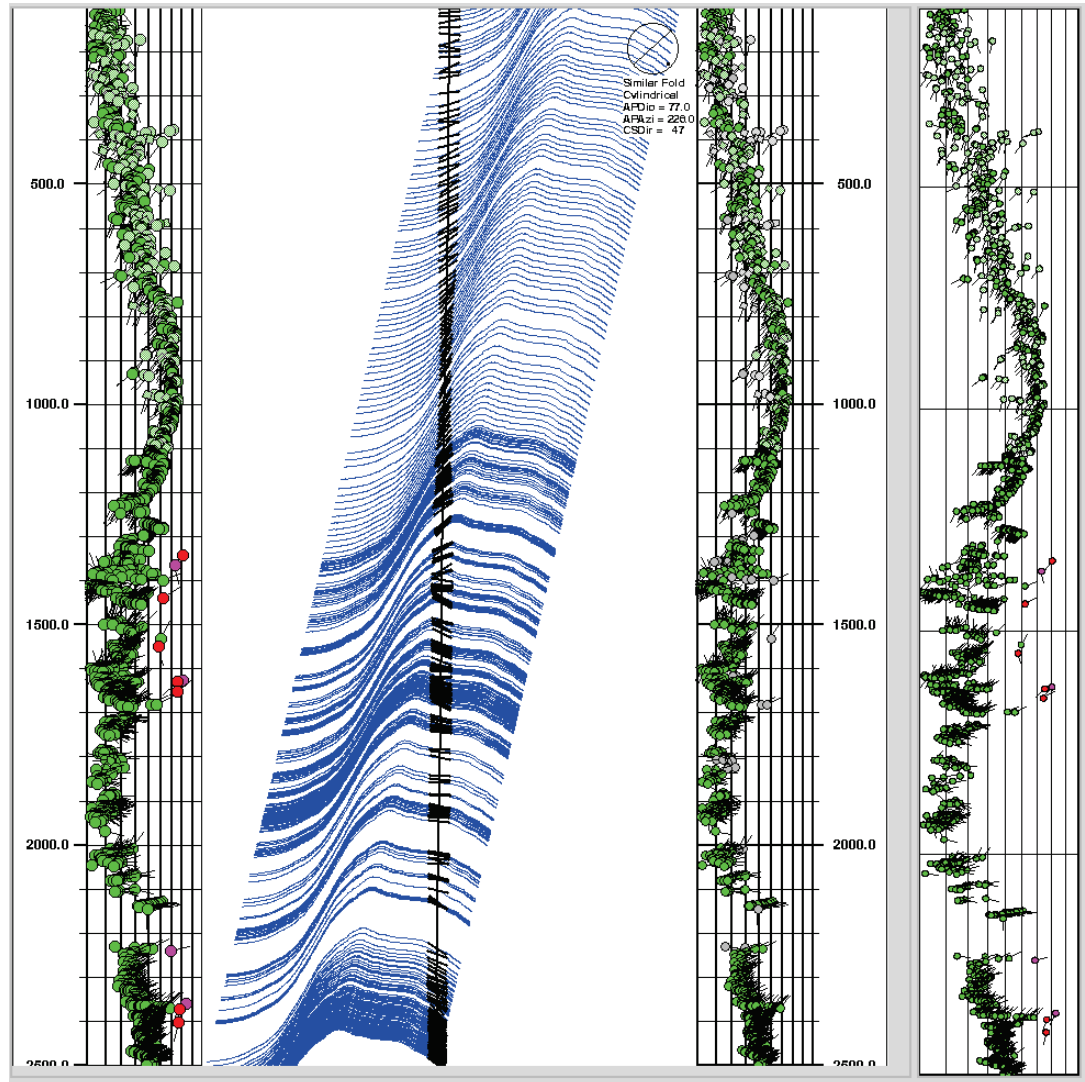
Folded & Truncated Sediments



