



## **3D Geological Model and Restoration of the Moine Thrust at Loch Eriboll, NW Scotland**

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Recent developments in digital three-dimensional mapping equip modern geologists with novel and rapid means to conduct fieldwork. This study aims to provide a comparison between computer based techniques and conventional manual techniques to determine the degree of tectonic shortening in fold and thrust belts.

A 5 km<sup>2</sup> area of the classic Moine fold and thrust belt in NW Scotland was mapped at 1:5000 scale. The amount of shortening experienced during Scandian deformation was calculated using conventional cross section, restoration and shortening calculations. Midland Valley's Move<sup>TM</sup> software was used to construct a 3D geological model of the mapped area based on the compiled field data. This model was then restored to give an enhanced representation of the shortening that has occurred in three dimensions. By using Move<sup>TM</sup>, the creation of a 3D geological model has led to a better understanding of the subsurface geology of the area as it provides an effective visualisation of the rock units in 3D space.

The reconstruction of cross sections using Move<sup>TM</sup> and manual techniques allows for a comparison between these two methods. Although the 3D model is significantly more time consuming to construct and restore than a 2D manual version, it does provide a better visualisation of the underlying geology of the area and helps the geologist to understand complexly deformed terranes in three dimensions.