



Assessment tools for dryland water resources

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Since water resources are scarce across dryland areas, including Mediterranean Europe and much of Africa, the sparseness of meteo and hydrometric networks require the application of indirect methods to make best use of existing resources, and to plan for future needs in a world of changing climates. Although remote sensing methods may be among the most effective for present conditions, they have limited forecasting potential.

Here we apply coarse scale modelling approaches, based on partitioning precipitation between evapotranspiration, runoff and recharge, and making use of CRU interpolated gridded climate data for the present and recent past, with offsets for future conditions based on GCM scenarios. These methods can be applied at a range of scales: first to provide broad regionalisation patterns for hydrological response and second to provide default background data that can be supplemented by local data to provide site-specific advice to land managers.

These methods have been applied in the EU MIRAGE project to regionalise the frequency of the dry phase in temporary streams during the Mediterranean summer, to help define reference ecological conditions across the humid to arid spectrum. They are also being applied in the EU WAHARA project to support the sharing of appropriate good practice for water harvesting in semi-arid Africa, in partnership with researchers in Ethiopia, Tunisia, Zambia and Burkina-Faso. Initial results show where it is appropriate to consider transferring techniques between climatically comparable areas.