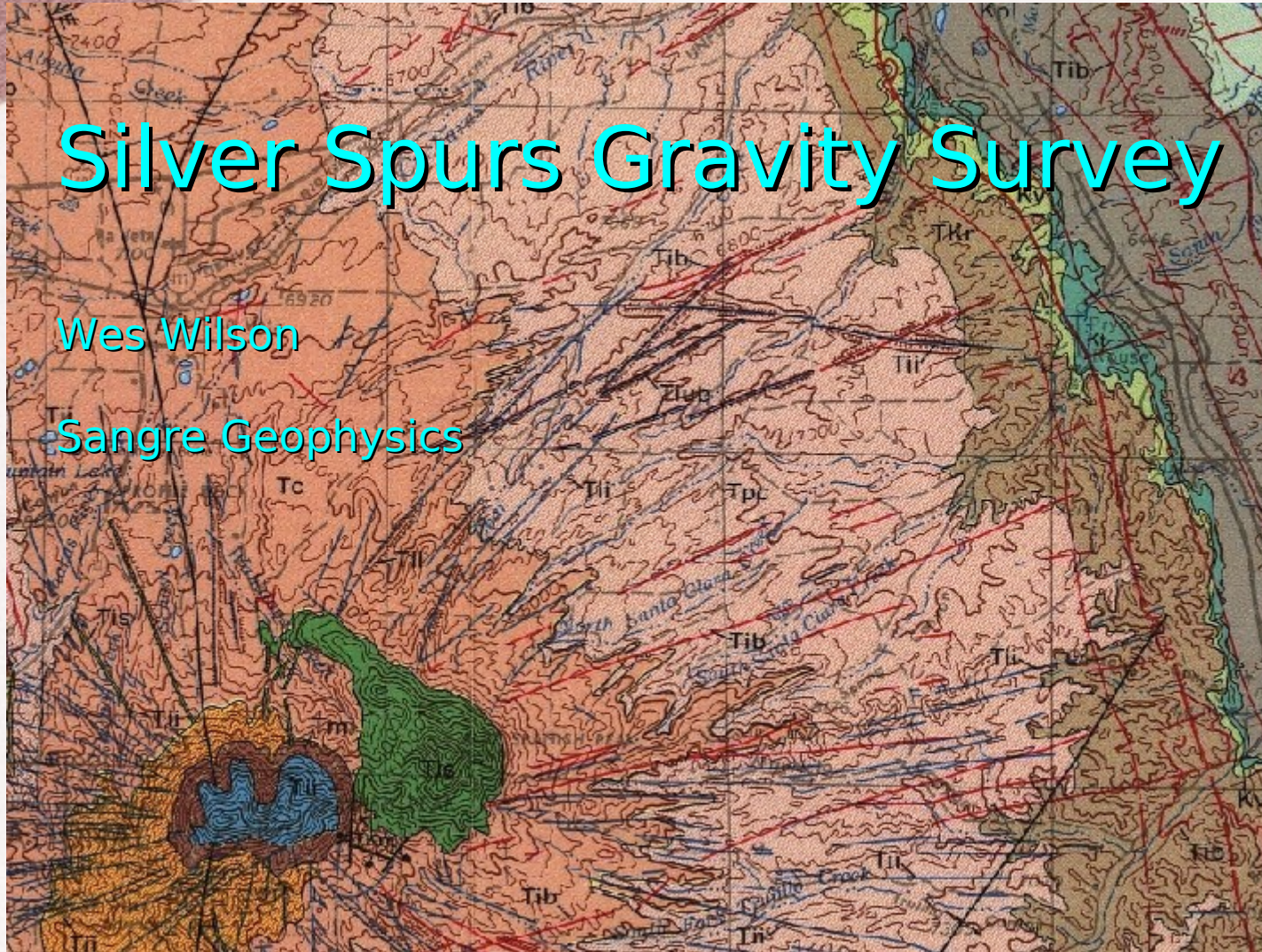


Silver Spurs Gravity Survey

Wes Wilson

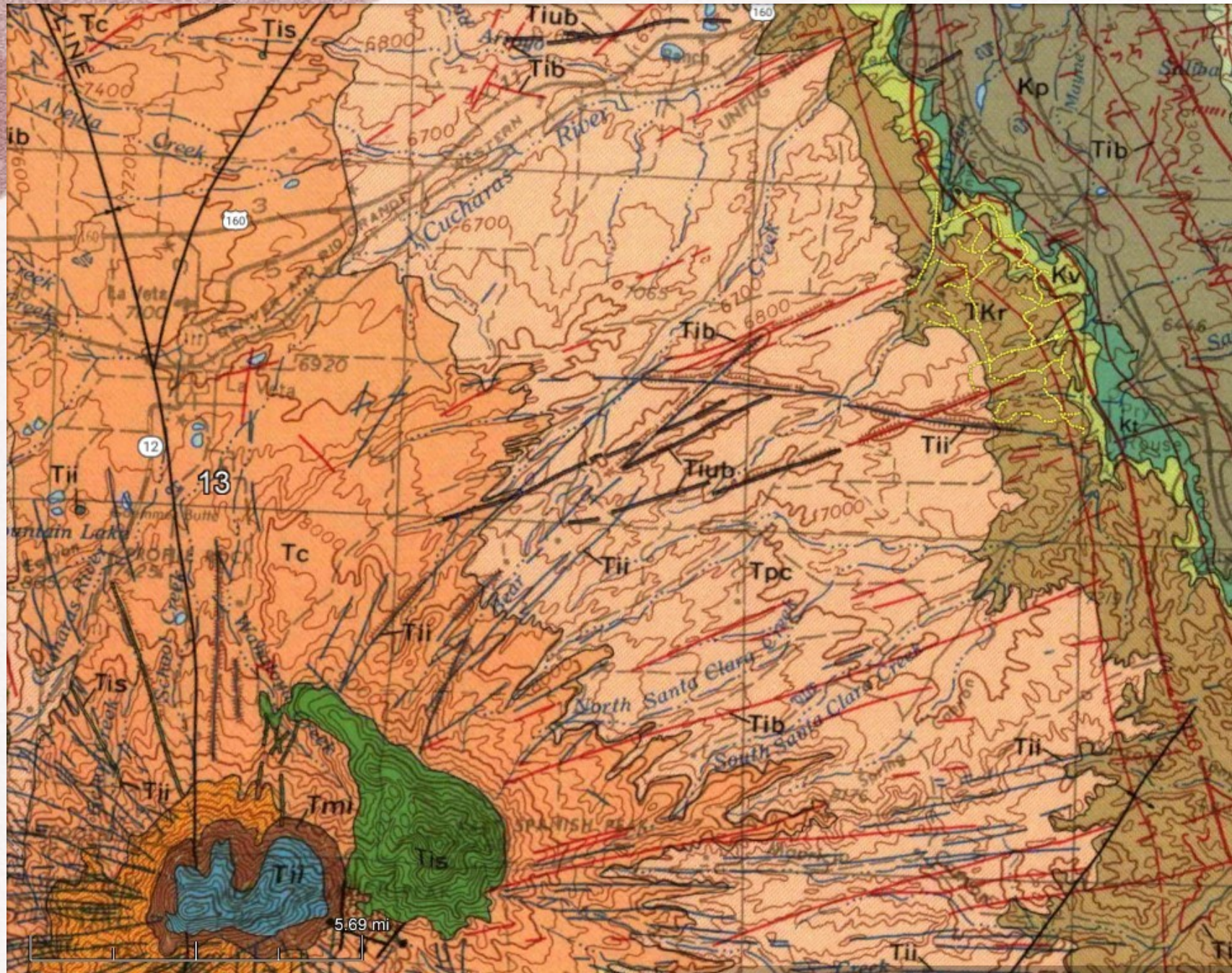
Sangre Geophysics



What controls the groundwater flow?

