QUIZZ 1

Please find the location (X=??m) and the depth (z0=??m) of a 2D thin dyke structure if we assume that we have a contact model (N=0,1,2 or 3?).

Make use of the following figures.

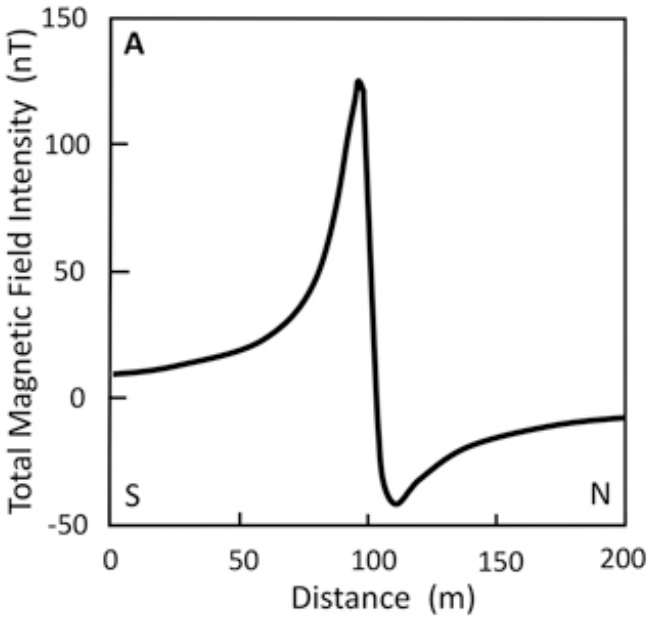

Figure 1: Total magnetic intensity (*TMI* anomaly).

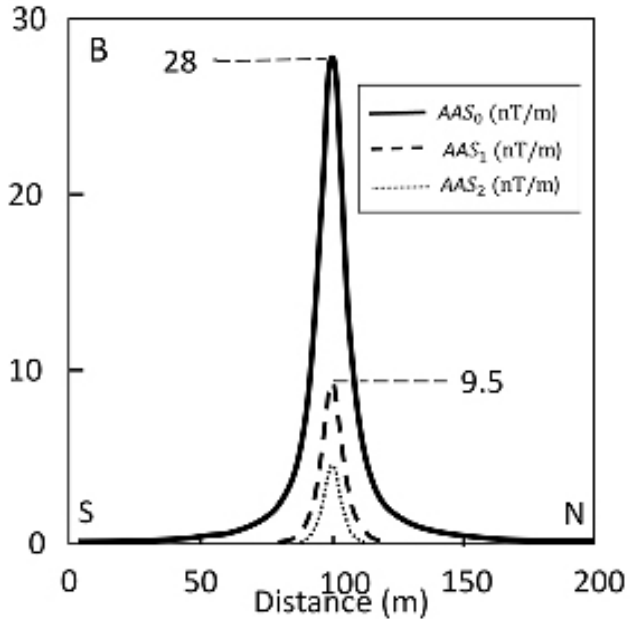

Figure 2: Analytic signal (or full gradient) for first- and second-order derivatives

QUIZZ 2

Let's assume that we have a drum shaped source and the TMI is shown in Figure 3A. Normalized observation spacing in terms of the survey heights measured in feet. Therefore, the results given in normalized distance units give both SI and non-SI units when appropriate. The drum model is vertical with a height of 0.9652 m (3.16 ft), external radius of 0.2921 m (0.95 ft), and thickness of 0.001 m. The inducing field intensity was 54000 nT with an inclination of 68° and the declination of 0°. The apparent susceptibility was 107.73 SI. The "apparent" remanent magnetization was 2739.3 A/m, with a remanent inclination of 6° and a remanent declination of 10°. Using all the above parameters to the code of Talwani (1965) at an observation elevation of 1.524 m (5 ft) above the top of the drum and the spacing of 0.3048 m (1 ft) we estimated the amplitude of analytic signal AAS and its 1st derivatives and 2nd derivatives as shown in Figure 3B.

Please, estimate the location (X=??m) and the depth (z0=??m) of our anomaly.

