



GOME-2 Reprocessing & Metop-A and Metop-B Tandem Operations



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L1B Reprocessing campaign R2 2007-2011 #1

Objectives and schedule

- The second reprocessing campaign of GOME-2 level 1 data (G2RP-R2), comprising data from the time period from January 2007 to January 2012 is currently being finalised.
- The reprocessing is carried out with our latest processor version 5.3.0 installed in the operational ground segment on the 24th of January 2012.
- The main changes with respect to R1 (Processor version 4.0 from January 2007 to December 2009) are:
 - Improved polarisation correction for the full mission
 - Improved geo-referencing including geo-locations for PMD measurements
 - Random noise contribution instead of absolute errors reported in the product
 - Product format 12.0
 - Homogenous data-set (removing the impact of previous processor changes)

(For a full list of changes with respect to PPF 4.0 we refer to gome.eumetsat.int -> documentation -> processor change history.)



L1B Reprocessing campaign R2 2007-2011 #2

Objectives and schedule

Main Objectives:

- To remove any spurious effects on the level 1B data quality due to processor and auxiliary-data changes,
- To serve the consistent evaluation and validation of level 2 data processing over multiple seasonal cycle,
- To evaluate consistently the long-term degradation of the instrument,
- To support the development of a level 1C processor and product, mitigating the effects of long-term instrument degradation, and
- For the preparation and execution of atmospheric composition and climate monitoring studies (extension of the GOME-1 and SCIAMACHY data-sets).

3D degradation matrix for both earthshine and solar mean reference:

- Anticipated to be provided offline for the reprocessed data set but at a later date
- Spectral space: all valid detector pixel for both PMD and FPA will be covered (detector pixel grid!)
- Temporal sampling: TBD
- Scan-angle: all forward scan views will be provided for FPA (PMDs on 24 viewing angle grid TBC). No back-scan positions will be provided!



L1B Reprocessing campaign R2 2007-2011 #3

Objectives and schedule

- The full G2RP-R2 data-set will consist of roughly 27000 products (per product type) with a data size of 1200MB (700MB; compressed) for one level 1B orbit
- Complete data-set size of 32 TB (19 TB; compressed).
- Available to all interested users during the course of the 2nd and 3rd quarter of 2012.

- Data will be delivered as ANX-to-ANX orbits (not Svalbard to Svalbard)!!!
- Media for full set: LTO-4 tapes

- A dedicated validation report and documentation on the data-set specifications and usage will be delivered together with the release of the data.

- Individual orbits from the R2 data-set can also be ordered online using the EUMETSAT data-centre ordering tool after the release of G2RP-R2.

- Users who intend to order the complete data-set and haven't indicated this already to us via email, please send an email to ops@eumetsat.int with the reference to "G2RP-R2 complete data-set".

Metop-A & Metop-B Tandem Operations #1

Constraints

- The orbits for all Metop satellites are essentially the same.
- Mean Local Solar Time (MLST) of the descending node of 9:30, the same semi-major axis, inclination, eccentricity and argument of perigee. Also the tolerances for the MLST of 2 min. and for the ground track of 5 km driven by some of the payload instruments have to be the same
- The duration of an orbit is approximately 101.4 min
- The full repeat cycle is 29 days, after which the ground track of a given satellite is repeated
- Within these orbit-related constraints, flexibility exists for the relative separation in time of the Metop satellites, i.e. the phasing.
- The phasing translates into a shift of the respective ground tracks of consecutive orbits by the two satellites.
- This shift of the ground track between consecutive orbits would be maximised for a phasing by half an orbit (~ 51 min.) being about 1400 km at the equator.
- Phasing baseline has an exact value 48.93 minutes

