The EUMETSAT
Network of
Satellite Application
Facilities

CM SAF
Climate Monitoring

Limitations of usage of
SIS,SID and CAL CDR
daily mean products before 1995

User application of the SIS CDR revealed a striping feature for the daily mean products before 1995. This corresponds to products derived from MVIRI data onboard the satellites Meteosat 2-4. For Meteosat 2 and 3 this striping is caused by disregarding the special night-time operation of the satellites (18:00-05:00UTC). During day-time the visible channel contained only half of the image (only every second line) for every even slot, whereas for the odd slots the whole image was available. The image at even slots was completed by copying the existing line onto the non-existing one. However, during night-time every image contained only half of the image which resulted in empty lines (all zero's) for the odd slots because the copying routine was only applied to the even slots. These missing lines are then used in the Heliosat algorithm leading to the striping for CAL and, consequently, for SIS and SID.

The hourly mean products are only affected for the early morning and late evening hours. The fields between 07:00 and 17:00 UTC are not involved and can be used without limitations. For the other times during the day the striping is very strong. For SIS for example the mean amplitude is in the order of 40-50 W/m², and a maximum of about 70-80 W/m²is found. Therefore, the data for these time periods should not be used. The daily mean products are affected to a lesser extent as the averaging over the whole day reduced the influence of the early and late hours. However, the striping is visible. For the SIS daily mean product the mean amplitude of the stripes is in the order of 5 W/m² (maximum in the order of 20 W/m²). For Meteosat 4 the reason for the striping is not yet fully understood. It is not only limited to the early morning and late evening hours but occurs during the whole day Meteosat 4 should not have missing lines as always full images should be available.

Complications might occur during the times when Meteosat 3 served as substitute for Meteosat 4 which then carried on within the processing chain. Thus, further investigations must and will be carried out. Until then the daily means from Meteosat 4 should also be handled with care.