



NGP

NEVADA GEOTHERMAL POWER

Crump Geyser

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Crump Exploration

Extensive sinter

Springs up to 78°C

Two shallow wells up to 120°C

Geothermometry up to 150°C

Gravity

Audio MT

Airmag

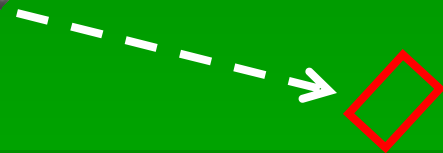
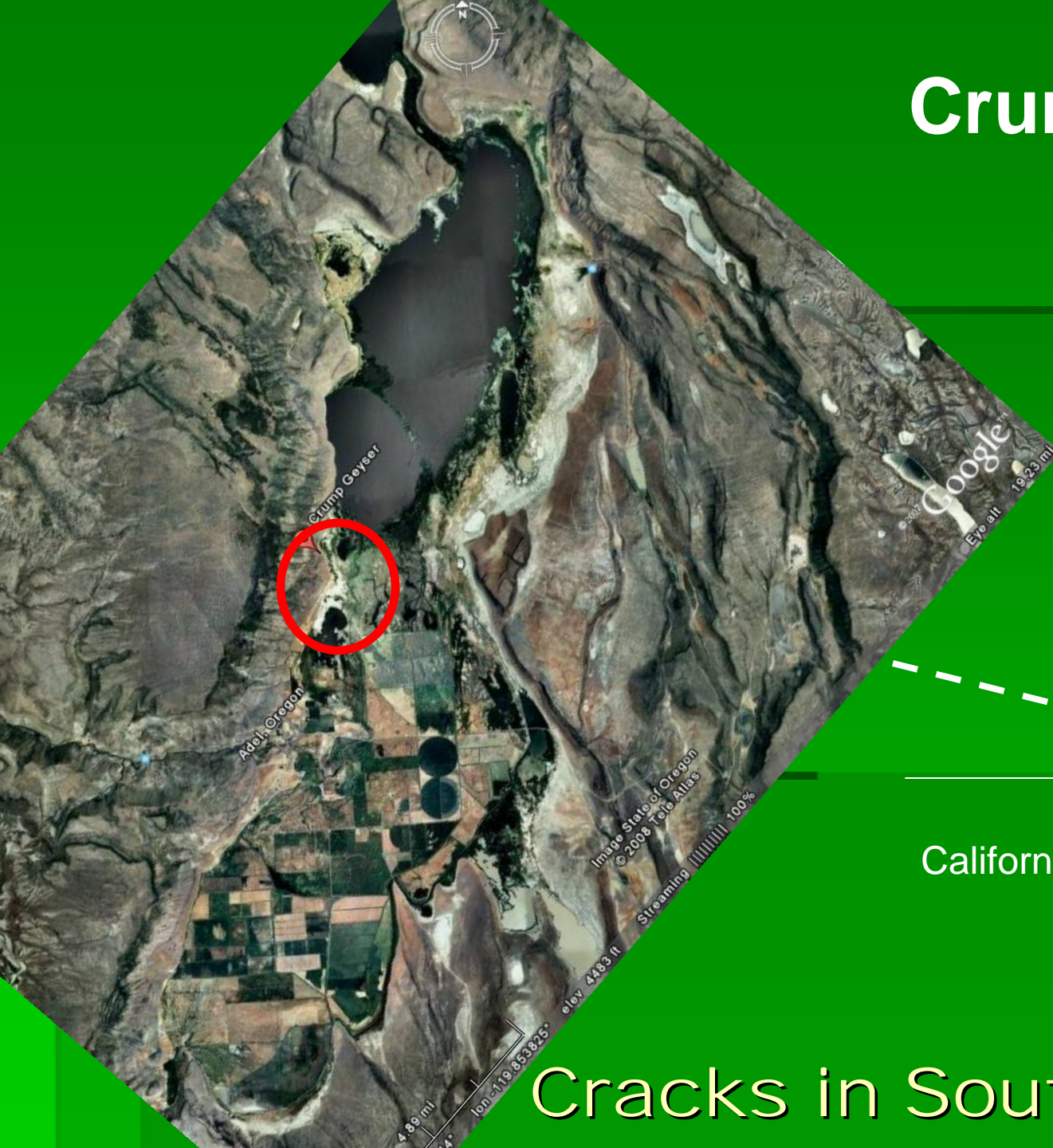
Schlumberger Resistivity

