Microseismicity at Soultz-sous-Forêts

ITASCA
Consulting Ltd

Microseismic Geomechanics: Increased understanding; reduced risk

InSite Lite

ITASCA Consulting Ltd

- InSite™ Lite is the free version of Itasca Consulting Ltd.'s InSite Seismic Processing software suite, provided with limited functionality and features.
- The examples shown here are taken from ICL and its partners projects.
- InSite's proprietary project (*.pcf) files contain all the configuration, event information and links to waveforms necessary to run a project in InSite. Double-clicking on the .pcf project file launches the InSite software application.
- The InSite project waveform data (*.esf) files include the results from the data processing. These files are imported for the project (.pcf file) through the data import management tool in InSite. Please note that not all of the available example projects are provided with example waveform data.
- For information on the operation of the InSite software, please refer to the product help files.
- For information on purchasing the full version of the InSite software, please contact us at support@itasca.co.uk

Example Features

- This example uses Microseismic location data recorded during the Hydraulic Fracturing of an Enhanced Geothermal system at depths over 3km at Soultz-sous-Forêts (France) and is used by kind permission of The European Hot Dry Rock project (HDR)

- This example is designed to give an overview of the features and functionalities of InSite's 3D Visualiser.

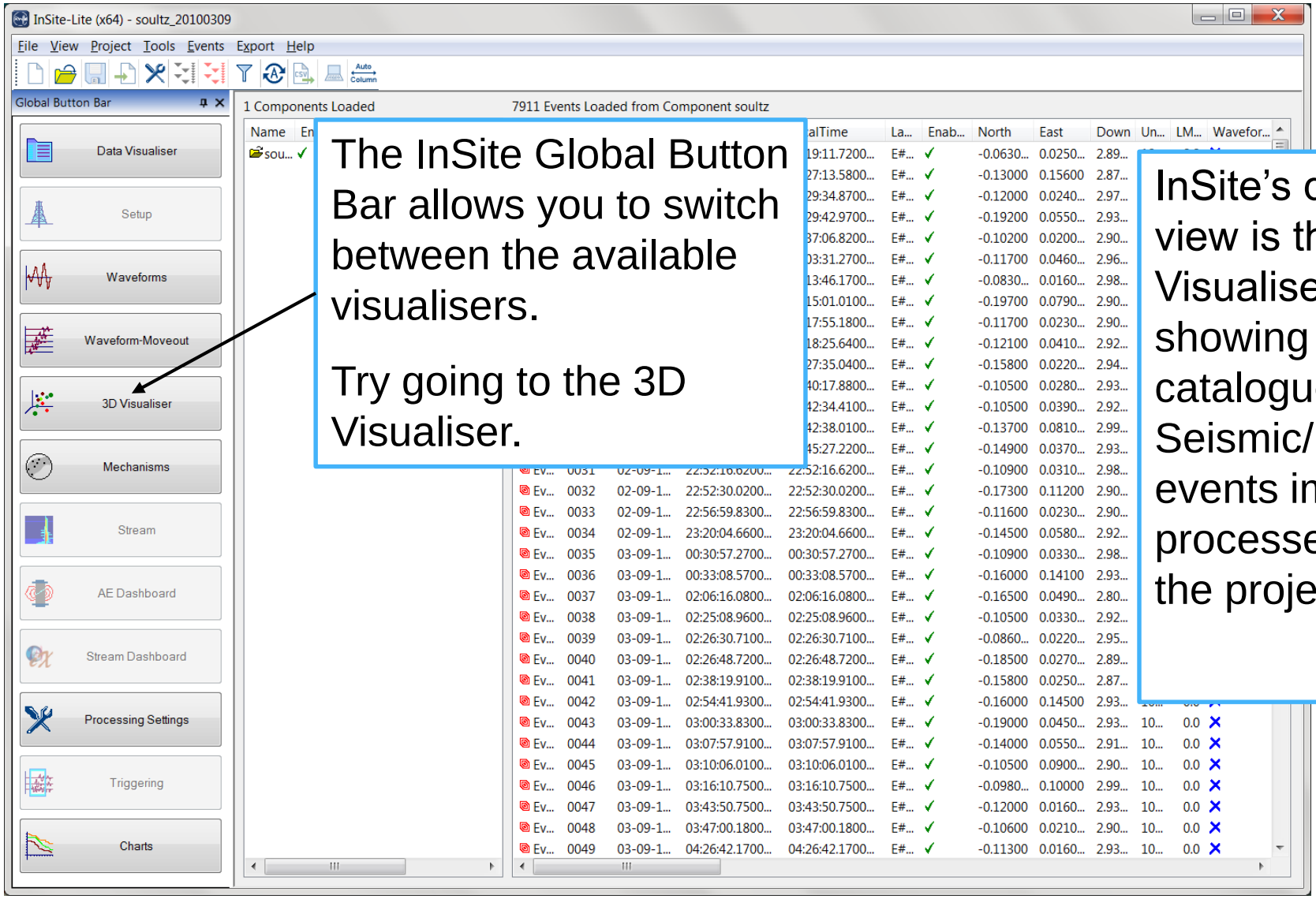
- The following slides give you some options to try in the software.

