POLAR – Help

1. Introduction.

The Advanced Very High Resolution Radiometer/3 (AVHRR/3) is a multipurpose imaging instrument used for global monitoring of cloud cover, sea surface temperature, ice, snow and vegetation cover characteristics. Spatial resolution is about 1.1 km at near nadir. Although AVHRR/3 is a six-channel radiometer, only five channels are transmitted to the ground at any given time. Channels 3a and 3b cannot operate simultaneously. For METOP, channel 3a is operated during the daytime portion of the orbit and channel 3b during the night-time portion.

Within this submenu, routines are available to process data from METOP series of satellites, which supplement the observations from the geostationary satellites. To determine the orbit position at a specific (UTC) time 'polar orbit tracks' can be used (https://www.ssec.wisc.edu/datacenter/polar_orbit_tracks/).

Currently the data from METOP from Metop B (M01) and Metop C (M03) are disseminated through EUMETCast.

2. Import data from the METOP Series of satellites

For METOP A, B and C an AVHRR data retriever is available, facilitating the import of each of the 3 minutes data files distributed through EUMETCast. The Advanced Very High-Resolution Radiometer (AVHRR) is a multipurpose imaging instrument used for the global monitoring of cloud cover, sea surface temperature, ice, snow and vegetation characteristics. Data is extracted in ILWIS format and transformed to radiances for all channels, reflectances (for the visible channels; 1, 2 and 3a) and temperature (for the thermal channels; 3b, 4 and 5). Also (cloud) flags are extracted. Depending on day / night observation channel 3 is transformed into reflectance (during daytime) or temperature (during the night). Upon import the full file name is expected, including the file name extension, here ‘bz2’. Data is retrieved from the repository specified and copied into the local target folder, decompressed and processed.

Also, a routine has been developed to extract only the visible channels, to facilitate the computation of a daytime colour composite, see also the figure below. Multiple 3-minutes segments can be processed and added to a map display, to allow coverage of a larger area.

Figure 1: AVHRR day time colour composite of a 3 minutes scan