

Preface

After my presentation last Thursday, I realized how different my language is compared to what the CICWCD Board normally uses. For instance, Meander Scrolls are ancient channels, which channels we are mapping in Louisiana with lightning attribute maps.



Yes, I think it is possible water witches are picking up on the same shallow-earth currents which DML has demonstrated control lightning strike location. I am not aware of a way to scientifically demonstrate this, other than the obvious success some water witches, like Eldon Schmutz, have had over long periods of time.

Methane is very resistive in the subsurface, and as it seeps into the atmosphere, it becomes electrostatically charged and lowers the dielectric constant of the atmosphere (making the atmosphere more conductive). Resistivity (impedance to electric flow) and permittivity (the property of a material allowing it to store an electric charge) are electrical measurements of rocks or geologic layers, which properties DML calculates from lightning databases.

Some other terms I used, which you may not be familiar with, include: faults (breaks in layers of rock similar to a vertical crack through a stack of glass); stratigraphy (horizontal layers of sedimentary rocks); lithology (the type of rock, e.g. sandstone, limestone, clay, volcanic rock, iron ore, etc.); fluids (oil, gas, fresh water, brines, geothermal water, etc.). So I wrote these notes out for each page, hoping it helps get my message across.

Lastly, geologists explain concepts by showing examples of modern processes or examples from other places, where these examples demonstrate the concept being presented. These examples are an analog. So an analog map, is an example map pattern, which when this pattern is found elsewhere predicts similar geology.



Optimizing West Desert Drilling Locations with Maps and Rock Property Volumes derived from Lightning Databases

H. Roice Nelson, Jr.

18 June 2015

Lightning recorded for early storm warning, safety, **insurance**, and meteorological purposes



Dead Cattle along a fence



Lightning Strikes Cluster in Time and Space



Lightning density regionally controlled by meteorology, and locally controlled by terralevis (shallow earth) currents.

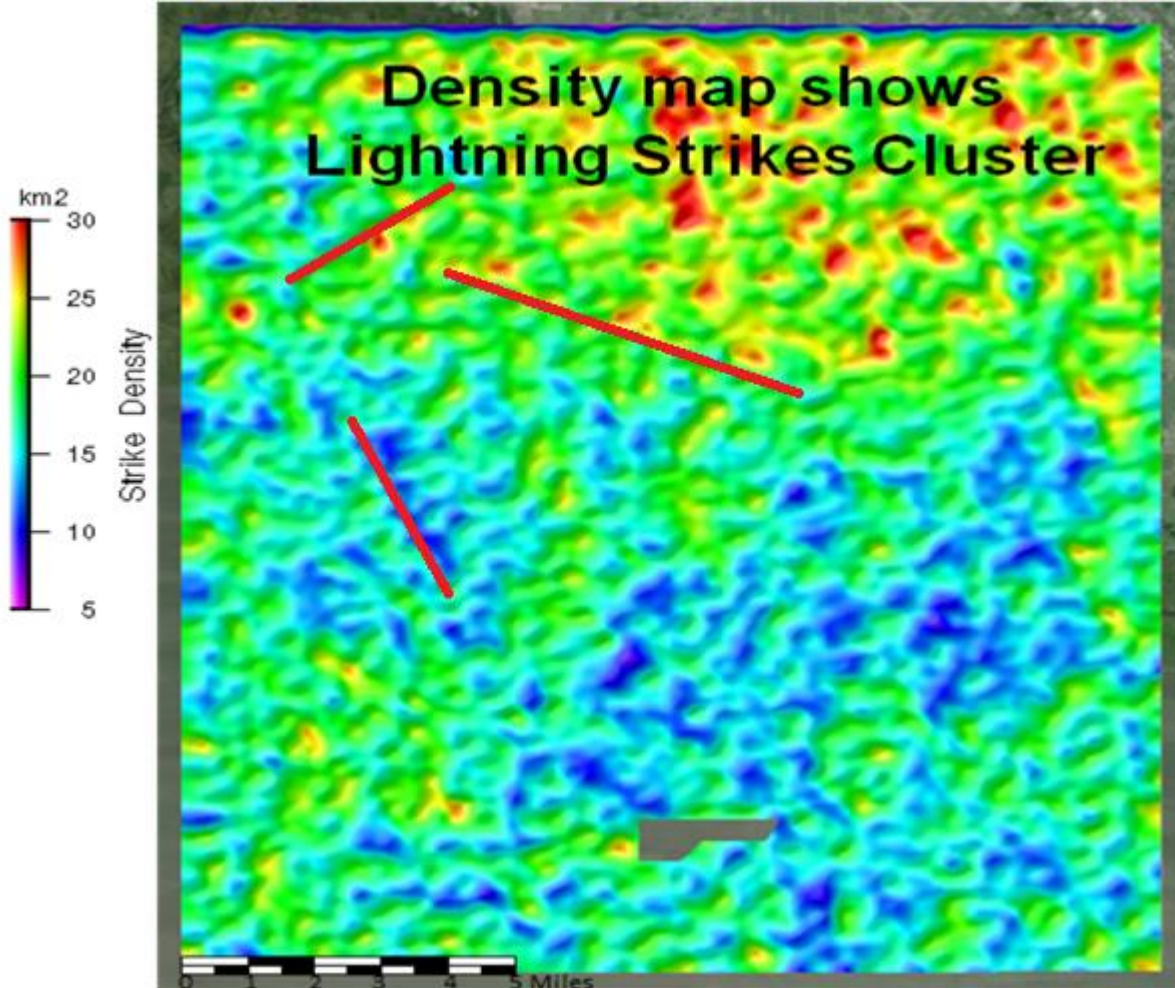
1997 to 2007 Cloud-to-Ground Flash Density



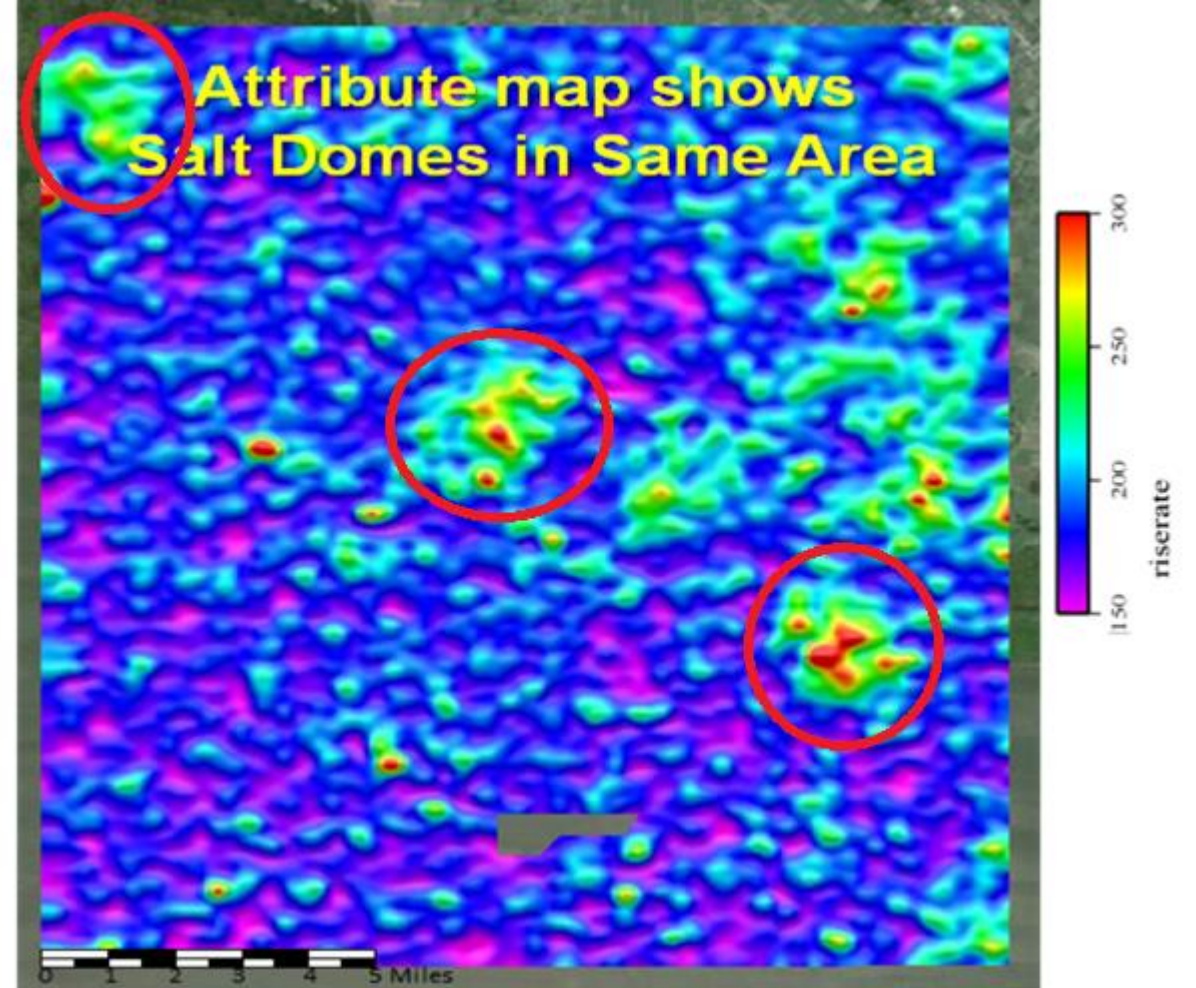
Patented Lightning Data Analysis shows strikes are tied to geology



