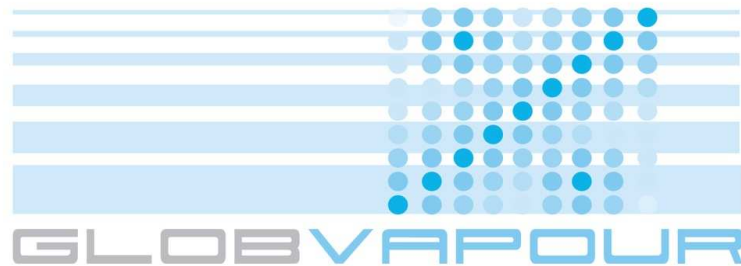




DUE GLOBVAPOUR

Monthly Progress Report

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Monthly Progress Summary - ESA DUE GlobVapour

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

Reporting Period: 01.11.2010 - 30.11.2010

Main Actions: Successful Progress Meeting, Review of prototype products and related documentation; first draft of a proposal to change AATSR work plan; extended user group; progress in all development WP

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

- The second Progress Meeting was prepared and conducted at MPI in Mainz, Germany on 09+10 November 2010. The minutes of meeting have been drafted, submitted to ESA and updated according to ESA comments.
- Several documents (ATBDs, validation reports and User Feedback) have been drafted, submitted to ESA and reviewed during PM2. Currently, the documents are updated.
- The AATSR products, processed with a retrieval scheme using two channels in the IR, seem to have low accuracies. Following discussions at PM2 a draft proposal was made to change work plan.
- Initial assessment of GlobVapour products by comparing with UK climate model.
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WP 010 - Promotion (M. Schröder)

- The Draft Version of the GlobVapour Newsletter Vol. 2/2010 was layouted, with input from partners. Currently, comments from ESA are implemented.
- The GlobVapour webpage was updated and revised and the new version is online now with an internal section, with documents/presentation/pictures of meetings uploaded, with a User Help Desk initialised and with data Access via ftp prepared.

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

- RBD has been updated to version 1.1 and distributed to the partners.
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WP 120: Technical Specifications (M. Schröder)

- WP completed.
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WP 130: Summary of existing algorithm comparisons (M. Schröder)

- WP completed.

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

- Processing AIRS and MODIS L3 data for test months (2006-2008) started.
- Preparation for Level 2 validation started.

- Microwave profiler data from MOL have been gathered for a few months in 2008.

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

- All satellite data for prototype products is available.

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

- Reworked validation of SSMI+MERISS and GOME by implementation of latitude correction function, collocated subsets and differentiation to land/sea/coast.
- Preparation for Level 2 validation started.

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

- Comparison of SCIAMACHY data with reference data from the Mainz prototype, of SCIAMACHY data with GOME-2 data and comparisons to other H₂O measurements: 1) development of an algorithm for integrating water vapour profiles to total columns, taking into account measured temperature and pressure, 2) optimization and testing of the above algorithm using ECMWF data, 3) integration of COSMIC4 and CHAMP water vapour profiles into total columns.

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

- Following the initial validation results of the prototype products, a refinement of the MERIS L2 retrieval scheme has been started to enhance the algorithm performance over various surface types and the coast. The determination of the retrieval uncertainty and the error propagation in the L3 products has been implemented.
- Uncertainty estimation is work in progress.

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

- The Level2 to Level3 processor has been updated. The metadata contains a flag for land, ocean, clouds, scattering (SSM/I), sea ice, coast, and sun glint.
- The background information input to SSM/I has been varied among ERA Interim, climatology and a mixture of both. The hybrid version and ERA Interim results exhibit good quality, also superior to background input. Reduced quality when using climatology has unclear reasons.

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

- Assessment of the adjacency effect is work in progress.

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

- An algorithm based on the 11 μ m and 12 μ m bands of AATSR has been tested and compared to the MERIS-SSM/I product, showing that the information in these two bands is not sufficient for a retrieval with reasonable accuracy. The 3.7 μ m band will have to be included. A report about future plans for the ATSR retrieval has been delivered.

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

- Final IASI water vapour dataset and documentation delivered to DWD.
- Bias correction coefficients for IASI 1D-Var were revised and first month with the new scheme had been processed.
- For collocated IASI and ARM site observations the DWD IASI product has been processed.

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

- Prototype month of the merged IASI+SEVIRI product has been processed with the DWD 1D-Var for IASI and first validation has been carried out.
- Further validation is foreseen to analyse the added value of the merged product.

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

- All combined SSM/I+MERIS and GOME-2 prototype months have been processed and validated on the final spatial resolution. The products are available for July, August 2007 and January, August 2008, including daily composites and a monthly mean with updated GlobVapour metadata information in netCDF format following the CF-1.4 standard.
- A prototype month of the merged SEVIRI+IASI product has been processed and validated against GUAN radiosondes and ATOVS as well as AIRS observations.
- ATBDs and PVRs have been drafted and reviewed. Implementation of review comments is work in progress and almost completed.
- The AATSR prototype data set (07/2007) was created and compared to the SSM/I-MERIS monthly mean product. The results and a proposed plan for future developments were discussed at PM2.

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

- The development of the processing environment is ongoing.
- The collection of detailed processing requirements has been refined, and the GlobVapour Filename Convention document has been commented.

Next Steps and Schedule

- Depending on review finalise documents.
- Improve the retrieval algorithms.
- Start processing of test products. This might partly include (re)processing of prototype products.
- Plan next meeting and User Workshop.
- Intensify validation efforts, in particular consider Level 2 validation and inter-comparisons.
- Assess added value of merged IASI+SEVIRI product.
- Update PMP.
- Continuous development on all running WP.
- Start of Phase 2.

Achievements

- Prototype products from combined SSM/I+MERIS, GOME-like, merged IASI+SEVIRI and preliminary results for AATSR.
- Successful Progress Meeting.
- Comprehensive validation of prototype products.
- ATBDs and validation reports reviewed.
- Preliminary User Feedback.

Problems encountered and solutions proposed

- The IASI assessment is on-going as mutually agreed between the project and ESA.

- Merging SEVIRI and IASI products is a challenging task and computationally very expensive. Delays in processing occurred and might occur. At PM2 it was decided to prepare a proposal on how to proceed with this product. The main effort will likely be a high-temporal resolution comparison against ground-based microwave observations from Lindenberg. It is likely that the added value on monthly scales is not significant.
- First validation of a two channel retrieval scheme for AATSR exhibited low quality of the water vapour product. FUB drafted a report with details on the retrieval scheme, first validation and an outlook on potential future activities. It is foreseen to provide ocean and sun-glint free products using the 10 and 11 micron channels only. In addition, the full capability of the instrument to retrieve TCWV will be analysed.