



IWWG 13

WG2: Data Assimilation

Chairs: James Cotton and Niels Bormann



Processing and Satellite Changes

Introduction of GOES-R algorithm for existing GOES:

Recommendation to NESDIS: To make the GOES AMVs processed with the GOES-R algorithm available to the community in the current BUFR format as soon as practical.

Generally

The group acknowledged the usefulness of the 9-month Himawari-8 overlap period for preparation and assessing impact in NWP.

Recommendation to AMV producers: To provide a 9-month overlap period when transitioning to a new generation of satellites and for major derivation changes.



Notification of Changes

Recommendation to AMV producers: to provide notification of significant upcoming changes in the data provision via the IWWG email list with sufficient notice according to the nature of the change

Recommendation to EUMETSAT: to introduce an AMV-specific UNS category

Action on Steve Wanzong, in collaboration with NWP working group co-chairs: to provide links to existing user notification pages from space agencies on the IWWG wiki pages



Introduction of new BUFR template

The group strongly supports the development and finalisation of the new BUFR template.

Recommendation to NESDIS: to make offline test data available for the new BUFR template once it has been approved by WMO (e.g., 1 time slot would be sufficient) for technical testing/implementation.

Recommendation: All AMV producers to adopt the new AMV BUFR format once it has been finalised. A 2-3 month overlap period of providing the same data in the new and old format should be provided, assuming the above-mentioned test data has been provided 3 months earlier.



New derivation schemes and new information

Encourage NWP centers to continue evaluating new information provided with new AMV algorithms (from both tracking and cloud height assignment).

Recommendation to AMV producers: to provide comprehensive documentation on the derivation algorithms, including a clear description of what will be provided in the new BUFR format

Action on Met Office and Steve Wanzong: to consider how to collate this information so it can be made available to users



Identification of errors

Work is ongoing or planned in the following areas:

- **Lidar-comparisons, best-fit statistics (DWD, Uni Munich & ECMWF)**
- **Comparison to aircraft data (NCEP)**
- **Simulated imagery (KMA)**

The following activity was suggested:

- **Comparison to high resolution MODE-S aircraft data**



New mission proposals

There continues to be an unmet requirement of wind profile observations with global and sufficient temporal coverage. The group is looking forward to Aeolus data, but notes that currently there is no secure follow-on mission.

Recommendation to space agencies: to implement satellite missions that allow the provision of wind profile information with global coverage (e.g., DWL, hyperspectral IR with high temporal frequency and spatial resolution).



Wind information from hyperspectral IR

The group discussed how best to obtain wind profile information from hyperspectral IR instruments in an NWP context, with a view to MTG-IRS:

- **Direct assimilation of (clear) radiances in 4d-Var or equivalent**
- Or**
- **Through tracking structures in sequences of humidity (or other) retrievals and subsequent assimilation of the derived profiles**

No clear consensus was reached. Aspects to consider are:

- **Complex error characteristics of derived wind profiles that may be difficult to handle in subsequent assimilation?**
- **Fine-scale information accessible through tracking step which may be more difficult to obtain in 4d-Var?**
- **Benefits of offline tracking when using 3d-Var. Will “tracing effect” work in 4d-EnVar?**



Reprocessing activities and climate

The group continues to support reprocessing activities to derive consistent AMV datasets with state-of-the-art algorithms, especially for the early data.

Recommendation to AMV producers: to consider backwards compatibility when designing current AMV algorithms, so that present state-of-the-art algorithms can be applied to old imagery.

Value of unassimilated long-term dataset for evaluation of reanalyses.



Use of NWC-SAF AMVs software and mesoscale AMVs

The group noted that a number of NWP centres are using the NWC-SAF AMVs software to derive higher density AMVs for their mesoscale assimilation systems. Further developments of this software are supported (e.g., production of o-b statistics).

At the same time, the group noted that the use of the NWC-SAF software is a response to an unmet requirement for mesoscale AMV datasets, and causes multiplication of undesirable overheads.

Recommendation to AMV producers: to provide higher-density AMV products that capture small-scale detail for mesoscale applications. Rapid-scan configurations are particularly suitable for this.



NWP SAF and OSI SAF monitoring

The group acknowledged the usefulness of the NWP SAF AMV monitoring report and supports this activity.

Members are encouraged to study the monitoring report and provide feedback, including identification of new issues or results of investigations of already identified issues.



Feedback on IWW13

It was great as usual!

There was more interaction due to the type of conference venue – seen as very positive.

Mix of presentations/posters/discussions/working groups well received.

Suggestion for future co-chairs to consider:

- To encourage NWP centres to provide status updates/overviews in posters, in order to allow time for more in-depth presentations on selected topics.**
- How do we best report to WMO/CGMS on wind aspects for scatterometer and Aeolus, but also retain some focus on AMVs? We expect more focus on some observation types for some meetings, and we also expect dedicated Aeolus workshops separate from IWWG that feed into IWWG.**