

Course Code

GP03

Course Title

**Magnetotelluric Method and
Its application for Exploration Problems**



Instructor

Dr. Ahmet Tugrul Basokur

Professional Career

Ahmet Tugrul Basokur is a professor at Ankara University where he has worked since 1978. He started there as a researcher and later became an Associate Professor in 1988. He began his current position in 1994. He received a B.Sc. in Applied Geophysics in 1976 from Istanbul University and Ph.D. in the same area from Ankara University in 1982.

He has been a member of the Society of Exploration Geophysicists since 1981 and European Association of Geoscientists and Engineers since 1980. In his community, he has been active in The Chamber of Geophysical Engineers of Turkey on the executive committee from 1978 to 1982 and 1985 to 1987, Union of Chambers of Turkish Engineers and Architects as a member of the committee for honors from 1988 to 1996, and the Balkan Geophysical Society as vice-president from 1994 to 1996 and president from 1997 until 2000. He was one of the editors of Journal of the Balkan Geophysical Society between 1999 and 2006.

He has published scientific articles in Geophysical Prospecting, Geophysics, Computer & Geosciences and some other well-and Engineers.

His interests are in modeling and inversion of the electric and electromagnetic data for the real exploration problems including geothermal, mining and petroleum exploration. He authored seven books about electrical and electromagnetic methods, spectral analysis and filtering theory, parameter estimation methods.

He is head of the Department of Geophysical Engineering, Ankara University Faculty of Engineering since 1997 except the year of 2008.

Course Objective and Description

This course will review the principles of magnetotelluric (MT) method and its application of petroleum exploration. The topics include the electromagnetic wave equations, data acquisition, measured quantities, the Fourier transform of MT time series, dimensionality and distortion, forward modeling and inversion.

Who Should Attend

Geologists, geophysicists, and engineers who want to understand the use of electromagnetic methods for oil and gas exploration/production

Prerequisite

Basic level of physics, math, and geology

Learning Level

Intermediate

Duration

2 days

Course Material

Course notes, and referenced articles

Course Outline

Day One

- Introduction to magnetotelluric method
 - o Earth natural electromagnetic fields
 - o Data acquisition systems and basic definitions
 - o Apparent resistivity and phase definitions
 - o Data presentation, MT sounding curves and pseudosections
 - o Data processing, dimensionality, rotation and distortion.

Day Two

- Inversion, interpretation and applications
 - o Inversion of MT data
 - o Interpretation of final resistivity sections and maps
 - o Example from oil and gas exploration
 - o Controlled source electromagnetic (CSEM) method
 - o Marine MT and CSEM
 - o Example from marine applications
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