Metop-A & Metop-B Tandem Operations #2

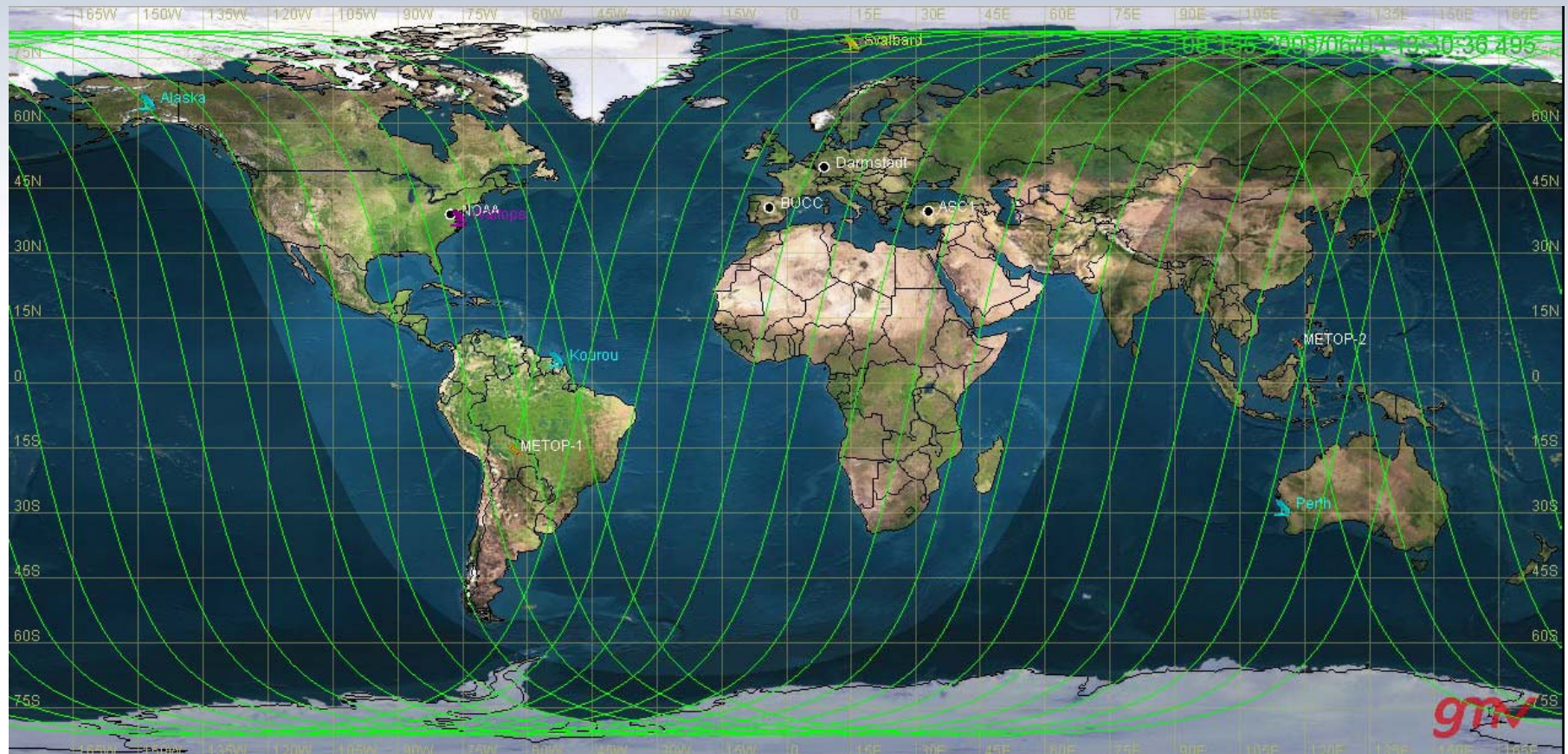
GOME-2 Operations

- During tandem operations one option is to operate both GOME-2 instruments with 960km swath to reduce the ground pixel size by a factor of two whilst retaining effectively the same coverage
- Data would be temporally separated by 48.93 mins
- Data from both satellite/instruments would be interleaved

- Operating at full 1920km swath would mean overlapping swaths with 48.93 mins temporal separation

