# Alternative Earth

# Alt.Earth

# Software training workshops programme

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# Alt.Earth Fundamentals for Log Analysis

**DURATION:**
2 days

**DATES:**
TBC

**LOCATION:**
Online / in person

**DOMAIN:**
Petrophysics

**AE MODULES:**
AE Platform Basic

## Objectives
Learn the general basics of AE primary applications, with hands-on exercise that illustrates most of their features and functions.

The course includes:
- Familiarisation with AE
- Be able to import and export data into AE
- Perform data editing and manipulation, data calculation.
- Work through to a basic deterministic Interpretation for single well and multi-well

## Benefits
Learn from the experts that write, support and design AE. Throughout the course attendees are hands-on with AE getting familiar using the basic modules of the software.

## Who should attend
The course is suited to those new to AE or new to Petrophysics software. Petrophysicist, Geologist, Reservoir Engineer, Well log analysis and Technical Assistant with different levels.

## Course Instructor
This course will be presented by Alternative Earth instructors either from our Senior Support staff or Subject Matter Expert Team.

## Course description and Modules
The course is conducted with an engaging combination of lectures and practical exercises using custom databases to explore the basic functionality in AE. There will also be a basic introduction to deterministic petrophysical concepts and techniques along with their subsequent application in AE.

The course will cover the following topics:
- Project set up and database structure
- Viewing data in AE
- Data editing and manipulation, data calculation
- Quick introduction to basic interpretation calculation
- Multi-Well interpretation
- 3D Petrohysics

## Certification
On completion of this course you will receive a certificate of attendance.

# Alt.Earth User Apps

**DURATION:**
1 day

**DATES:**
TBC

**LOCATION:**
Online / in person

**DOMAIN:**
Petrophysics

**AE MODULES:**
AE User Apps

## Objectives
This course caters for those looking to develop their own custom User Apps using AE software. The workflows presented will cover the setup and running of User Apps using the available programming languages. Additionally, attendees will be shown how to customise and create interactive log plots. Attendees will gain an overview of the available programming functionality within AE through the development of a User App through common programming languages, including Python and C#.

## Benefits
Learn from the team that write, support and design AE. Our training is delivered by experts who use the software daily and bring their detailed understanding to you. Throughout the course we're "hands-on" with AE, employing real-world examples and industry-based exercises to guide the attendees through the process of creating and running custom User Apps. AE contains a wide range of programming languages to cater to your needs.

## Who should attend
Our course caters to Petrophysicists, Geologists, Reservoir Engineers, Production Engineers and Technical Assistants with varying levels of experience. It is preferable if you have already attended the 'AE Fundamentals for Log Analysis' workshop or have previous working experience with AE, but it is not essential. This course primarily focuses on working with coding, therefore a basic knowledge on programming languages would be advantageous, but it is not essential.

## Course Instructor
This course will be presented by Alternative Earth instructors either from our Senior Support staff or Petrophysics team.

## Course description and Modules
The course is conducted with an engaging combination of lectures and practical exercises designed to lead new users to competency.

The course is made up of the following sections:
- Introduction to Programming
- Setup User Preferences
- AE User Programming Setup
- Compilers
- Advanced Features
- Common Issues
- Creation of a User App
- Python Functionality
- Working with the API

## Certification
On completion of this course you will receive a certificate of attendance.

# Alt.Earth Image Log Analysis

**DURATION:**
1 day

**DATES:**
TBC

**LOCATION:**
Online / in person

**DOMAIN:**
Petrophysics

**AE MODULES:**
AE Image Analysis, DLIS Importer/ Exporter; LAS Importer/Exporter; TVD Module; AE Platform

## Objectives
This course caters for those wanting to gain experience getting the most out of your image logs.

The workflows are performed using the most commonly used logging tool types for Borehole Imaging including: Wireline Electrical and Acoustic Imaging Tools and LWD Imaging Tools. Attendees will learn how to import, QC and process raw data followed by manual picking dips and breakouts. Then the attendee will visualize these dip sets using a plethora of dip interpretation plots, calculate structural dip etc.

