



Break and trend analysis of EUMETSAT Climate Data Records

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EUMETSAT reprocessed imagery acquired by the Spinning Enhanced Visible and Infrared Imager (SEVIRI) on board Meteosat 8-9. The data covers the period from 2004 to 2012. Climate Data Records (CDRs) of atmospheric parameters such as Atmospheric Motion Vectors (AMV) as well as Clear and All Sky Radiances (CSR and ASR) have been generated. Such CDRs are mainly ingested by ECMWF to produce a reanalysis data. In addition, EUMETSAT produced a long CDR (1982-2004) of land surface albedo exploiting imagery acquired by the Meteosat Visible and Infrared Imager (MVIRI) on board Meteosat 2-7. Such CDR is key information in climate analysis and climate models. Extensive validation has been performed for the surface albedo record and a first validation of the winds and clear sky radiances have been done. All validation results demonstrated that the time series of all parameter appear homogeneous at first sight. Statistical science offers a variety of analyses methods that have been applied to further analyse the homogeneity of the CDRs. Many breakpoint analysis techniques depend on the comparison of two time series which incorporates the issue that both may have breakpoints. This paper will present a quantitative and statistical analysis of eventual breakpoints found in the MVIRI and SEVIRI CDRs that includes attribution of breakpoints to changes of instruments and other events in the data series compared. The value of different methods applied will be discussed with suggestions how to further develop this type of analysis for quality evaluation of CDRs.