Can we predict solar radiation at seasonal time-scale over Europe? A renewable energy perspective.

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Surface solar radiation can be an important variable for the activities related to renewable energies (photovoltaic) and agriculture. Having accurate forecast may be of potential use for planning and operational tasks.

This study examines the predictability of seasonal surface solar radiation comparing ECMWF System4 Seasonal operational forecasts with reanalyses (ERA-INTERIM, MERRA) and other datasets (NASA/GEWEX SRB, WFDEI). This work is focused on the period 1984-2007 and it tries to answer the following questions: 1) How similar are the chosen datasets looking at average and interannual variability? 2) What is the skill of seasonal forecasts in predicting solar radiation? 3) Is it useful for solar power operations and planning the seasonal prediction of solar radiation?

It is important to assess the capability of climate datasets in describing surface solar radiation but at the same time it is critical to understand the needs of solar power industry in order to find the right problems to tackle.