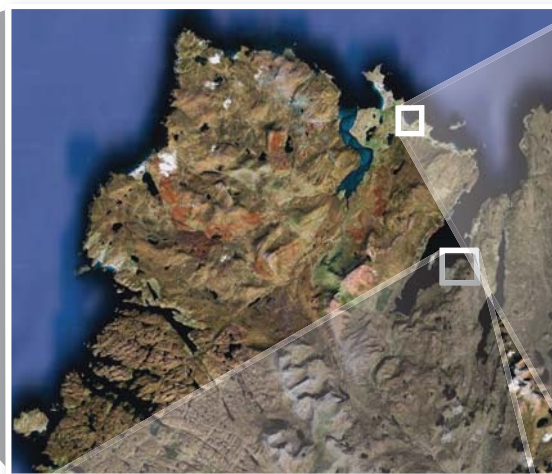


Digital Mapping with **move**™

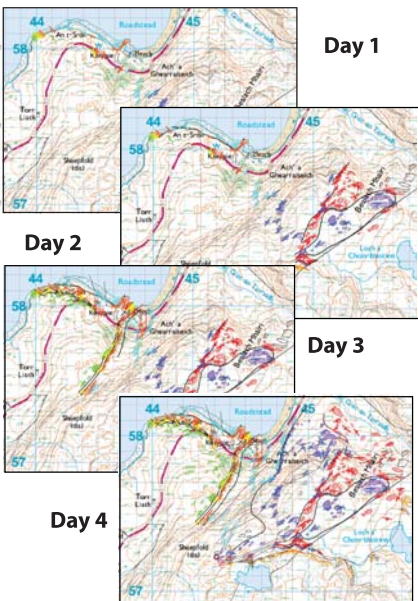
Introduction

Geospatial data is common in many major industries and service sectors. Increasingly these industries are using GIS based products to collect and analyse geospatial information. There are obvious benefits to digital data collection mainly from time saving through minimising repetitive data entry, but also in the ease of data integration and analysis. Our clients from the major petroleum organisations have been using digital geospatial environments to integrate and analyse data for many years. More recently the Geological Surveys and mining exploration companies have seen the potential benefits, not only from having their field data in a digital geospatial environment, but collecting it in this format. Digital mapping eliminates transcription errors leading to faster and more accurate mapping with reduced cycle times to final model and presentation.

As part of our Field Mapping Initiative we have been working with selected universities worldwide to enhance structural geology training using Move software, resulting in both laboratory and field mapping projects. The aim of the initiative is to generate workflows that go from digital data collection to full structural modelling in a series of easy steps. In May 2009 Midland Valley geologists test drove Move software in the field on a tablet PC – this poster shows their efforts and workflows.



The fieldwork took place in North West Scotland, within the classic Moine Thrust Zone, at Durness and Loch Eriboll



Building up a map in Move

Model Building in the Field

As well as the benefits of in-field 3D visualisation, the plane and surface construction tools along with Move's orientation analysis package allow:

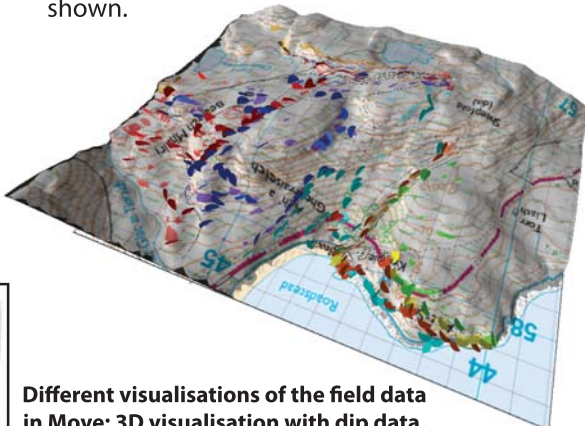
- > outcrop predictions to be made,
- > structural data analysis for optimal projection onto cross sections,
- > ongoing model building and analysis during the field season.



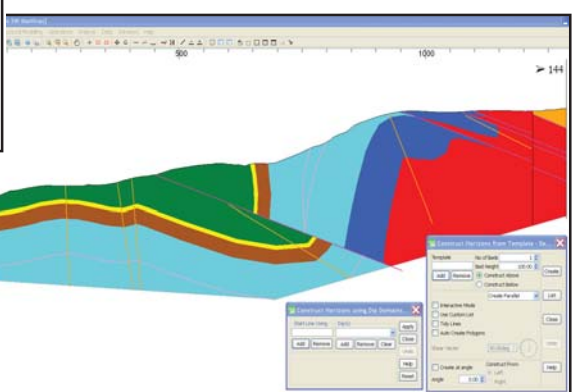
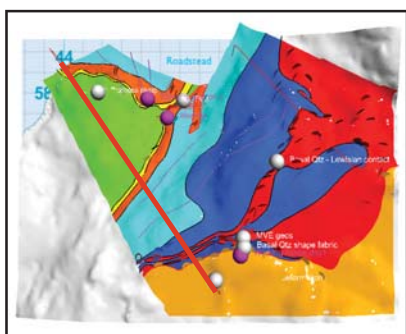
Loch Eriboll

The main field mapping took place at Loch Eriboll. The maps to the left show the geo-referenced field slip and the data build up each day. Using an integral GPS, strike and dip measurements could be directly digitised in their correct geographical location in Move. Boundaries and outcrop locations were digitised in the field, with properties assigned through Move's integral database.

