



Soil erosion studies in western Europe from the early 1980s

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Before the early 1980s, scientific interest in soil erosion in western Europe was minimal. On British soils, for example, high rates of erosion were considered unlikely: “[Soil erosion in Britain] cannot in any way be regarded as a national menace, as can erosion in some other countries” (Jacks, 1954). There was some truth in this perception. By comparison with (for example) the USA, European rainfall was seen as relatively modest in terms of amount and intensity; and European land usage was still generally based on traditional practices which rather rarely left land vulnerable to erosion. However, studies from the late 1970s and early 1980s revealed a growing erosion problem. The earliest UK studies were opportunistic descriptions of large and unusual erosion events which lacked statistical rigour. They led, however, to a growing scientific appreciation of the potential for soil erosion even in those areas which were not previously thought to be erosion-prone e.g. Evans and Northcliff (1978), Boardman (1983). These studies were followed by more ambitious attempts to assess erosion over larger spatial and longer temporal scales: Evans, 1982-86 in England and Wales; Boardman , 1982-91 on the South Downs.

Along with this move from considering only single events was a growing appreciation that the most damaging impact of European erosion, in contrast with erosion in the US mid-west and in the tropics, was not on-site but off-site. During these more ambitious monitoring exercises data was also collected on off-site damage by muddy runoff. This led to the realisation that such off-site impacts could be the product of frequent, low magnitude events. This insight has led directly to current concerns regarding agricultural impacts on freshwater systems as exemplified in the Water Framework Directive.

These changes in emphasis necessitated a change in experimental and observational approach from small plot to the field scale. The early 1980s also saw the development of erosion models that adapted the USLE to local conditions (e.g. SLEMSA) or incorporated new process-based information into models e.g. EPIC, CREAMS, WEPP and in the UK/Europe, the Morgan, Morgan and Finney model and EUROSEM. Later evaluations focused on the limitations of erosion models e.g. the GCTE exercise (Boardman and Favis-Mortlock, 1998). Since the early 1990s, model development seems to have stalled despite the continued need for progress particularly in the area of erosion-climate change relationships.