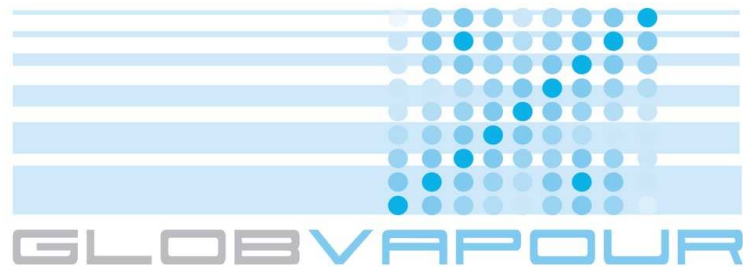




## DUE GLOBVAPOUR

### Monthly Progress Report

May 2010



Issue 1, Revision 0

07 June 2010

ESRIN/Contract No.:

22696/09/I-OL

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**Monthly Progress Summary - ESA DUE GlobVapour**

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

Reporting Period: 01.05.2010 - 31.05.2010

**Main Actions:** Final versions of RER documents available, submission of three new documents for next review, draft version of Newsletter ready, largely improved web presence, start of and progress in all development WP, IASI validation plan ready, first RO data provided with consolidated content, refinement of a single scattering model for MERIS

**Activities, Achievements and Status - Phase I****Management and Coordination****WP 001 - Management and Coordination (M. Schröder)**

- The Requirements Baseline Document (RBD), Data Acquisition Plan (DAP), Software Development Plan (SDP), and Technical Specifications Document (TSD) are available in final version (1.0).
- Inputs on user requirements at EGU assembly were obtained which will be reflected in an update to the RBD.
- Preparation of the first Progress Meeting.
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**WP 010 - Promotion (M. Schröder)**

- The first draft of the GlobVapour Newsletter was layouted and written. It will be presented and discussed at PM-1.
- The GlobVapour webpage was updated and revised. The content and the amount of layers have been increased. An area for introducing the team members was added. Currently, the webpage is in internal review. The new version will be online soon after PM-1.

**Consolidation of Requirements and Specifications****WP 110: Requirements Baseline (R. Saunders)**

- WP completed.
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**WP 120: Technical Specifications (M. Schröder)**

- A draft version of the PVP has been finalised and submitted to ESA for review.
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**WP 130: Summary of existing algorithm comparisons (M. Schröder)**

- The documentation of different existing algorithms and validation efforts has been finalised. A draft version of the SVR has been submitted to ESA for review.

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

- A first draft version of the GDD has been finalised and submitted to ESA for review.
- ARM site measurements, namely radiosondes and ground-based MWR data, have been acquired for June and December 2008 due to the re-definition of the validation dates for the IASI assessment.

- FTP server space has been allocated at the DMI for distribution of validation data from radio occultation missions.
- Radio occultation data from the CHAMP and COSMIC-4 satellites have been processed into temperature and humidity profiles. Test files have been provided through ftp.
- Acquisition of IASI L2 data for June and December 2008 (IASI prototype months) as part of the IASI Assessment has been completed.
- Acquisition of L2 HIRS data from NCDC covering NOAA 15, 16 and 17 over 1998-2009 has been completed.
- Access to the MOL database for ground based data has been facilitated.
- Access to Lidar data has been researched.

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

- Acquisition of ERA-Interim data for IASI Assessment, as well as for MERIS-SSM/I and (A)ATSR production, has been extended to 2006 in addition to the prototype months (already completed).
- Acquisition and preliminary inspection of Envisat/MWR data for July, August 2007 and January, August 2008

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

- Software for the collocation of radiosonde data and SEVIRI+IASI data and subsequent validation has been developed.
- Reading and collocation software for MODIS and AIRS data has been refined.

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

- Improvements and corresponding verification have been made for the H<sub>2</sub>O retrieval in the UPAS system

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

- The single scattering model has been refined. The SMAC approximation is used for the retrieval of albedo in the MERIS bands, which is extrapolated to MERIS band 15. TCWV is then optimized to match the radiance in MERIS band 15 using the single scattering model.

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

- Two of the four prototype months have preliminarily been processed on a reduced spatial resolution for SSM/I on-board the DMSP-13 satellite. L3 products of TCWV have been derived with in a simplified averaging framework. Adjustments for processing DMSP-14 and DMSP-15 are currently ongoing.

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

- On PM-1 the temporal resolution for the combined products needs to be discussed, that is, daily averages versus composites.

**WP 350: Development of ATSR/AATSR retrieval scheme (R. Preusker)**

- Work on (A)ATSR(-2) retrievals has been started.

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

- The IASI assessment plan has been finalised.

- Met Office trial suite now running to extract 1DVAR retrievals for agreed location and dates.
- The development and implementation of the core of DWD's IASI retrieval has been completed. The retrieval scheme has successfully been tested for one example orbit. Some minor issues have been identified and are currently corrected, as for example optimizing the temporal performance. The implementation of the AAPP preprocessing software for IASI has been finished.

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

- The Kriging software is capable for merging in temporal and spatial dimension. Now its application to individual layers and error propagation are under development.

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

- Starts September 2010

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

- The development of the processing environment has started.

### **Next Steps and Schedule**

- Progress Meeting - 1.
- Finalise acquisition of data for validation.
- Continuous development of tools for data reading and validation.
- Finalization of DWD's IASI retrieval modifications and production of water vapour in the vicinity of the defined reference sites within the IASI assessment.
- Collocation and Intercomparison of IASI retrievals at references sites to be continued.
- Production of SSM/I TCWV for prototype months and satellites DMSP-14 and DMSP-15. Subsequently, and after an initial corresponding quality check, production of SSM/I TCWV (all available satellite) for prototype months on full spatial resolution.
- Continue to work on combining MERIS and SSM/I products.
- Continue to work on MWR retrieval.

### **Achievements**

- Acquisition of satellite data for product generation finalised.
- IASI assessment plan.
- Final versions of RER documents.
- GDD, SVR, and PVP submitted for review.
- Draft version of Newsletter available.
- Largely improved webpage.

### **Problems encountered and solutions proposed**

- The application of Kriging to MERIS is computationally very expensive and might lead to a reconsideration of the planned application to MERIS for the full MERIS time period.
- The IASI 1D-Var requires AAPP software for preprocessing. ESA would need to license AAPP from NWP-SAF.