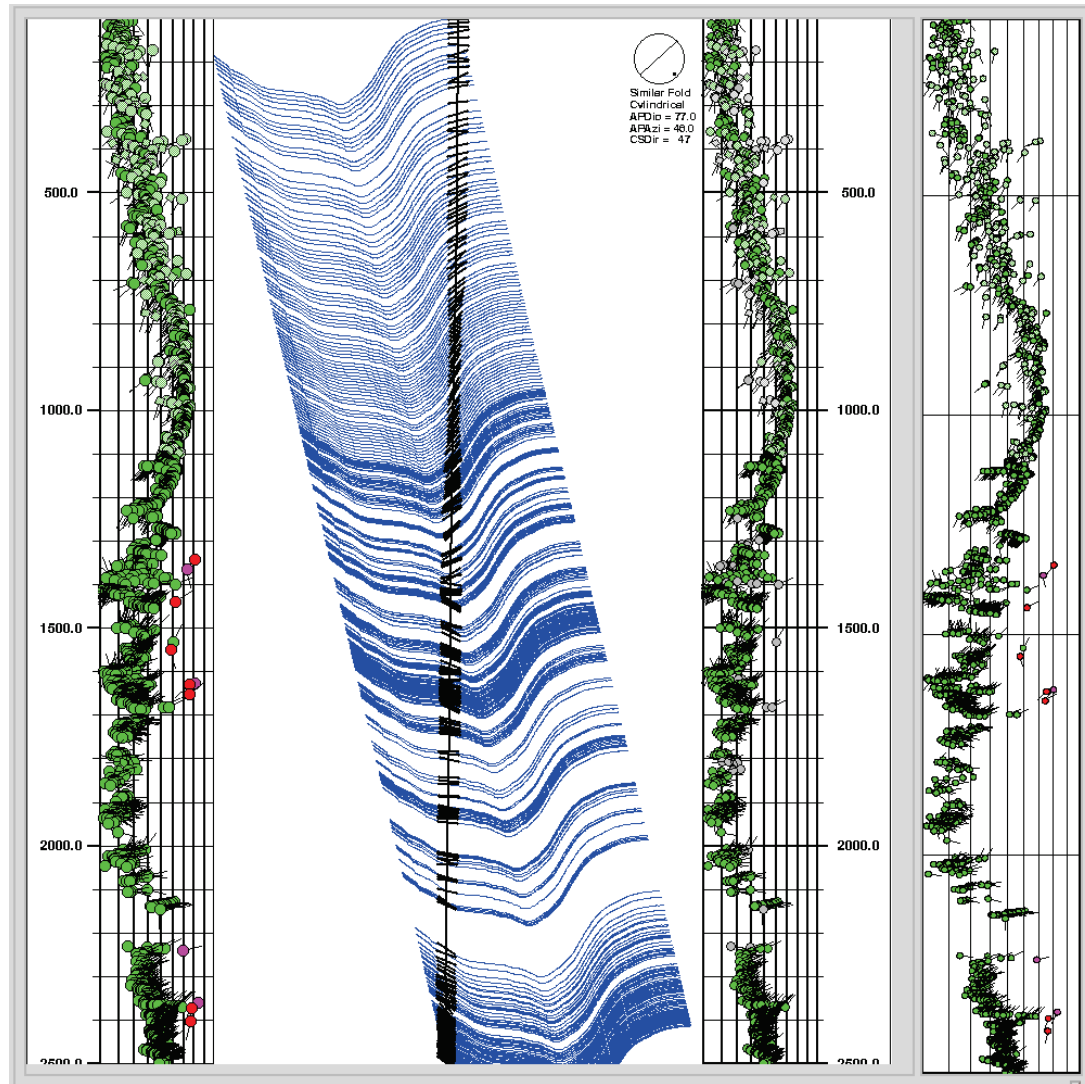
Midway Sunset



Data Processed as Anticline