Density map shows Lightning Strikes Cluster

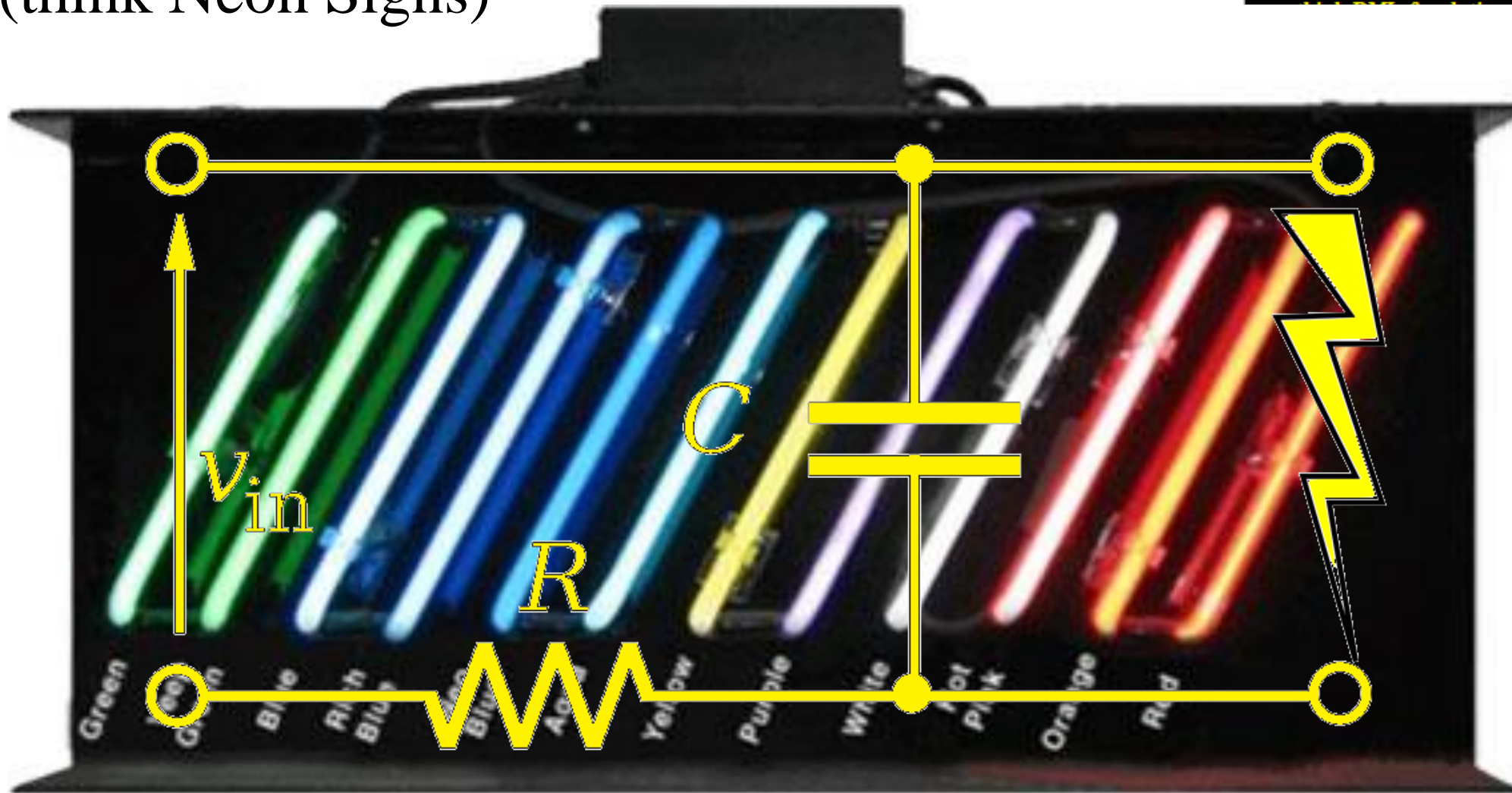


Attribute map shows Salt Domes in Same Area



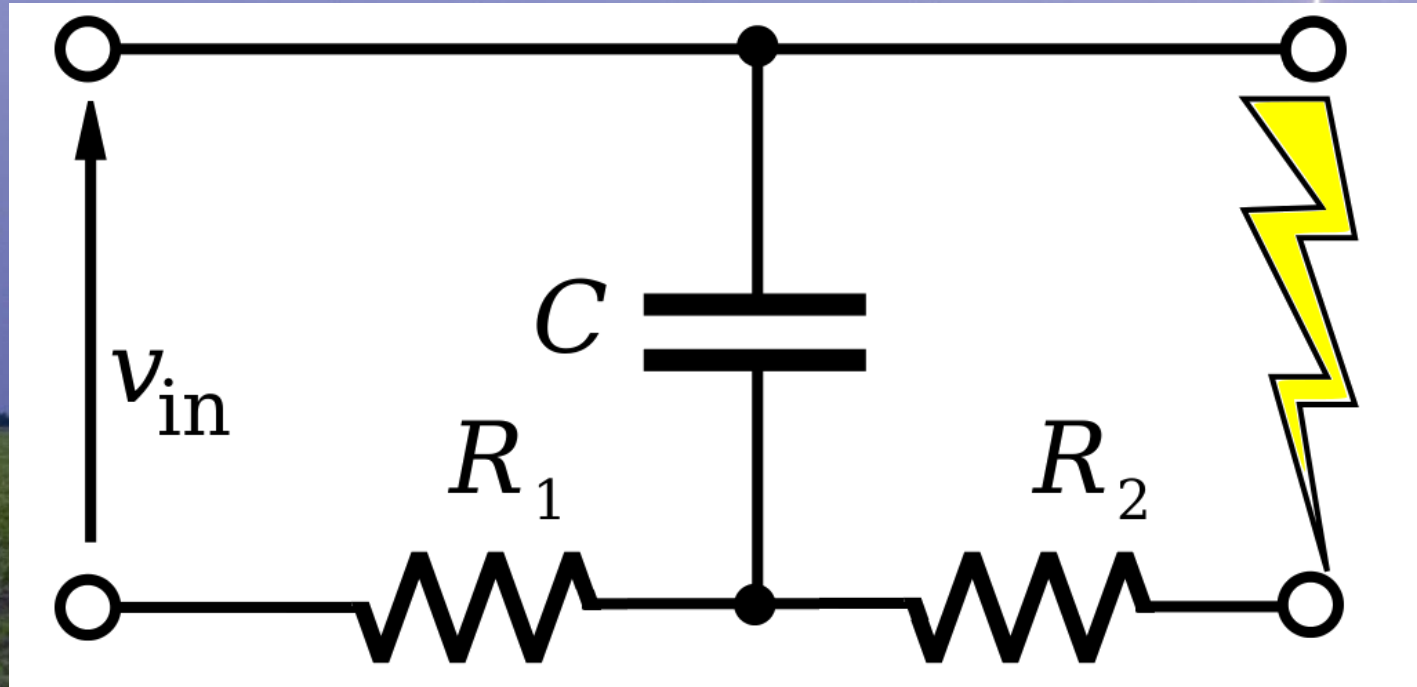
Relaxation Oscillator Physics

(think Neon Signs)



Lightning bridges a Natural Capacitor

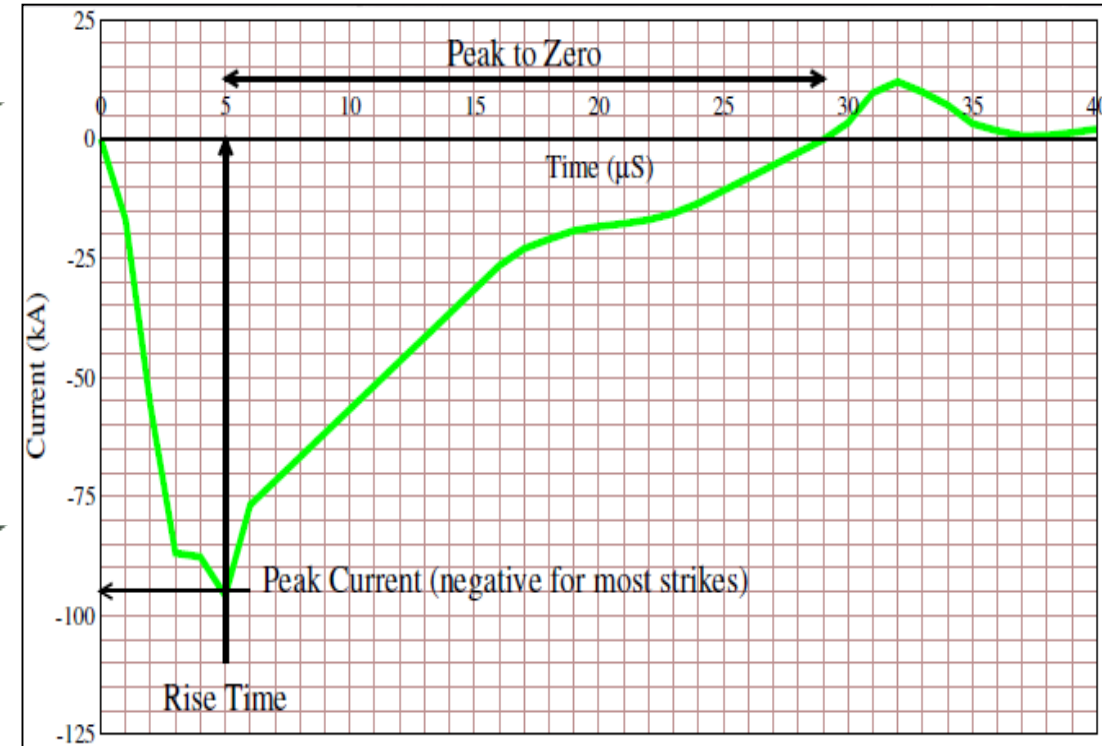
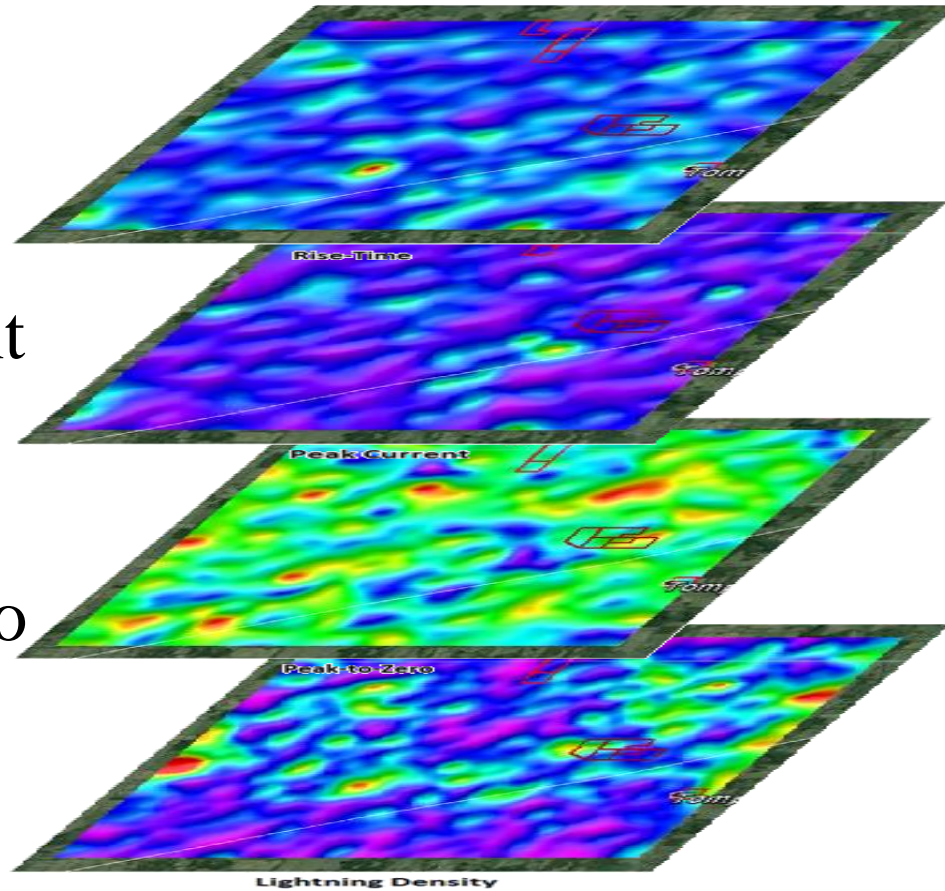
- The atmospheric capacitor is nearly the same physics
- Just an additional resistance (R_2) limiting the current
- R_2 is the resistance between the lightning strike point and the bottom plate of the capacitor



