

## **Empirical-dynamical precipitation seasonal forecasts for South America**

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Since September 2007 empirical-dynamical (hybrid) precipitation seasonal forecasts for South America are issued by the Centre for Weather Forecasts and Climate Studies (CPTEC) as part of EUROBRISA: A EURO-BRazilian Initiative for improving South American seasonal forecasts. The first version of such a hybrid continental forecasting system, the first of this kind to be implemented in South America, was composed by three models; an empirical model that uses Pacific and Atlantic sea surface temperature as predictor variable for precipitation, and two coupled dynamical models: the operational versions of the European Centre for Medium-Range Weather Forecasts (ECMWF) and the United Kingdom Met Office (UKMO). In December 2009 a new version of the EUROBRISA hybrid forecasting system was implemented, and the system is now composed by five models: the empirical model of the previous system, ECMWF, CPTEC and Meteo-France coupled dynamical models and the new version of UKMO coupled seasonal forecasting system (known as GloSea 4). A Bayesian approach known as forecast assimilation is used to combine and calibrate empirical and dynamical coupled model forecasts and produce the so-called integrated (hybrid) forecast. This study illustrates how empirical (statistical) and dynamical coupled model precipitation seasonal forecasts are currently being integrated (i.e. combined and calibrated) to produce hybrid forecasts for South America. The skill of one month lead 1981-2005 austral summer (December-January-February) forecasts is assessed and discussed. Illustrations of real time forecasts for the austral summers of 2009/2010 and 2010/2011 issued by this system in early November are presented.