## Benefits
Learn from the team that write, support and design AE. Our training is delivered by experts who use the software daily and bring their detailed understanding to you. Throughout the course we're "hands-on" with AE, employing real-world examples and industry-based exercises to guide the attendees through several Borehole Imaging workflows.

## Who should attend
Our course caters to Geologists, Petrophysicists and Technical Assistants with varying levels of experience. It is preferable if they have already attended 'AE Fundamentals for Log Analysis' workshop or have previous working experience with AE but not essential. Primarily this is a software workshop so a basic knowledge on the principles of Borehole Imaging would also be an advantage but this will be covered briefly at the start of the course.

## Course Instructor
This course will be presented by Alternative Earth instructors either from our Senior Support staff or Petrophysics team.

## Course description and Modules
The course is conducted with an engaging combination of lectures and practical exercises designed to lead new users to competency.

The course is made up of the following sections:
• Introduction to Image Analysis

• Borehole Image Processing including:
  • Data Import
  • Dip Picking
  • Interpretative Dip Plots Pick Relationships
  • Structural Dip and Zonation
  • Breakouts
  • Core Pictures and Images
  • Export Image and Dips to DLIS/LAS

## Certification
On completion of this course you will receive a certificate of attendance.

# Petrophysics and Workflows for Complex Mineralogy

**DURATION:**
1 day

**DATES:**
TBC

**LOCATION:**
Online / in person

**DOMAIN:**
Petrophysics

**AE MODULES:**
Multi Mineral – Mineral Solver Uncertainty Workflow

### Objectives
Provide the participant with an understanding of the theoretical basis of the optimizing approach to petrophysical interpretation, a good understanding of how to create models in mineral solver. This module is based in the probabilistic, or optimizing, approach to modelling wireline and rock data.

### Benefits
Learn from the team that write, support and design AE. Throughout the course participants are "hands-on" with AE, using examples and industry based exercises to guide the experience in a broad Probabilistic workflow.

### Who should attend
Petroleum Geologist, Engineers, Petrophysicists - with varying level of expertise- preferable if they have already attended 'AE Fundamentals for Log Analysis' workshop.

### Course Instructor
This course will be presented by Alternative Earth instructors either from our Senior Support staff or Petrophysics team.

### Course description and Modules
The course is conducting with an engaging of lectures and practical exercises. Introduction to Mineral Solver and Data Preparation.

The course will cover the following topics:
- Fundamentals of mineral Solver models.
- Mixing Mineral Models and Multi-well Analysis.
- Incorporating other data to the model - NMR, ECS or XRD data.
- Cutoff and Summation
- Multiwell interpretation
- 3D Petrophysics

### Certification
On completion of this course you will receive a certificate of attendance.

# Making the most of NMR data in Alt.Earth

**DURATION:**
2 days

**DATES:**
TBC

**LOCATION:**
Online / in person

**DOMAIN:**
Petrophysics

**AE MODULES:**
NMR Normalization &
NMR Interpretation

## Objectives
Whether you're new to working with NMR data or not, our instructor led NMR course develops the skills necessary to make full use of NMR data, not only in your Petrophysics but also your Static and Dynamic Modelling.

Beginning from first principles, we explain the unique benefits of NMR data and just how much it can bring to your reservoir understanding. However, due to the nature of NMR data, it can easily be mis-interpreted, so to gain the maximum value from it you really need to understand the data and the interpretation process. Mistakes can be caused by erroneous assumptions about the data and poor data quality, but also from failing to observe certain features in the data that are 'telling' you something about the reservoir.

This course is a hands-on, pragmatic course that allows users to maximise the value of their NMR data.

