REPORT FROM WORKING GROUP 2: AMV DATA ASSIMILATION

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The discussion in the working group focused mainly on the CGMS-37 Recommendation pertinent to AMV Data assimilation and expanded to addressing various other aspects of using AMVs in NWP, i.e. improving the ways AMVs are currently assimilated; benefits of reanalysis and use of reprocessed AMVs; exploring new AMV data sets; continuing the exchange of experience in the community, etc.

Recommendation 37.20: Efforts to enhance the use of AMVs in NWP should continue to address both the quality of the AMVs as well as the way the product is utilised in NWP assimilation systems.

37.20.1. Treating winds as layers
Action: Met Office and ECMWF to investigate treatment of winds as layers in NWP, possibly using CIMSS's wind product reporting layer thickness in high shear region. It is expected that high shear region will benefit most from winds representing layers. It is not clear yet if a layer should be centered around current assigned height or placed below it.

37.20.2 Other NWP improvements
Maintain the request for AMV observation errors from producers. Met Office continues the exploration of using individual AMV observation errors in DA. State-dependent temperature errors could be used to generate state-dependent height assignment errors. ECMWF will work on employing correlated observation errors in DA. Continue observation operator development.

37.20.3 AMV impact in NWP

Action: Broad support for coordinated impact experiments targeted for completion for 11th IWW and 6th WMO GOS Impact Workshop, both during first half of 2012. Three-month data denial experiments (at operational resolution) are desired. Common definitions of observation classes, regions, and diagnostic quantities will be distributed to particpants. If implemented at a NWP center, results from Adjoint Sensitivity would be collected. ECMWF, Met Office, JCSDA/NCEP, DWD, JMA and Meteo-France will coordinate on period and other details of the data denial experiment setup.

37.20.4 NWP SAF AMV usage pages were found to be useful and more centres will contribute to them.

The 4th NWP SAF AMV Analysis report was discussed briefly in the group. The report was found to be useful and no specific recommendations for improvement were suggested. Standing waves were suggested as possible topic for further discussion, where standing waves refers to tracking features that do not move with mean flow. The report and the NWP SAF website are a convenient media for efficient exchange of experience. Canada and Bureau of Meteorology will be added to the Analysis reports soon. NRL has AMV analysis information on their internal website, and they plan to make it externally accessible.
A few working group members requested that information about Windsat data usage is posted as well. Also, a discussion about polarization vs. horizontal resolution trade-off too place, but the group did not come up with recommendation/input to post-EPS decision.

Another topic in WG2 was the ongoing and planned reanalysis and reprocessing activities. ECMWF and EUMETSAT are requesting EC FP7 funding for reprocessing observations for next major reanalysis. KNMI may reprocess scatterometer winds, but currently no funding is available. No current reprocessing plans in the US, but it will be proposed to funding agencies. IWWG discussed also if it should formally endorse the idea of reprocessing all scatterometer observations.

It was agreed that access to global scaterometer observation will be beneficial to users and NWP centers. Global inter-callibration is recommended.

Action:WG2 suggests that the IWWG requests access to all space-based surface wind measurements in near real time

MISR winds are one of the data yet to explore in NWP. With their stereo-height assignment (a geometrical method, independent of model input) they could address some height assignment error issues. Major disadvantage of the data is the time latency, thus making them only of interest for reanalysis. With the development of a new spatial resolution 35km MISR wind product, the wind counts increase and in many situations depict the air mass flow better. At ECMWF, the data volume and timeliness are the major reason for not investigating this data in the past, however with the approaching launch of ADM Aeolus, it was found that assimilating MISR's across track wind component may help learning how to better perform one direction wind assimilation (ADM Aeolus will also measure one winds component only). NCEP/JCSDA also expressed interest in assimilating MISR winds.
Another small study dedicated to MISR and its potential for NWP is in progress – it is collocating MISR, MSG and ECMWF winds, and will be looking at similarities and differences between the triple collocates winds fields.

Because of the delay from the initial launch date for ADM-Aeoulus, little interest has been shown in vertical winds at this point.

Winds from hyper-spectral instruments were discussed as well and the working group recognized the value of tracking features in simulated imagery – radiances and constant pressure level moisture fields. However, an easier goal would be to explore the use of IASI's data for AMV height assignment. Preliminary work at EUMETSAT and ECMWF did not lead to conclusive results, due to using an obsolete IASI product.

In terms of workshop organization and web popularizing, the group agreed that the IWWG website is a useful gateway introducing the IWWG with its activities, projects progresses and results. However it was recommended that the site is given wider visibility by adding links from JCSDA, NCEP and similar organisations, if the aim of the site is to advertise the IWWG.

Participants in the discussion were in favor of the new Workshop format with additional plenary discussions during meeting. It was suggested that more time is given for questions and discussion of the individual talks.