Plans: Detailed Gravity

Temperature holes

Deeper drilling

Crump Geyser



California

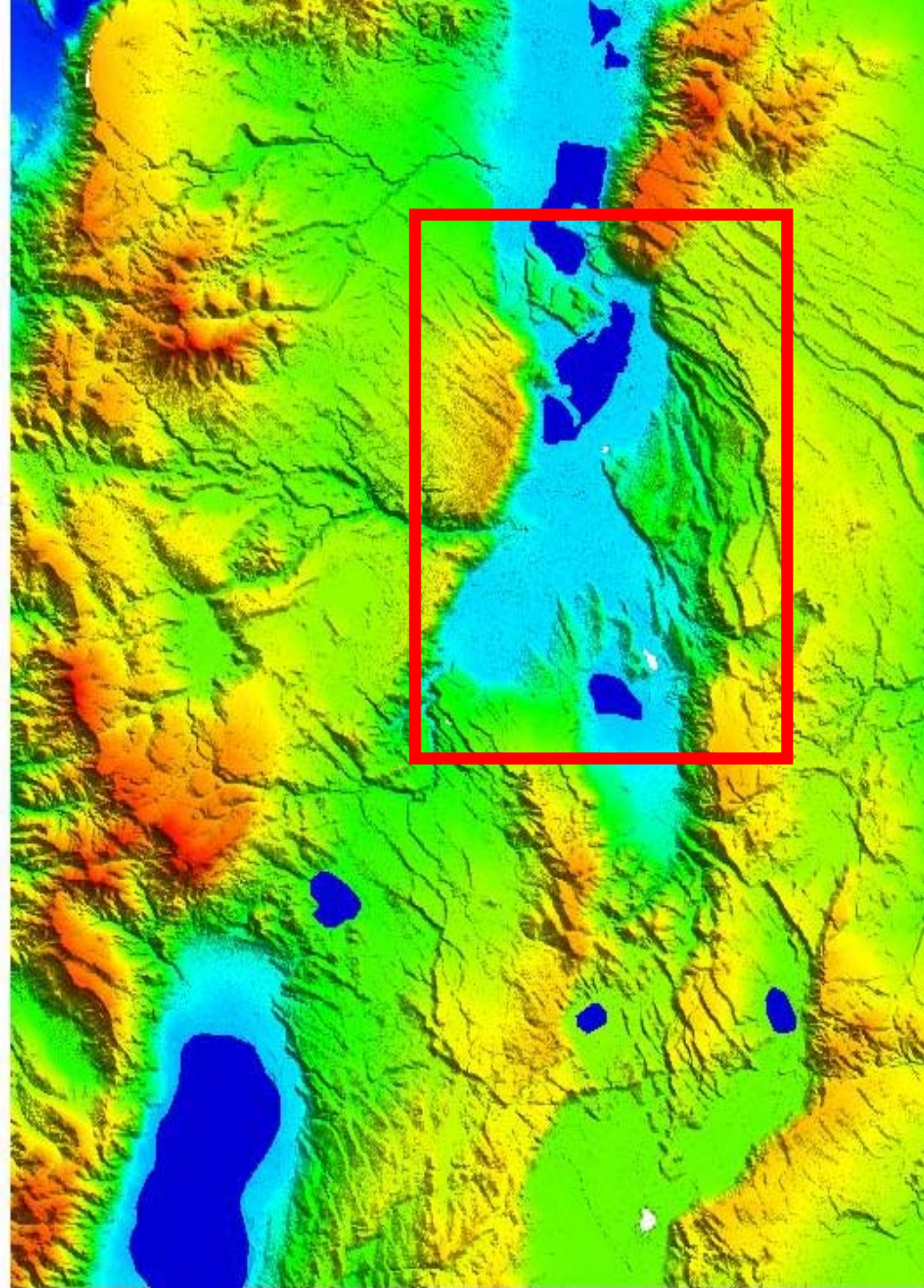
Nevada

Cracks in Southern Oregon

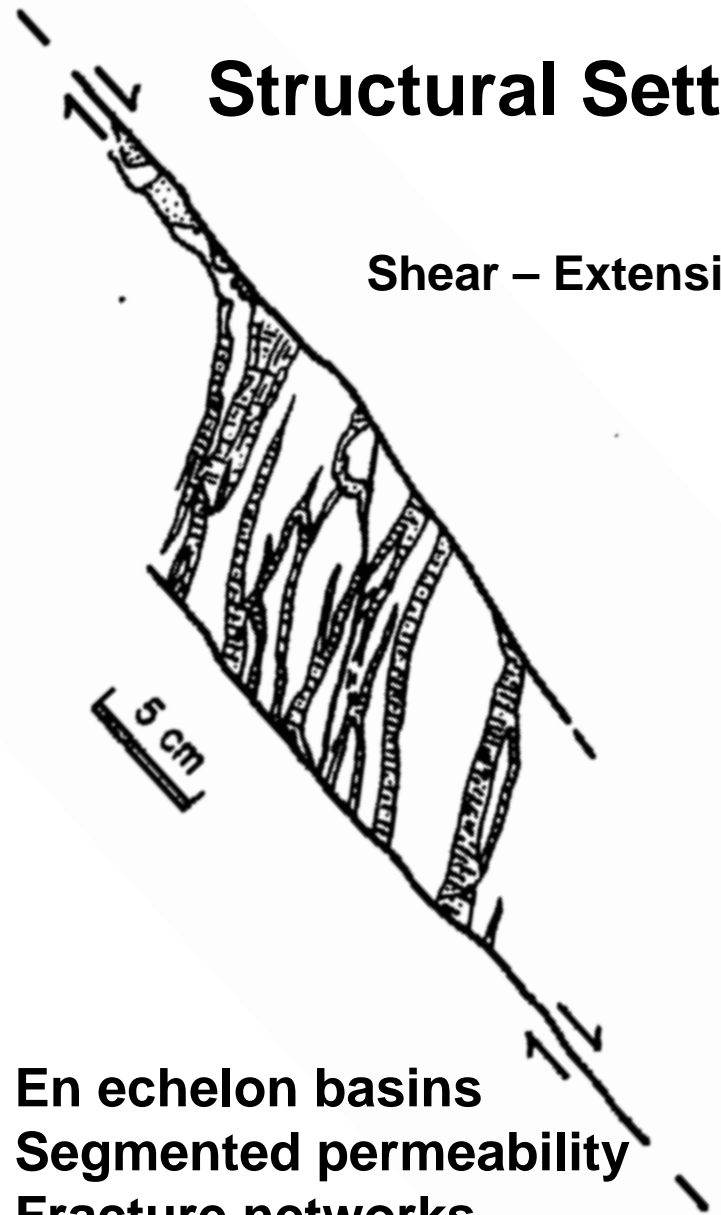
Crack Mechanics 101

- Rocks crack in tension
- Cracks displace in tension or shear
- Tensile movement creates crack permeability
- Shear movement sustains crack permeability as pressure increases
- Three crack settings:
 - Tension
 - Shear-extension
 - Shear

