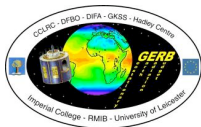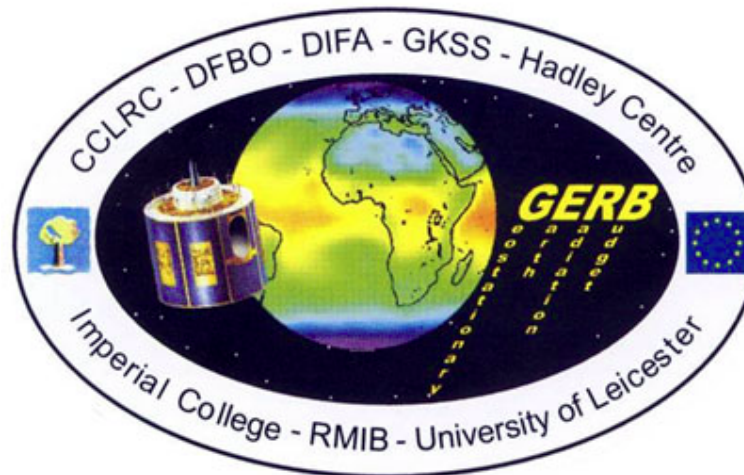# Status report

RMIB GERB Processing (RGP)

Nicolas Clerbaux, Alessandro Ipe, Pieter-Jan Baeck, Patrick Vandermeulen, Almudena Velazquez, Edward Baudrez, Stijn Nevens, Ilse Decoster, Steven Dewitte

email: gerb@oma.be
web pages : http://gerb.oma.be

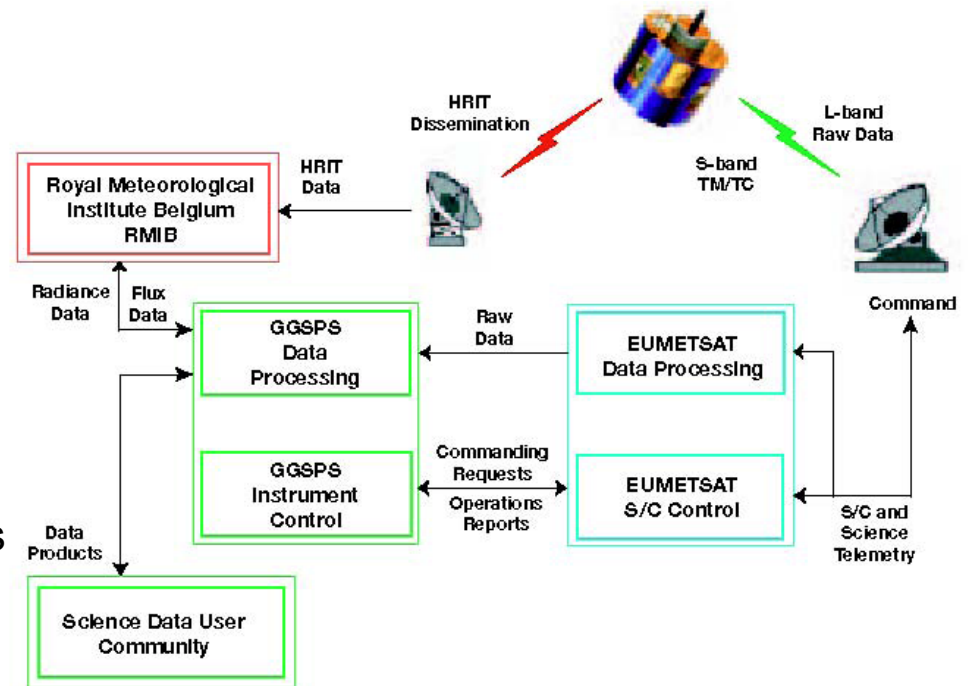30th GIST meeting, 14 Sept. 2010, Paris

RGP Overview

Inputs

- GERB level 1.5 from RAL
- SEVIRI level 1.5 from EUM

Processings

- LW separation
- Unfiltering
- Scene identification
- ADMs
- Various spatial and temp. processings
  - to combine GERB and SEVIRI
  - tuning of the geolocation
  - resolution enhancement

Outputs

- Level 2 solar and thermal fluxes at TOA
- 3 formats:
  - ARG: Averaged Rectified Geolocated (45km, 17', no correction of PSF)
  - BARG : Binned Averaged Rectified Geol. (45km, 15', PSF corrected)
 - HR : High Resolution (9km, 15', PSF corrected)
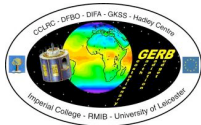
Status: Near real time GERB/GERB-like processing

- Version V006 of the software in operation since 23 october 2009

- Expected to become Edition-1 (simple rename of the ARG files)

- NRT data distributed via our FTP server (last 40 days)

  ftp://gerb.oma.be

- Older data distributed "on request" (the full level 2 archive is on disk but not on the FTP server)

- Monthly means computed for the Climate Monitoring SAF ("express product", not climate quality dataset)

- Data availability since last 12 months
  - GERB: good except biannual sun avoidance seasons (see Rufus presentation)
  - GERB-like (SEVIRI) : excellent (no decontamination and no MSG failure!)