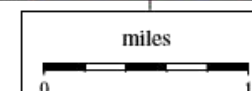
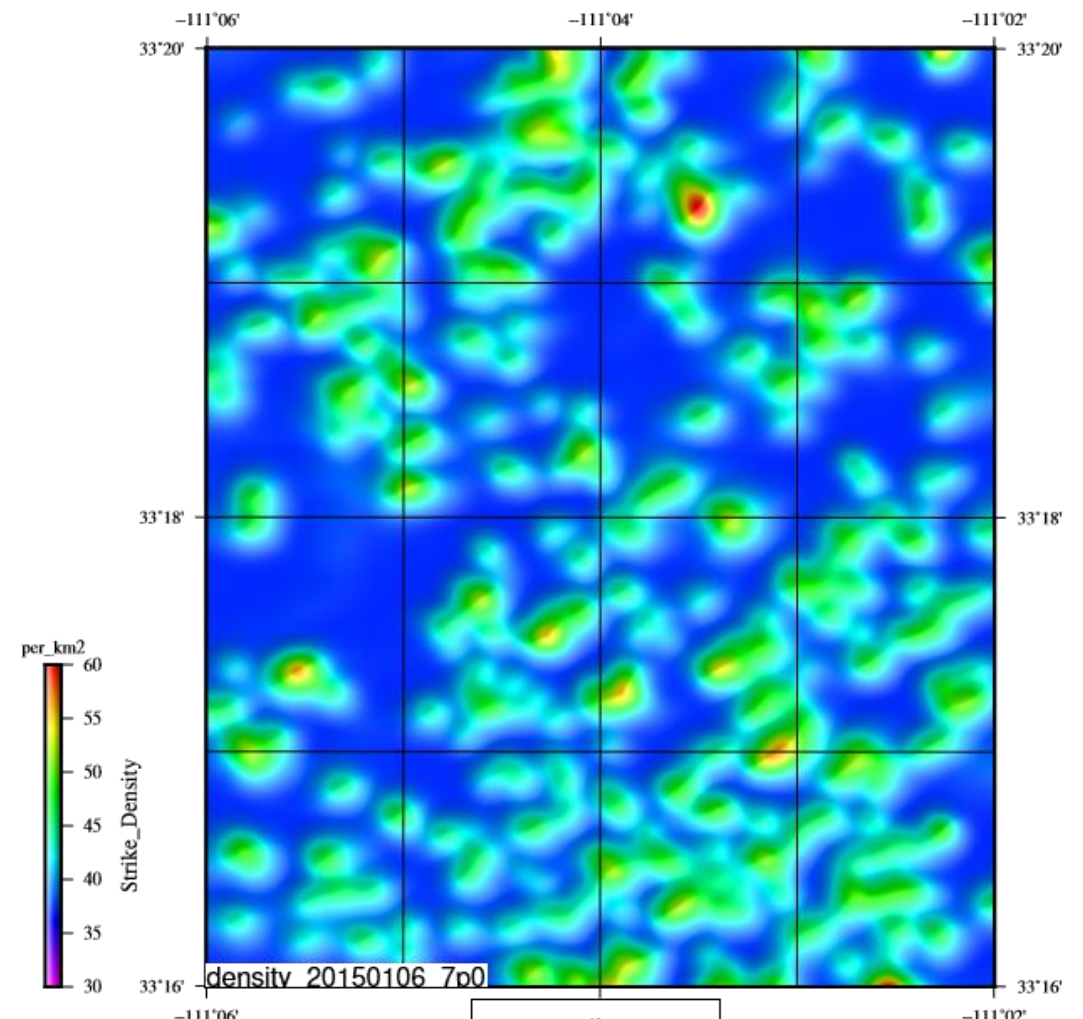
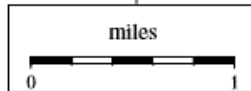
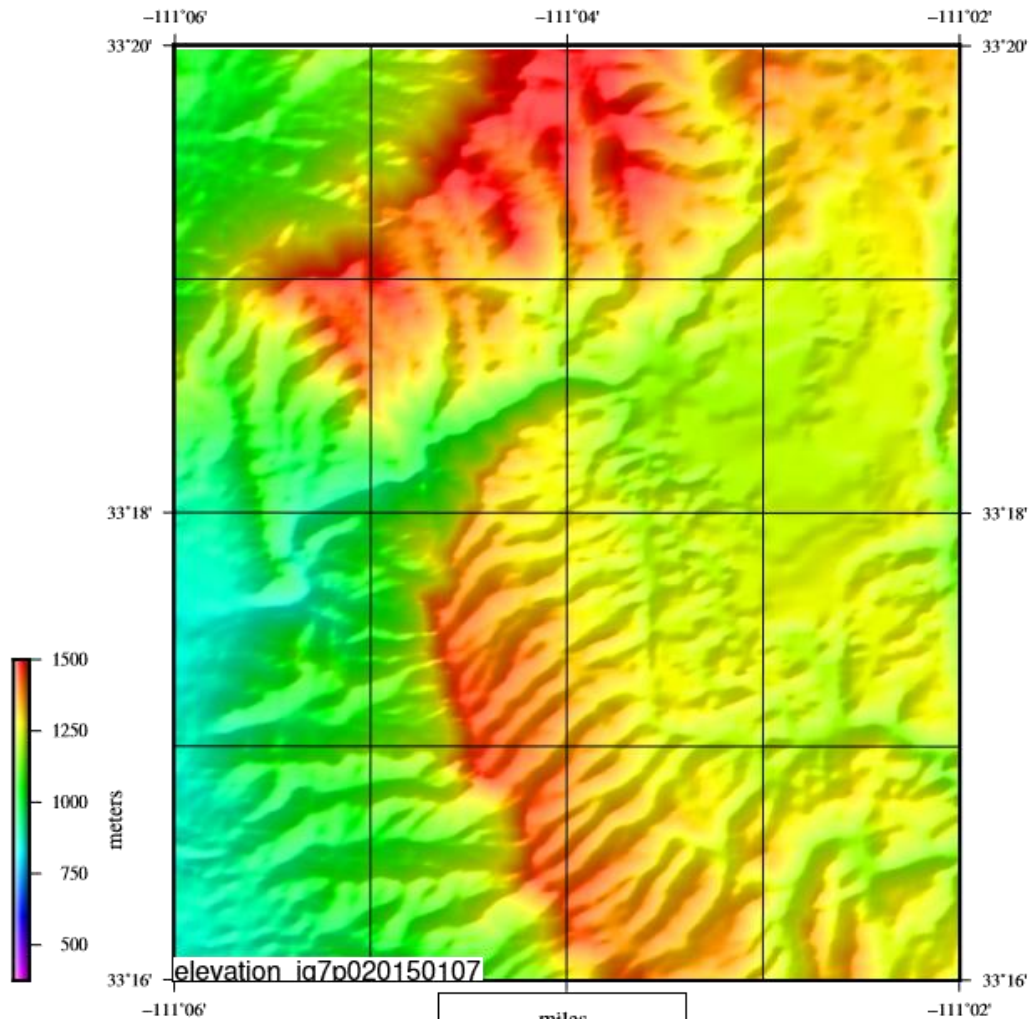
Lightning Strike Measurements



- Location
- Time and Duration
- Rise Time
- Peak Current
- Polarity
- Peak-to-Zero
- Density



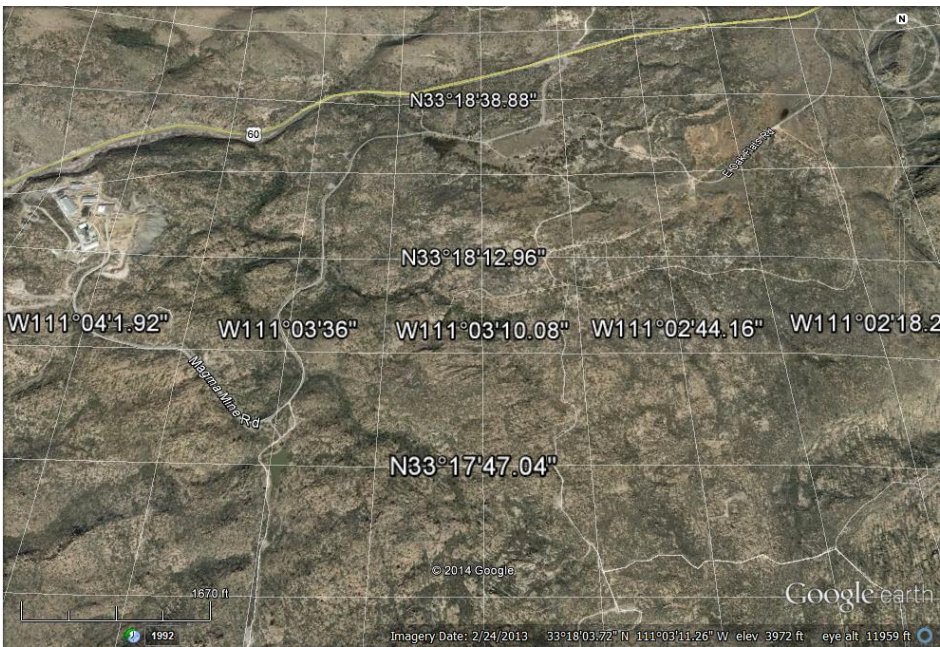
Topography and Lightning Density, Arizona



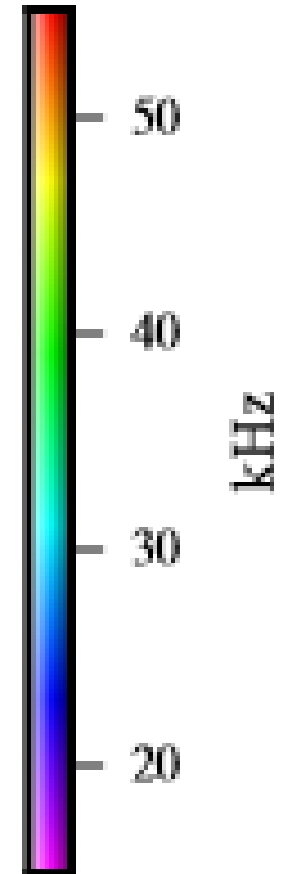
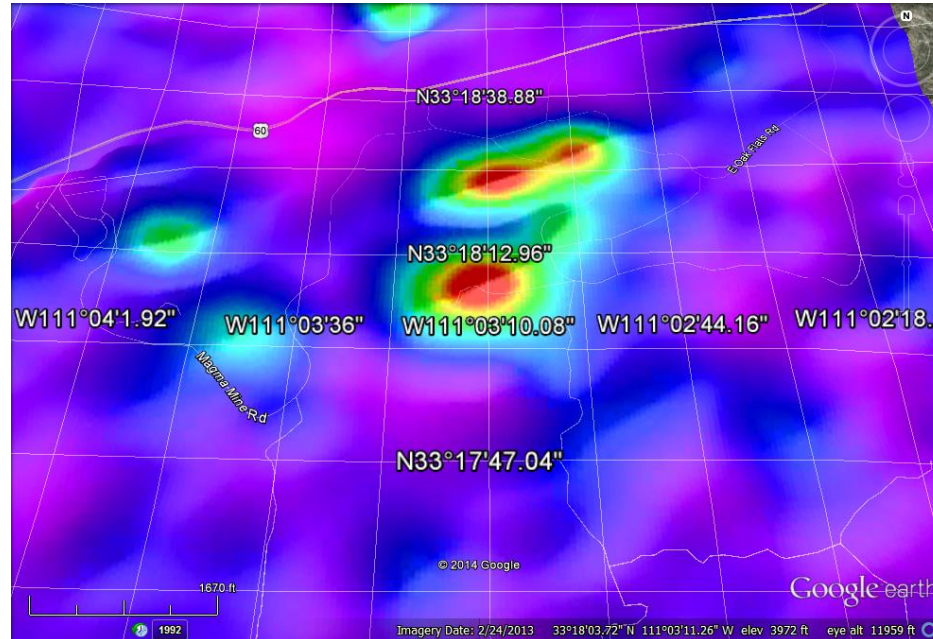
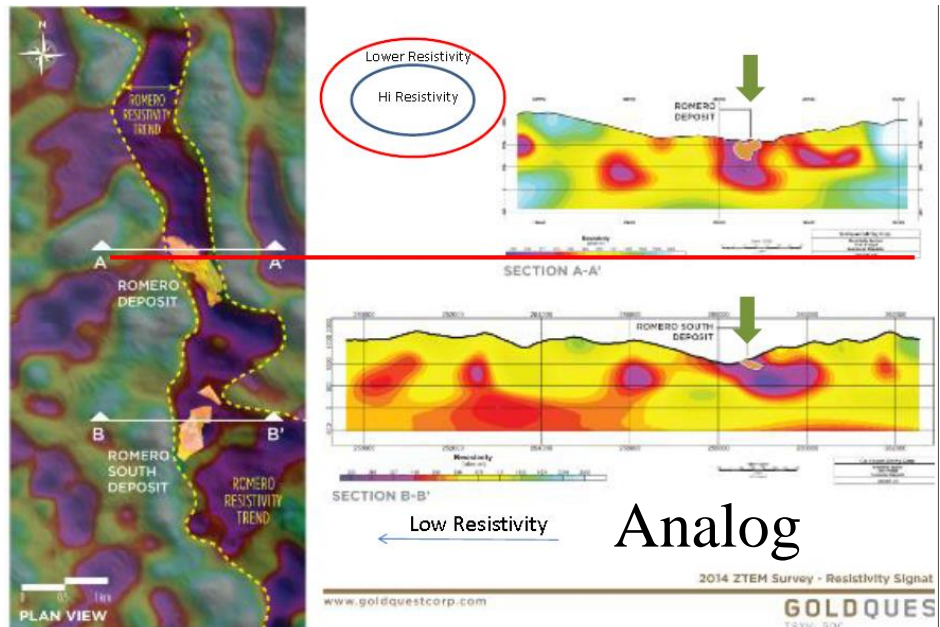
18-Jun-2015