It's a good idea to …

… run through the "SKB Prototype" demo presentation first as this gives a more thorough overview of the Location Visualiser.

… compare what you see here to the "AECL Concrete" demo. InSite's scale independence allows fractures at both km and cm scale to be visualised.

Navigation: Data Visualiser

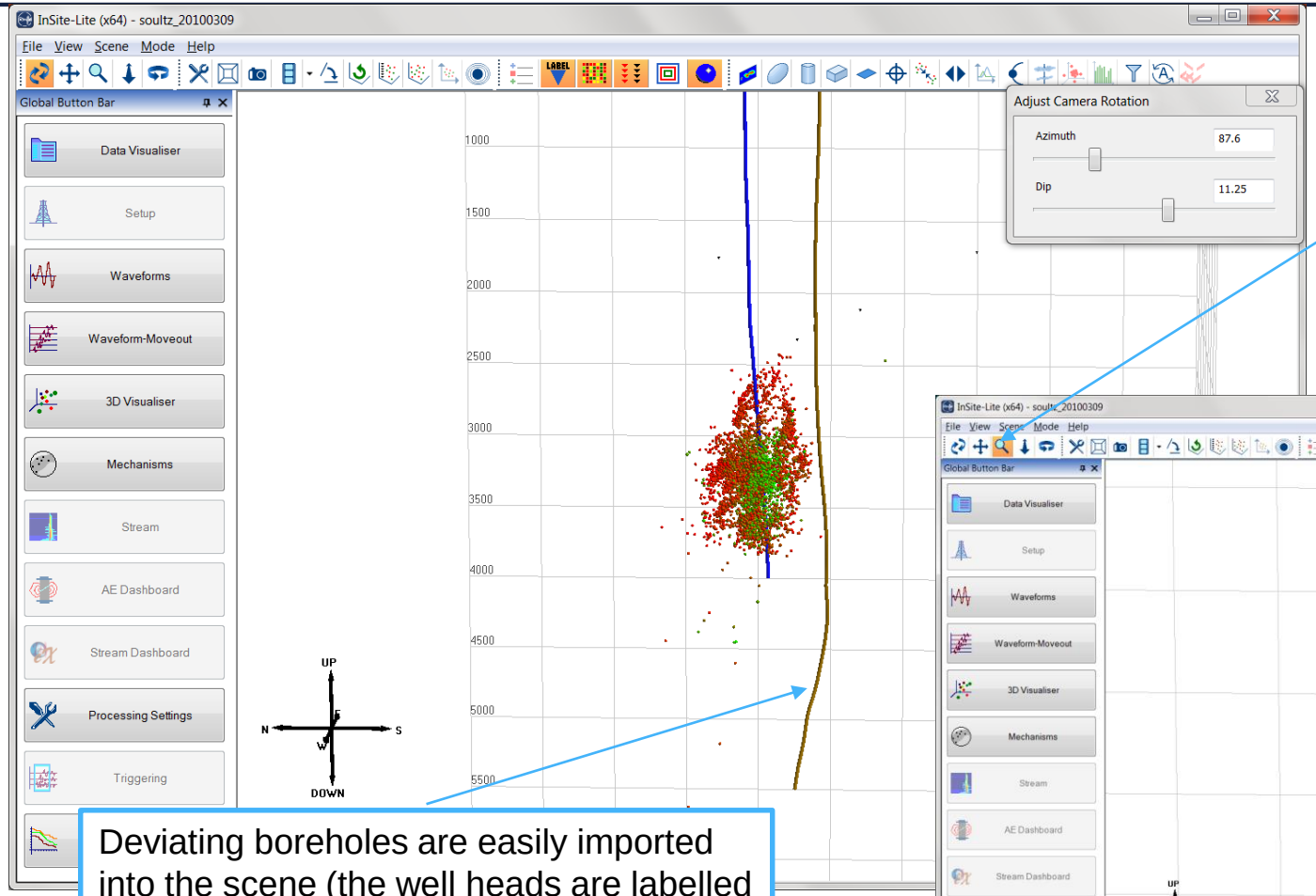


The InSite Global Button Bar allows you to switch between the available visualisers.

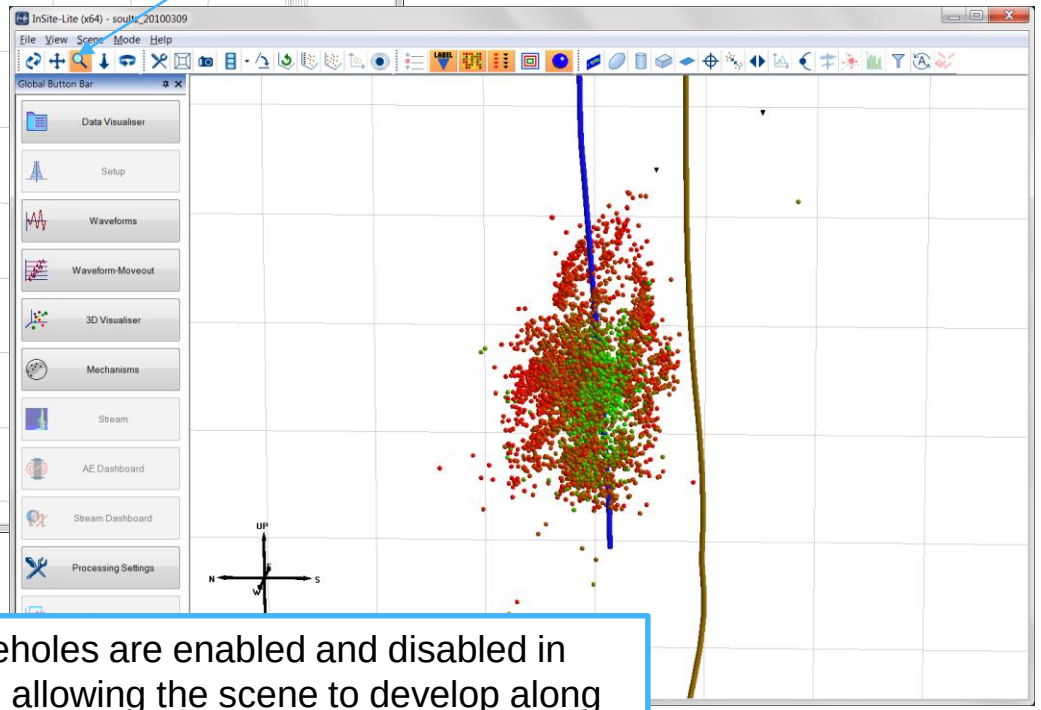
Try going to the 3D Visualiser.

