

Geophysical Methods

and why they are useful

J.R. Leeman

Gravity

Physical Property: Density

Units: mGal (milli-Gals)

Instrument: Gravimeter

Time to Collect: Slow



Image: http://www.uni-stuttgart.de/gi/geoengine/phys_geod/gravimeter_gross.jpg

Gravity Map

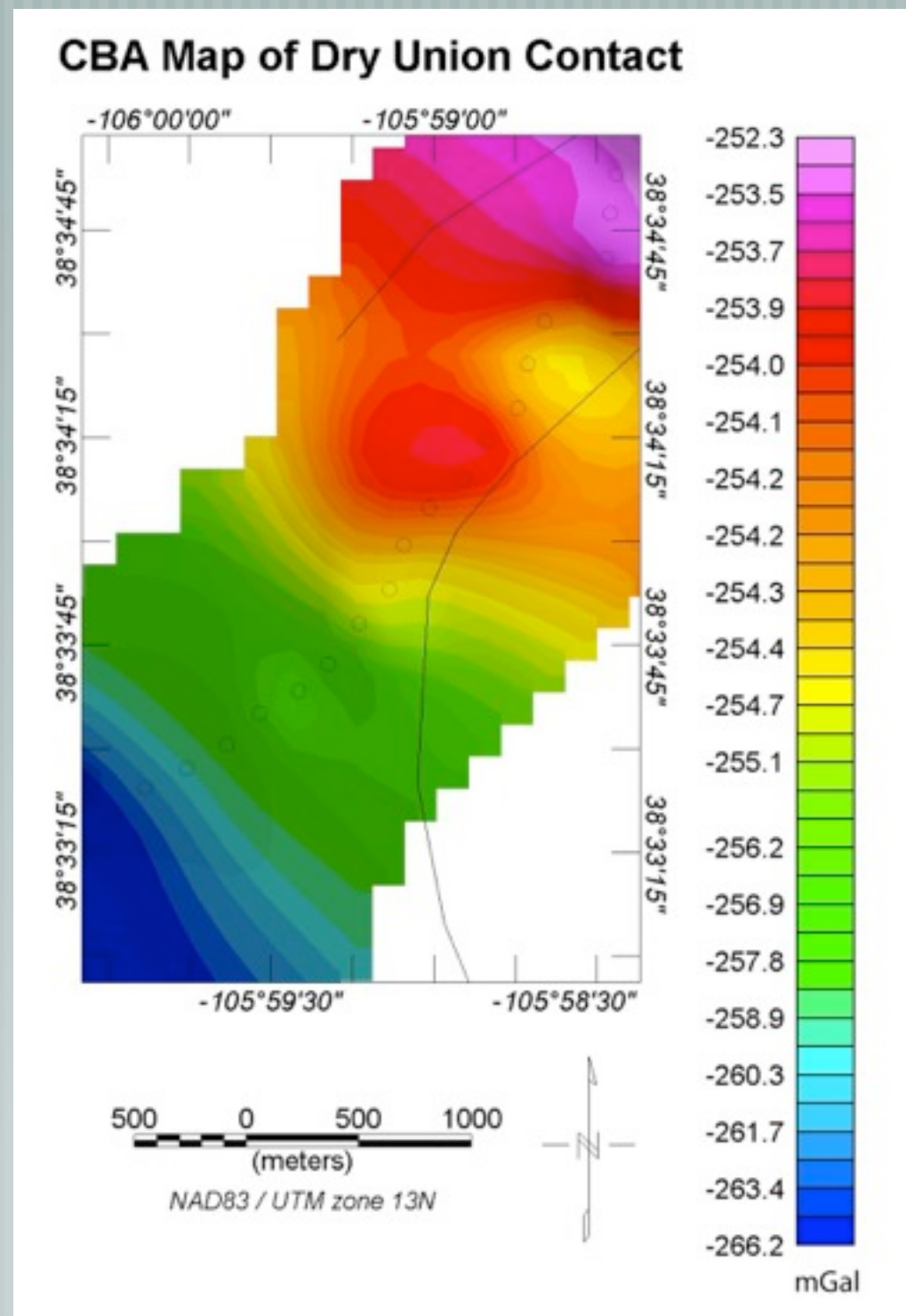


Image: Cullen Hogan

Magnetics

Physical Property: Magnetic Sus.