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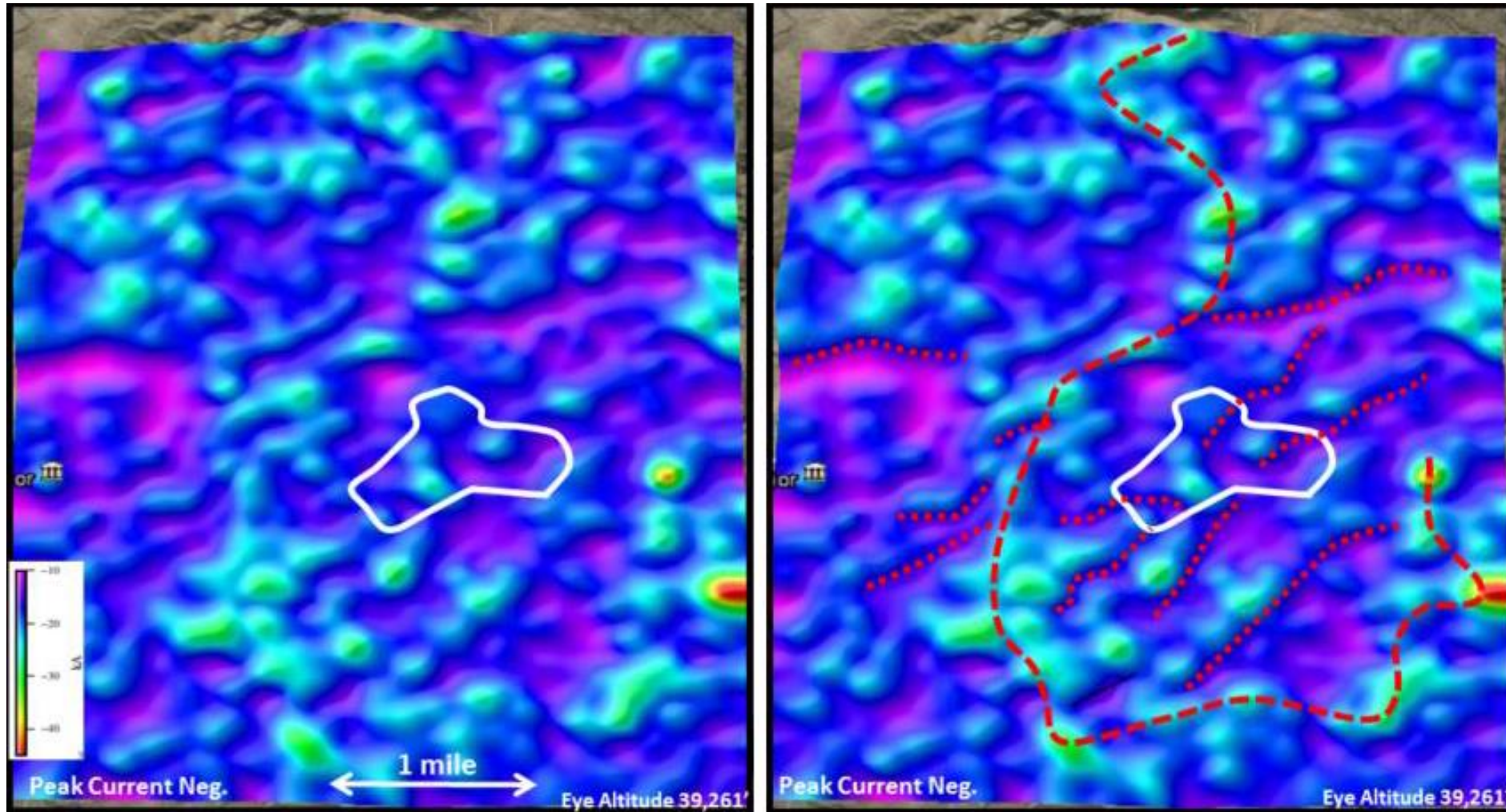
CICWCD 9



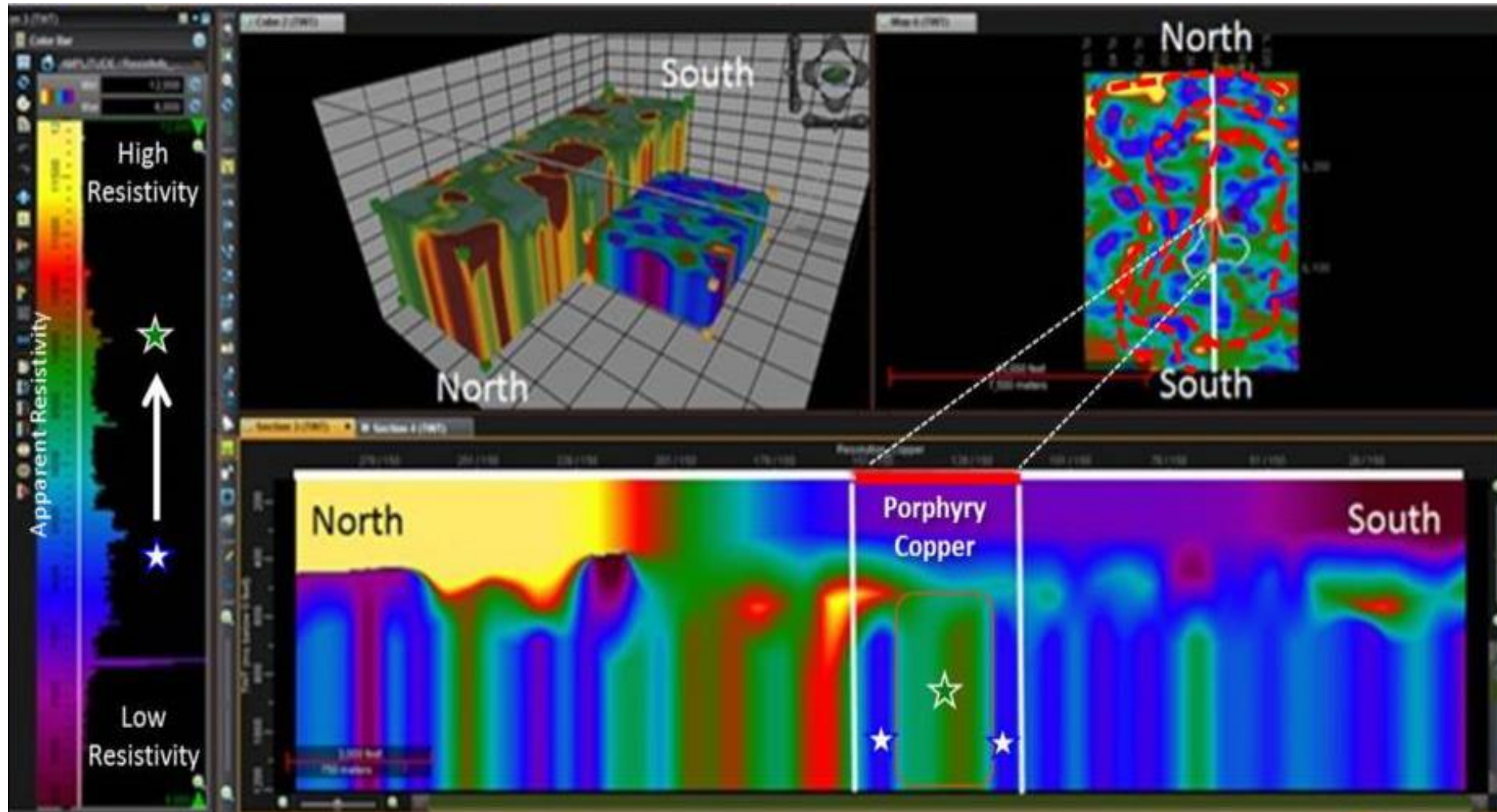
Lightning Attribute Maps are related to a major copper mine being developed in Arizona



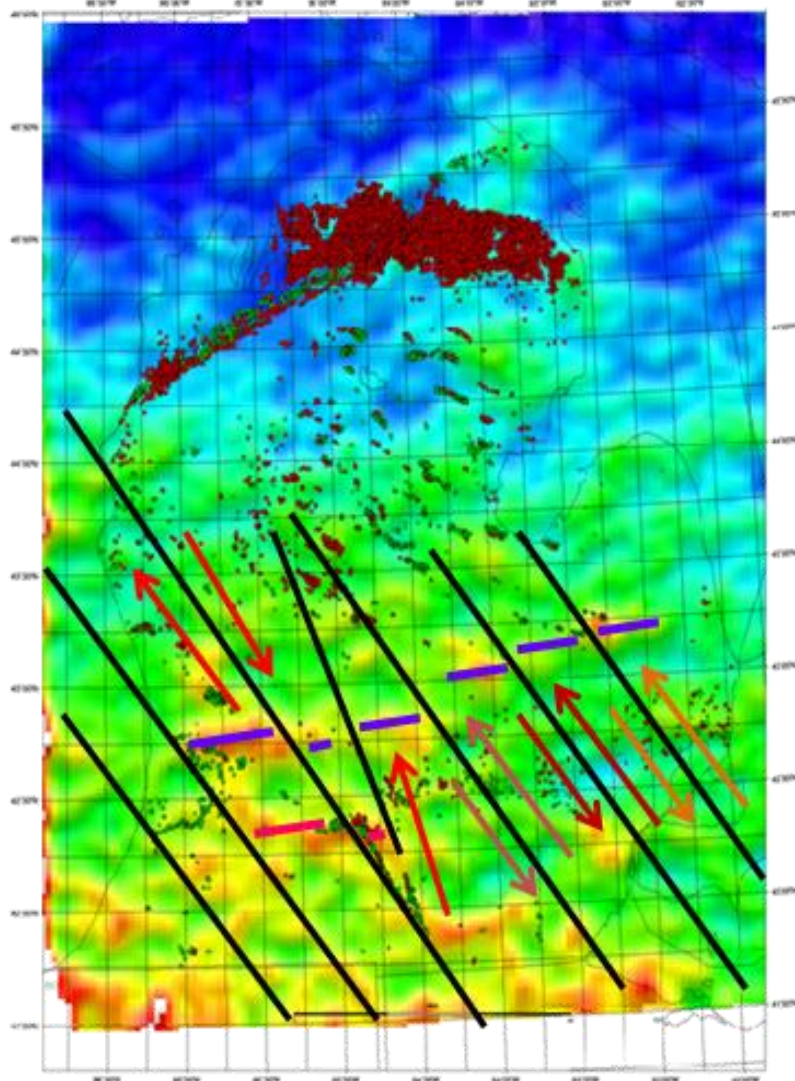
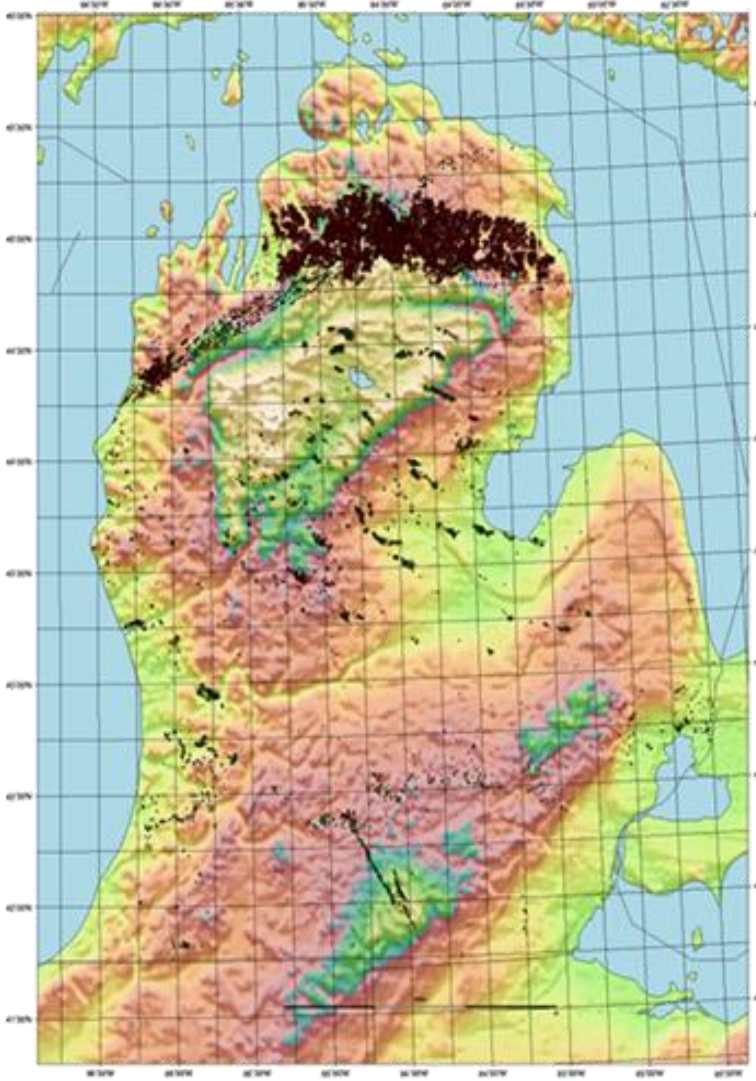
Resolution Copper Mine Thermal-Halos interpreted from Lightning Data



