



Catchment connectivity and the potential of downscaled ERA-40 climate data in coarse scale modelling

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Catchment connectivity in semi-arid regions, both in terms of discharge and sediment, is highly variable and can not be considered a continuous process except under exceptional conditions. With such regions dominated by climatic variability and ephemeral and temporary streams, rainfall data and stream data tend to be inconsistent or not available.

Currently PESERA (Pan-European Soil Erosion Risk Assessment Model) offers a coarse scale (100m - 1000m) methodology to estimate monthly runoff and erosion, by aggregating daily runoff and erosion derived from monthly statistics and antecedent conditions updated on a monthly time step. Due to the spatial and temporal coarseness of current rainfall data applied to the Mediterranean region estimates miss much of the variability and interest in semi-arid catchments.

However, the downscaled ERA-40 climate data offers a daily time series at a much improved spatial resolution for the Mediterranean region. The ERA-40 data is being adopted within the DESURVEY project and is here compared with local data from the Nogalte catchment in south-east Spain. It is envisaged that this downscaled climatic dataset will improve runoff and erosion estimates in semi-arid areas despite the remaining uncertainties in channel storage (runoff and sediment) and catchment discharge.