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# Satellite mapping of areas evaporating river and groundwater flows

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The 500m resolution CSIRO MODIS reflectance scaling evapotranspiration product (CMRSET) was combined with a gridded rainfall product to determine where in the landscape evapotranspiration exceeds rainfall over longer time periods, and by implication, where lateral inflows of river or groundwater are received and evaporated. This procedure produces valuable information for hydrological applications, including the spatial distribution of water use, the temporal distribution, and the absolute magnitude of (net) evaporation across the landscape. Practical uses that have been tested in Australia include evaluating the realism of simulated water use components in river models, attributing apparent losses from river reaches to processes and spatial locations, and identifying river and groundwater dependent ecosystems. Satellite observed inundation patterns have been used to separate surface water from groundwater use. Higher resolution Landsat imagery has been used for image enhancement, allowing smaller irrigation and wetland areas to be detected. Satellite-based land use classification helps to separate agricultural from environmental water use. The information produced is used in the Australian Water Resources Assessment (AWRA) system under development by CSIRO and the Australian Bureau of Meteorology to underpin operational delivery of water resources information.