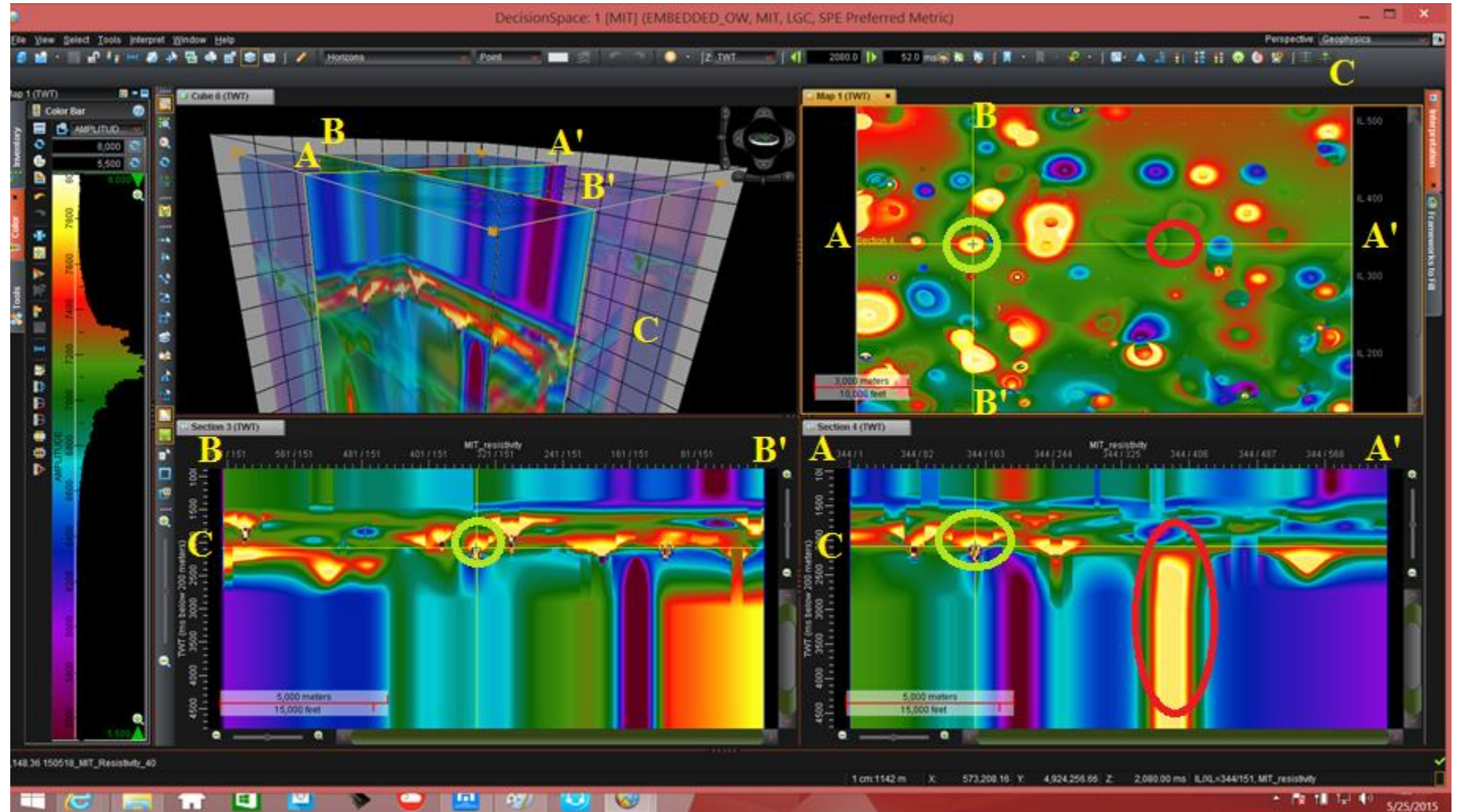
Resistivity & Permittivity Volumes Resolution Copper Mine, Arizona



Michigan Basin Topography & Strike Density



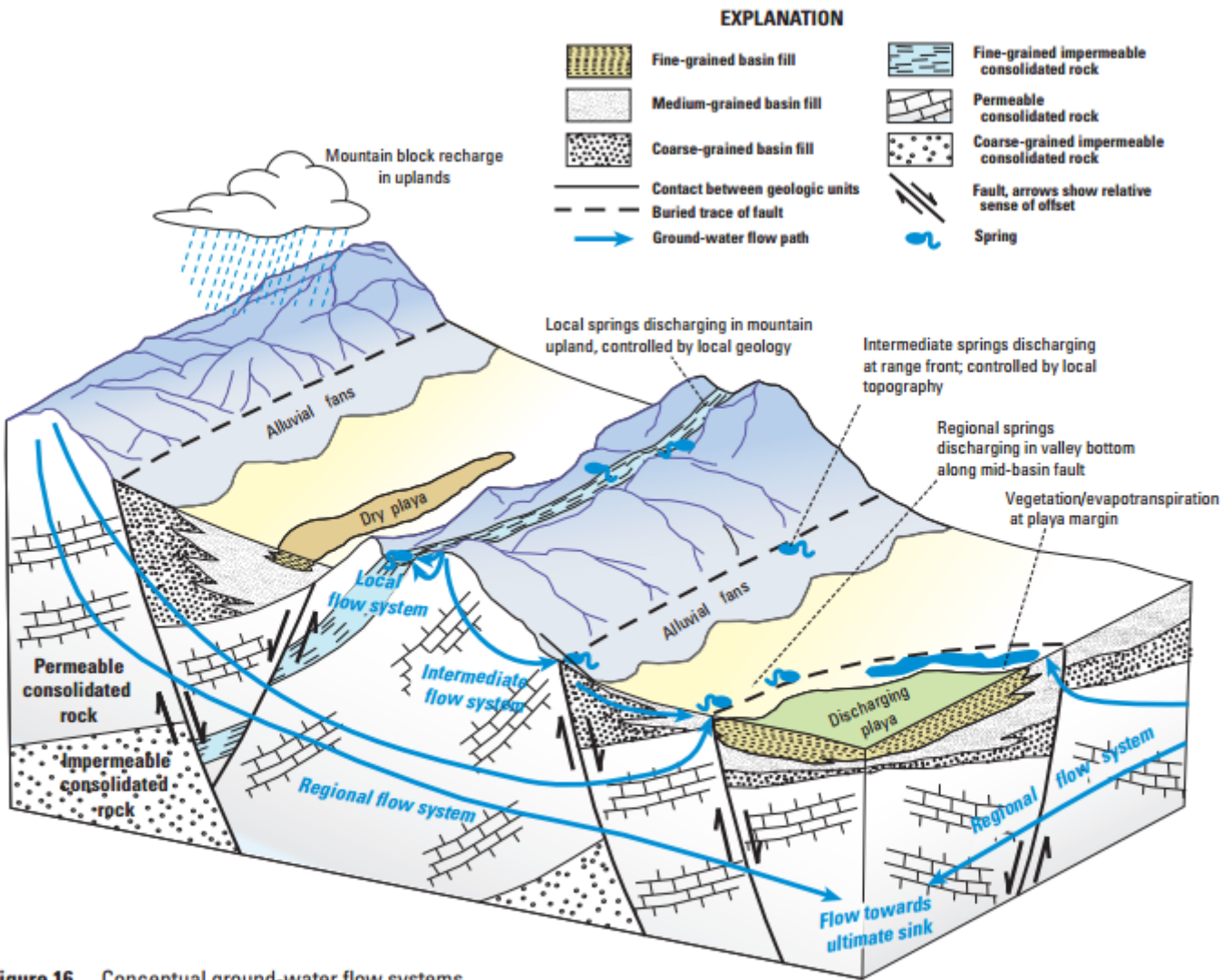
Michigan Limestone Reefs & Resistivity Volumes