Units: nT (nano Tesla)

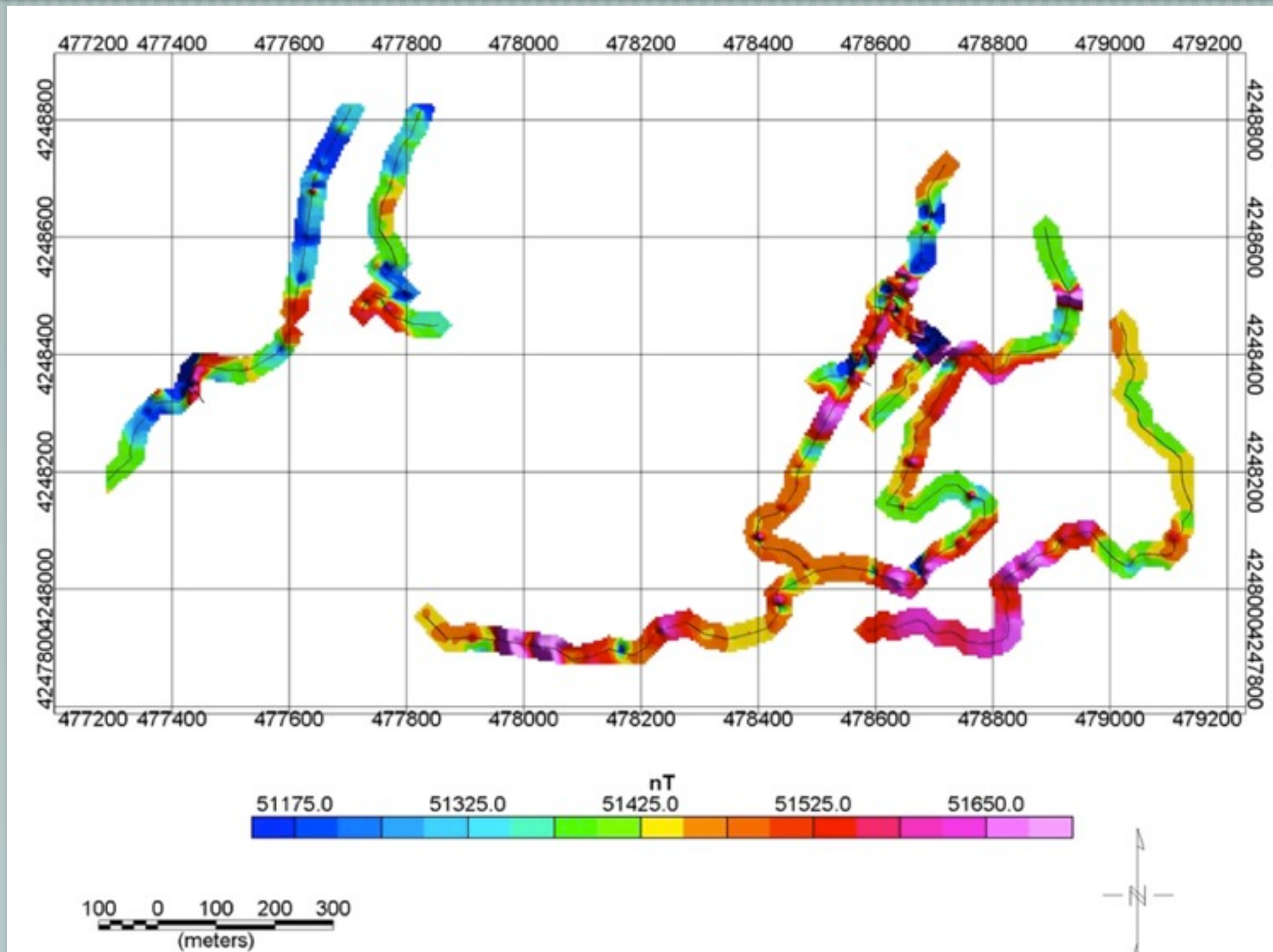
Instrument: Magnetometer

Time to Collect: Very Fast



Image: John Leeman

Magnetic Map



Ground Penetrating Radar

Physical Property: Dielectric Const.

