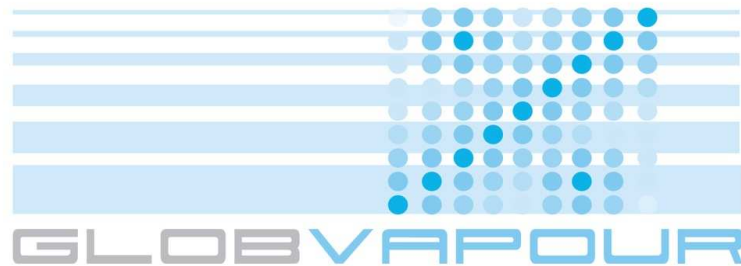




## DUE GLOBVAPOUR

### Monthly Progress Report

September 2011



Issue 1, Revision 0

12 October 2011

ESRIN/Contract No.: 22696/09/I-OL

Project Coordinator: Marc Schröder  
Deutscher Wetterdienst  
[marc.schroeder@dwd.de](mailto:marc.schroeder@dwd.de)

Technical Officer: Bojan Bojkov  
ESA  
[bojan.bojkov@esa.int](mailto:bojan.bojkov@esa.int)

**Monthly Progress Summary - ESA DUE GlobVapour**

ESRIN/Contract No.: 22696/09/I-OL

Reporting Period: 01.09.2011 - 30.09.2011

**Main Accomplished Actions:**

- Test products for SSM/I+MERIS and SCIAMACHY/GOME2 products and AATSR prototype months are available via the project's webpage.
- The second User Consultation Meeting was carried out in Oslo on 08 September 2011. 22 users and experts from various fields attended the meeting. First applications have been presented, and valuable feedback was received.
- Four algorithm theoretical basis documents have been updated and submitted for review.

**Activities, Achievements and Status - Phase II****Management and Coordination****WP 002 - Management and Coordination (M. Schröder)**

- Organization and chairing of the User Consultation Meeting 2 (UCM2) in Oslo/Norway during the EUMETSAT Meteorological Satellite Conference (afternoon of 8 September 2011) in cooperation with UKMO. 22 users/experts were attending the UCM2. The minutes of meeting have been drafted, accepted and distributed to participants of UCM2.

**WP 020 - Promotion (M. Schröder)**

- The GlobVapour Newsletters Vol.1-Vol. 3 have been reprinted by ESA in high resolution (circulation of 40 pieces) and were handed out by ESA intern and by DWD in Oslo and Paris (WAVACS workshop).
- Minor webpage updates, e.g. presentations of UCM2 and MoM as well as internal section.
- Two poster titled 'The ESA DUE GlobVapour products: SSM/I+MERIS retrieval method' and 'The ESA DUE GlobVapour products: Validation' have been designed and were presented by DWD on the EUMETSAT Meteorological Satellite Conference in Oslo.
- In dialogue with new GV users. C. Radermacher (MPI-HH) presented results from comparisons of high resolution SSMI+MERIS product with output from REMO model. The climate modelling group at DWD and SMHI envisage to compare GV products with output from their climate models.

**Creation of Diagnostic Data Set and validation tools****WP 210: Collection and procurement of validation data (M. Schröder)**

- Reprocessing of validation data is almost finalised. Reprocessing was needed in order to include cloud cover information into GUAN data and to consider cloud clear pixels in AIRS data only.

**WP 220: Collection and procurement of satellite data (M. Schröder)**

- SSM/I raw data for years <2000 occasionally includes incorrect time information. A potential solution has been found and is currently tested. Finalisation is expected soon. Other satellite Level 1 data acquisition finalised.

**WP 230: Development of validation tools (M. Schröder)**

- Inter-comparison software is currently refined.

## Development of Prototype Product

### WP 310: Development of GOME/SCIAMACHY/GOME-2 retrieval scheme (D. Loyola)

- The GOME-family retrieval development has been finalised and summarised in an updated ATBD.

•

### WP 320: Development of MERIS retrieval scheme (R. Preusker)

- The MERIS retrieval quality could be improved by removing a bug in the retrieval software.

•

### WP 330: Development of SSM/I - MWR retrieval scheme (M. Schröder)

- Minor modification of 1D var retrieval and L2toL3 processors. As decided on UCM2, the L3 SSMI products are now available in cloud and clear-sky product. Both packages have been updated to version 2.0.

### WP 340: Establishment of consistency of MERIS and SSMI (M. Schröder)

- The consistency of SSM/I and MERIS was analysed following three approaches: comparison of SSM/I and MERIS over sun glint regions, visual inspection in absence of coastal mountains and correlation analysis of neighbouring pixels. The results have been presented at UCM2 and are summarised in the PVR for SSM/I+MERIS.

•

### WP 350: Development of AATSR retrieval scheme (R. Preusker)

- The 1D-Var retrieval scheme was replaced with a statistical retrieval scheme that fully exploits the available observations, that is, all IR channels in forward and nadir view. The quality of the new statistical retrieval scheme is still rather low with a bias <1 mm and an RMS ~7 mm.