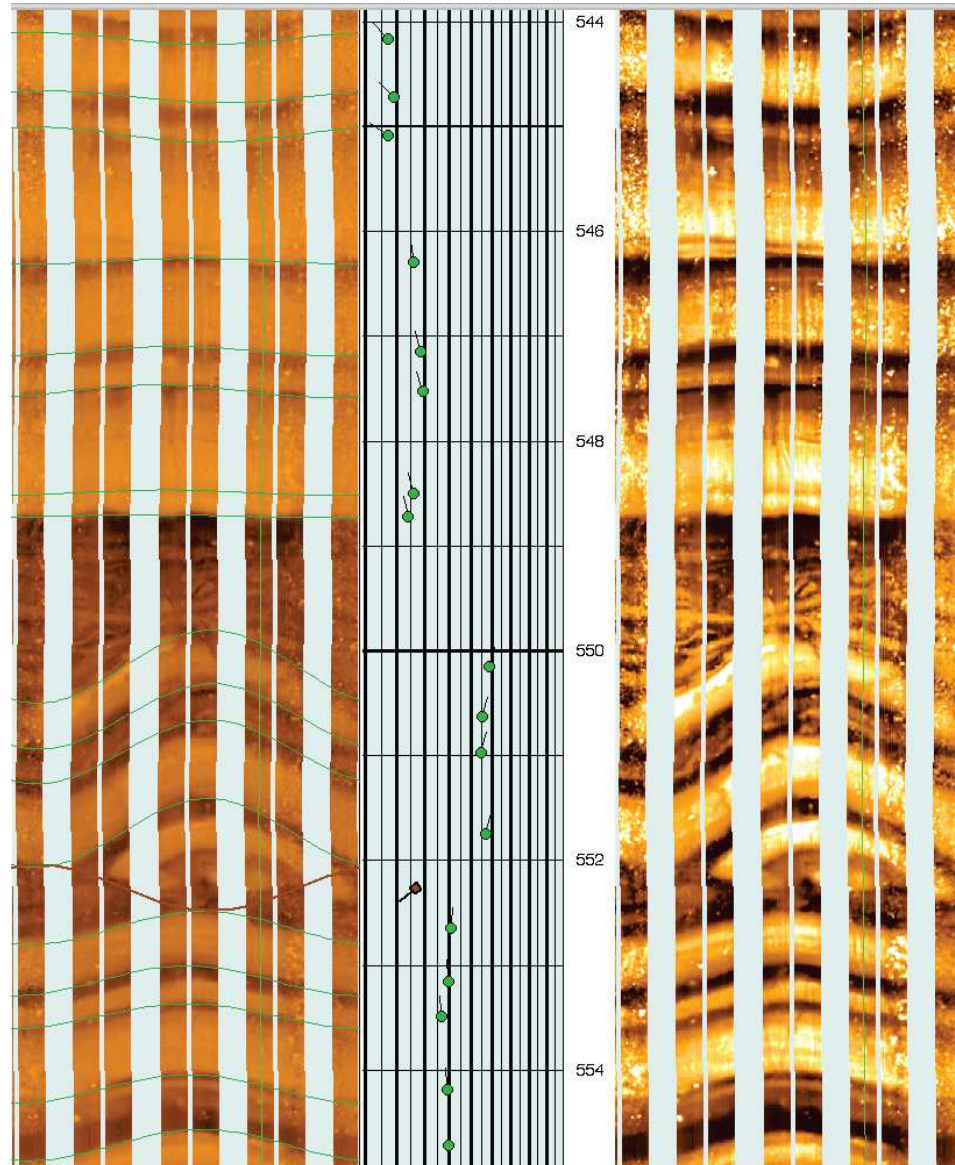
Data Processed as Syncline



Which One is it???

