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TOA solar and thermal fluxes from dual GERB near-realtime processing

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The first Geostationary Earth Radiation Budget (GERB) instrument was launched during summer 2002 together with the Spinning Enhanced Visible and InfraRed Imager (SEVIRI) on board the Meteosat-8 satellite. This broadband radiometer aims to deliver near real-time estimates of solar and thermal radiative fluxes at the top of the atmosphere (TOA) with high temporal resolution thanks to its geostationary orbit. Such a goal is achieved with the L20 GERB processing which generates these fluxes from the directional filtered radiance measurements of the instrument at several spatial resolutions. This processing is twofold : an imager-only chain delivering GERB-like fluxes successively consisting of a scene identification, a spectral modeling and a radiance-to-flux conversion; the obtained fluxes are then corrected with the GERB broadband measurements to produce the L20 GERB products.

The actual prime GERB-3 instrument is currently flying on-board of Meteosat-10 satellite at 0° longitude and provides the operational service. The recent relocation of Meteosat-8 satellite (and GERB-2) over the Indian Ocean at 41.5°E longitude and its routine operation offers us the long-awaited opportunity to adapt L20 GERB processing and to deliver near real-time products over this region. However, as illustrated in this presentation, limitations from instrument ageing as well as from electronic design need to be addressed to produce an homogeneous dataset. In addition, we will describe the various GERB products available, especially over the Indian Ocean, and stress their usefulness for potential users. Indeed, such high spatial and temporal samplings from a broadband radiometer are unique over this region affected by the Monsoon and will allow the community to improve our understanding of this phenomenon and monitor it at regional scale, as well as compare and improve tropical convection schemes within Global Circulation Models and forecasting models.