•

### WP 360: Assessment of existing IASI retrieval schemes (M. Schröder)

- In order to increase the number of valid collocations the assessment has been extended to additionally include GUAN radiosondes and collocated IASI retrievals.
- Updated files containing the UK Met Office IASI retrievals over GUAN stations were sent after some issues were resolved. Complete IASI orbits for the whole of Dec 2008 have also been sent in netCDF format to DWD.
- First updated results have been produced and presented at UCM2.
- The evaluation of the updated IASI retrieval results has been started. It still seems that sampling can be problematic as some IASI retrievals have strongly reduced number of valid observations over land relative to over ocean.

•

### WP 370: Development of merged IASI/SEVIRI profile product (M. Schröder)

- A reprocessing of a sub period of the SEVIRI+IASI product has been started in order to consider the individual kriging error terms. It is assumed that SEVIRI information dominates even in presence of IASI overpasses. It is also likely that the information content might dominate the retrieval error impact.

•

### WP 380: Production and validation of prototype data sets (M. Schröder)

- Updated results were discussed in the version 2 PVRs for SSM/I+MERIS and GOME-family.

•

### WP 390: Development of processing environment (U. Krämer)

- Development of concurrent processing for stand-alone processing system finished.

## Processor Development and Test Product

### WP 410: Development of GOME/SCIAMACHY/GOME-2 processing system (D. Loyola)

- The netCDF format and filename convention of the products has been updated, following the DWD feedback.

### WP 420: Development of MERIS-SSM/I processing system (M. Schröder, R. Preusker)

- The netCDF format has been aligned with the GOME-family product format.

### WP 430: Development of AATSR processing system (R. Preusker)

- The processor development is slightly delayed.

### WP 440: Development of IASI processing system (M. Schröder, R. Saunders)

- The IASI retrieval scheme and processing has been finalised. At PM4 it was decided not to include the module into the processing system.

•

### WP 450: Development of IASI-SEVIRI processing system (M. Schröder)

- The development of the SEVIRI+IASI retrieval and processing has been finalised. Further processing and inclusion into the processing system is not foreseen. This was decided at PM4 on basis of missing added value relative to single sensor products.

### WP 460: Production and validation of test data set (M. Schröder)

- At present recently received comments to the PVRs and PUG are addressed.

### WP 470: Development of stand alone processing system (U. Krämer)

- Test of the control software continued.
- Test of new delivery of UCAS 0.9 performed successfully.
- Reception of new delivery of MERIS L2 python implementation, setup of preconditions started.

## Development of Final Product

### WP 510: Production and validation of final data set (M. Schröder)

- Processing of the GOME-family product is ongoing.
- SSM/I Level 2 data are currently reprocessed to produce a clear sky product.
- Due to bug fixing also the MERIS products are currently reprocessed.
- Processing of validation data is almost finalised. It was decided to consider only periods with complete coverage of GlobVapour product time series. Validation efforts using MODIS will be reduced following discussions at PM4.

•

### WP 520: Update of PS and System Delivery and Test Application at ESRIN (U. Krämer)

- Not yet started.

## Scientific Exploitation

### WP 610: Comparison of GlobVapour Products to Climate Model Output (M. Ringer)

- Preparation of model vs. observations talk for UCM2.
- Continued analysis of total column water vapour in CMIP5 models against GlobVapour products.

•

**WP 620: Alternative Ways of Climate Model Evaluation (M. Ringer, R. Saunders)**

- The WP has been started, and the evaluation is ongoing.

**WP 630: Establishment of the Scientific Exploitation Plan (R. Saunders)**

- Structure and content of the SEP are under discussion.

**Next Steps and Schedule**

- Processing and validation of final products.
- Finalisation of implementation into processing system (AATSR and GOME/SCIAMACHY/GOME2).
- Continuous development on all running WPs.
- Planning of final meeting.

**Achievements**

- During the second User Consultation Meeting the project received valuable feedback to its products and activities. A couple of users presented results from first application, also expressing their willingness to refine their efforts and to present new results at the final meeting.
- Test products, i.e., products covering the years 2006-2008, are available from [www.globvapour.info](http://www.globvapour.info).
- The MERIS retrieval and the SSM/I cloud handling have been changed. Retrieval development is finalised now.
- Four ATBDs have been drafted and submitted to ESA for review.

**Problems encountered and solutions proposed**

- GOME-family products are expected at the end of October.
- Due to bug fixing and changes in cloud handling the MERIS and SSM/I processing is delayed. Instead of a finalisation in early October reprocessing will likely not be finalised before early November. The project prepares the validation as far as possible. Nevertheless a slight delay in Level 3 validation and intercomparison to GOME-family products can be expected. The project decided to take the risk as the accuracy of the product is expected to be very high. Following a presentation from UCM2 and subsequent discussions the project aims at providing the SSM/I+MERIS product for CMIP5 evaluation.
- All participants have been contacted to provide collocations to GUAN radiosonde stations to increase the number of valid collocations and to base the assessment on sound statistics. Receiving updated data from participants was only finalised recently as reprocessing is not always straight forward and depends on the retrieval set up. At UCM2 it was noted that different geolocations and cloud masks causes significant overhead in the assessment.
- As the project will end in near future there is a risk that the project scientist will leave the project prior to its end.