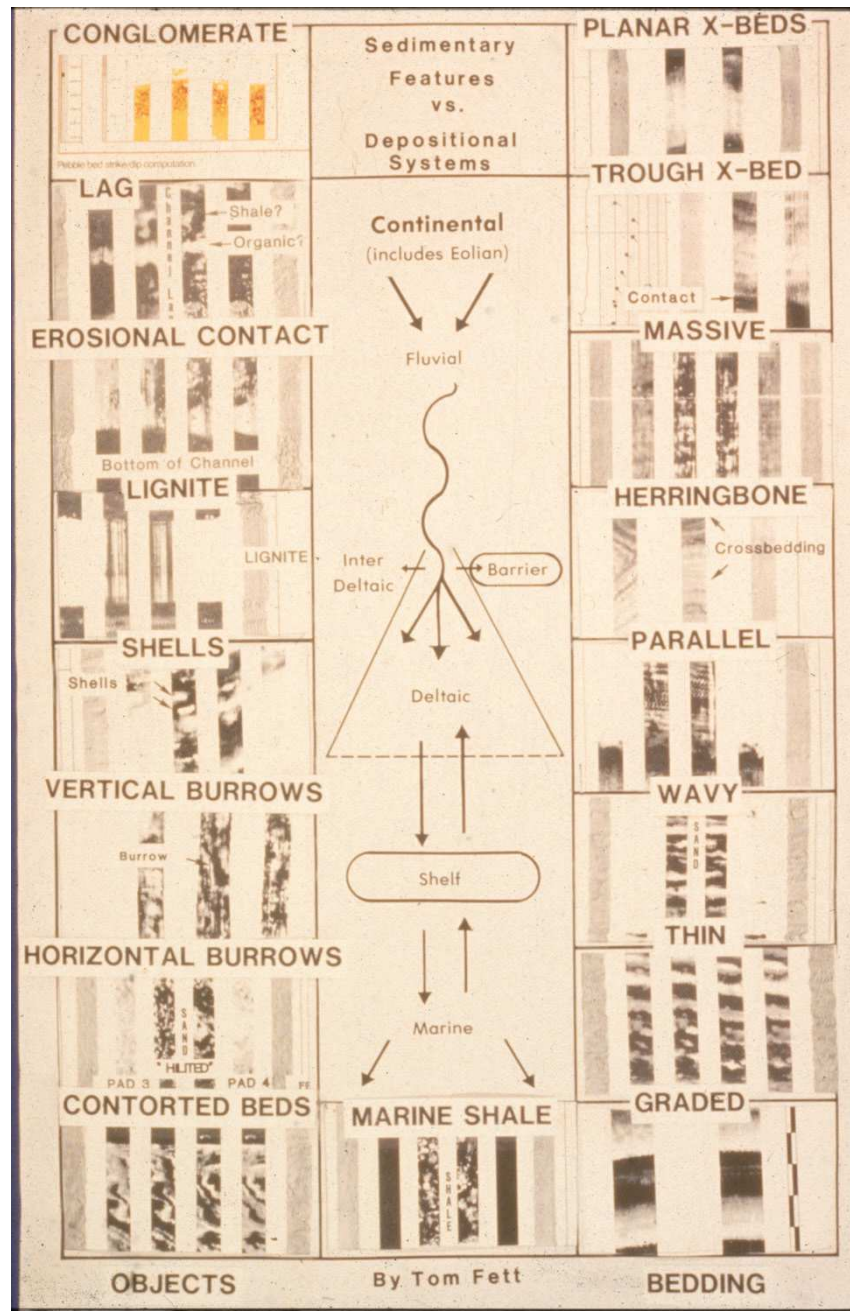


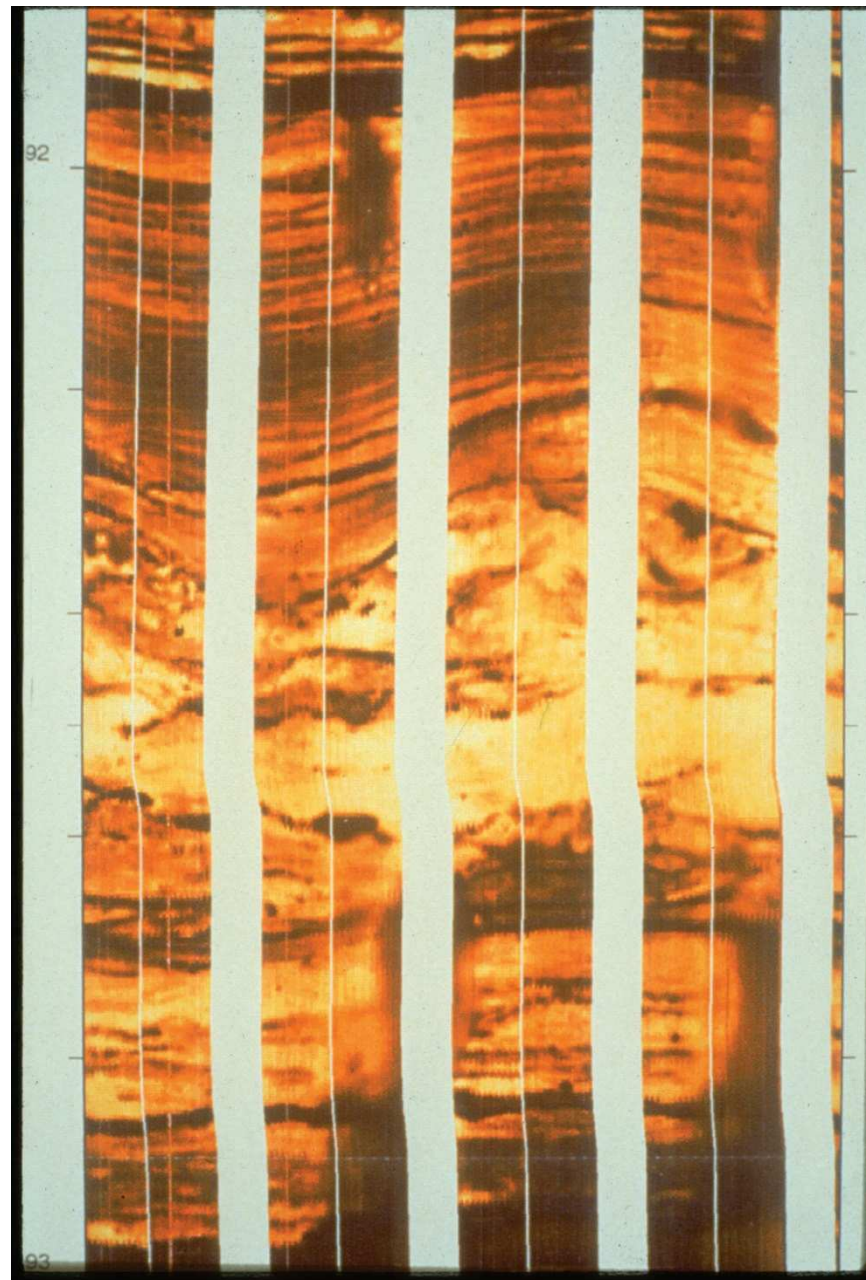
P-M Angular Unconformity



