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Analysing land surface parameters for NWP applications: Developments at ECMWF

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Currently, operational weather forecast systems make little use of satellite observations over land. For many instruments not even an operational monitoring, i.e. continuous comparisons between observational data and a corresponding modelled first guess, exist. At the European Centre for Medium-range Weather Forecasts a data assimilation system has been developed to analyse soil moisture using conventional synop observations, ASCAT derived surface soil moisture and microwave brightness temperatures. The presentation provides an overview on the Kalman filter based analysis scheme, the satellite observation operators and results from global assimilation experiments using TMI, AMSR-E and ERS observations. Verification of the analyses is based on in-situ measurements from regional networks and standard diagnostics, e.g. departure statistics.