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Comparison between land surface temperatures derived from MSG-1 and MSG-2

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Land surface temperature is a key parameter in land surface models, general circulation models and in hydrological models. Especially in regional applications where high temporal resolution information on land surface temperature (LST) are required, the SEVIRI sensors on the new Meteosat Second Generation (MSG) satellites, provide new opportunities due to the 15 minutes temporal resolution combined with the presence of two thermal infrared bands, allowing for the application of a split-window algorithm for LST estimation. During 2006, two of the MSG satellites (MSG-1 and MSG-2) were both online at different positions above equator. This period of dual operation and dissemination of data provides a unique opportunity to perform a comparison between LST in Africa derived from the two identical sensors positioned in geostationary orbit. This study analyses the systematic differences between LST derived from the two sensors and tries to identify the sources of these differences. Special emphasis will be placed on identifying any differences that can be attributed to the differences in viewing geometry between the two sensors. Identifying and quantifying the differences due to angular effects are essential to the development of consistent datasets for longer term studies of e.g. soil moisture status and vegetation.