15-Jun-16

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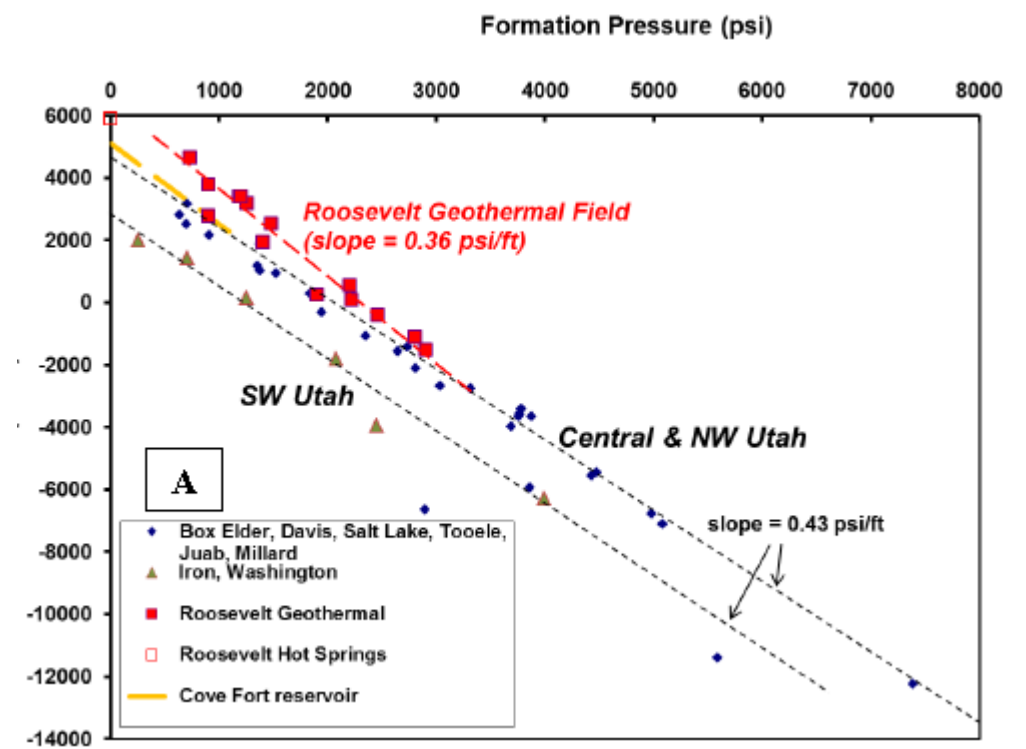
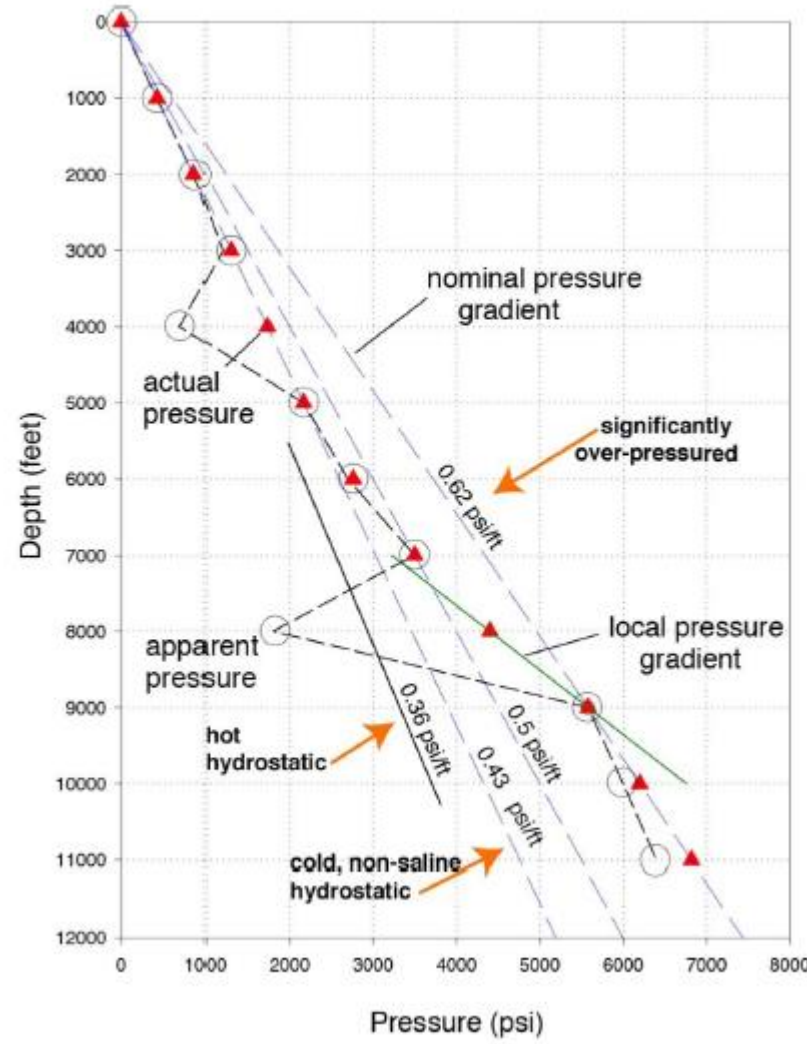
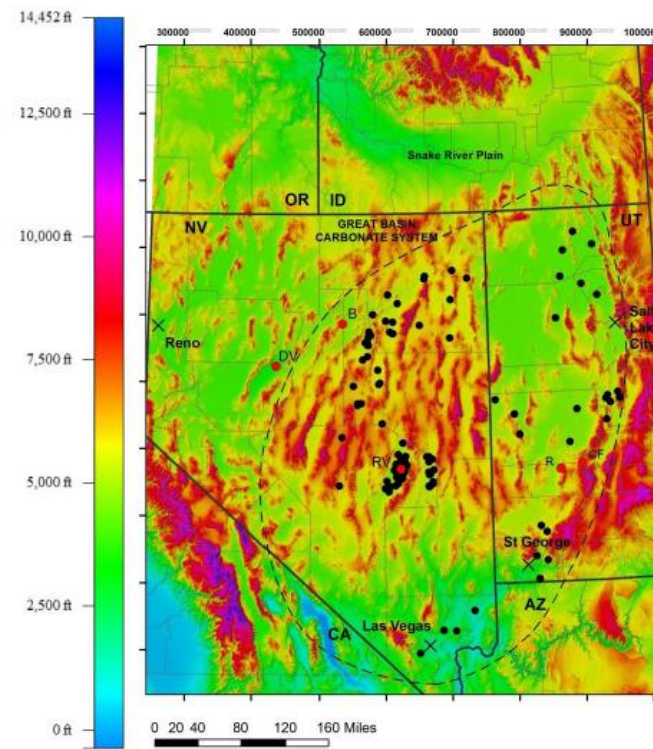


Carbonate Aquifers in Pine Valley & Wah Wah Valley

Figure 16. Conceptual ground-water flow systems.

**Water Resources of the Basin and Range Carbonate-Rock
Aquifer System, White Pine County, Nevada, and Adjacent
Areas in Nevada and Utah—Draft Report USGS**

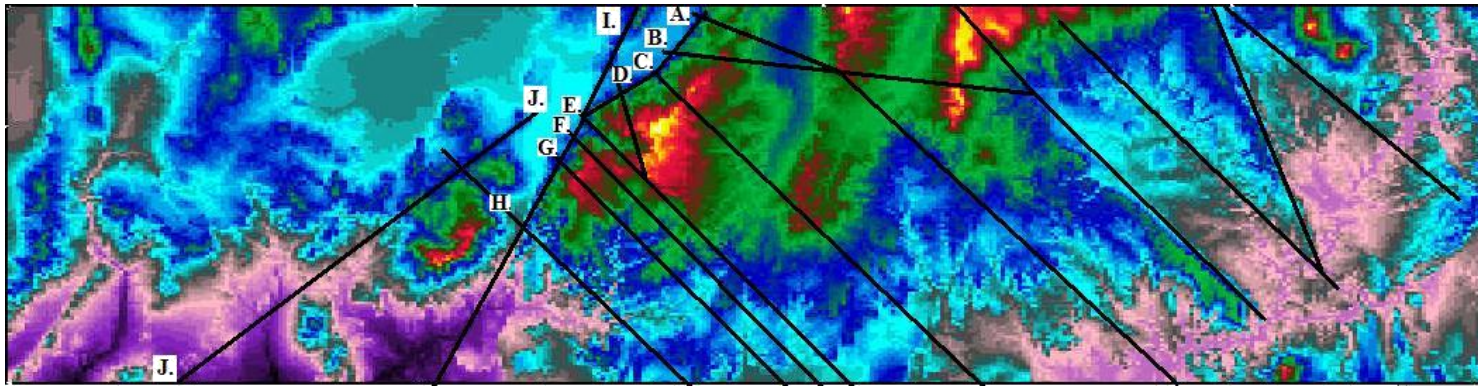
Iron County: lower than normal hydrostatic pressure



Formation Pressure as a Potential Indicator of High Stratigraphic Permeability
Rick Allis
Utah Geological Survey

Faults Draining to Grand Canyon

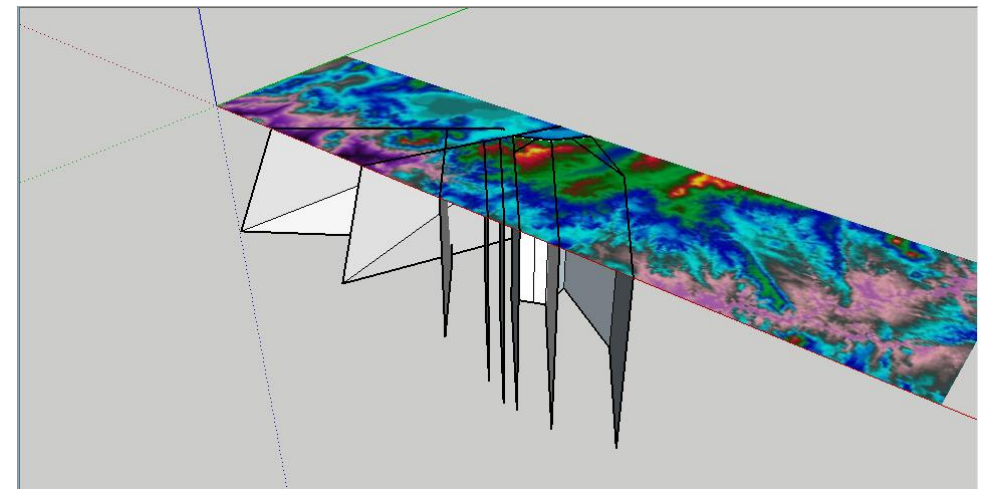
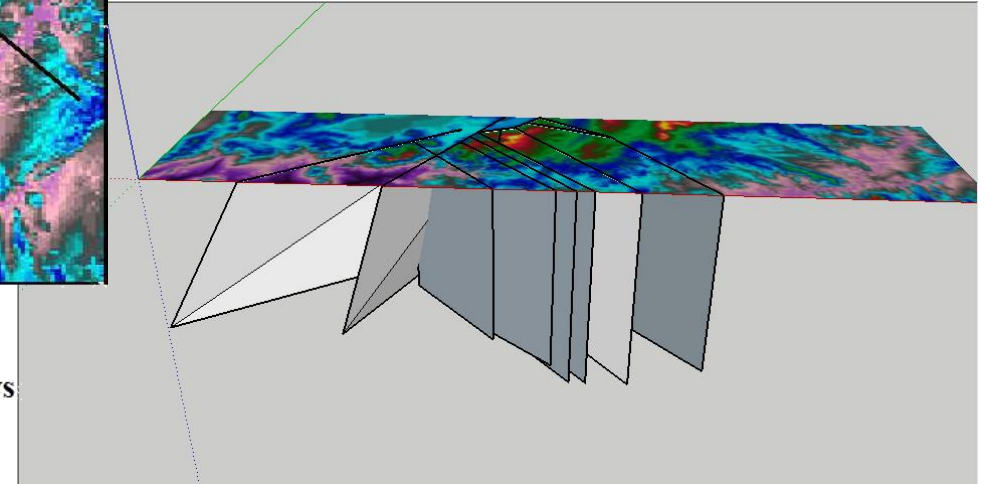
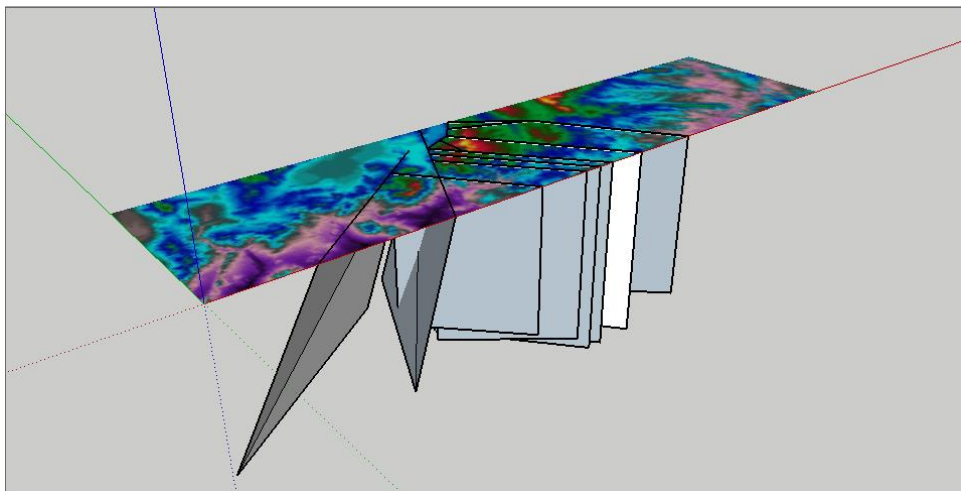
Lower Hydrostatic Pressure



- A. Paragonah Canyon
- B. Parowan Canyon
- C. Summit Canyon
- D. Fiddlers Canyon
- E. Cedar Canyon
- F. Kararaville Canyon