Units: varies

Instrument: GPR

Time to Collect: Fast



Image: Jefferson Chang

GPR Over Tanks

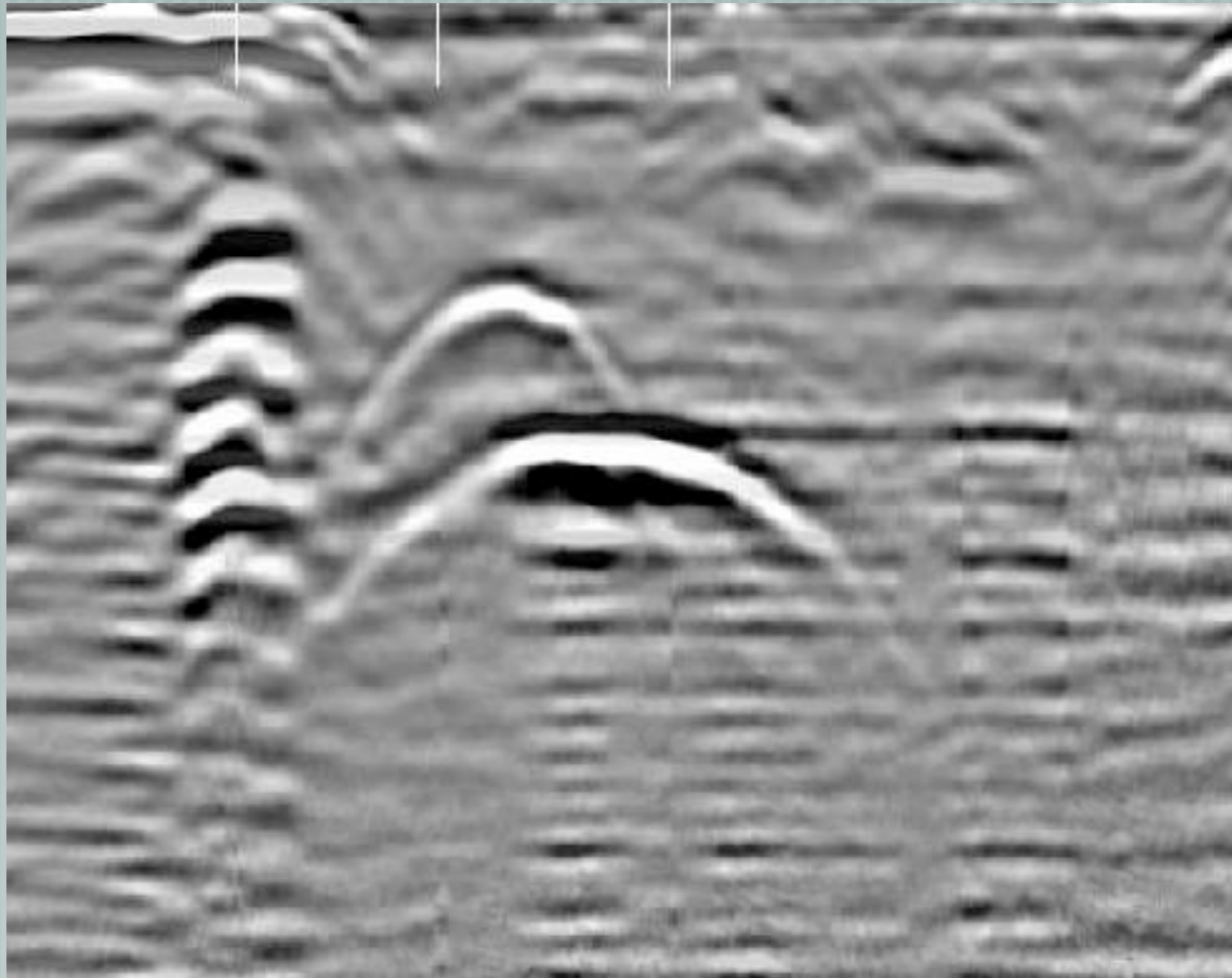


Image: <http://www.gprcentral.com/images/GP-GPR-Tank-Cross.jpg>

Seismic

