



Mediterranean Erosion: From Archaeology to Panarchy

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The Mediterranean Region has always been at the forefront of the history and Prehistory of the study of erosion. The former is in the Theory of the Ruined Landscape or Lost Eden; the latter in the inference of climate change from archaeologically dated cycles of erosion and sedimentation. By the Middle of the last century, an extensive study of valley-floor sedimentation around the whole basin suggested a conformity in the periods of erosion that led to the debate on anthropogenic versus climatic causation of these spatially widely distributed but temporally synchronous phases.

In the mid 19th Century under the influence of the Quantitative Revolution in Geography and the enthusiasm for statistical analysis in Geology, a great movement developed to examine the thesis of American geologists and geomorphologists on the relationship between climate and erosion that led to extensive assessments of rates, largely through crude attempts to measure the actual rates of erosion and to provide data for multi-variate statistical testing of a multitude of the hypotheses.

There followed a substitution of the inductive framework by a deductive paradigm that sought to capture the essence of the geomorphic processes in mathematical models. Again these data-hungry approaches produced a world-wide demand for field data in which the Mediterranean set the lead and the pace. Rapid developments in technology from carbon-dating to remote sensing accelerated the disappearance of the primitive earlier perceptions beneath a tidal wave of local, regional and international data gathering. Soil erosion was becoming recognised as a major hazard world-wide as identified in the U.N. Nairobi Conference on Desertification, with the Mediterranean providing

a major lead in the studies of this phenomenon. Gradually the perceived opposition between the favoured climatic-causation and the less highly regarded human-causation hypotheses, which had become a strongly polarised debate, was subjugated to better developed and supported studies to test the hypotheses. An example of this was the search for a better understanding of the role of vegetation on erosion rates and locations.

As the international agencies grew in strength there was a stronger call for more attention to be paid to the mitigation of erosion leading to a better understanding of society's role in the processes and interactions. Seeking to improve the lot of their citizens, most Mediterranean countries signed up to the U.N. Convention on Combating Desertification, establishing their own National Action Plans.

About the same time, new models, building on the newly developed economic ecology are furnishing bridges across the natural science/ social science divide that appear likely to provide better tools for assessing landscape and societies vulnerability to erosion. The 'new science' with its chaotic dynamics, complexity and sustainable livelihood approaches seems likely to force new thinking about our approach to Mediterranean erosion issues. Above all, perhaps, coupling these models with great computing power and GIS is leading to fresh appraisal of both causation and higher temporal and spatial resolutions of hazards and risks.