## Benefits
Delivered by experienced trainers, this is an opportunity to go beyond learning the 'button clicking' and to gain a real understanding of the design ethos and interpretation process. Throughout the course we'll be "hands-on" with AE, using real-world examples and industry-based exercises to guide the experience.

## Who should attend
Ideally suited to experienced users of AE with a good understanding of Petrophysics, who work with NMR data. This might include Petrophysicists, Geologists and Reservoir Engineers.

## Course Instructor
This course will be presented by Alternative Earth instructors either from our Senior Support staff or Petrophysics team.

## Course description and Modules
The course begins with a basic review of NMR logs focussing on the key points to keep in mind when performing an interpretation of real data. Then we'll look at the NMR Normalization module, which, because there are no delivery or presentation 'standards' for NMR data in the industry, allows for the data to be 'standardised' to a user defined format.

Most of the day will be spent working through all the options in the NMR Interpretation module which includes: cut-offs for Free Fluid and Clay-Bound Fluid; a Tapered (Spectral) function for Bound Fluid; Light Hydrocarbon Correction (LHC); calculating Permeability (3 methods) and deriving the coefficients using core data; calculating Sw using the Dual Water equation; correcting the T2 distribution for hydrocarbon signal to create T2wet; deriving Pc and PSD curves from T2wet to calculate Sw as a function of height.

The training is conducted with an engaging combination of lectures and practical exercises designed to lead users to a deeper understanding of NMR data.

## Certification
On completion of this course you will receive a certificate of attendance.

# Alt.Earth Monte Carlo

**DURATION:**
1 day

**DATES:**
TBC

**LOCATION:**
Online / in person

**DOMAIN:**
Petrophysics

**AE MODULES:**
Monte Carlo

## Objectives
All petrophysical interpretations contain significant uncertainty which comes from every step in the process, starting with the data itself. Log measurements are not absolute, they have a defined 'precision' so even a properly operating, correctly calibrated, and environmentally corrected log will not repeat exactly. For example, 2 runs of a density log will give 2 different measurements, which means 2 different answers for porosity. Which is correct?

The answer is that neither is absolutely correct, but they are both within a distribution of possible answers. Add to this, the uncertainty in every interpretation parameter, e.g. grain density or water salinity, and the uncertainty in hydrocarbon pore feet can be quite significant. But how uncertain, what is the P10, P50 and P90? And which data or parameters contribute the most to this uncertainty?

The Monte Carlo module allows you to answer these by running thousands of interpretations with user defined ranges of uncertainty for each input log and parameter, across the entire workflow. This course is a hands-on, pragmatic course that allows users to understand and quantify the uncertainty in their interpretations, before using the results in geostatistical models.

## Benefits
Being able to run a true Monte Carlo process, i.e. thousands of iterations, on the complete interpretation workflow, is a very powerful way to understand and quantify the uncertainty. Most interpretation modules and utilities in AE can be run through Monte Carlo, so understating how to effectively implement entire workflows in Monte Carlo is fundamental to gaining the most from this module. Throughout the course we'll be "hands-on" with AE, using real-world examples and industry-based exercises to guide the experience.

## Who should attend
Ideally suited to experienced users of AE with a good understanding of Petrophysics, who need to understand and quantify the uncertainty in their interpretations. This might include Petrophysicists, Geologists and Reservoir Engineers.

## Course Instructor
This course will be presented by Alternative Earth instructors either from our Senior Support staff or Petrophysics team.

## Course description and Modules
The course begins with a basic overview of the Monte Carlo process before applying it to a typical deterministic volumetric interpretation using the Vclay, PhiSw and Cutoff & Summation modules. We will then apply Monte Carlo to a non-deterministic interpretation using Mineral Solver and consider the effects of facies distributions generated by Cluster Analysis (or SOM), where the Mineral Solver workflow includes mixing facies-based models. The defaults for Monte Carlo are customisable, in particular which specific parameters are included, so we will look at how to customise the application.

## Certification
On completion of this course you will receive a certificate of attendance.

# Alternative Earth

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