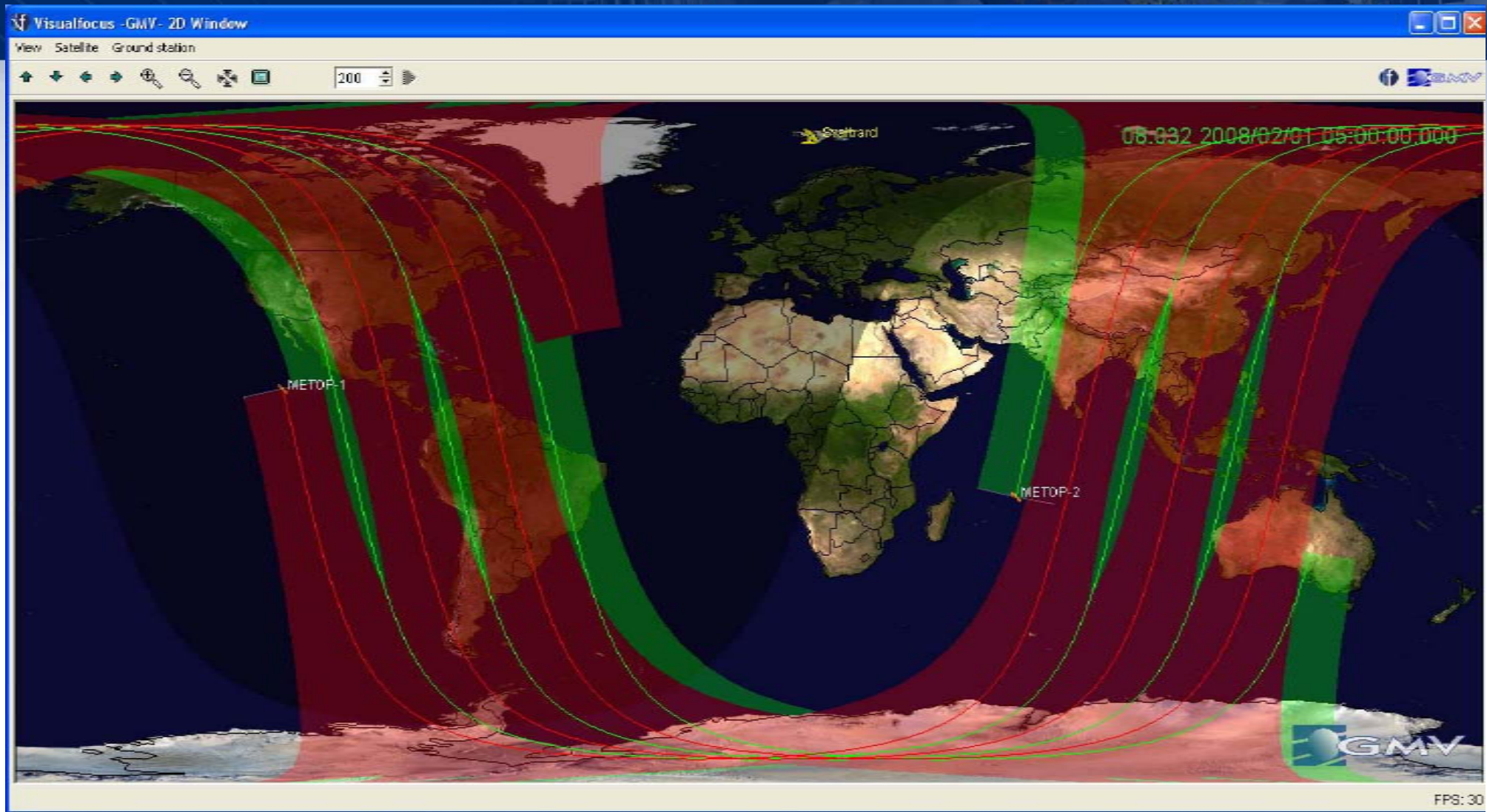
- Would be useful for dedicated cross-calibration activities?

Metop-A & Metop-B Tandem Operations #3 (for information only)





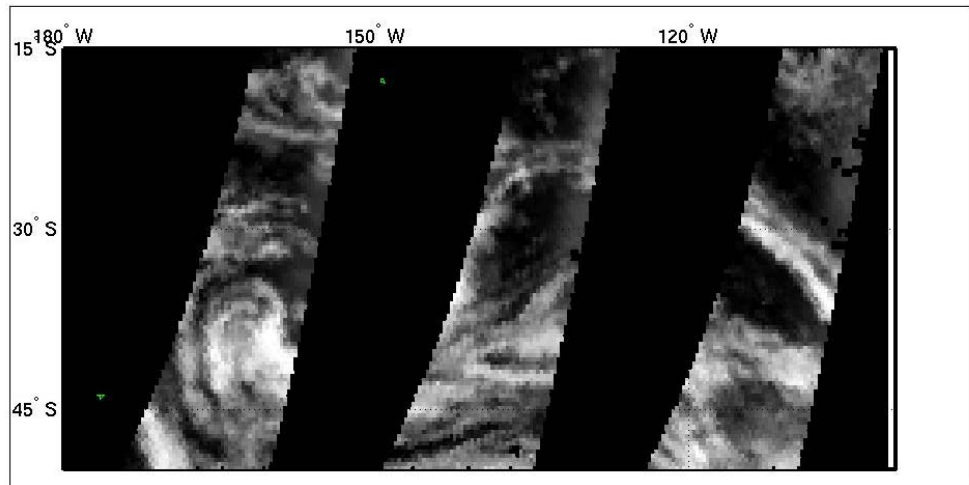
Metop-A & Metop-B Tandem Operations #4 (for information only)



Metop-A & Metop-B Tandem Operations #5 (for information only)