Physical Property: Velocity or Impedance

Units: varies

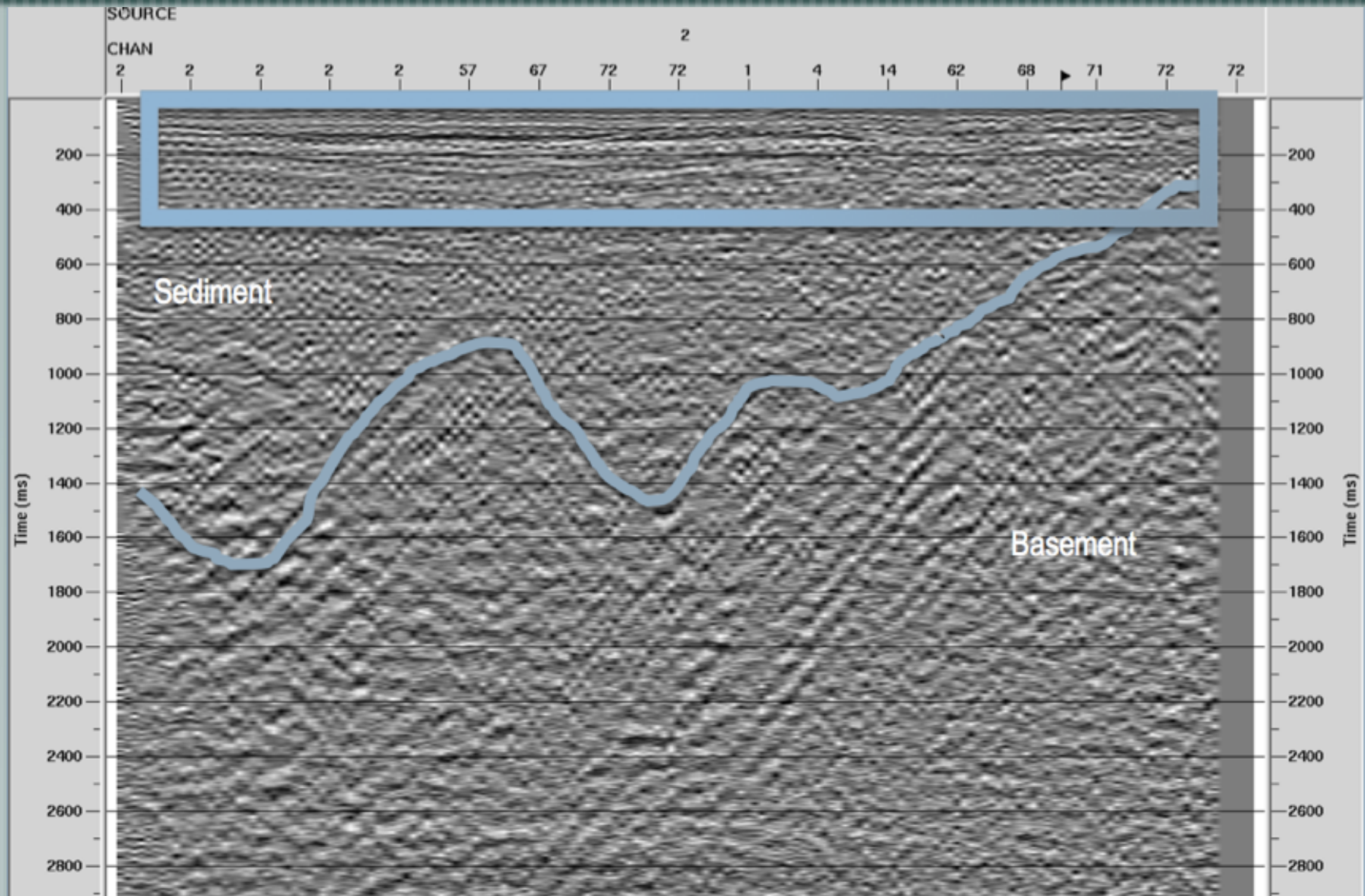
Instrument: Geophones/Source

Time to Collect: Slow



Image: Jefferson Chang

Seismic Line



