EMS Annual Meeting Abstracts
Vol. 11, EMS2014-633, 2014
14th EMS / 10th ECAC

Developing a prototype climate service for land management: the EUPORIAS land management tool

Pete Falloon (1), Felicity Liggins (1), Carlo Buontempo (1), John Wilding (2), John Varley (2), Wim Som de Cerff (3), Ernst de Vreede (3), Marta Bruno Soares (4), and Rita Cardoso (5)

(1) Met Office Hadley Centre, Fitzroy Road, Exeter, EX1 3PB UK, (2) Clinton Devon Estates, Bicton Arena, Budleigh Salterton EX9 7BL, (3) Royal Netherlands Meteorological Institute (KNMI), PO Box 201, NL-3730 AE De Bilt, Netherlands , (4) School of Earth and Environment, Maths/Earth and Environment Building, The University of Leeds, Leeds. LS2 9JT , (5) , Faculdade de Ciências da Universidade de Lisboa, Campo Grande, Edifício C8, Piso 3, 1749-016 Lisboa

EUPORIAS is a project funded by the European Commission under the 7th framework programme, aiming to improve the ability to maximise the societal benefit of the new technologies for predicting future environmental conditions. Working in close partnership with a number of European stakeholders, EUPORIAS aims to develop a set of fully working prototypes of climate services addressing the need of specific users. The time horizon is set between a month and a year ahead with the aim of extending it towards the more challenging decadal scale. We present our approach for one of the project prototypes, a land management tool which we are developing in partnership with Clinton Devon Estates (CDE).

CDE is a major regional land owner in the SouthWest UK, with responsibility for 25,000 acres of land. Its areas of business cover farming, sustainable forestry, conservation management, deer management, commercial and residential property and businesses including the region's premier equestrian venue. CDE's decision making depends critically onland and weather conditions, covering timescales from hours to decades.
Our aim is to develop a specific working tool for one land management application (decision) which can later be extended to other uses, while also serving as a blueprint for a weather-decision making tool for land managers and farmers in general.The specific decision is cover crop planting. A cover crop is a crop planted primarily to manage soil fertility, carbon storage, soil quality,water, weeds, pests, diseases, biodiversity and wildlife. Advance knowledge of a very wet winter would enable the farm manager tochoose an appropriate summer/autumn sown cover crop which will protect soils that would otherwise be left bare and susceptible to run-off and erosion.

The farm is in a Water Framework Directive (WFD) valley catchment. This will also strongly relate to Nitrate Vulnerable Zone (NVZ) regulations, cross compliance for Single Farm Payment (SFP) in terms of Soil Protection Review, both of which look at runoff appropriate cultivations and timings of such as well as the application of fertilizers.

The tool will be developed through a close working relationship with a set of representative land managers. We will use farm records of previous land management decisions and observed and forecast seasonal weather data from the past to assess how the tool might have been used retrospectively. The land management tool will combine visualisation of spatial databases of land-related information (e.g. soil, land use, slope, geology) with seasonal forecasts, enabling land managers to make more informed decisions.