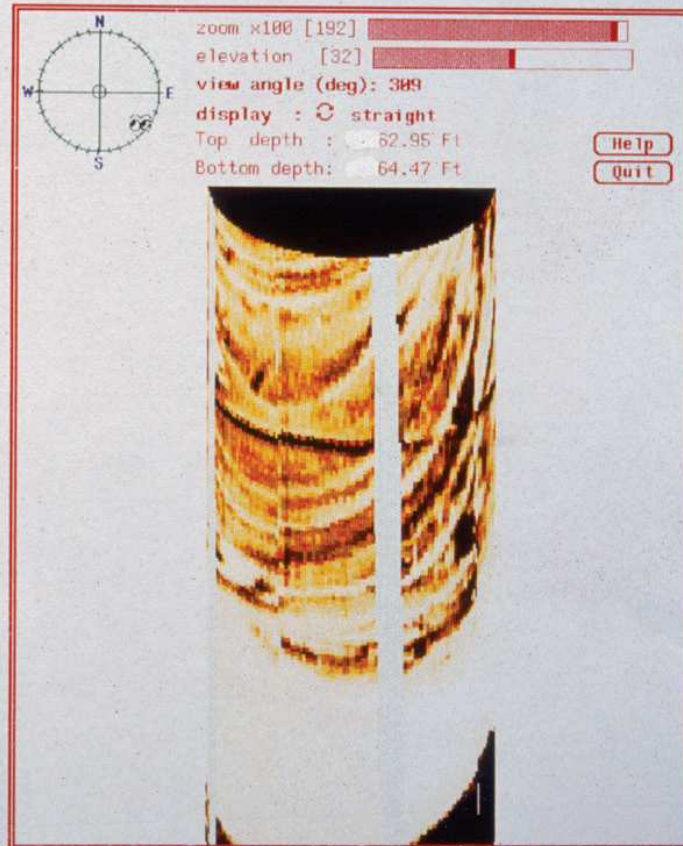
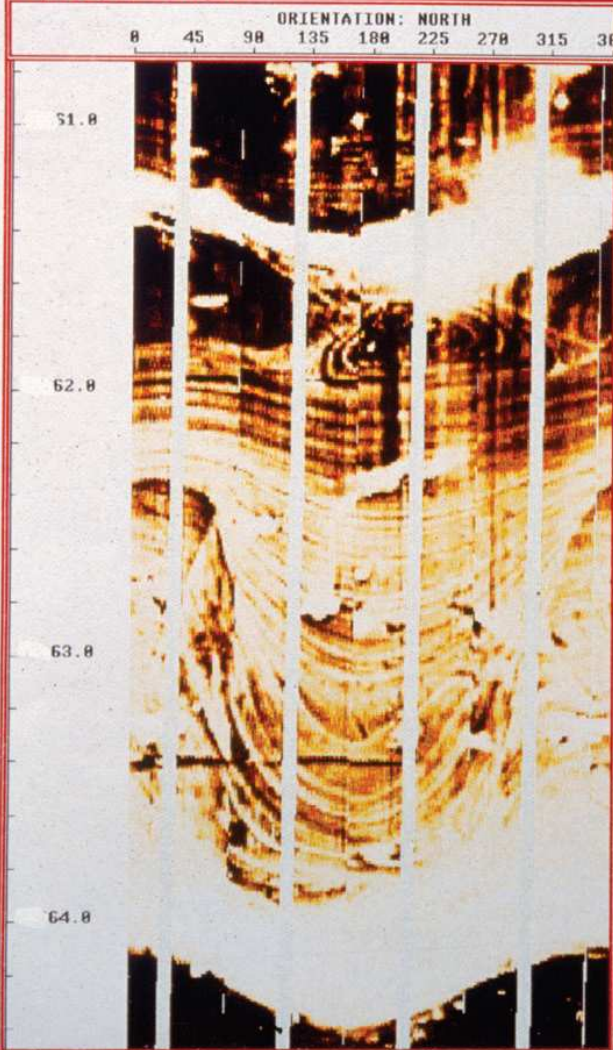
That's All Folks