- G. Five Fingers
- H. New Harmony
- I. Hurricane Fault
- J. Pinevalley

Possible Fault Geopressure Leak Pathways from Cedar Valley to the Colorado River



Upward Lightning tied to geology



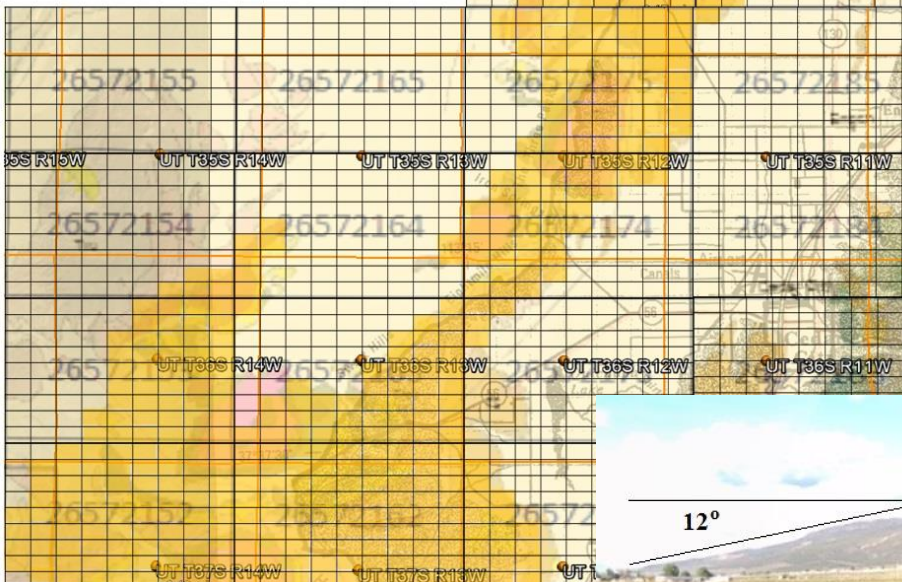
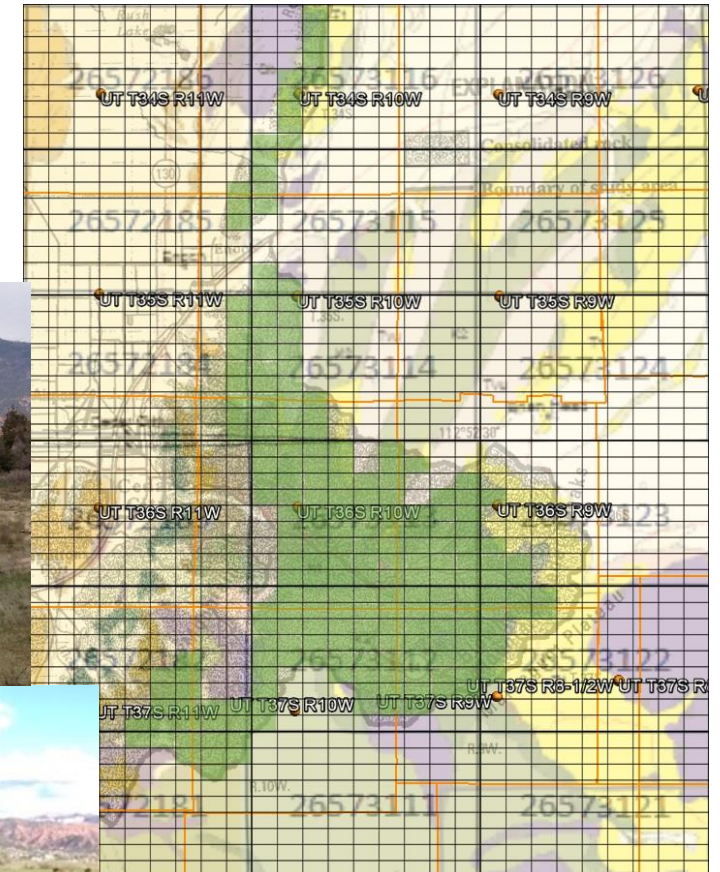
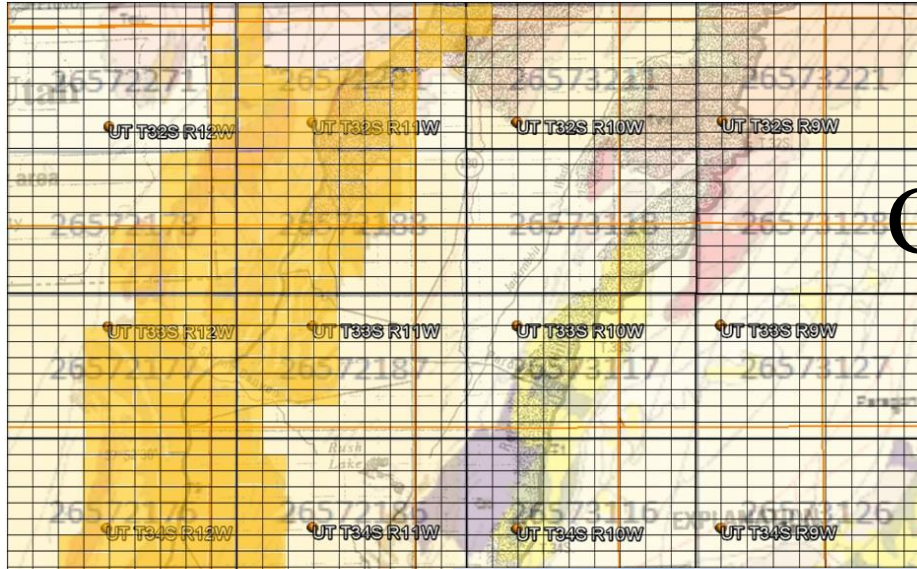
<http://www.walden3d.com/IronCounty>

<http://www.walden3d.com/IronCounty/CedarValleyWater>

Quartz Monzonite Aquifer to the West



Cretaceous Aquifer to the East



Cretaceous Aquifer east of Cedar City

Straight Cliffs Formation over Dakota Formation, north of Highway 14 at Mile 8, east of Cedar City.

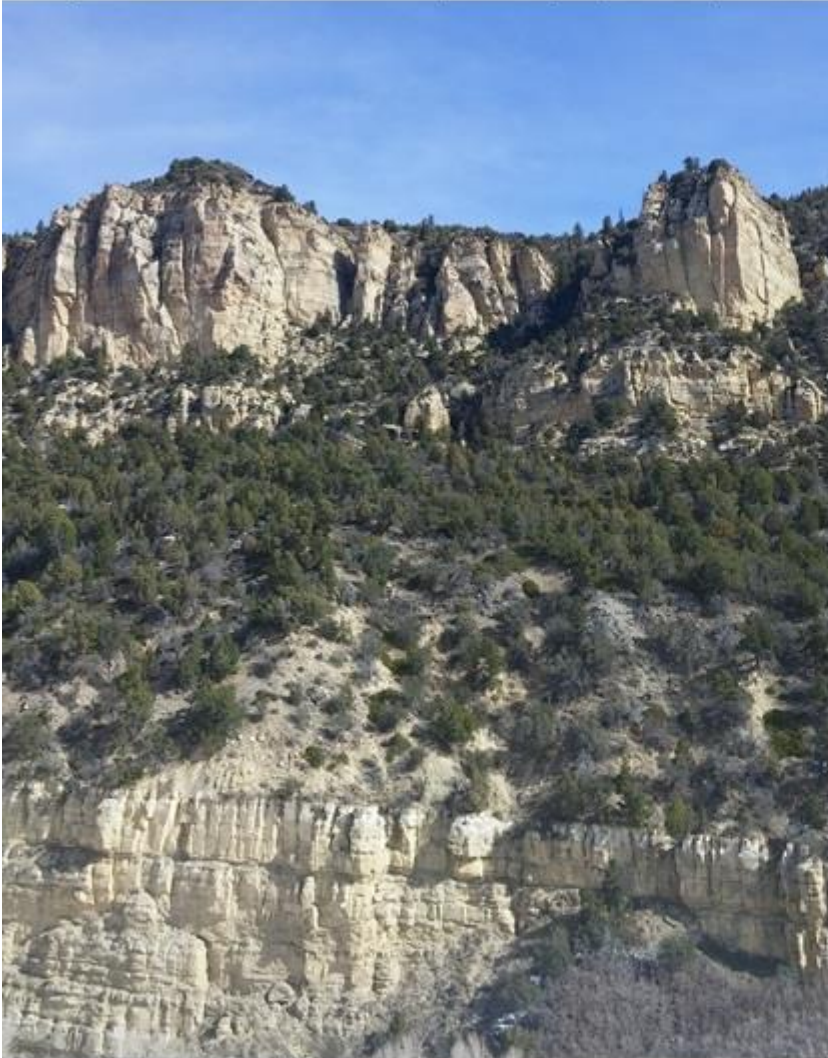


Photo by Gary F. Player, Utah Professional Geologist 5280804-2250, March 14, 2015

Utah Geological Association Publication 30 - Pacific Section
 American Association of Petroleum Geologists Publication G879
 345

