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Magnetotelluric theory and practice in geothermal exploration

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Cooperating companies and Universities



INAGA



IF Technology



DNVGL



Institute Teknologi Bandung



Delft University of Technology
Department of Geo-Technology



University of Twente
Faculty of ITC



Universitas Gadjah Mada



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University of Utrecht
Faculty of Geosciences –
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01_Introduction

Course programme (1)

- **Day 1** (*lectures and exercises*)
 - Introduction
 - The geothermal system
 - Factors affecting resistivity
 - Magnetotellurics in geothermal exploration
- **Day 2** (*field school, lectures and exercises*)
 - Field school I: installing magnetotelluric stations
 - Magnetotelluric data processing theory

Course programme (2)

- **Day 3** (*field school, lectures and exercises*)
 - Field school II: Picking up magnetotelluric stations
 - Electromagnetic inversion and modelling theory
 - Field school III: Data processing
- **Day 4** (*field school, lectures and exercises*)
 - Geothermal interpretation of resistivity models
 - Field school III: Data processing
 - Field school IV: Modelling
- **Day 5** (*field school*)
 - Field school IV: Modelling
 - Closing session

Course programme (3)

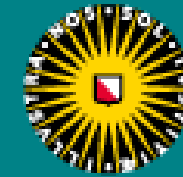
- **Day 3** (*field school, lectures and exercises*)
 - Field school II: Picking up magnetotelluric stations
 - Electromagnetic inversion and modelling theory
 - Field school III: Data processing
- **Day 4** (*field school, lectures and exercises*)
 - Geothermal interpretation of resistivity models
 - Field school III: Data processing
 - Field school IV: Modelling
- **Day 5** (*field school*)
 - Field school IV: Modelling
 - Closing session

Dr. Eng. Yunus Daud

21/01/2019



Msc. Wouter van Leeuwen



Utrecht University

Learning outcomes

- Knowledge
 1. Electromagnetic principles
 2. Properties of the magnetotelluric transfer function
 3. Causes of distortion of the magnetotelluric signal
 4. Basic concepts of magnetotelluric data processing and inversion
- Comprehension
 1. Field procedures to maximize magnetotelluric data quality before and during acquisition
 2. Basic concepts of tools and techniques available for magnetotelluric data Quality Assurance and Quality Check
- Application
 1. Assess if a magnetotelluric field survey is properly designed and carried out
 2. Quality Check the delivered magnetotelluric responses
 3. Run a 1-D and a 2-D inversion of a magnetotelluric data set
 4. Assess the quality of a resistivity model and its geothermal interpretation