- Dike complex associated with the emplacement of the Spanish Peaks
- Geologic depositional environment





Silver Spurs Ranch Geology

Tpc

Poison Canyon Formation

Buff arkosic conglomerate and sandstone, yellow siltstone, and shale

LOCAL UNCONFORMITY

TKr

Raton Formation

Light-gray to buff sandstone, dark-gray siltstone, shale, and coal; conglomerate at base

Kv

Vermejo Formation

Dark-gray silty and coaly shale, buff to gray carbonaceous siltstone, and sandstone beds; coal

Kt

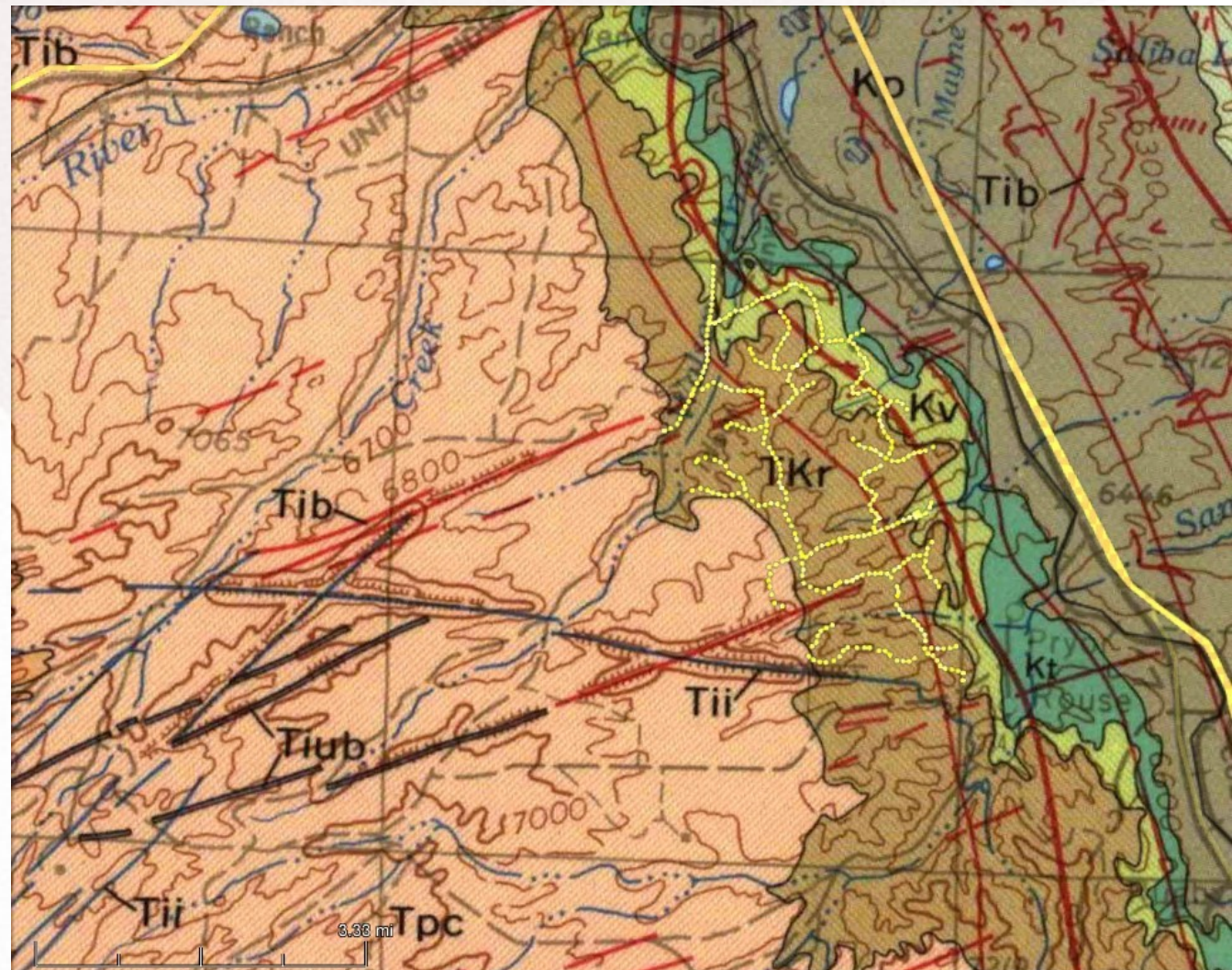
Trinidad Sandstone

Light-gray to buff sandstone

