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Improving temporal resolution in coarse scale erosion modelling

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The original application of PESERA was at 1km resolution across Europe. As such PESERA was designed to adopt a pseudo daily time step derived from monthly climate statistics available at the continental scale. Although available at the continental scale some of the climate detail, significant to erosion estimates, was already smoothed.

The daily resolution of ERA40 climate data offers the potential to improving climate resolution and subsequent erosion estimates. Due to file size and number some simplification is required in applying the ERA40 data at the continental scale. More recent and current PESERA applications concentrate on smaller study areas with a focus on land management and degradation mitigation measures. Such study area based applications offer more detailed climate data time series.

This paper considers the trade offs required to maximise the potential of the ERA40 data at the continental scale and the potential to apply hourly data at detail study sites.