University of Manitoba
2015 Geophysics Field School

Birds Hill Project: Data Analysis
DC Resistivity

Groups

Questions 1-2 should be completed by the data acquisition group, questions 3-4 should be completed in data analysis pairs, and questions 5-6 should be completed individually.

Data Archiving

1. Enter all of the DC-resistivity survey data collected into a worksheet using GRAPHER or EXCEL. Calculate the apparent resistivity ρ_a for each electrode spacing a. The data (ρ_a for each electrode spacing a) should be carefully archived with a README file explaining its format, date and place of collection, the group who collected it, the group who archived it, and any other pertinent details (*i.e.* array configuration *etc*). It is necessary to submit only one set of results per field group.

2. You will be provided with a file containing the dipole-dipole apparent resistivity data. Create a corresponding README file and submit the two files electronically.

Data Reduction And Analysis

3. Plot the Wenner data on a $\log(\rho_a)$ vs. $\log(a)$ plot.

4. Plot the dipole-dipole data as a pseudosection.

Interpretation

5. Make a qualitative interpretation of the Wenner results using the plots and compare the results from the two soundings completed by the group. Indicate the number of layers evident in the data and the approximate resistivity of the layers. Do the dipole-dipole results support the use of a layered interpretation?

6. Provide a geological interpretation of the results. Use published values of conductivity (Figure 1) and the geological map of Birds Hill to link observed conductivities to those tabulated for different materials.

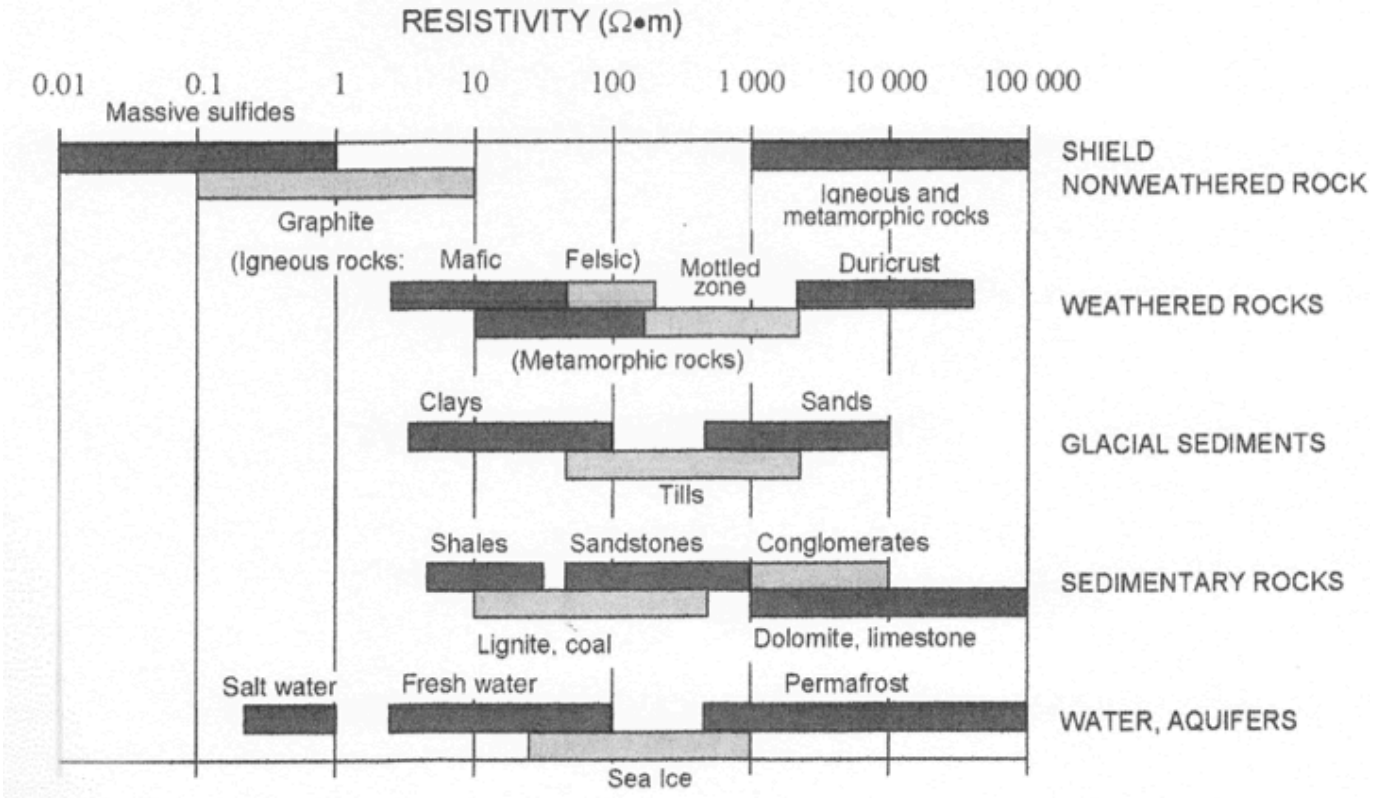

Figure 1. Typical range of resistivities of geologic materials (Knight and Endres, 2005).

REFERENCES

Knight, R.J., & Endres, A.,L., 2005. An Introduction to Rock Physics Principles for Near Surface Geophysics. Chapter 3 in *Near-Surface Geophysics,* ed. Butler, D.K., Society of Exploration Geophysicists, Tulsa, Okla. p. 31-70.