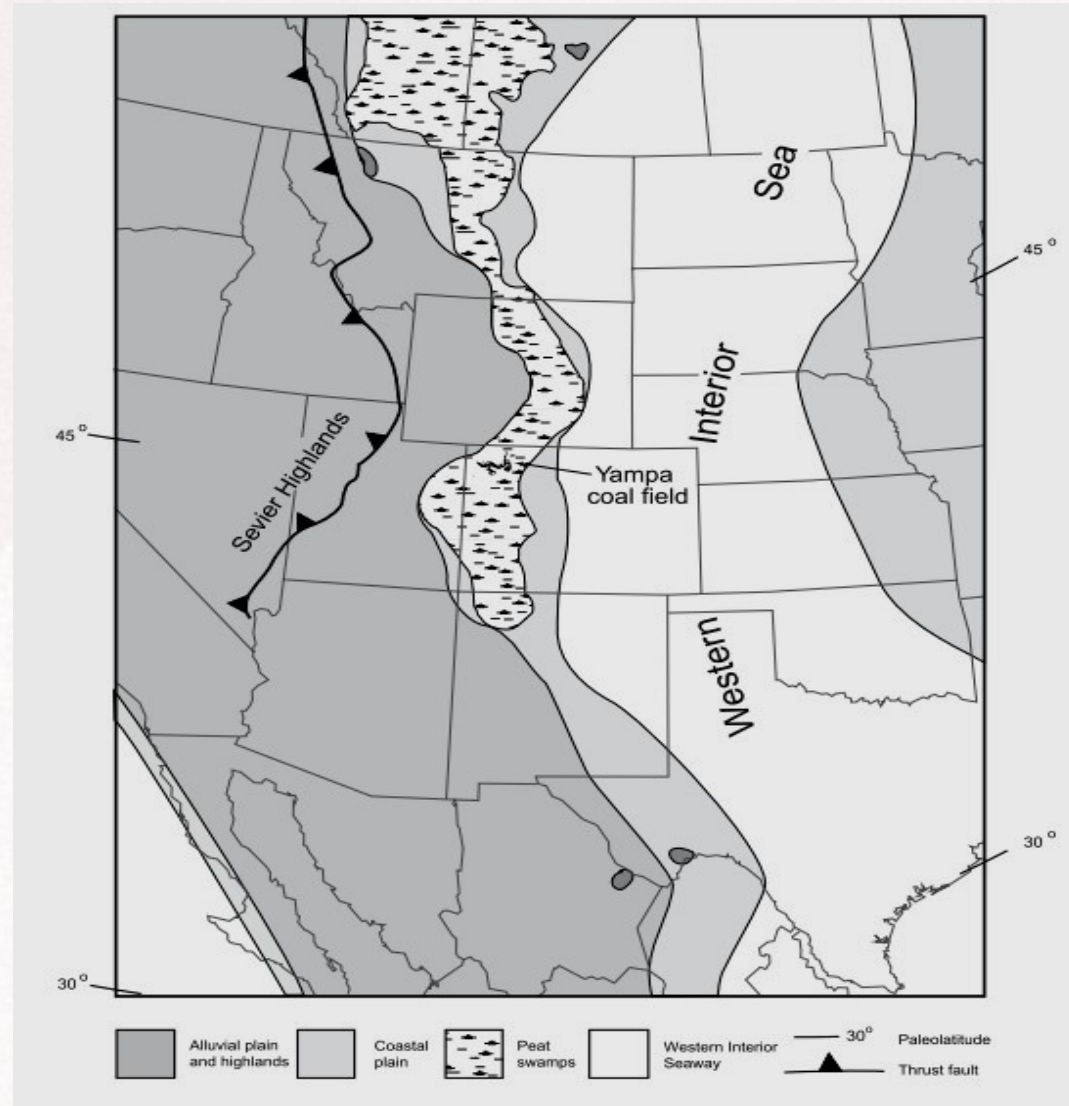
Kp

Pierre Shale

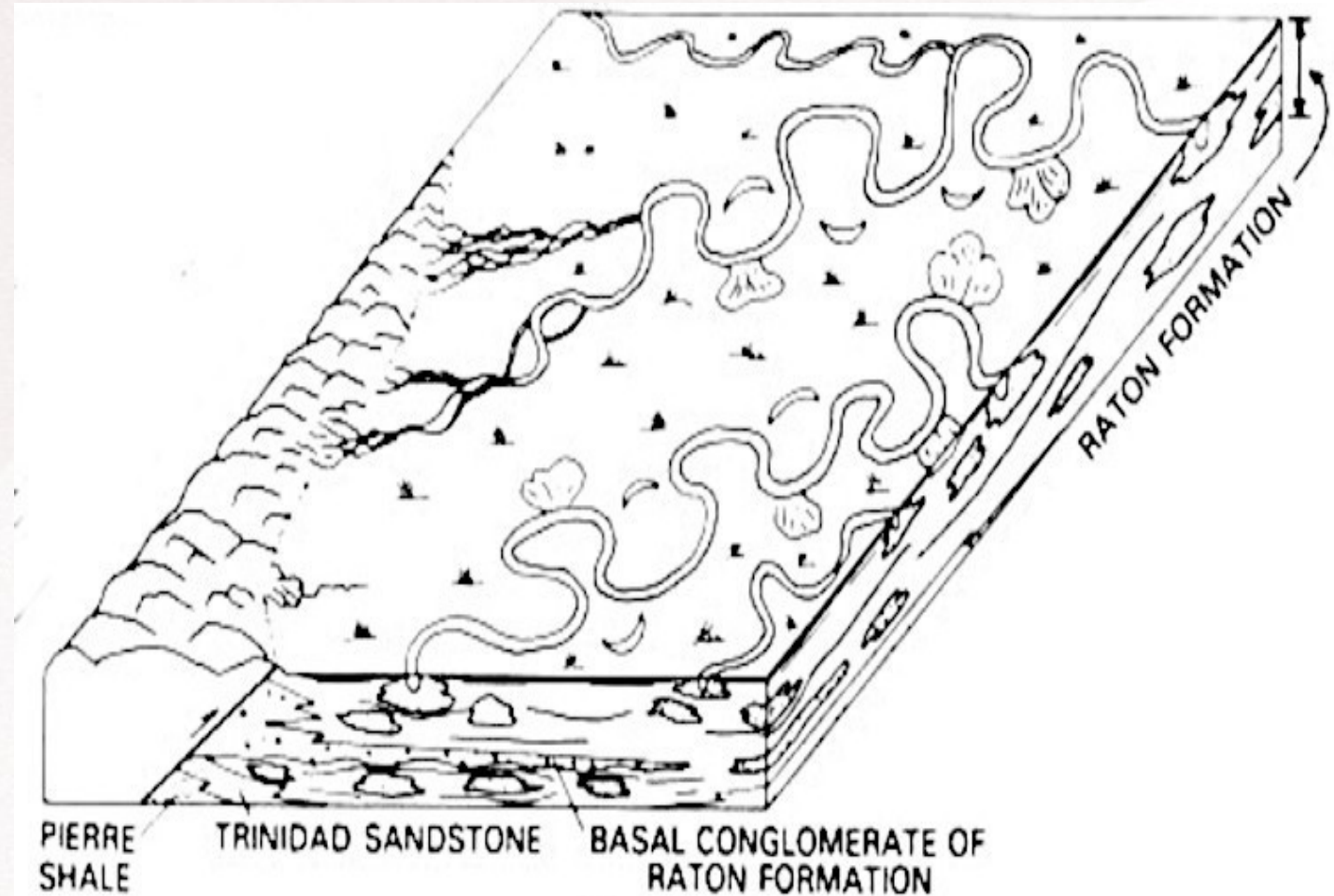
Dark-gray fissile siltstone and shale



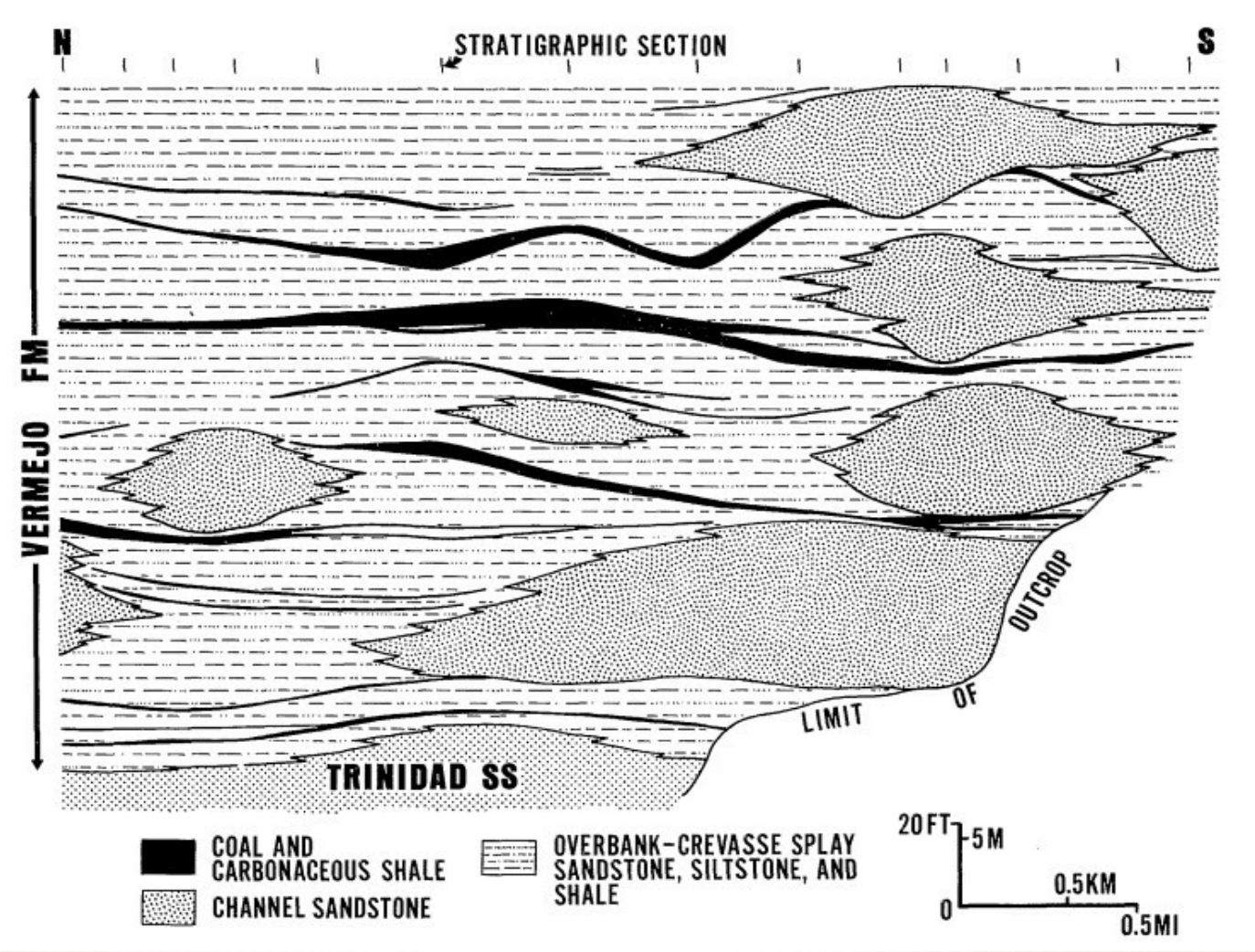
Paleogeography



Depositional environment



Stratigraphic section

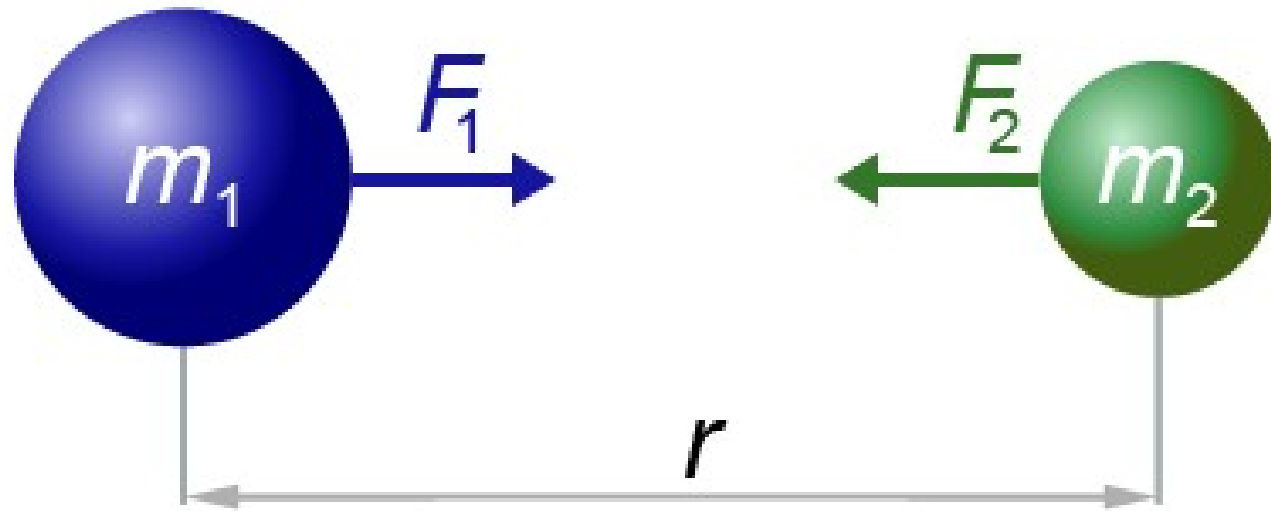


Why gravity?