Crump Geyser Structural Setting

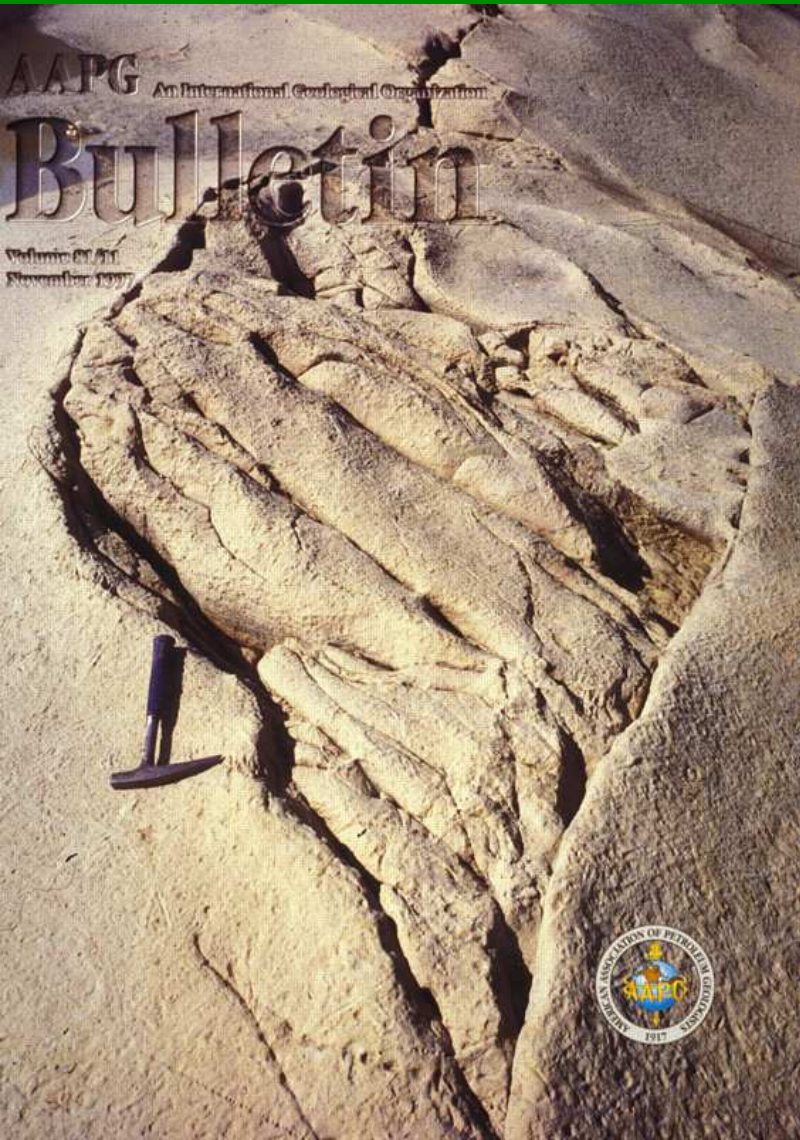


Shear – Extension



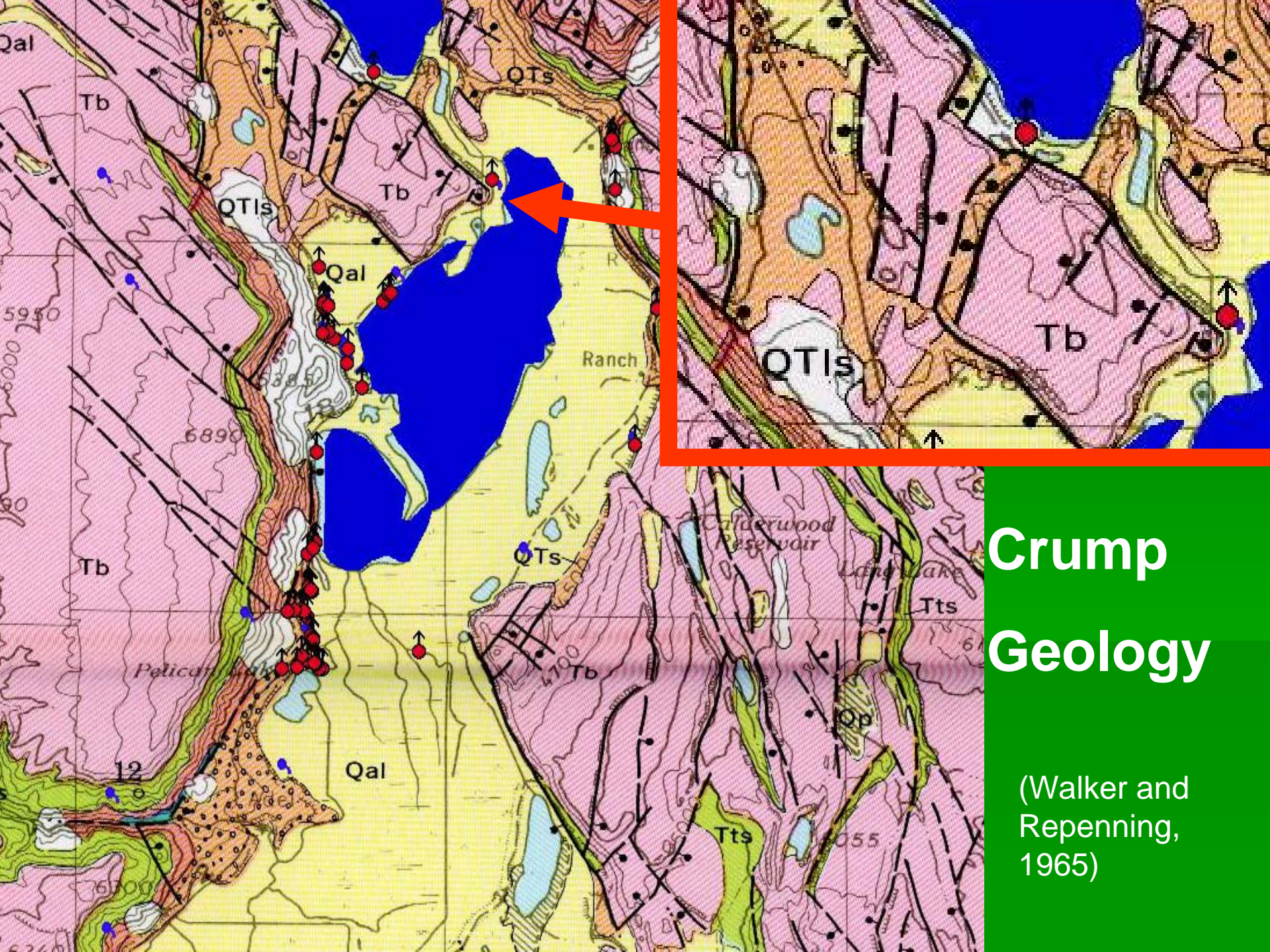
En echelon basins
Segmented permeability
Fracture networks