RMI
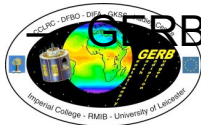
Status: GERB-1 Reprocessing

- Needed for the
  GERB-1
  d
  ata between 1st May 2007 and 23rd October 2009 (was processed as V004 and V005)

- Reprocessing ongoing
  - up to factor 12
  - currently done: 1st May 2007 to +/- 15 April 2009 (6 months missing)

- Should be complete soon to have 6 years of GERB Edition-1 data

- Reprocessed data validation (see Rich's presentation)
  - comparison with CERES
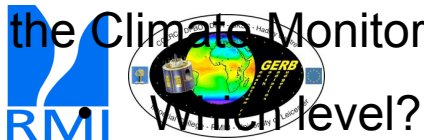 - comparison GERB-1/GERB-2
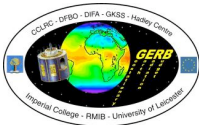
SW rad. comparison with CERES in Jan/Feb. 2007

• CERES Edition2 Rev1

•

Interes
t
 of the special scanning mode

• Difference between the formats

• Significant SW
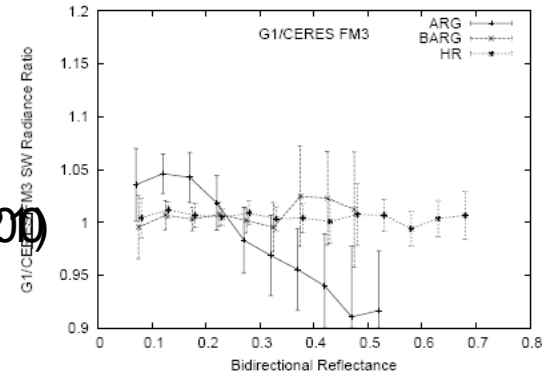differ
e
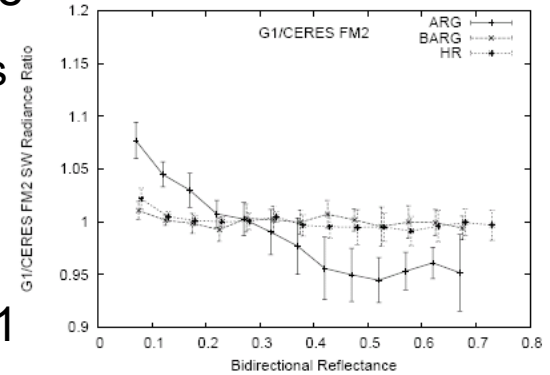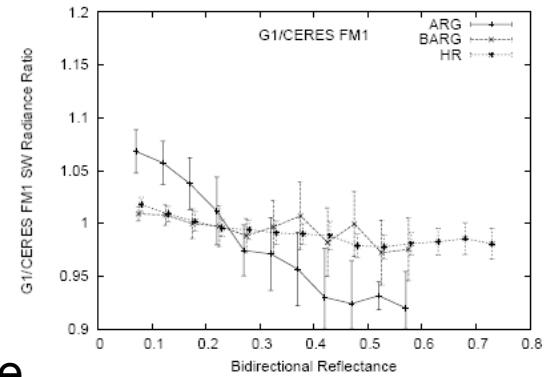nce (will) subsists in Edition-1