Electric/Electromagnetic

Physical Property: Varies

Units: Varies

Instrument: MANY

Time to Collect: Generally Quick



Image: John Leeman

Other Methods

— [Nuclear Radiation

— [VLF/ULF Surveys

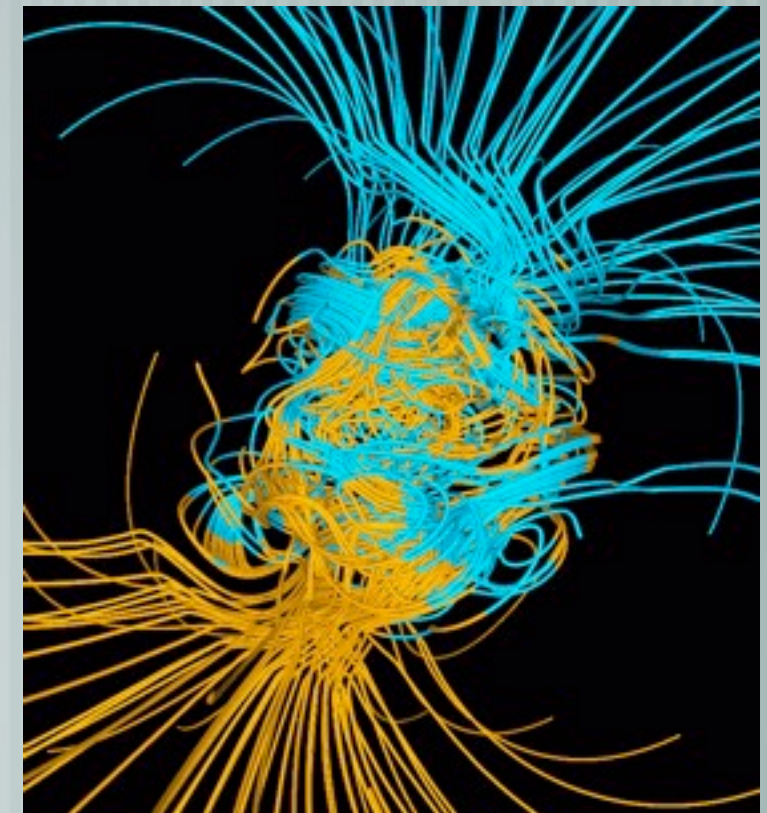