- Relatively inexpensive
- Sensitive to density differences



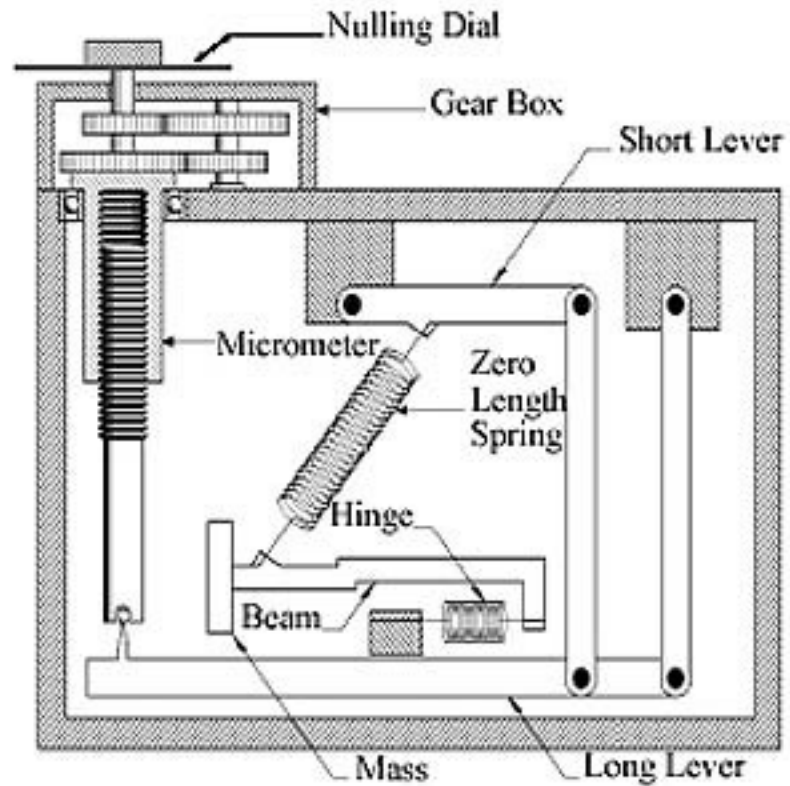
Gravitational attraction



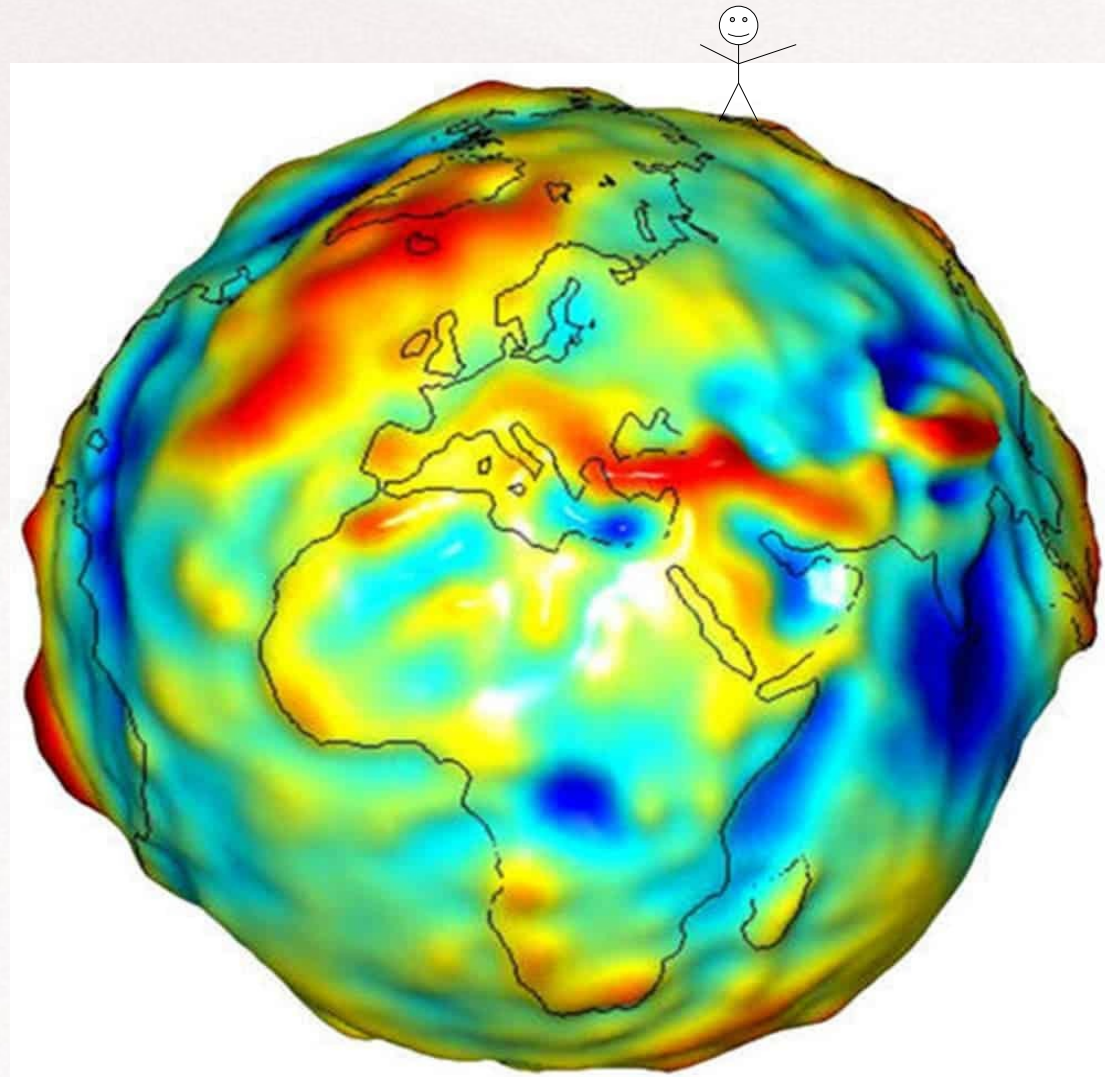
$$F_1 = F_2 = G \frac{m_1 \times m_2}{r^2}$$