• But we have to deliver
climate datasets of TOA
fluxes from 2004 on (data release on 30 Nov 20...)
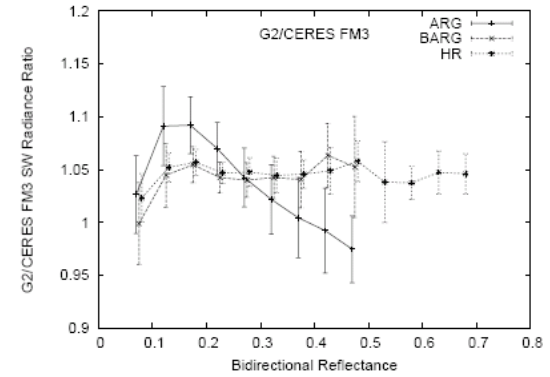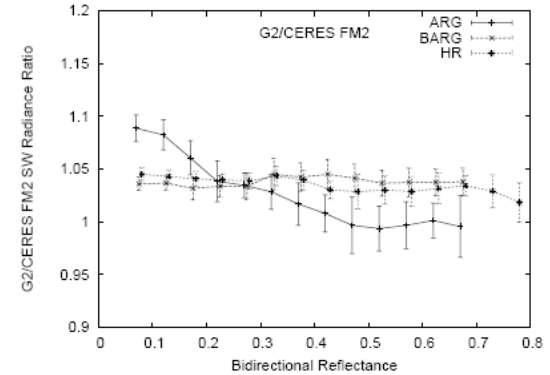f
o
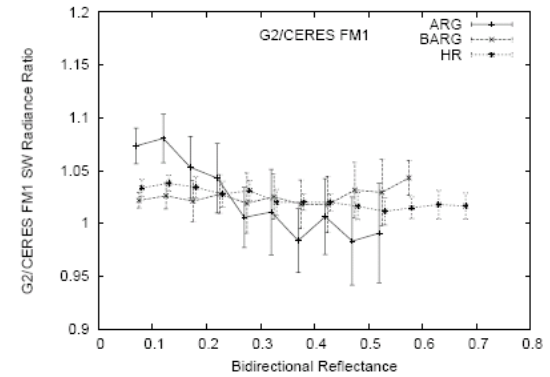r the Climate Monitoring SAF.

Which level?

GERB-1 (Met9)   GERB-2 (Met8)

CERES FM1

CERES FM2

CERES FM3

New developments & future works

- Few things to report – change in the staff (Pieter-Jan left, Edward joined)
- Still starting the development of RMIB GERB Processing Edition-2
  - Task force: Alessandro, Almudena, Edward, XXX
  - Support of Nicolas, Stijn
  - Table (see after)

- Climate SAF CDOP-2 phase 2012-2017 (writing proposal)
  - TOA radiation:
    - Continue the all sky GERB/SEVIRI monthly means climatology
    - GERB-like from MVIRI
    - Generation of monthly means clear sky fluxes (collaboration with KNMI, other ?)
    - Development of CMSAF balanced product (similar to EBAF)
  - Aerosol retrieval
  - Evapotranspiration
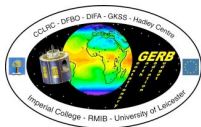
RGP Edition 2 development (1/3)	who
Read (wavelets) compressed SEVIRI data. Allows easier/faster reprocessing. Interface routines are written, need to be integrated in the processing.	done SN
Read the 3.9 µm SEVIRI channel. Needed for the snow detection.	Done PJB
Snow detection algorithm (C. Bertrand). Seems to work but additional validation needed.	Done PJB
Snow ADMs : use the ADMs of Seiji Kato for snow covered pixel. Which one must be used?	EB
Improved NB-to-BB: empirical SEVIRI(NB)-to-GERB(BB) regressions have been derived for GERB-2. Should replace the previous theoretical regressions. Investigations and documentation is done.	EB NC
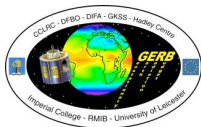
RGP Edition 2 development (2/3)	who
Improved clear land ADMs. Preliminary work done by Cedric Bertrand as Visiting Scientist in NASA Langley. ADM stratified in latitude band of 1°. Expected to solve the morning/afternoon asymmetry in GERB ED01 SW flux.	EB
Use actual satellite position and quality flags. Edition-1 assumes no inclination of the MSG satelite orbit.Will give more accurate viewing geometry.	SN
Improve the LW ADM. The LW theoretical ADM (regression on the SEVIRI NB radiances) could be improved for a better handling of high/ thin clouds. Proposal detail in tech. Note. Could be updated using EarthCARE database of TOA radiance fields.	AV NC
LW cloud detection. Preliminary version with better detection skill than MPEF CLM during night time (NWCSAF is the reference). No ancilliary data from NWP. Paper in preparation.	AI
Clear ocean aerosol retrieval improvement. With the Ignatov tables, one sees clearly increased AOD in the near sun-glint region. Method: derive new tables and/or empirical correction.	SN

RGP Edition 2 development (3/3)	who
Take into account the change in LW spectral response due to instrument optical path.	NC
Use SEVIRI effective radiance instead of spectral radiances. Since the beginning of GERB we assume effective radiance but EUMETSAT (erroneously) provided spectral radiances for the thermal channels. Since 2008 EUMETSAT switch to the new radiance definition and is planning to reprocess the 2004-2008 data.	NC
Implement aerosol SW ADM over clear ocean (developped by Helen Brindley).	EB SN

Conclusions

- Processing and reprocessing systems are okay for Edition-1,

- Urgently needed are the most likely SW and LW levels to merge GERB-2 and GERB-1.

- We started the development of Edition-2 of the RGP.