

Shear2F: un logiciel de modélisation tectonique

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Shear2F is a software for kinematic modelling and visualization of complex geological events. Built with Microsoft Visual Basic, it is available as a classical Windows application and as a web version built using ActiveX technology and used in conjunction with Internet Explorer.

Models are built from a sequence of geological events that include deformations by homogeneous and heterogeneous simple shear, homogeneous and heterogeneous pure shear, faulting, unconformities, replacement or extensional dykes, intrusions, plugs or even sedimentary lenses. These events are applied sequentially to a layered stratigraphy to produce a complex geological structure which can be a block model, a section, a geological surface or a map. This geological map can be draped on a digital elevation model and then displayed in three dimensions; this allows a better understanding of the relationship between the model, the map and a real world topography. It is also possible to draw sections by choosing their position directly on the geological map.

Shear2F is also able to calculate and display strain ellipses in any part of a block model; the data are saved as an image or as a data file, ready for further analyses. Each element part of the model has an associated numerical property that can be exported to a geophysical modelling or volume visualization software.

All these functionalities make the software ideal for teaching and research. Moreover, the web version permits easy software setup and access as well as simple updates; it is also a gateway to the user manual and some examples.

The CDROM contains video animations which make it possible to visualize in a concrete way the various functions of the software. The author also tested static modelling software by applying them to the representation of the Nappe de Morcles. A report on this work is available on the CDROM.