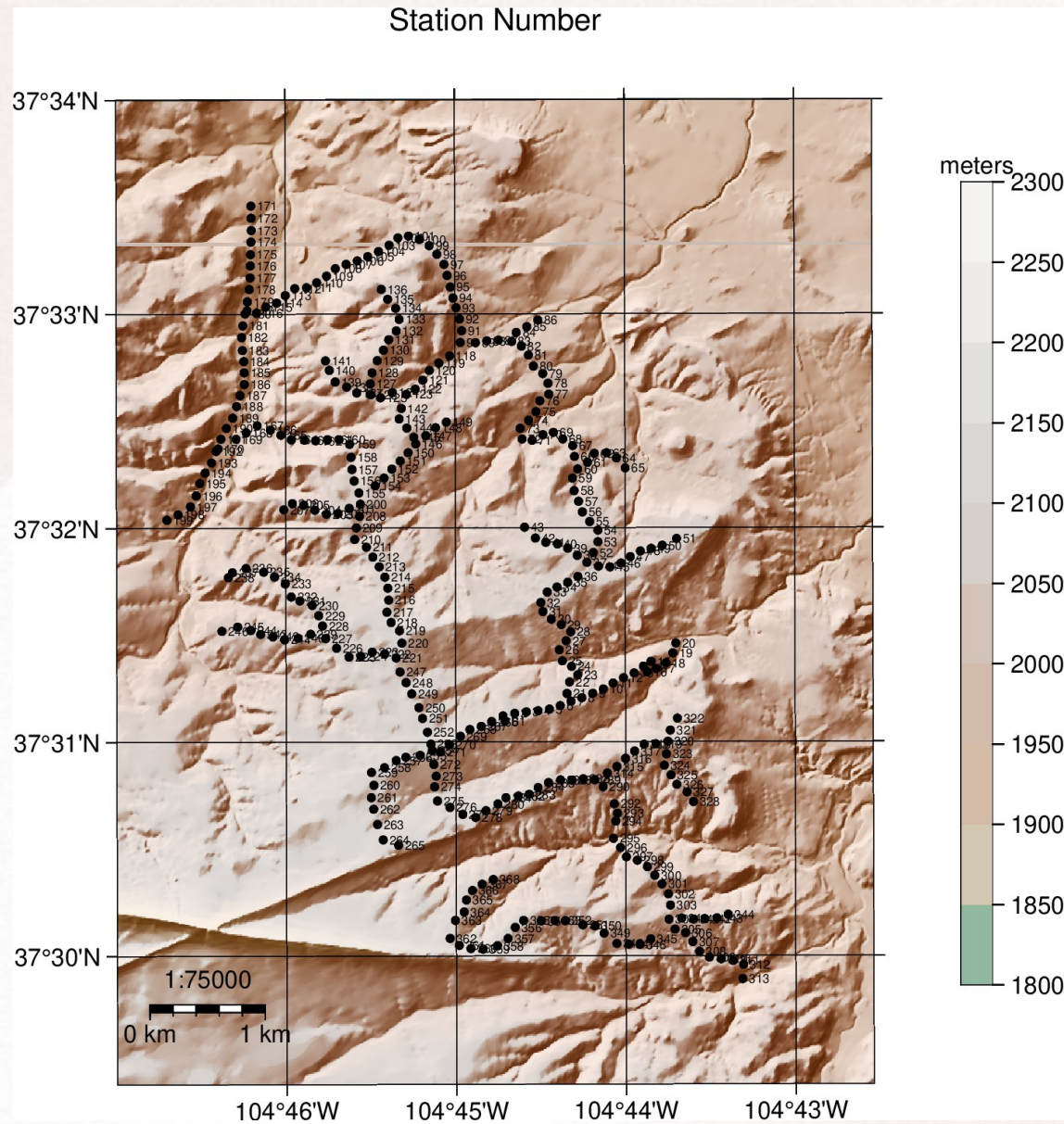
Gravimeter



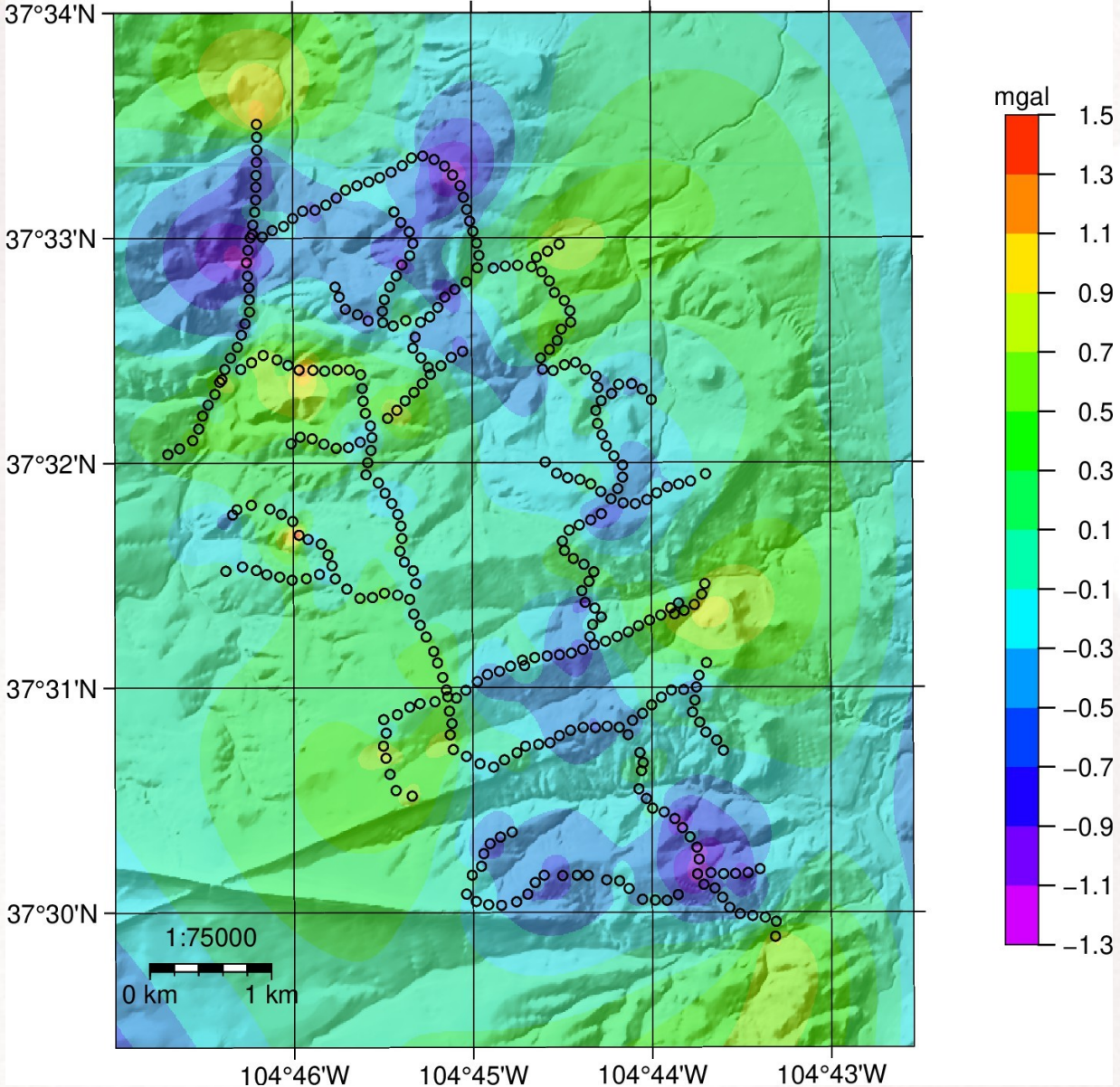
Earth's gravity field



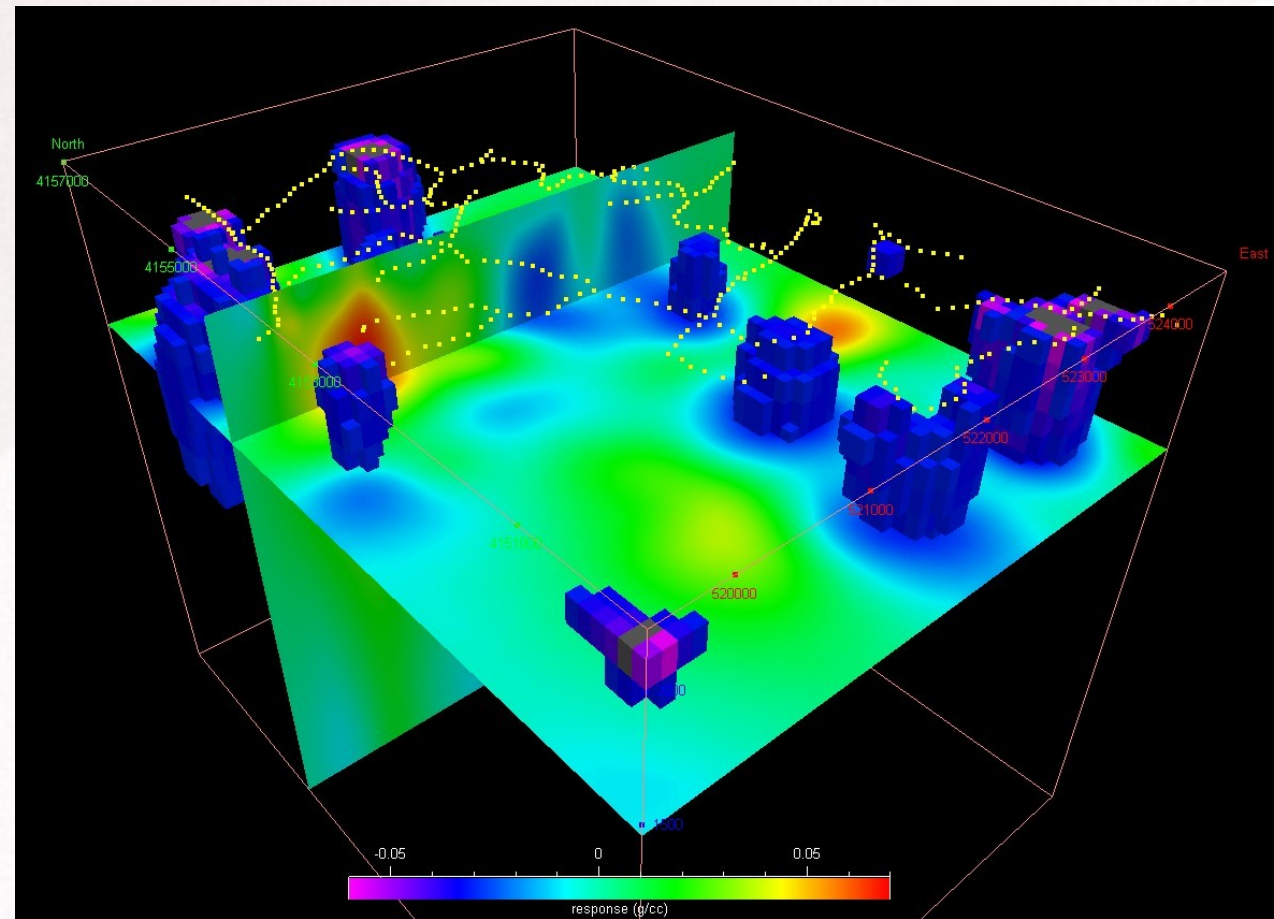
Silver Spurs gravity survey



Complete Bouguer gravity anomaly



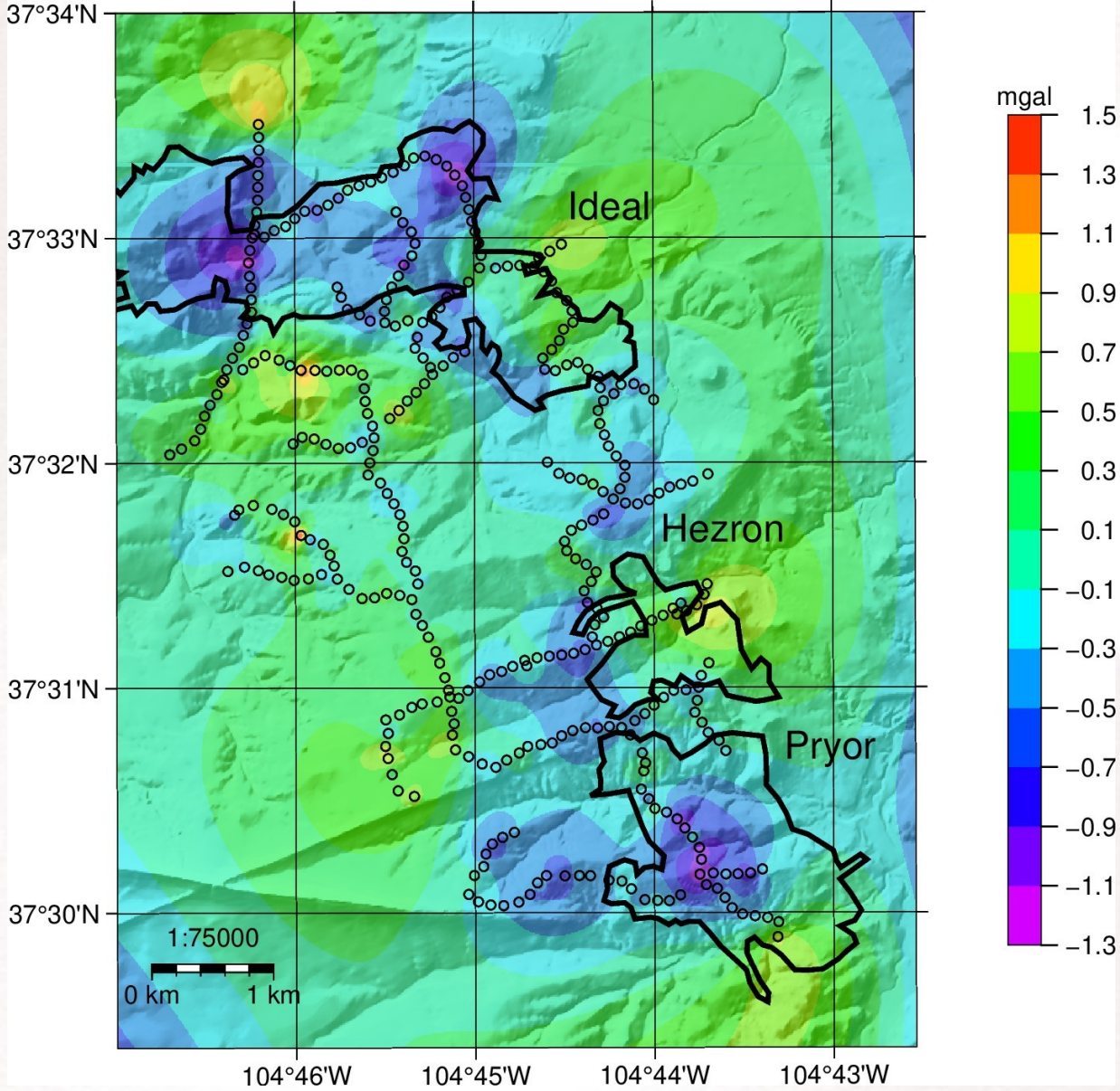
3D Unconstrained inversion



Mining activity on Silver Spurs Ranch



Gravity-Coal correlation



Conclusions

- The gravity anomaly does not have the resolution to identify water filled channel sands or dikes
- There is a rough correlation between the Bouguer gravity anomaly and existing coal workings

