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## Upgrade of a climate service tailored to water reservoirs management

**Eroteida Sánchez-García<sup>1</sup>**, Inmaculada Abia<sup>1</sup>, Marta Domínguez<sup>1</sup>, José Voces<sup>1</sup>, Juan Carlos Sánchez-Perrino<sup>1</sup>, Beatriz Navascués<sup>1</sup>, Ernesto Rodríguez-Camino<sup>1</sup>, M<sup>a</sup> Nieves Garrido<sup>1</sup>, Fernando Pastor<sup>2</sup>, M<sup>a</sup> Concepción García-Gómez<sup>2</sup>, Mirta Dimas<sup>3</sup>, Luis Barranco<sup>3</sup>, and Carlos Ruíz<sup>4</sup>

<sup>1</sup>Agencia Estatal de Meteorología (AEMET), Spain

<sup>2</sup>Dirección General del Agua (D.G. Water), Spain

<sup>3</sup>Centro de Estudios Hidrográficos – CEDEX, Spain

<sup>4</sup>Confederación Hidrográfica del Miño-Sil, Spain

In this paper we present the upgrade of a web tool designed to help in the decision making process for water reservoirs management in Spain. The tool, called S-ClimWaRe (Seasonal Climate predictions in support of Water Reservoirs management) is organized in two main displaying panels. The first one -diagnostic panel- allows the user to explore, for any water reservoir or grid point over continental Spain, the existing hydrological variability and risk linked to climate variability. The second one -forecasting panel- provides probabilistic seasonal predictions for some variables of interest. Following users' need the tool initially covers the extended winter season (from November to March), when the North Atlantic Oscillation pattern strongly influences the hydrological interannual variability in South-Western Europe. This climate service is fully user driven with a strong commitment of users and stakeholders that has allowed continuous improvement of this tool, meeting users requirements and incorporating latest scientific progress.

The latest S-ClimWaRe version -developed in the framework of the MEDSCOPE project within the European Research Area for Climate Services (ERA4CS) initiative- includes some technical enhancements requested by customers and new seasonal predictions obtained through application of two post-processing steps to ECMWF System-5 forecasts. These two steps consist of a downscaling statistical procedure and a new methodology that combines different skilful NAO forecasts to create an optimal NAO pdf that is then used to weight the ensemble members forecasts of hydrological variables. The new upgraded S-ClimWaRe web tool enriches the forecasting panel with precipitation and water inflow forecast skill, and provides additional forecasts for accumulated snowfall and temperature. A prototype based on two different hydrological models to produce the seasonal forecasts of water inflow has also been tested over a pilot dam. These hydrological models are driven by the downscaled precipitation and temperature forecasts also introduced in the web viewer. The assessment of this downscaling procedure shows promising results with respect to the existing seasonal forecasts based on a statistical approach.