

Cloudiness climatology in the Iberian Peninsula from three global gridded datasets (ISCCP, CRU TS2.1, ERA-40)

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A climatic description of total cloudiness in the Iberian Peninsula is presented, based on three global gridded datasets: the International Satellite Cloud Climatology Project (ISCCP) level D2 data, the gridded data (TS 2.1) from the Climate Research Unit (CRU), and the ECMWF Re-Analyses data (ERA-40). While the first grid data product is based on satellite imagery, the second series is from observations from the surface, and the third uses several original data, including modelling results. Since the series differ in their extension, the study has been limited to the common period (1984-2002) in order to compare the three sources of data. In the Iberian Peninsula, the mean annual cloudiness ranges from 45%-65% of fractional sky cover, depending on location and on data source. Seasonal evolution shows a very clear minimum of cloudiness that appears in summer. When comparing the data from the three sources, important differences appear: these differences are variable both in space and during the year. Regarding decadal trends of cloudiness, differences also appear, and results are sometimes contradictory: ISCCP indicates slightly descending trends, while CRU data show a continuously increasing trend. It is shown the necessity of using the visual observations from the surface for a more definitive climatic analysis of cloudiness.