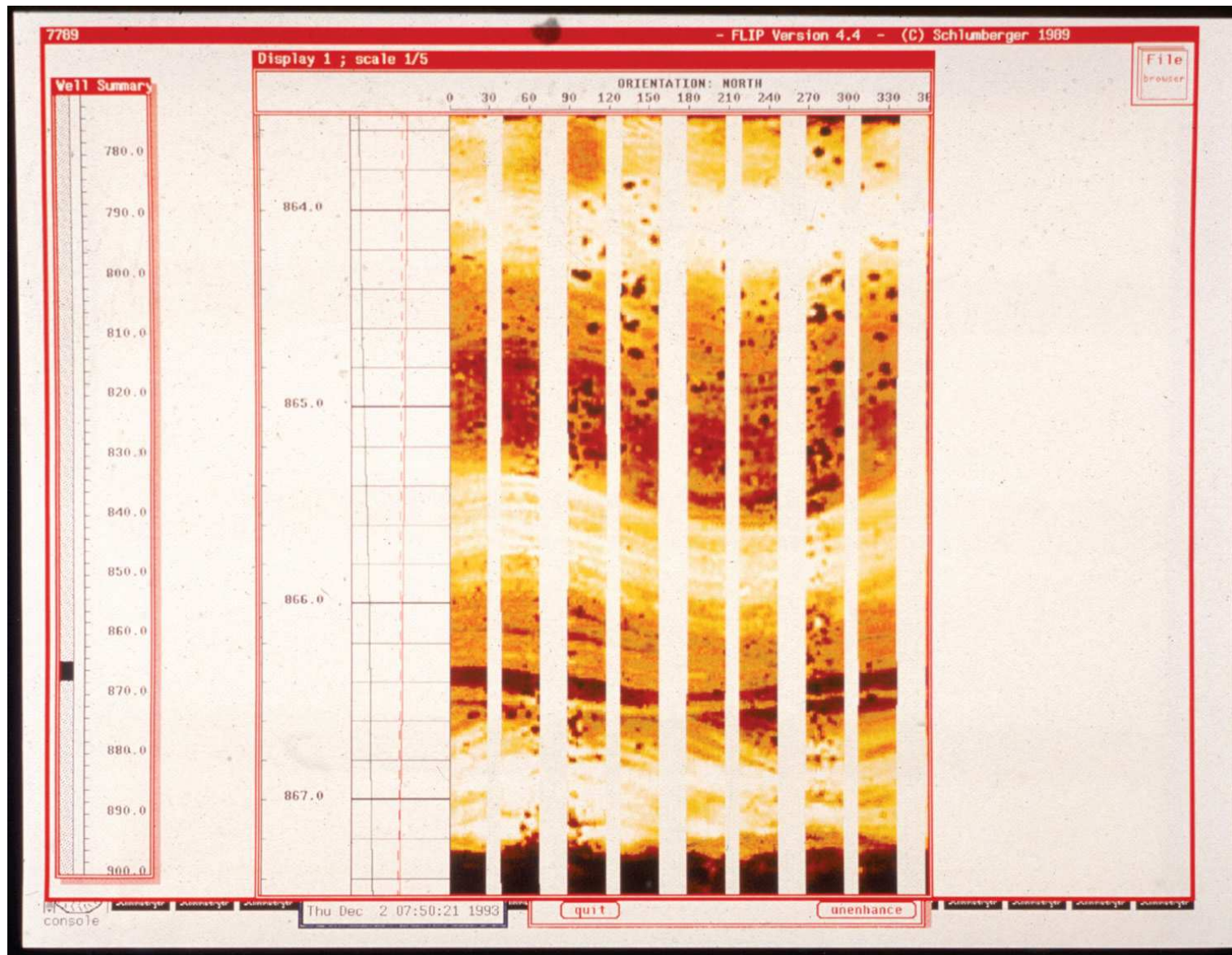






Display 1 ; scale 1/5



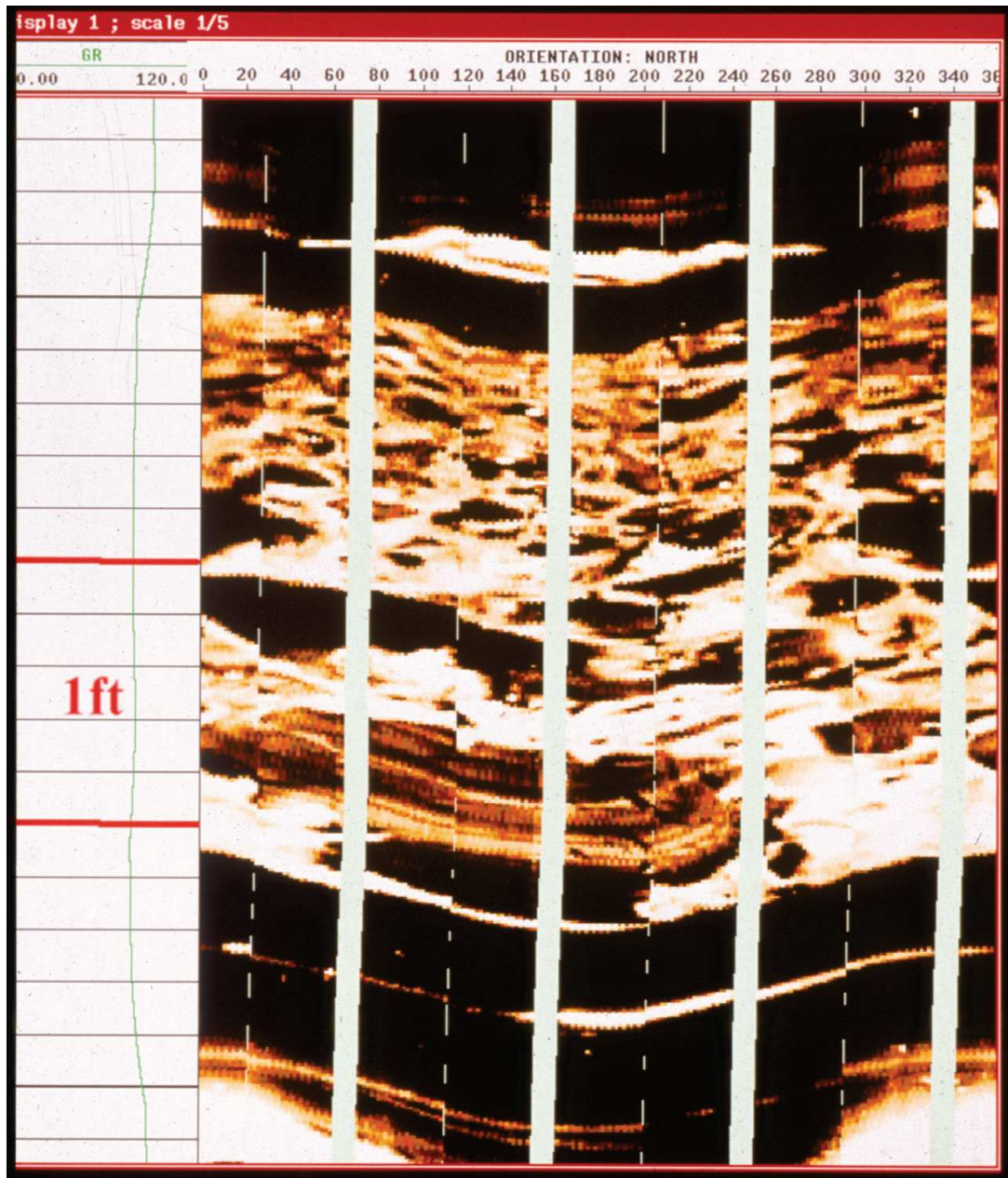