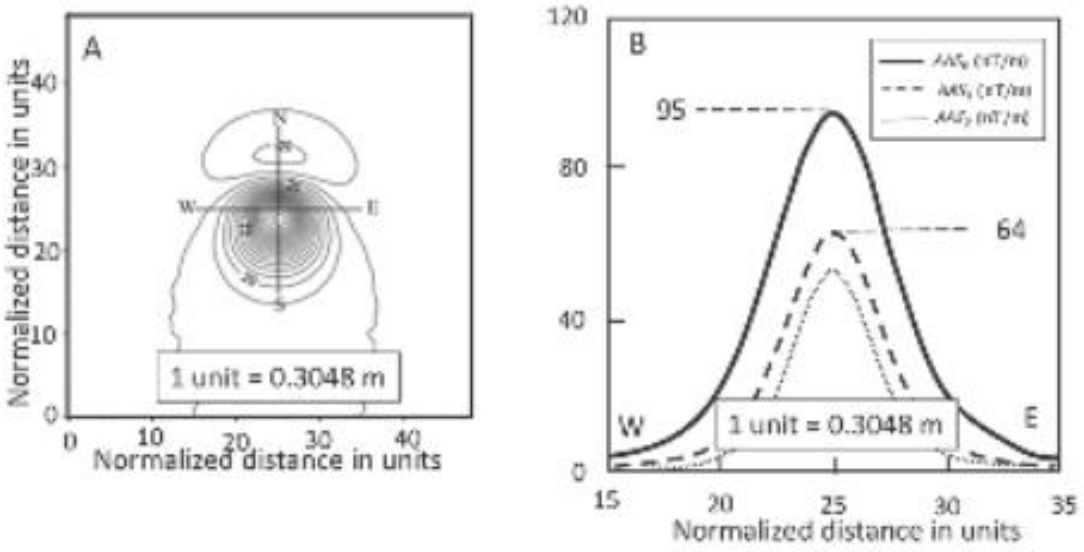

Figure 3. **A**. Total field magnetic anomaly for a vertical drum centered 5 ft below the observation level. Contour interval is 10 nT. **B**. Analytic signal (AAS_0) (thick line) and its first (AAS_1) (dashed line) and second (AAS_2) (thin line) order derivatives along a WE profile through the epi-centroid (after Salem and Ravat 2003).

QUIZZ 3

The slope of the top of the main structure is estimated Zt = 2.18 km, as shown in Figure 4. Knowing that the Kpeak (or Kmax) is Kmax=0.031cycles/km, you should estimate the Zb (km).

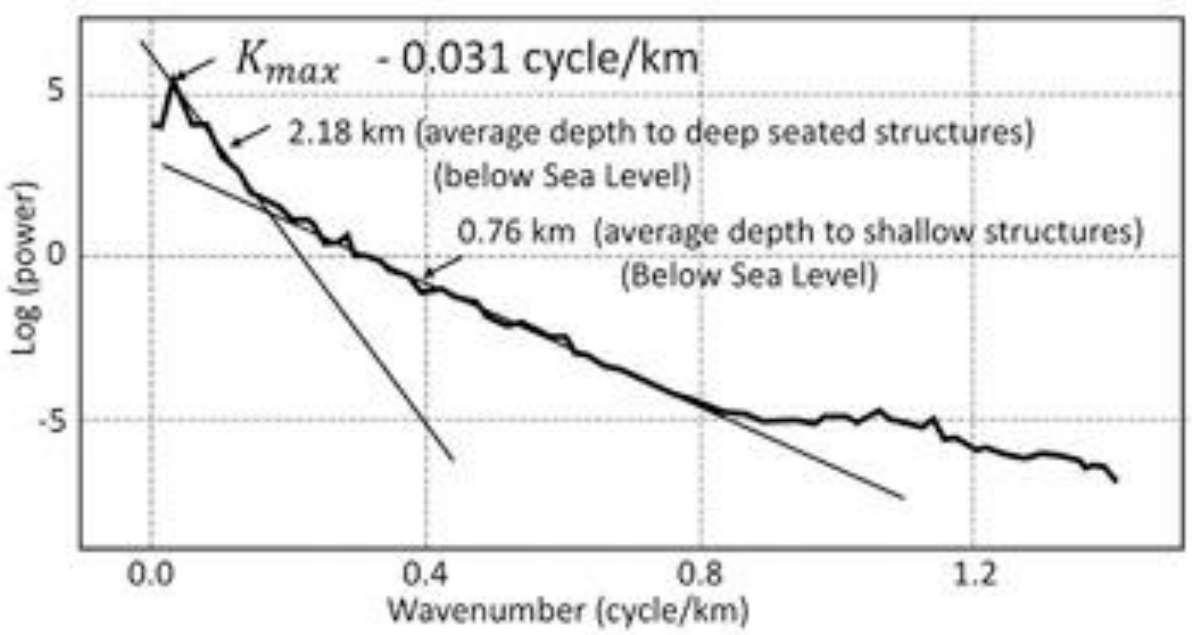

Figure 4. Example of the spectral peak method