InSite's default view is the 'Data Visualiser', showing a catalogue of all Seismic/MS/AE events imported or processed within the project

3D Visualiser I



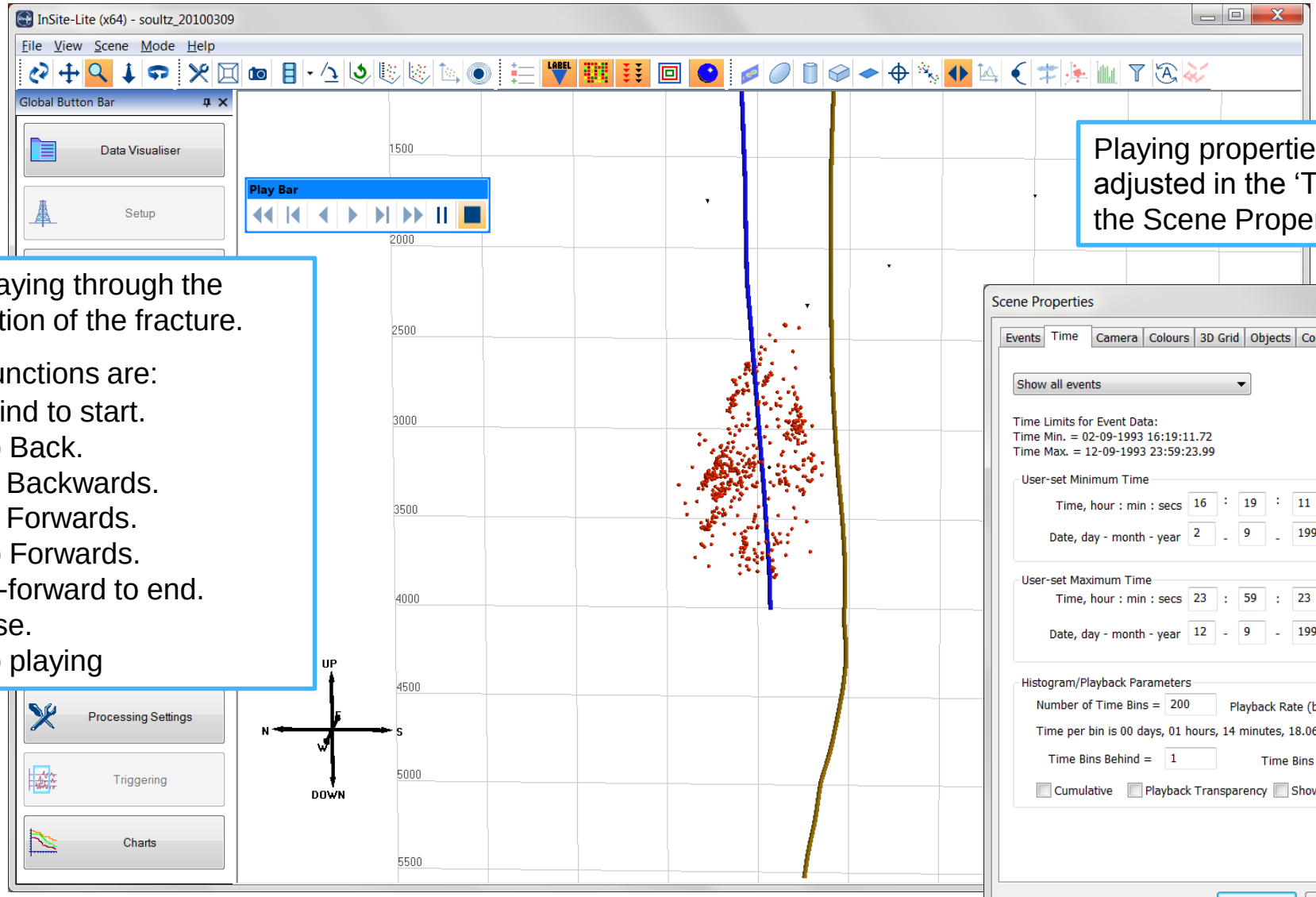
You can use the zoom function (default) to move outwards. Click in the scene and with the left mouse button depressed move the mouse up or down.