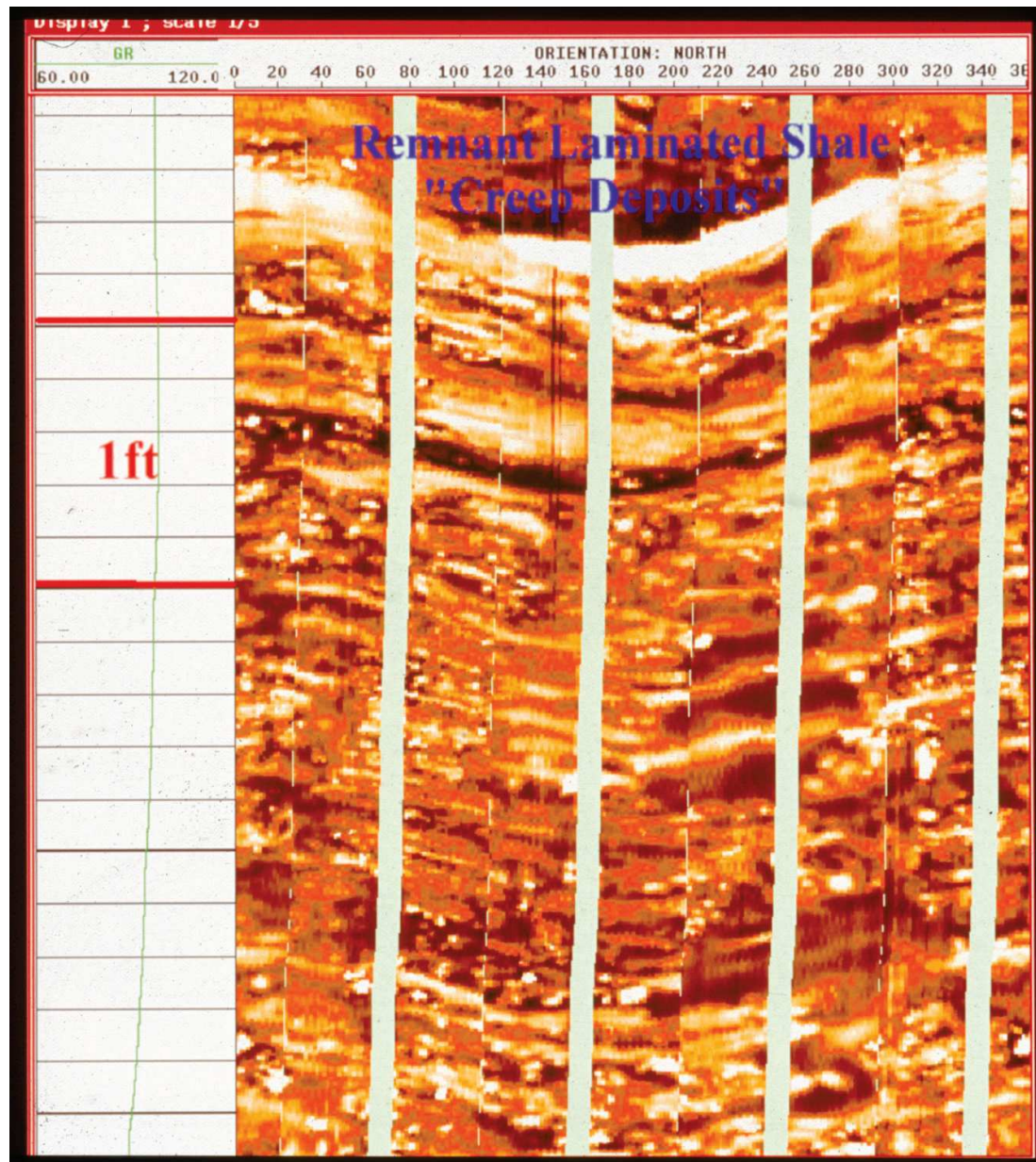


73 RJD

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