



An assessment of the precipitation product of the EC-Earth dataset in the period 1981-2000

Lorenzo Campo, Francesco Silvestro, and Roberto Rudari
CIMA Research Foundation, Savona, Italy (lorenzo.campo@cimafoundation.org)

The increasing availability of Global Circulation Model (GCM) simulations that span historical periods (part or the whole 20th century) created a number of large meteorological variables datasets, with particular reference to the precipitation. Given the complexity of such models and the uncertainty about the forcing or the configuration, with reference, for instance, to the astronomical solar radiation time series, or the presence of data assimilation from different sources or, again, the possible coupling with oceanic dynamics, a validation of such datasets becomes fundamental for assessing either the accuracy of the simulation, the meteorological features that the model can reproduce and the differences between different models/simulations. In this work the rainfall product of the EC-Earth model simulation, based on the ECMWF Seasonal Forecasting System, was compared with a global dataset of observed precipitation, CHIRPS. The simulation taken into consideration in this study was open-loop (without assimilation), the simulated period ranging from 1960 to 2012. For this reason only statistical characteristics of the simulated rainfall were considered in the comparison. The CHIRPS dataset is constituted by a merging of satellite-measured rainfall and ground rain gauges network, it covers the period 1981-2012 and it is spatially limited to the band of the land between 50 degrees South Latitude and 50 degrees of North Latitude. The comparison with the EC-Earth rainfall dataset was then limited to this spatial extent and to the period 1981-2000. The analysis was performed both in terms of spatial patterns and differences in the characteristics of the time series on a pixel-per-pixel basis.