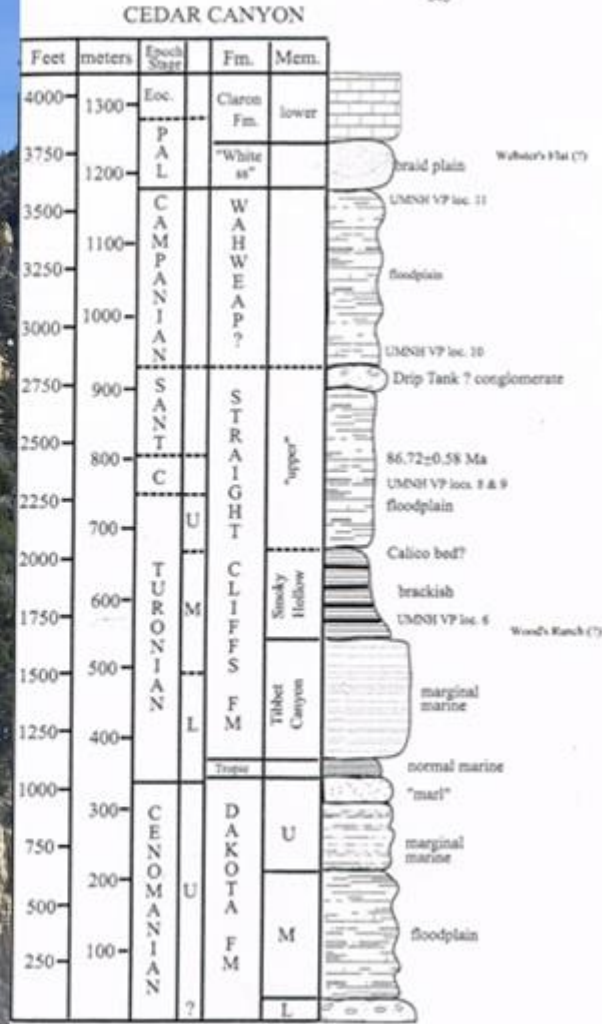
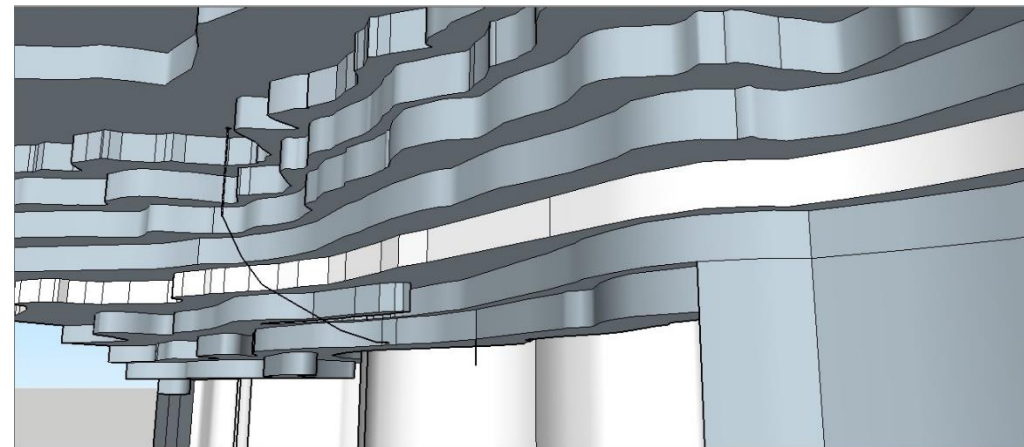
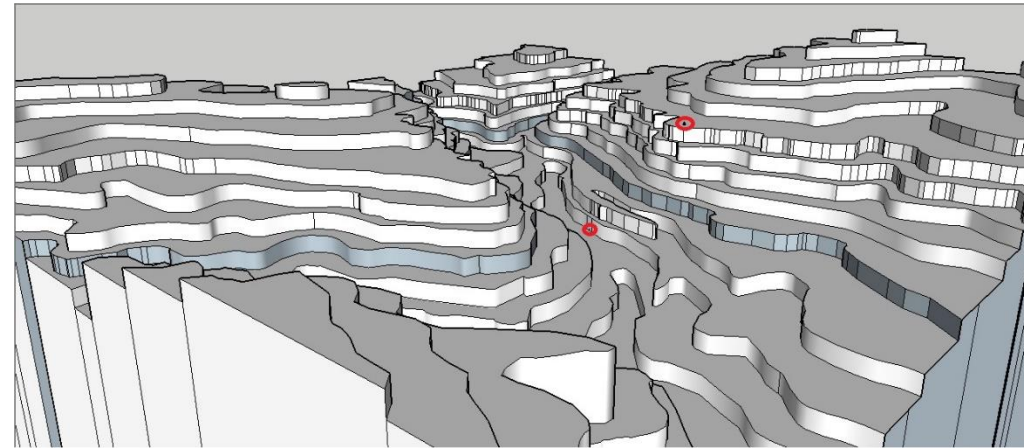
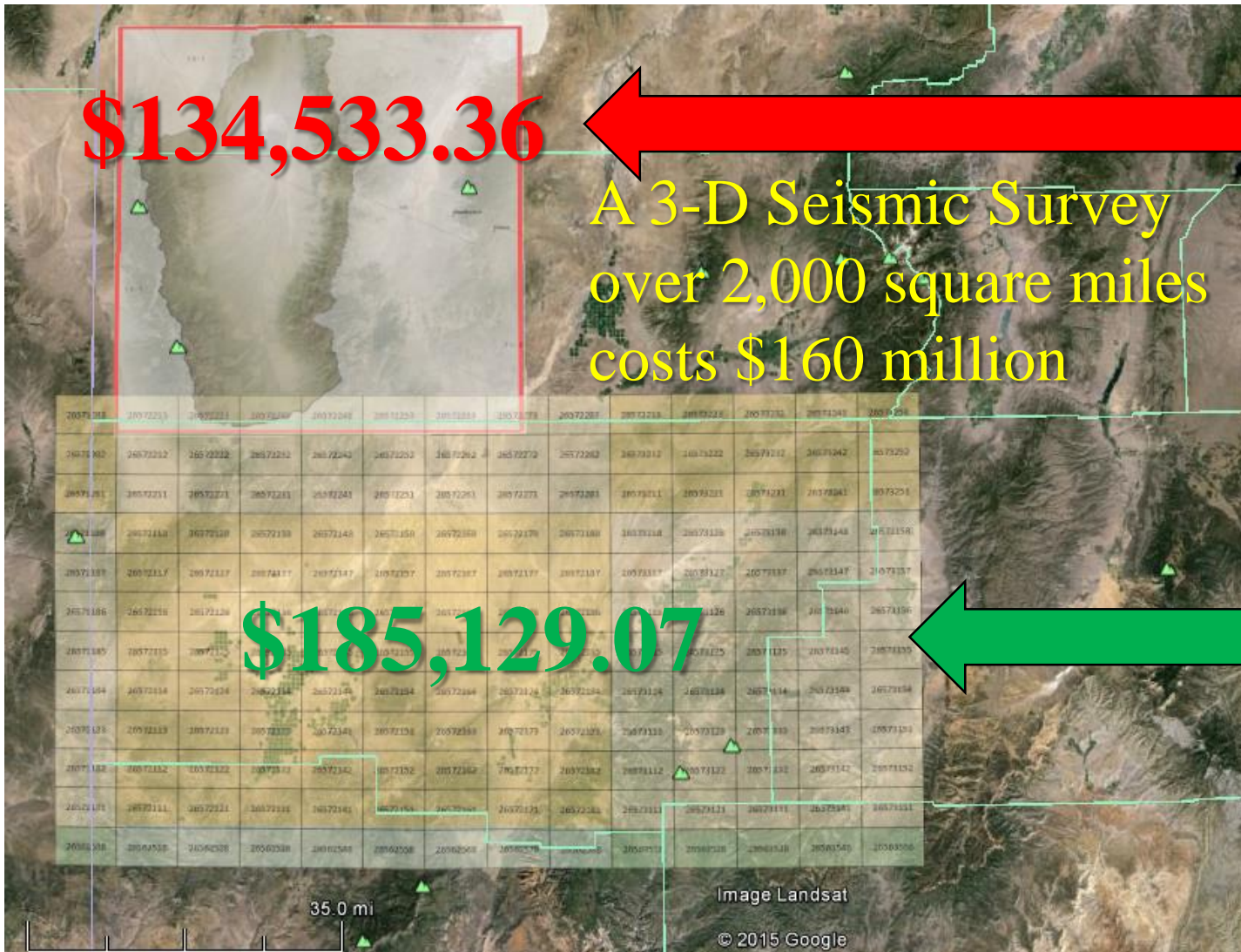


Figure 5. Comparison of Upper Cretaceous and lower Tertiary stratigraphy in Cedar and Parowan Canyons. The Parowan section is hung on the contact between the Claron and Grand Castle Formations. UGIA Pub. 30



Lightning Analysis Price



\$134,533.36

A 3-D Seismic Survey
over 2,000 square miles
costs \$160 million

\$185,129.07

DML Decimal Longitude & Latitude Calculator			
Enter Minutes:	44	Enter Seconds:	Decimal Calculation: 0.733333333

DML Area Calculator from Longitude & Latitude Input			
Data Entry Red Cells (decimal longitude & latitude), Calculations/Parameters Yellow Cells, Results Green Cells			
NW Corner Longitude:	-114	W (km)	71.310296
NW Corner Latitude:	38.775	E (km)	71.310296
NE Corner Longitude:	-113.183333	N (km)	70.756390
NE Corner Latitude:	38.775	S (km)	71.388489
SW Corner Longitude:	-114	W (mi)	44.310075
SW Corner Latitude:	38.133333	E (mi)	44.310075
SE Corner Longitude:	-113.183333	N (mi)	43.965894
SE Corner Latitude:	38.133333	S (mi)	44.358662
			Area (sq km)
			5068.196699
			Area (sq mi)
			1956.833858

DML Lightning Analysis Project Price Calculator			
Enter Area (sq. km.):	Enter Area (sq. mi.):	1,957	Enter Area (acres)
Area (sq. km)	5,068	Price (\$US):	1,252,373.67
		Price (\$US):	\$134,533.36

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DML Decimal Longitude & Latitude Calculator			
Enter Minutes:	11	Enter Seconds:	15
		Decimal Calculation:	0.1875

DML Area Calculator from Longitude & Latitude Input			
Data Entry Red Cells (decimal longitude & latitude), Calculations/Parameters Yellow Cells, Results Green Cells			
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NW Corner Latitude:	38.1875	E (km)	82.886596
NE Corner Longitude:	-112.375	N (km)	152.861668
NE Corner Latitude:	38.1875	S (km)	154.413818
SW Corner Longitude:	-114.125	W (mi)	51.503240
SW Corner Latitude:	37.4416667	E (mi)	51.503240
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			Area (sq mi)
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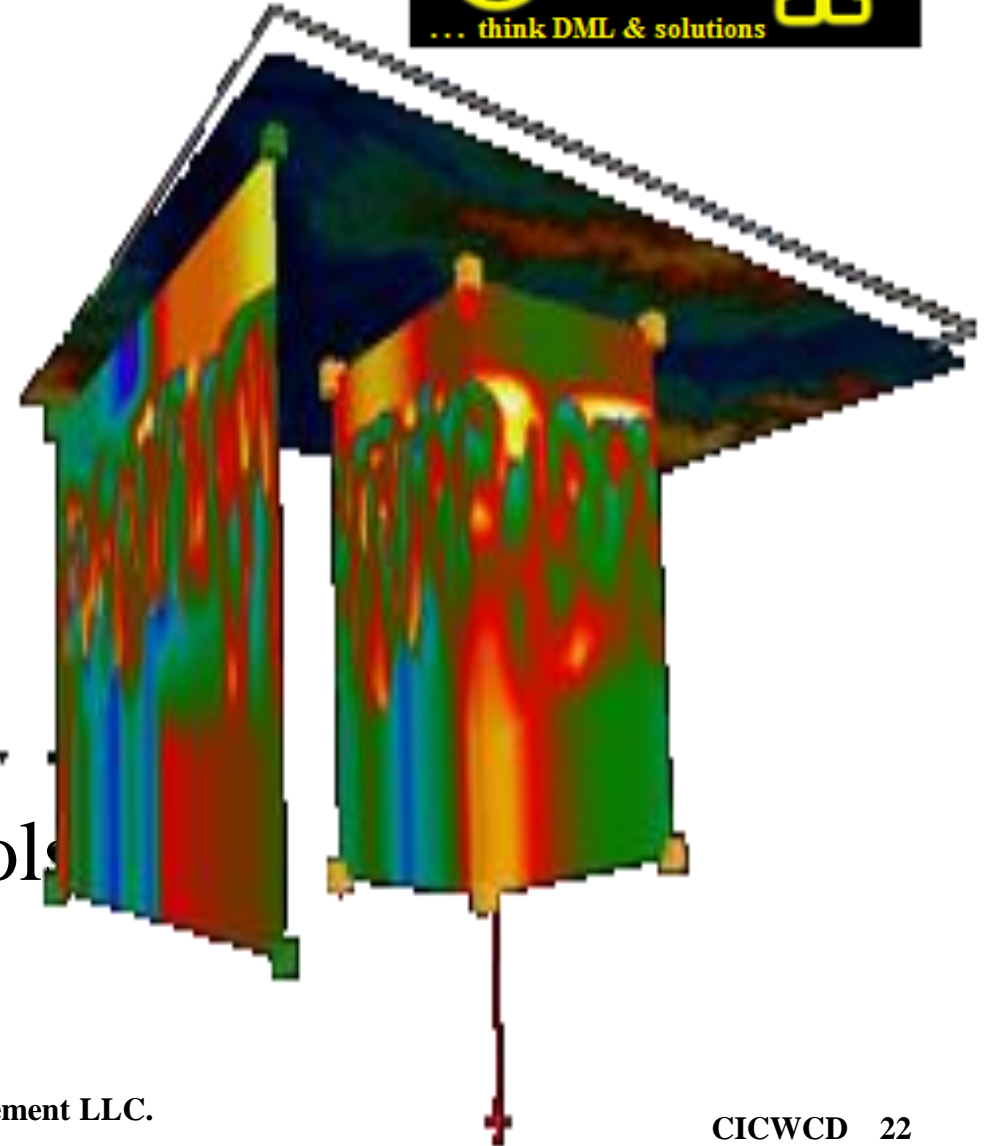
DML Lightning Analysis Project Price Calculator			
Enter Area (sq. km.):	Enter Area (sq. mi.):	4,917	Enter Area (acres)
Area (sq. km)	12,735	Price (\$US):	3,146,753.28
		Price (\$US):	\$185,129.07

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Technical Merit & Economic Benefits

- Maps, Sections, and Volumes
- Evergreen Data
- 17 year database US & Canada
- Integrates with other data
- Simple Solution
- Patented, & Patent Pending

- 2 month project turnaround
- Larger Area – Less Expense compared to other geophysical tools
- **Provides a scientific basis for the location of west desert test wells**



See Lightning, Think DML



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Barker, TX 77413

Office: 281.579.0172

http://www.walden3d.com/IronCounty/CedarValleyWater/150618_CICWCD_Presentation.pdf