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Responses of Mediterranean channel ecosystems to climatic and land use variations

J. Hooke
University of Liverpool, Geography, Liverpool, United Kingdom (janet.hooke@liv.ac.uk, 44 15179 42873)

Measurements of annual responses of soil erosion, fluvial processes, and vegetation growth over the last 15 years in a Mediterranean environment have enabled relationships of processes to climatic and hydrological conditions to be quantified. Occurrence of land degradation and of channel erosion and sedimentation are discussed in relation to characteristics of events and hydrological regimes. Changes in land use in the period are also identified, including not only agricultural but also peri-urban effects. Feedback effects and interactions of erosion processes and vegetation growth are discussed. The signal concerning the trend of desertification over the past two decades indicated by the monitoring results is analysed. The results are used to project forward the influence of climate and land use changes based on these relationships. The basis of modelling combined effects is discussed. The implications for management of soil erosion and of land use under climate scenarios are examined.