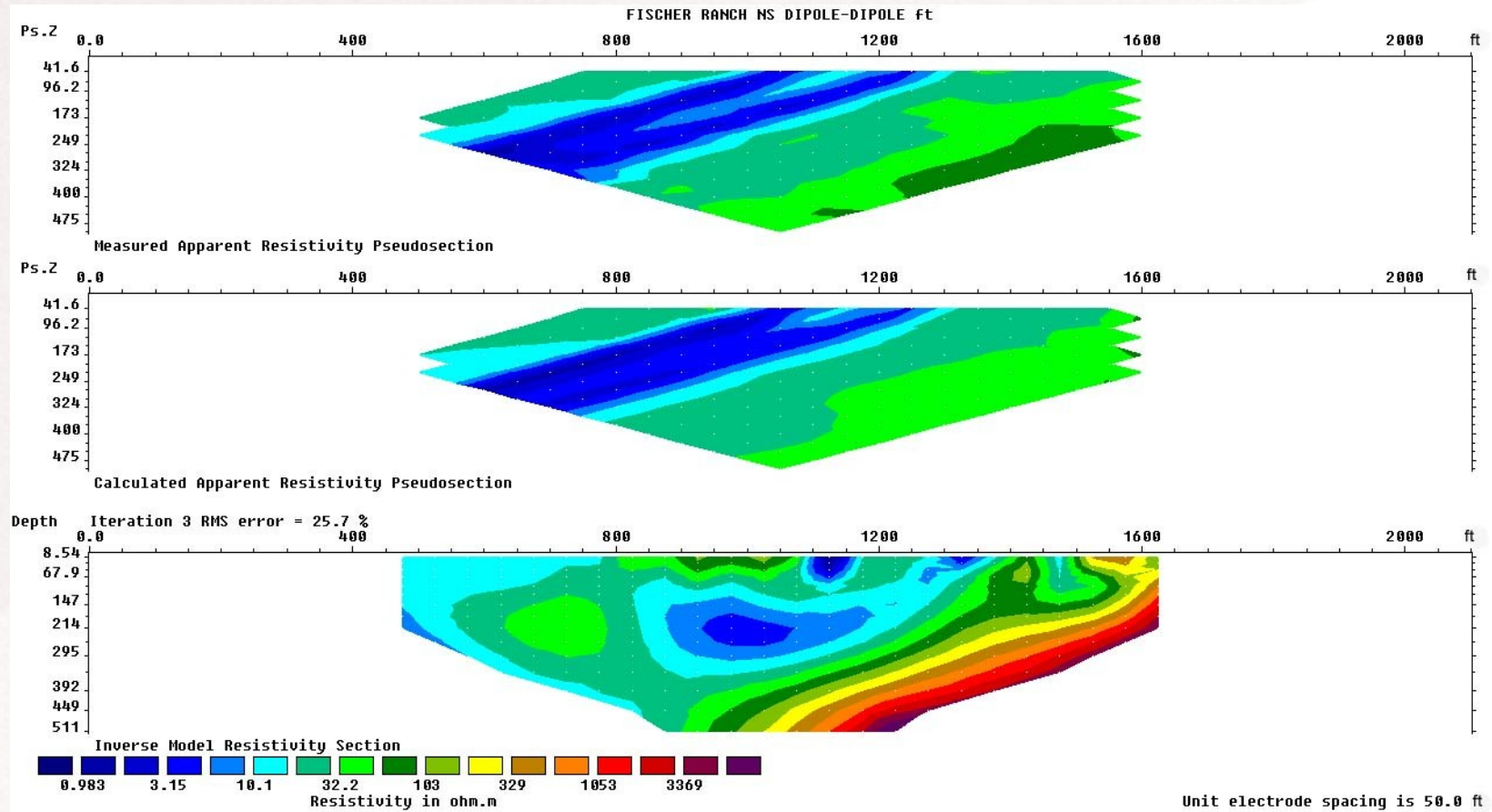


Additional studies

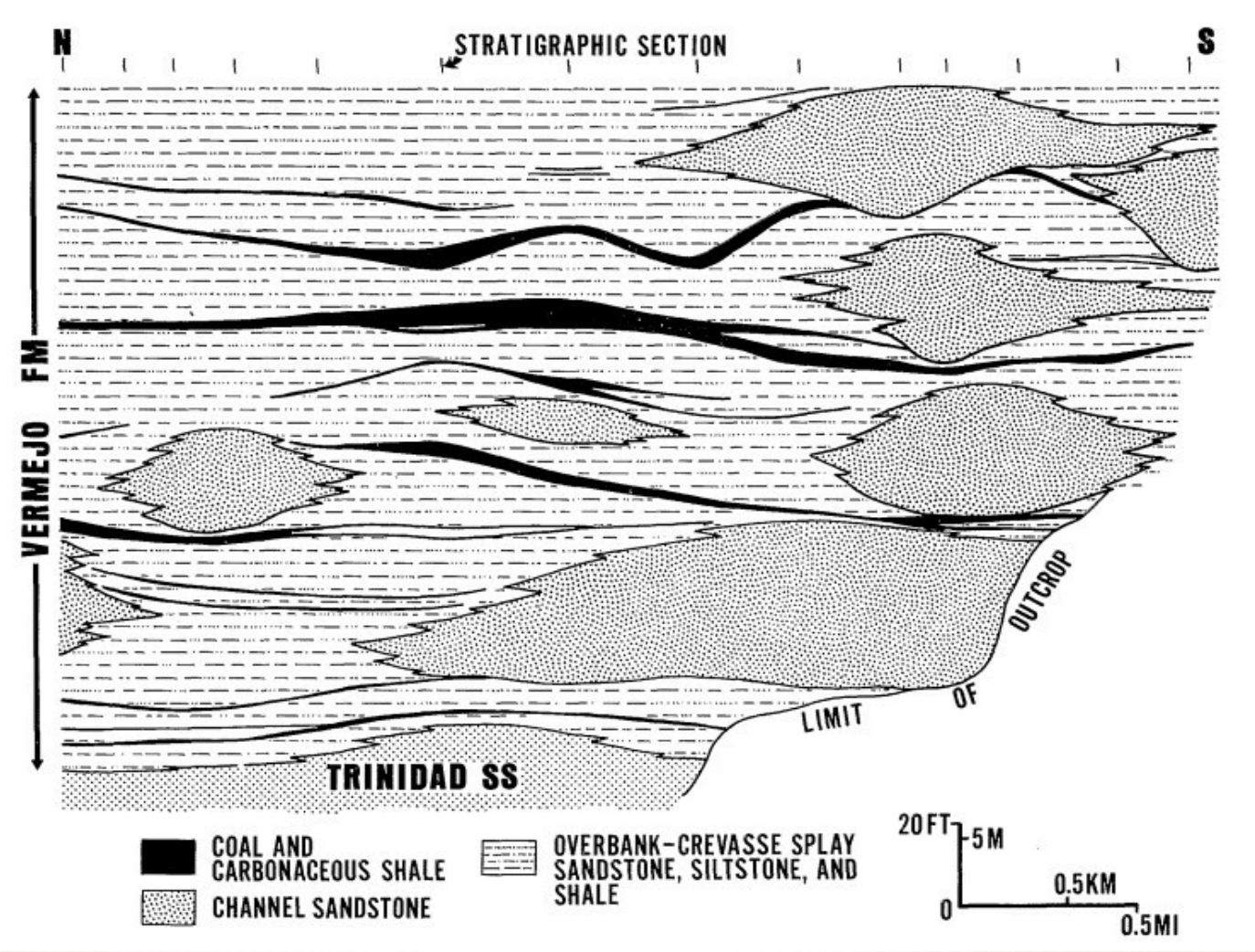
- Dike structure may be more apparent on a magnetic survey
- Joint resolution of gravity and magnetics may add detail from additional constraints
- Higher resolution of channel sands may be acquired with a resistivity survey



2D resistivity survey lot 130





Stratigraphic section



Silver Spurs gravity reports

silverspurspoa.com/new

Documents->Gravity Report

 regional gravity survey silver spurs ranch revisited 6.10.2023.pdf	1.83 MB
 sspurGrav110206.pdf	5.9 MB
 sspurGravAppdxC.pdf	64.76 KB



Complete Bouguer Gravity Anomaly