Shear-Extension



- Permeability increases from
 - shear
 - to shear-extension
 - to pure tension

- Shear-extension networks are fractal
 - Occur at all scales
 - Clustered distributions



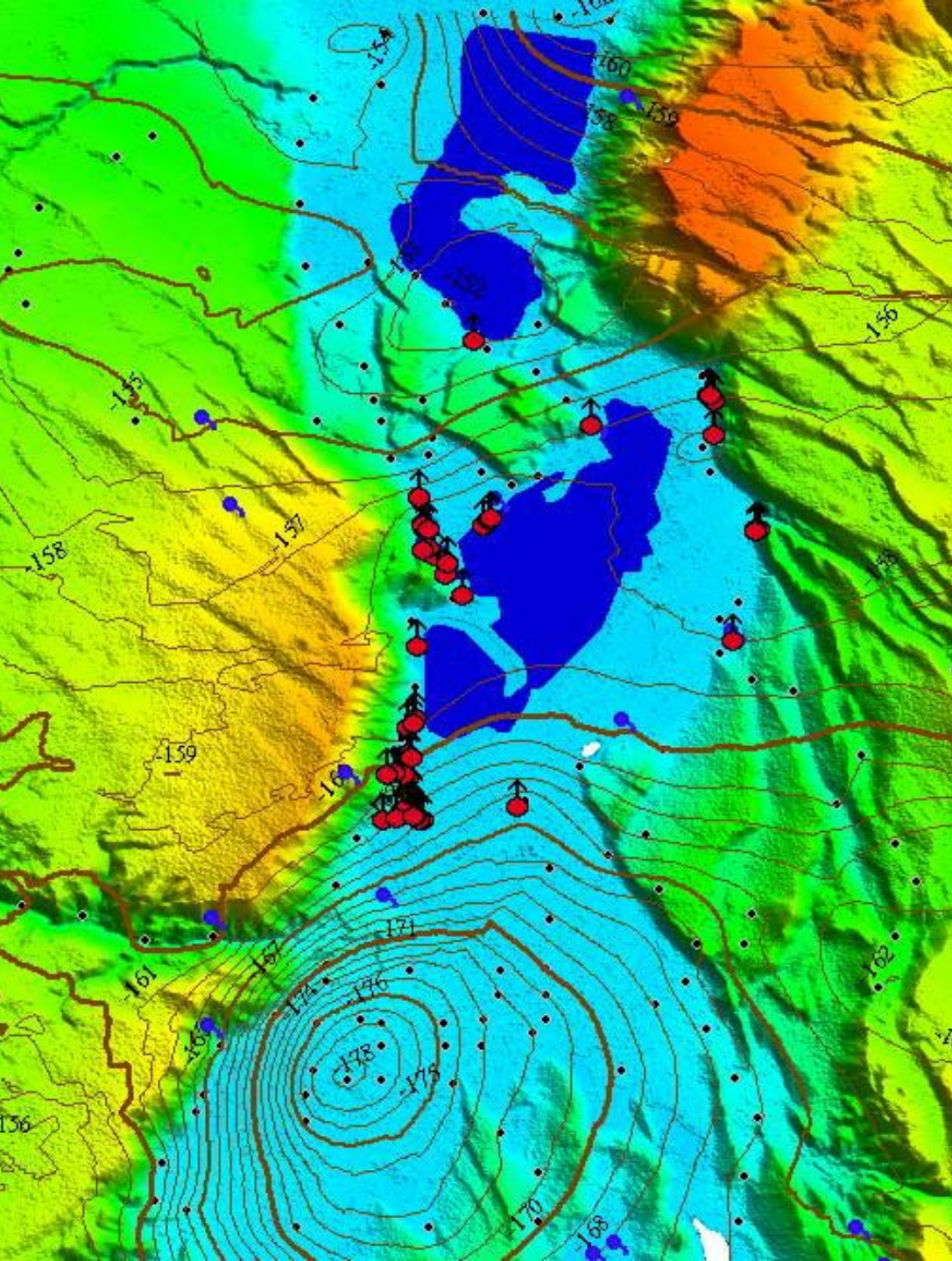
Crump Geology

(Walker and
Repenning,
1965)

Crump Gravity

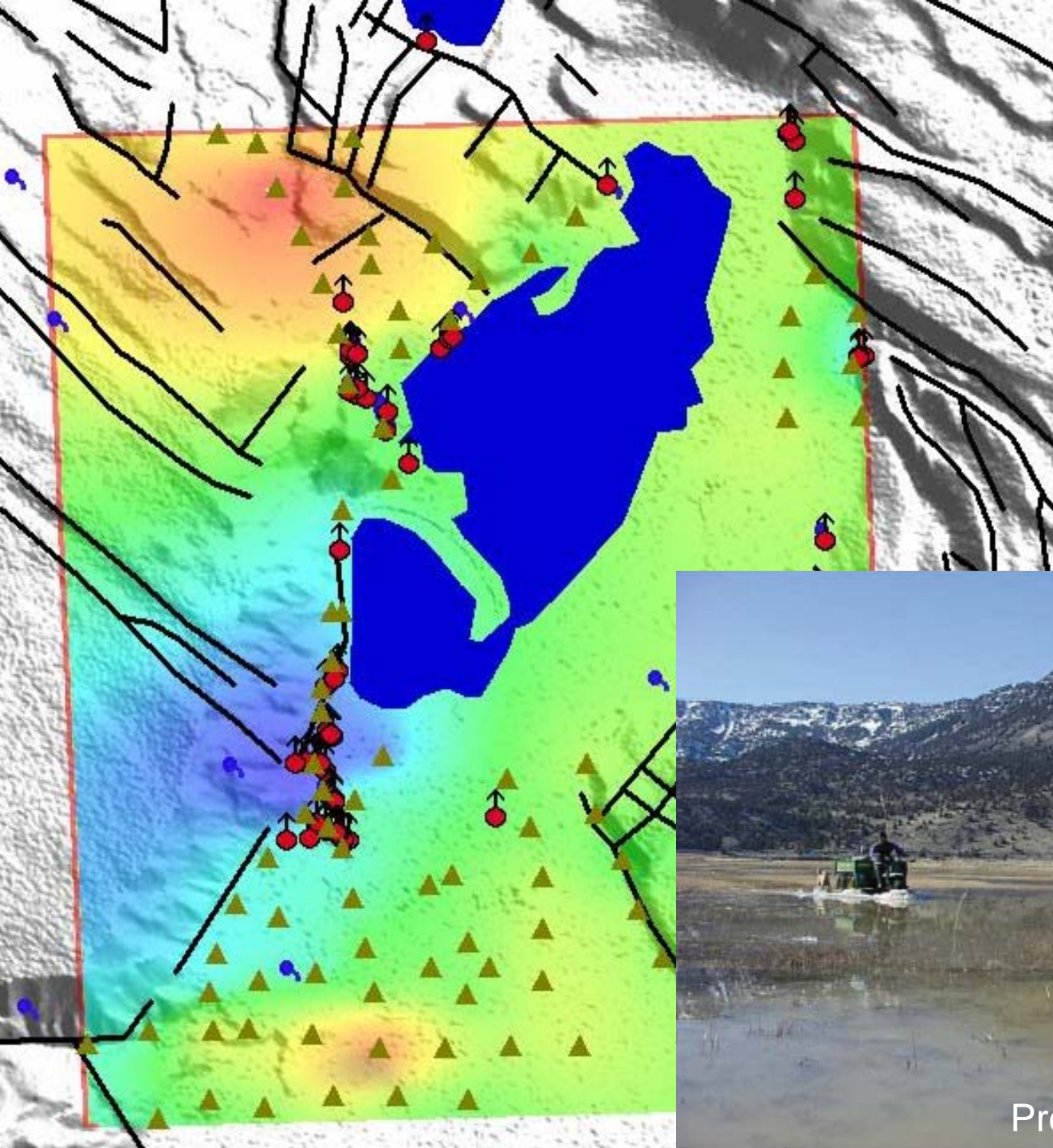
Segmented Basins
and Springs

(Plouff, 2006)