Deviating boreholes are easily imported into the scene (the well heads are labelled and the colour indicates the borehole type). InSite's drawing functions allow surface maps to also be displayed.

Boreholes are enabled and disabled in time allowing the scene to develop along with activity at the site.

3D visualiser II: Time-movie display



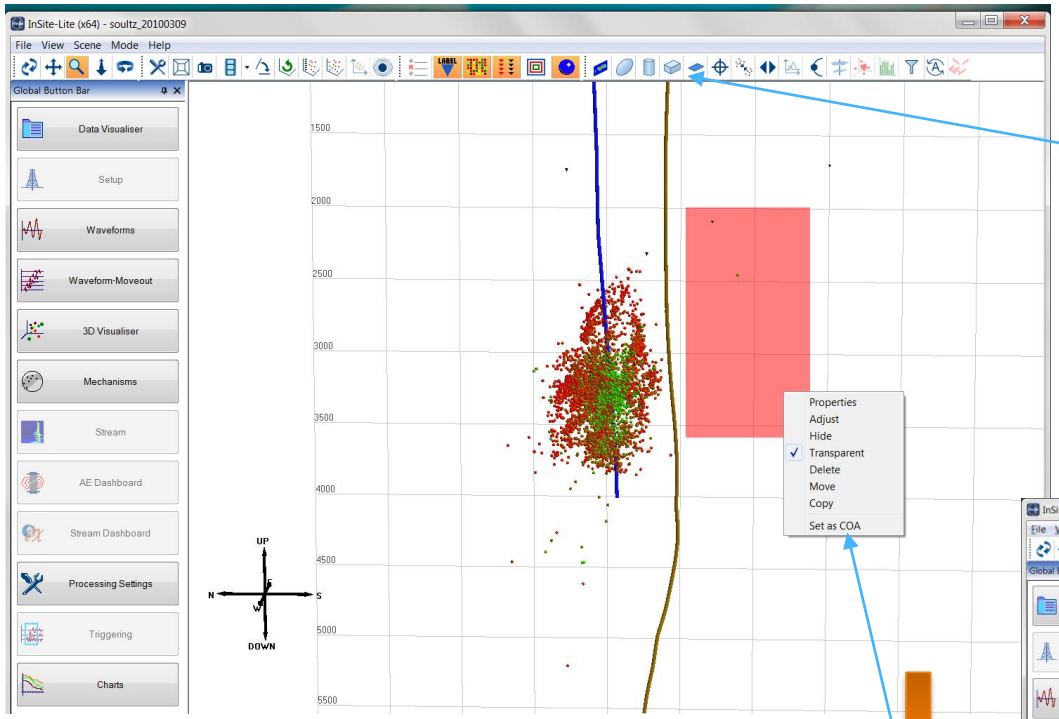
Playing properties can be adjusted in the ‘Time’ tab of the Scene Properties menu.

Try playing through the formation of the fracture.

The functions are:

- Rewind to start.
- Step Back.
- Play Backwards.
- Play Forwards.
- Step Forwards.
- Fast-forward to end.
- Pause.
- Stop playing

3D Visualiser III: inserting drawing objects



"HotPlanes" or other objects can be inserted into the scene and manipulated through various mouse functions to aide the interpretation of observed features

Inserted drawing objects can be adjusted right-clicking on the object and selecting 'Adjust'