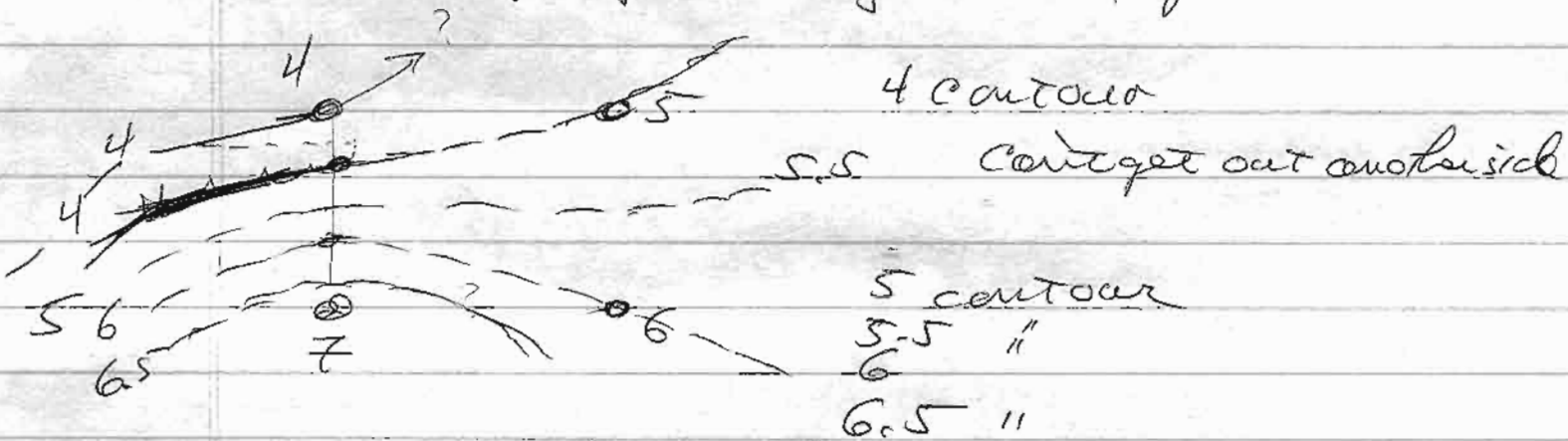


We'll use Scofer

Typically ~~HAVE~~ TRIGGING, MINIMUM CURVATURE, RADIAL BASIS.

Given a regular grid of points



cell by cell

SURFER / GRID / DATA → choices

x, y, z
method

output file

line geometry MIN, MAX, interval = SMOOTH?

Presentation Types

Classed Post Quick & Dirty
Post — OVERLAY

CONTOUR

Software day - SURFER & MAGICK

For Mapping Techniques:

MAG

Conductivity

possibly resistivity, gravity

- Acquire data on a grid
- Typically (w/ our magnetometer)
 - o high data density along lines
 - o regular spaced lines

Need ≥ 2 samples / shortest anomaly
so, if target anomaly = 1 meter,
line spacing @ $\frac{1}{2}$ meter

Once Collected, Need to Interpret

MAPS ARE INTERPRETATION of DATA
Not Data!

From irreg/irreg data \rightarrow GRIDDING \rightarrow MAP

Gridding technique is a choice

It IS interpretation of a
non-uniform surface into data

(2)

Notes - Philippines

orig

spare

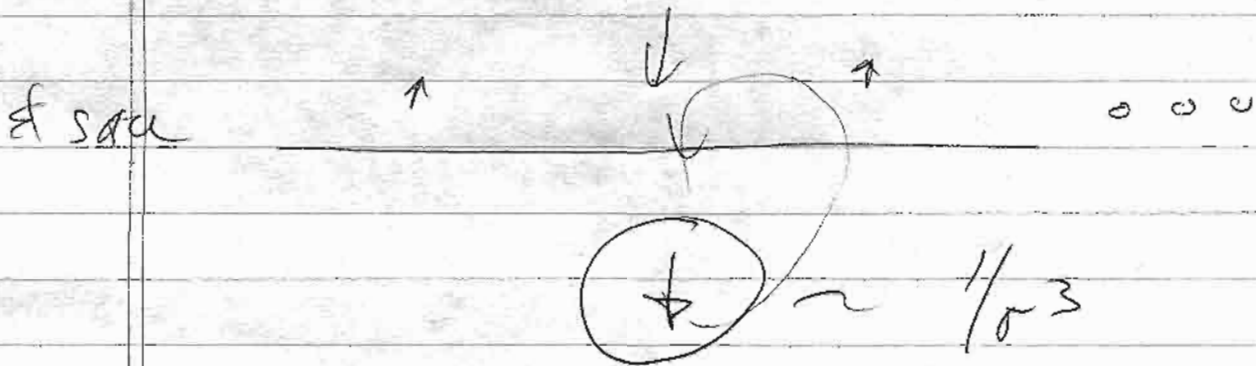
spare

As Demo, before lab

- 1) download → folder
- 2) GRID
- 3) Classified POST
- 4) Content &
- 5) OVERLAY POST !!

Upward Continuation

we have: $\vec{B}_s = \frac{\mu_0}{4\pi} \left\{ \frac{2M \cos \theta}{r^3} \hat{r} + \frac{M \sin \theta}{r^3} \hat{\theta} \right\}$



deeper = broader w/ lower gradient

Magnetics is a member of a class of fields that obey Laplace's Eq.

$$\nabla^2 B = 0$$

diverge for some:

$$\frac{d^2 B}{dx^2} + \frac{d^2 B}{dy^2} + \frac{d^2 B}{dz^2} = 0$$

or

$$\frac{d^2 B}{dz^2} = - \left\{ \frac{d^2 B}{dx^2} + \frac{d^2 B}{dy^2} \right\}$$

Thus, if we know the horizontal changes of the field, we can SOLVE FOR THE VERTICAL CHANGES

$$\int \frac{d^2 B}{dz^2} = \frac{dB}{dz} \Rightarrow \text{evaluate incrementally}$$

Upward/downward continuation is about recalculating a measured field so that it appears as if collected higher/lower

Higher = smoother, Deeper SOURCES ACCENTUATED

USUAL: $\frac{1}{2}$ line spacing \Rightarrow smoother, noty text

Rule of Thumb (Jacobsen, 1987)

- o to extract field at a depth of Z_0 , upward continue the field to $2Z_0$. Then can subtract deep from total = shallow & ISOLATE SHALLOW/DEEP SOURCES
- o find (theoretical) magnetization from an EQUIVALENT SOURCE between depths of Z_1 & Z_2

$$= Up(2 \times Z_1) - Up(2 \times Z_2)$$

THUS, - MEASURE TOTAL FIELD
- ASSUME DEEPER SOURCES ARE GEOLOGIC (non-Archaeologic)

OR - ISOLATE SHALLOW
 \rightarrow look @ GRAVE DEPTHS!

Example (Adf: web)

MAGICK IS FREE →

File open / SURFER GRID

Options / SITE

OPERATIONS / Clip Cloud Contour

Elev. (grid units, + up)

File < contour field

File < orig - contour (Residual)

SURFER

- ~~open~~ / MAP / contour

MAP / IMAGE

etc