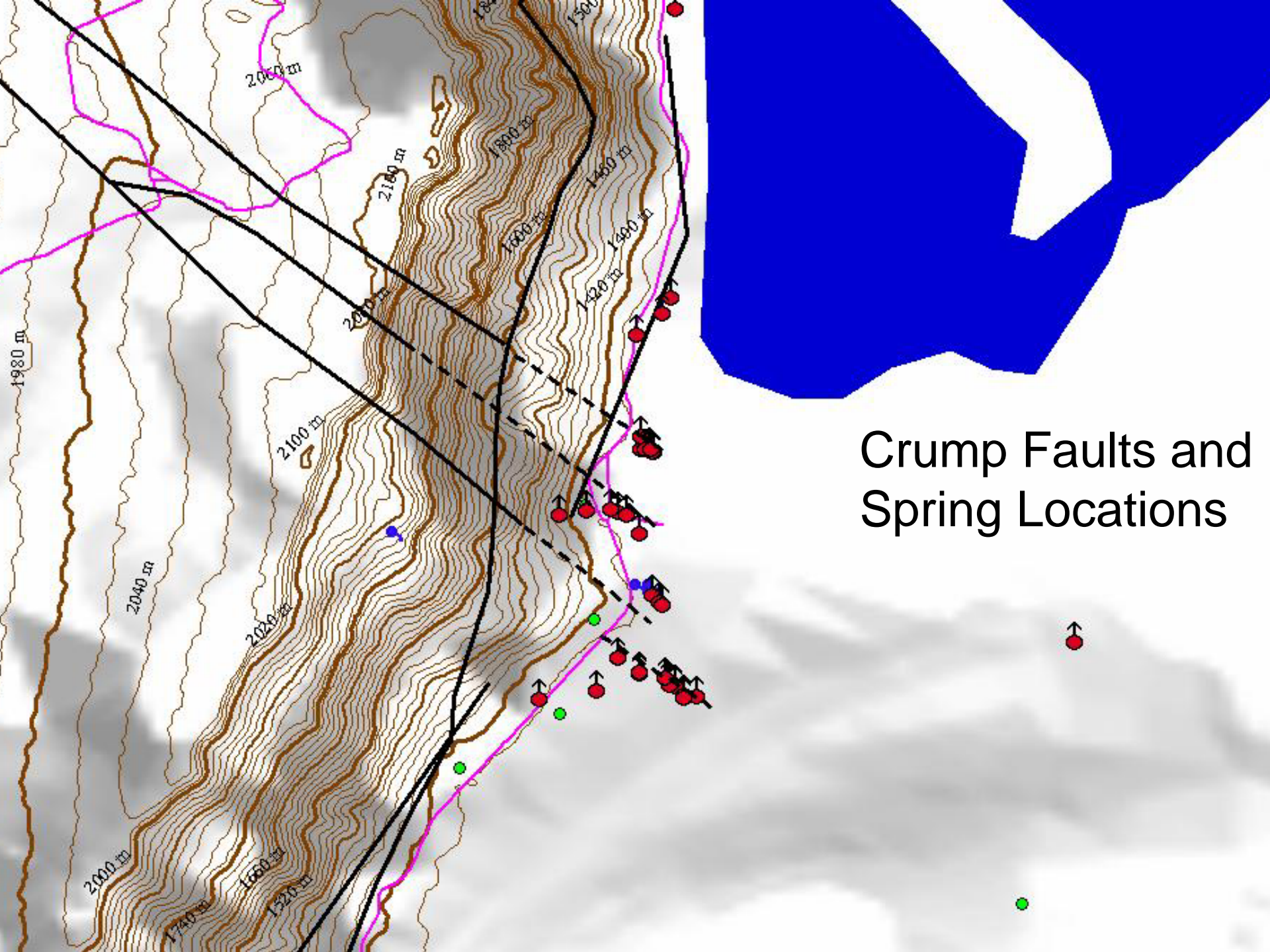


Schlumberger Resistivity

Red – high
Blue - low



Premier Geophysics, 2006



Crump Faults and Spring Locations

Perspective View from the East



Go Hwy 3-10/Go Hwy 3-10

Go Hwy 3-10

Crump Geyser

1959

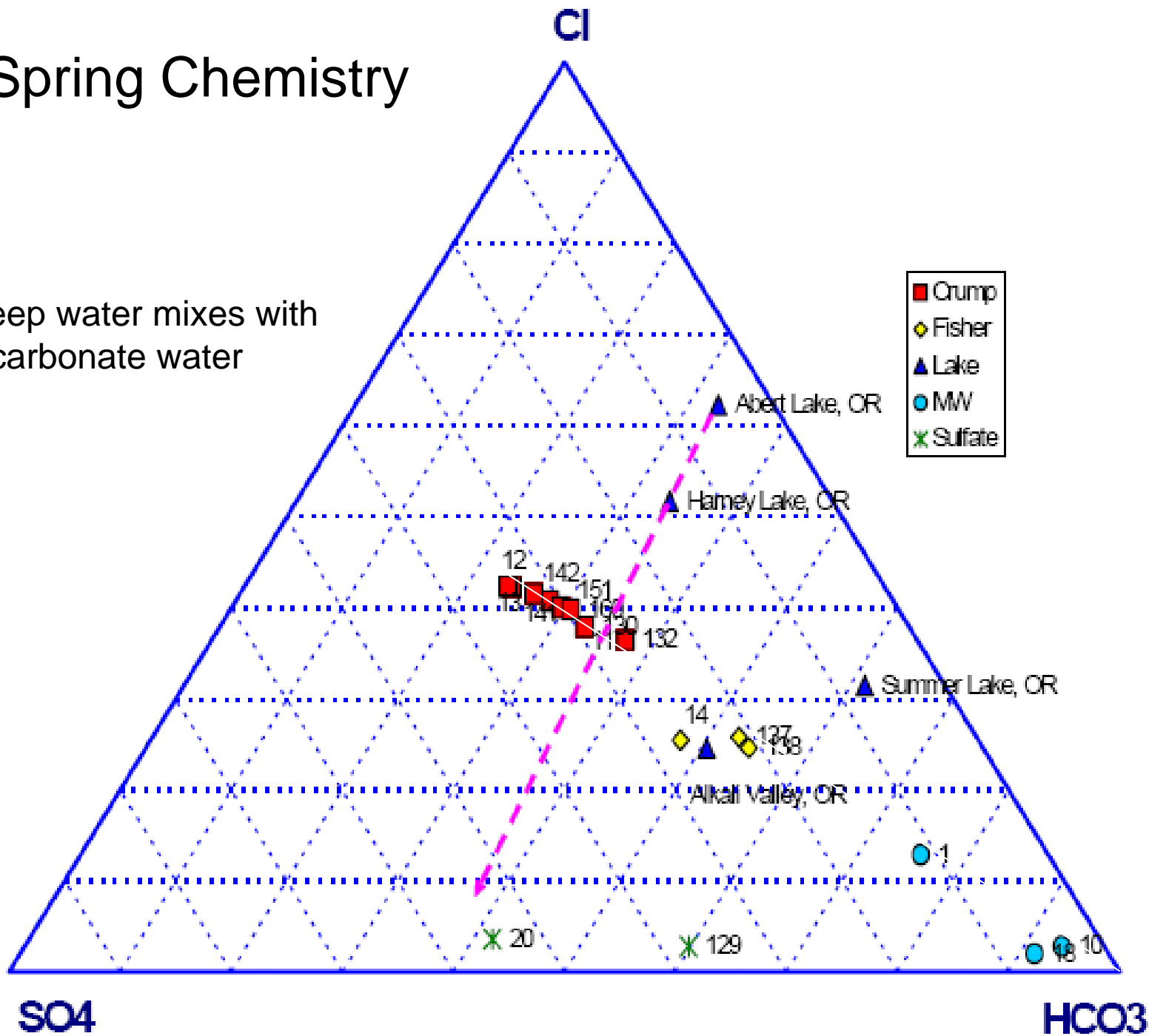




Sinter Mound

Spring Chemistry

Deep water mixes with bicarbonate water



Chalcedony geothermometer $\rightarrow 150^{\circ}\text{C} \pm 10^{\circ}\text{C}$
 Na, K, Ca, Mg geothermometers \rightarrow also 150°C
 Suggests geothermal fluids are equilibrated