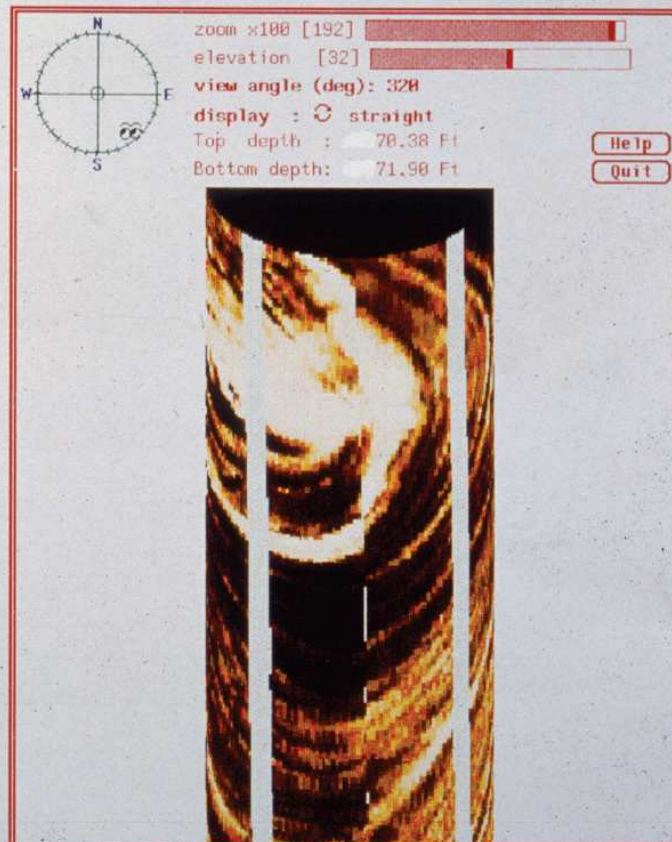
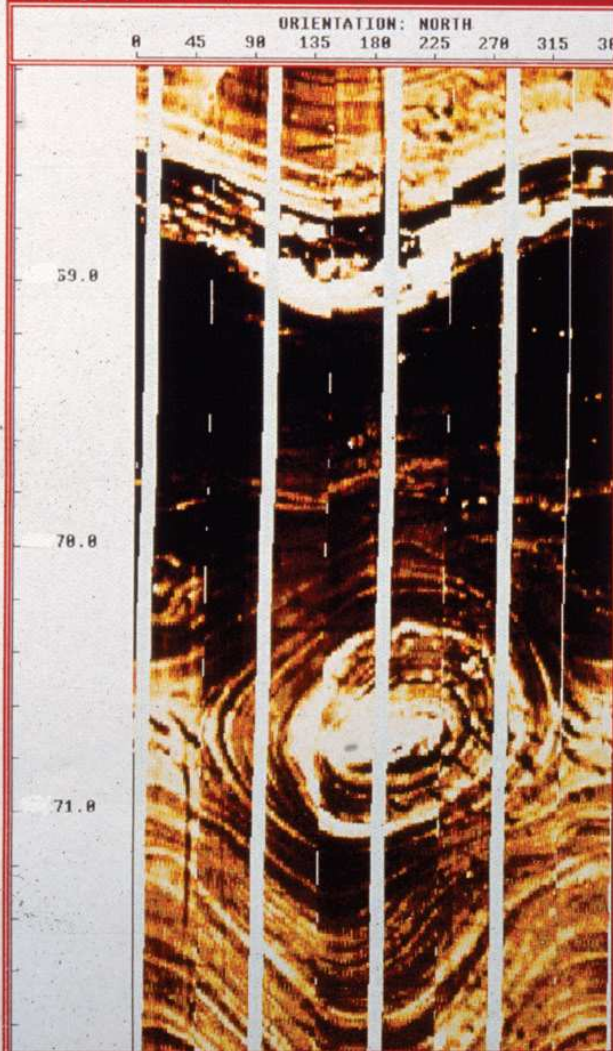








Display 1 ; scale 1/5









That's All Folks

