

Physics 699 , Assignment 5

Summarize the following papers and answer questions listed below. The PDFs can be found on the class webpage at :

<http://www.ualberta.ca/~unsworth/UA-classes/699/699index.html>

1. Read Cagniard (1953) and summarize the main points. What exactly is an Amperian man?
2. Read Cantwell and Madden (1961). Summarize and emphasize how the MT data were recorded. What problems were encountered in the data collection?
3. Read Madden and Nelson (1963). This paper justifies the MT method proposed by Cagniard. Why was this defence necessary? Describe the evidence presented, and explain how it justified the method proposed 10 years earlier by Cagniard.
4. Read Unsworth (2010). Summarize what MT has told us about continent-continent collisions. What has MT told us that other geophysical methods could not tell us.

References

- Cagniard, L., Basic theory of the magnetotelluric method of geophysical prospecting, *Geophysics*, 18, 605-635, 1953.
- Cantwell, T., and T. R. Madden, Preliminary Report on Crustal Magnetotelluric Measurements, reprinted from *Journal of Geophysical Research*, 65, 4202-4205, 1961.
- Madden, T., P. Nelson, A defence of Cagniard's magnetotelluric method: Project NR-371-401, Geophysical Lab, Massachusetts Institute of Technology, 41pp, 1964.
- Unsworth, M.J., Magnetotelluric studies of continent-continent collisions, *Surveys in Geophysics*, 31(2), 137-161, doi 10.1007/s10712-009-9086-y, 2010.