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Geobrowser based simulation models for land degradation policy support

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Nature is complex and is complicated further by the gaps in our knowledge of it. Whereas scientists often quote lack of data and the
need for more research from our seat on the fence, those making policy and attempting to manage nature and our interactions with it need to make decisions on what to do and how to do it. Increasingly reductionist science has led to deeper understanding of isolated
process but only recently have advances in systems analysis, environmental modelling and computing enabled the construction of
integrated models from these slices of science. Such integrated (assessment) models (IAMs) attempt to simulate landscapes and the biophysical and socio-economic processes occurring within them over space and time.
IAMs provide a testbed in which policy can be tested in silico before being implemented in vivo. They are often used to assess the
potential implications of implementing particular policy options in the face of background scenarios of change such as population growth and climate variability or change. In this paper I will show an example of an IAM for fine scale land degradation processes in the Mediterranean. The model, which incorporates many of the hydrological, plant growth and soil degradation processes acting in these environments, was developed as part of the EC funded DESURVEY project. It is fundamentally built on data, process knowledge and training developed within the MEDALUS series of projects, led by John Thornes.
The DESURVEY fine scale model is implemented as a web-service and integrated with geobrowsers like Google Earth and Google Maps whilst drawing on terabytes of environmental data hosted at www.kcl.ac.uk/geodata and grid based dynamic models for surface and subsurface processes. This IAM is aimed at quantifying and visualising interactively the interaction between climate, land cover and land degradation, for policy support.