

Magneto-Telluric

Introduction

As the name Magneto-Telluric (MT) already suggests, it involves Magnetic as well as Telluric (Earth current) measurements. Therefore, we start with considering the Earth's magnetic field, modeling the response of magnetized bodies, followed by studying electrical currents related to the response of resistive bodies. Then we will dive into understanding Electro-Magnetism (EM) and learn about the various ways EM is measured and used. The use of source-controlled EM (CSEM, TDEM) and natural-source generated fields in the earth (MT). Processing this data to derive Earth properties using inversion, which starts with an approximate subsurface model and iteratively updates the model parameters to make the forward calculated (modelled) response fit the observations. In the course you will study relevant chapters of a book, presentations, watch videos and do many practical exercises. Multiple-choice quizzes are provided to enhance learning.

The Course

What is new in this 2-day course is that it contains an introduction to Machine Learning. I am personally convinced that geoscientists should be aware of the way Machine Learning will play a vital role in all aspects of geophysical data acquisition, processing, and interpretation, including MT. There is no need to know in detail how these algorithms work internally, but it is necessary to know how to use them correctly.

Audience

The course is mainly meant for geophysicists.

Prerequisites

A reasonable understanding of geophysics