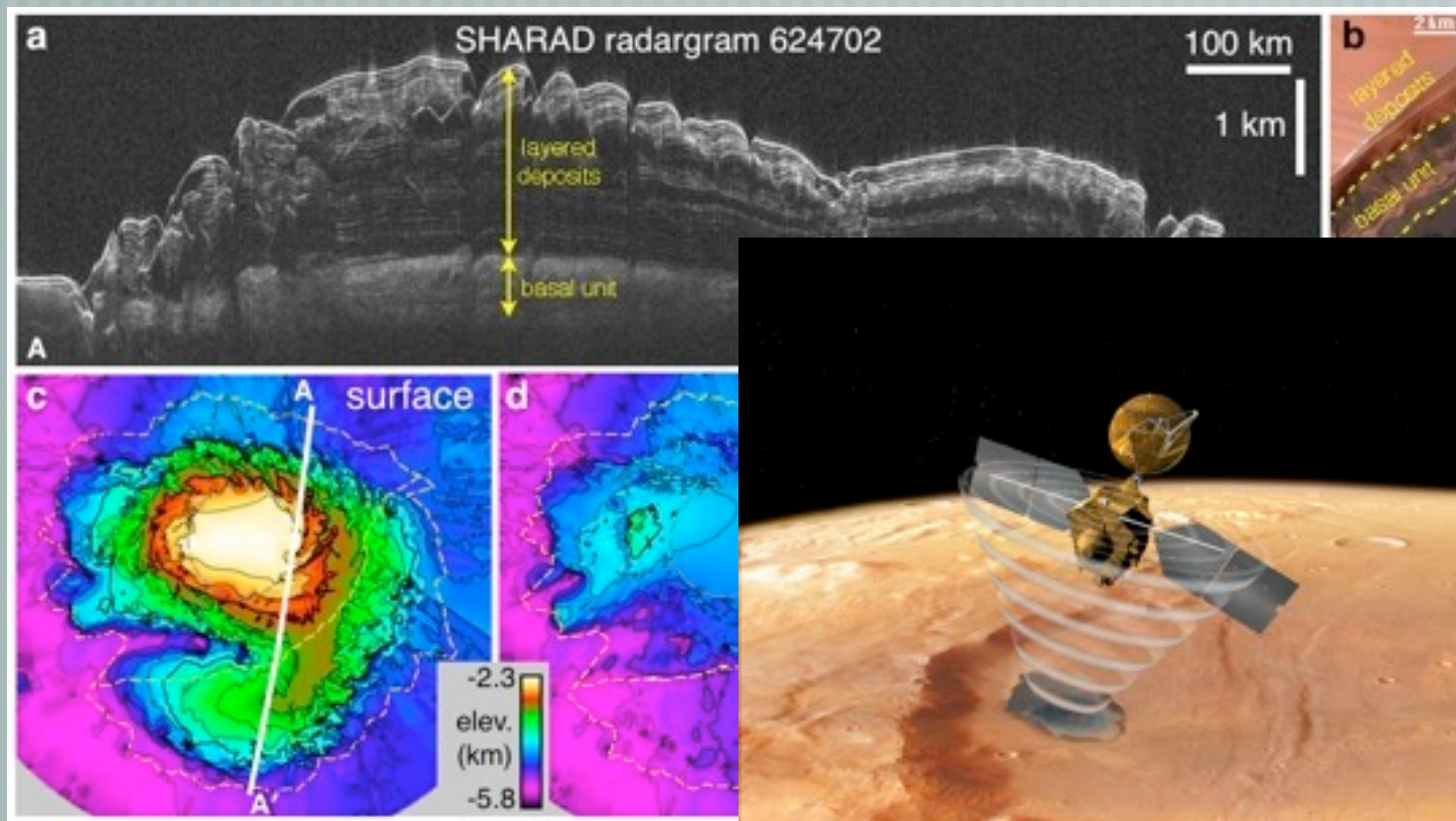
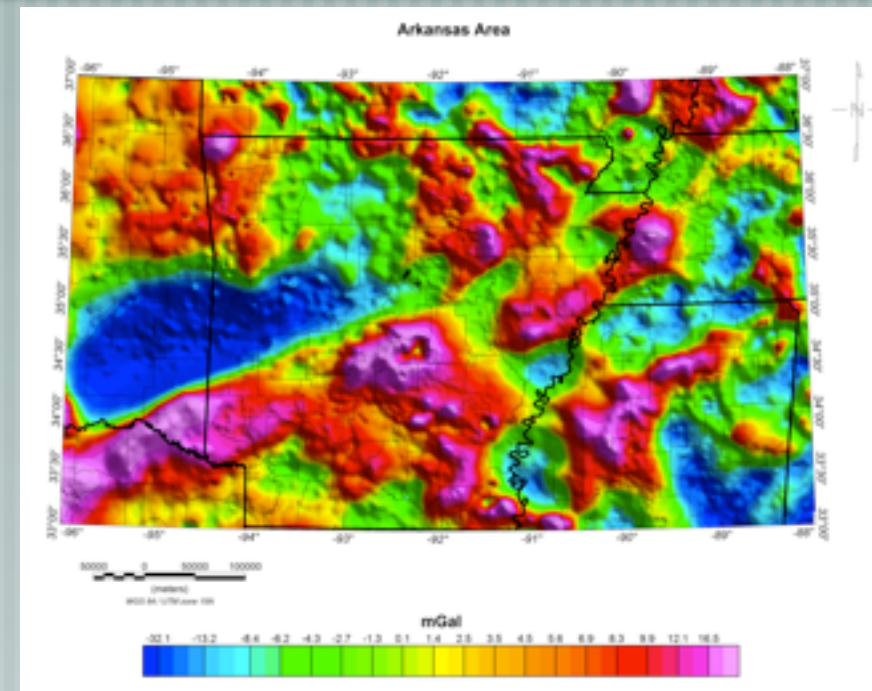
— [SP/IP

— [Remember Geophysics can
also take place in the lab!



Image: John Leeman

Scale...



Assumptions