NOT 960

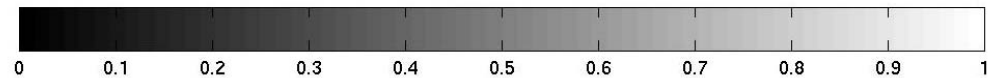
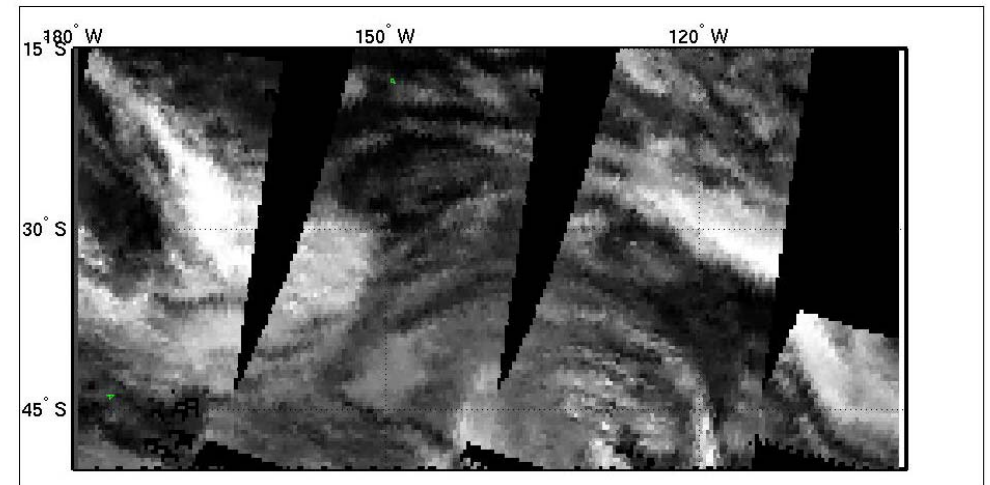
GOME2 CFR from L1B/FRESCO+ 20061228224241 to 20061228234153



960 km swath, 24 across pixel, ~40x40 km²
Total coverage: 2 days Metop-A/B

NOT 1920

GOME2 CFR from L1B/FRESCO+ 20100713235956 to 20100714000256



1920 km swath, 24 across pixel, ~40x80 km²
Total coverage: 2 days Metop-A
1 day Metop-A/B

Metop-A & Metop-B Tandem Operations #6 (for information only)

Proposed Timeline (to be agreed with Users ...)

- Launch 23rd May 2012
- Initial operations with a 1920km swath
- Early Level 1b data availability early August
- Commissioning of Metop-B including initial validation of level 1b products, initial validation of level 2 products from Metop-B and, initial cross-validation of Metop-A/B level 1b and level 2 data products early October

Decision point for operation of one or both of Metop-A and Metop-B with 960km swath

- Data from both satellite/instruments will be interleaved
- Validation of level 1b and 2 products from one or both of Metop-A and Metop-B with 960km swath

Final decision point for swath width of Metop-A and Metop-B GOME-2 early January 2013

ID	Task Name	Duration	Start
1	Project Milestones	0 hrs	Wed 23/05/12
2	Metop-B Launch	0 hrs	Wed 23/05/12
3	GOME-2	2328 hrs	Sat 26/05/12
4	SIOV (for information only from SIOV-Plan)	400 hrs	Sat 26/05/12
13	GOME-2 Post Launch CalVal	2320 hrs	Sun 27/05/12
14	A4 Instrument Monitoring (CVF)	1260 hrs	Sun 27/05/12
36	A5 Preliminary Level 1 Product Verification, Confidence Checking and Validation	988 hrs	Tue 26/06/12
55	Level 1b Verification Report / PVRB / Pre-Operational Status	1 day	Wed 08/08/12
56	Early Level 1b Data Availability for Beta Users	1 day	Thu 09/08/12
57	GSAG Including O3MSAF PT Members	2 days	Thu 04/10/12
58	Preparation of Documents & Operations Review	1 wk	Mon 08/10/12
59	Commanding only (?) Metop-B to 960km Swath	1 day	Mon 15/10/12
60	Instrument Operations at 960km Swath	0 hrs	Mon 15/10/12
61	A6 Preliminary Atmospheric Constituent Verification and Validation	720 hrs	Fri 10/08/12
79	A7 Cross Calibration & Validation of Metop-A/B	720 hrs	Fri 10/08/12
84	Workshop on Metop-A/B Tandem Operations	2 days	Wed 12/12/12
85	Preparation of Workshop Summary	1 wk	Fri 14/12/12
86	Decision Point for Metop-A/B Tandem Operations / Operations Review	1 day	Fri 21/12/12
87	Final Decision on Operational Swath for Metop-A and Metop-B	1 day	Mon 24/12/12
88	A8 Level 1 Product Verification, Confidence Checking and Validation	360 hrs	Tue 25/12/12
105	Level 1b Validation Report / PVRB / Operational Status	1 day	Tue 26/02/13
106	Level 1b Data Availability for All Users	1 day	Wed 27/02/13
107	A9 Atmospheric Constituent Verification and Validation	680 hrs	Thu 28/02/13
125	Level 2 Validation Report / PVRB / Operational Status	1 day	Thu 27/06/13
126	Level 2 Data Availability for All Users	1 day	Fri 28/06/13

