



Sensitivity of seasonal predictability to atmospheric physics and oceanic resolution

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In the framework of the EU Copernicus Climate Change Service (C3S) program, a new coupled system has been developed at Météo-France to carry out seasonal forecasts at a 7-month range. Starting from a current system (called S6), including ARPEGE-Climat (T1359191 and CMIP6 physics), NEMO 3.6 (1°175 used in CMIP6) and the OASIS coupler, a new system has been set up in 2 steps. Firstly, the atmospheric component has been improved including new developments in the physics, turbulence and clouds in presence of convection and surface orographic momentum fluxes, to get an intermediate system (called S6+). Secondly, the oceanic component has been upgraded from a 1° to a 1/4° horizontal resolution to obtain the new system (called S7). The seasonal forecast ensemble is initialized with ECMWF analyses in the atmosphere and MERCATOR analyses in the ocean; the dispersion is ensured with the help of atmospheric stochastic perturbations (errors from analyses nudged re-forecasts). Biases together with spatial and temporal correlation scores will be shown for the 3 systems, over the re-forecast period covering the 1993-2015 period.