Using the 3D visualisation functionality of Move dip markers, outcrop and boundaries can be shown.

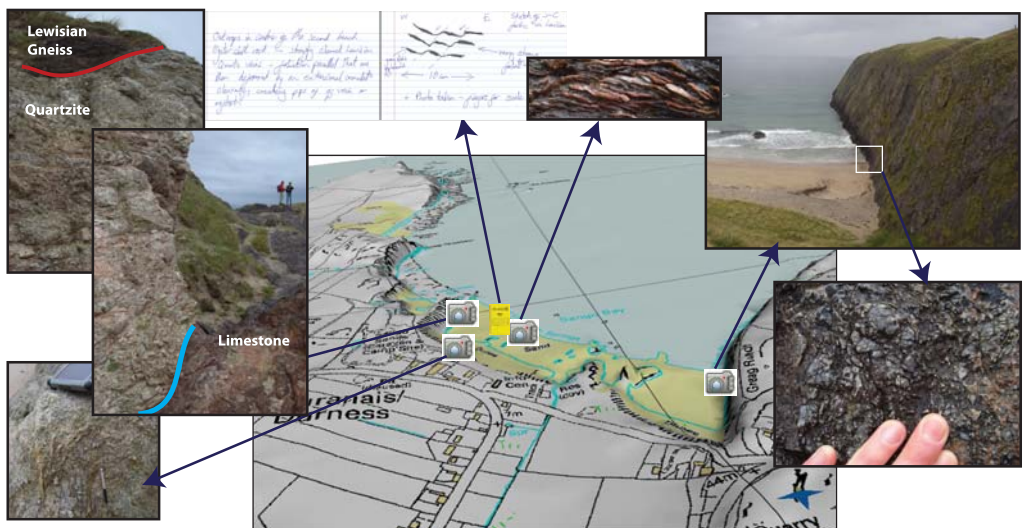


Different visualisations of the field data in Move: 3D visualisation with dip data, map and cross sections and stereoplots.

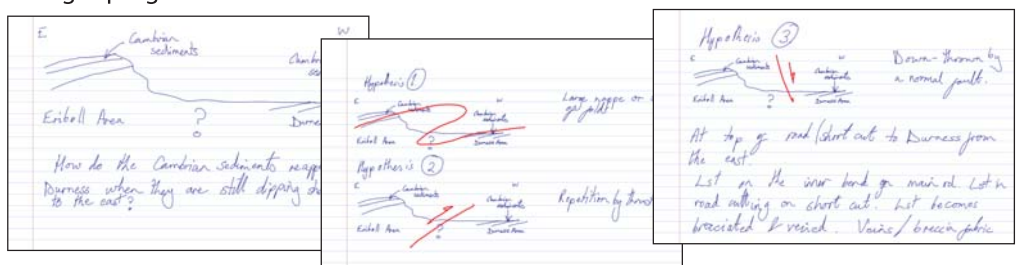


Durness Beach

A transect across Durness beach was undertaken to build up a structural evolution in the form of a cross-section based on the coastal outcrops. The images above show an aerial photograph and map these can be imported and geo-referenced in Move. Below the map has been draped on a Digital Terrain Model and field sketches and photographs, that show the observations and field interpretations, have been associated with digital point references and saved as part of the model.



Windows Journal was used as the virtual field notebook to make sketches. The digital notebook pages below show the initial problem and hypotheses to test. The hypotheses evolved as observations along the transect were made. Notes and sketches captured the thought progression as data were collected.



Benefits

Move™ has the functionality to provide a full digital workflow in the field, incorporating use of Windows Journal as a digital notebook, to yield excellent feedback between field mapping and an evolving geological model. The "inking-in" step becomes redundant saving time, which then becomes available for analysis and model validation in the evenings following fieldwork. A preliminary digital model is built and tested during the field campaign meaning that analysis is already well advanced by the end of fieldwork.

Digital mapping yields well-justified, accurate maps and cross-sections that can be validated before leaving the field area. The approach is faster than traditional paper-based mapping with a short cycle time to final model and the communication of results.

For more information on digital mapping using Move™ ask to be shown the work on our tablet PC or visit www.mve.com

Field photo credits: MVE and RWH Butler



Working in the rain, when a paper map would have been very soggy!