A Joint Assessment of Soil Moisture Indicators (JASMIN): A community effort to respond to user needs in agriculture

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Soil moisture is an important memory component of the climate system and thus a useful source of skill for dynamic forecasting from weeks to seasons. Soil moisture interacts with the boundary layer through processes related to land surface fluxes and in particular evapotranspiration. Consequently, there are instances when a coupling develops between soil moisture and convective instability, cloud formation, and radiation fluxes. Stakeholders in agriculture are in need of a reliable product describing current soil moisture for planning purposes and as a drought indicator. Unfortunately, soil moisture is measured at very few locations, thus no true observational product exists for large areas. The alternative is the systematic computation and monitoring of soil moisture involving land surface or hydrologic models forced by observations. Currently, there is a significant effort to develop soil moisture products from satellite information. Several independent efforts at estima ting soil moisture are taking place in southeastern South America, an area known as one of the main breadbaskets of the world. In this region a Regional Climate Service is being established with the participation of the countries' weather services and other institutions. One of the objectives is to bring together those independent efforts to introduce a collaborative initiative, the Joint Assessment of Soil Moisture Indicators (JASMIN) that seeks to identify strengths and weaknesses of the different soil moisture estimates, and examine ways of harmonizing them into a consistent product that will be easier to interpret than the individual components. The JASMIN Project consists of four stages. A first stage has been completed with a documentation of the different products and methods, which include observational networks, empirical balances, land surface and hydrologic models (coupled and uncoupled) and satellite estimates. The second stage will consist of the developme nt of a database with common protocols for an assessment of the products and in preparation for the third part of assessing ways of integrating the information from the different sources. A final stage will be the dissemination of the combined products to the users' community.