



Using reanalysis in crop monitoring and forecasting systems for Europe

Andrea Toreti (1), Andrea Maiorano (1), Giacomo De Sanctis (2), Heidi Webber (3), Alexander C. Ruane (4), Davide Fumagalli (1), Andrej Cegljar (1), Stefan Niemeier (1), and Matteo Zampieri (1)

(1) European Commission Joint Research Centre, (2) European Food Safety Authority, (3) University of Bonn, (4) National Aeronautics and Space Administration

Crop monitoring and forecasting systems strongly rely on meteorological input data. Observations from weather stations usually provide such information. However, their availability and spatial representativeness could represent in some cases and in some regions an issue. Therefore other sources, as for instance given by reanalyses, offer interesting opportunities to be better explored. Here, the feasibility of a monitoring and forecasting system for maize and wheat in Europe based on reanalysis is assessed. The analysis is performed from 1980 to 2010 under both potential and water-limited growth conditions by using the AgMERRA reanalysis and the gridded observational dataset developed and maintained by the European Commission-Joint Research Centre. Results reveal very good correlation of the yield time series, although significant biases affect the simulations driven by the reanalysis data. The main findings support the integration of reanalysis into current monitoring and forecasting systems and point to emerging opportunities given by the future availability of high-resolution reanalyses in Europe.