



Investigation of surface solar radiation anomalies during recent years in Europe

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It seems that in recent years the surface radiation conditions in Europe are changing its characteristics. There also arises the question if and how the patterns and anomalies of solar radiation have been changed over the last decades. Satellite derived geophysical data sets are very well suited to investigate the questions related to changes of patterns due to their spatial coverage and homogeneity.

Within the framework of deriving surface radiation budget data from satellite and in preparation of the planned reprocessing activities of METEOSAT first generation, the Satellite Application Facility on Climate Monitoring (CM-SAF, www.cmsaf.eu) is using the Heliosat method to derive solar radiation data. To start this activity, a 10 year Heliosat based homogeneous time-series has been calculated giving the opportunity to investigate seasonal and inter-annual changes and anomalies of solar radiation within the field of view of METEOSAT (study area: 25° N to 60° N; 7.5° W to 25° E).

From previous studies it is known, that the Heliosat data show a very good accuracy compared to in-situ measurements, thus giving confidence to be used as a reference data set for inter-comparisons. The overlap period between 1995 and 2002 of Heliosat data with the 40 year reanalysis data of the European Centre for Medium-range Forecasts ERA-40 is used to examine the capability of ERA-40 to reproduce the observed characteristics of surface radiation patterns and anomalies in Europe. A positive result of this examination would justify the use of ERA-40 to investigate a longer-term change of anomaly patterns. More recent changes in surface radiation in Europe since 2002 are investigated using Heliosat derived surface radiation data. First results of this

study and the inter-comparison with ERA-40 are presented on the poster.