



Preliminary Review of from CGMS 35 to the 9th International Winds Workshop 17 April 2008

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Introducing Recommendations from CGMS 35 to the 9th International Winds Workshop

- **Presentation introduces the recommendations from CGMS 35 directed to the 9th International Winds Working Group IWW9**
- **Most recommendations are traceable to IWW 8 and subsequent reports to CGMS**
- **It is suggested to address the recommendations in the working groups during the 9th International Winds Workshop.**



Introducing Recommendations from CGMS 35 to the 9th International Winds Workshop

Recommendation 35.07:

CGMS members to respond to recommendation 34.15 should finalise the first phase of the project (i.e. the processing of the AMVs with their own operational AMV algorithm without any modification) before IWW9 and discuss the results.

- ⇒ *summary report by I. Genkova et al. to be highlighted as unprecedented effort ... needs to be continued***
- ⇒ *discussion in WG 1***
- ⇒ **Consider a new date due to renewed radiance definition****
- ⇒ **Common grid ? Goal is to unify approaches ? Tool is a beauty contest for algorithms ? How to extend/repeat this ?****



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Recommendation 35.08:

IWW9 should discuss the results from the height assignment studies based on advanced instruments on the A-train. The co-Chairs of IWWG are invited to provide a summary report to CGMS36.

=> conclusions and follow-on actions to be discussed in WG 3

=> gives insight into future polar systems



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Recommendation 35.09:

IWW9 should discuss the results of the studies using the images simulated from NWP model output to track AMVs. Co-Chairs of IWWG are invited to provide a summary report to CGMS36 on results of the ongoing studies on deriving AMVs from images simulated from NWP model. The report should address both the imagers as well as the hyper-spectral sounders.

=> *novel work ! Needs continuation; models with higher spatial resolution to better address scales?*

=> *has also bearing on priority of products from future hyperspectral sounder in geo orbit (e.g. MTG IRS) i.e. water vapour changes and wind profiles*

**➤ CRM model for visible winds; more vertical levels; try different models since result dependent on turbulence and cloud parameterisations?
Use dates of reference scenes**

=> *suggest discussion in WG 1 and WG 2*



Introducing Recommendations from CGMS 35
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Recommendation 35.10:

**Direct retrievals of wind fields from Doppler Wind Lidars
need to be continued beyond the ESA ADM mission.**

=> suggest discussion in WG 2

***Highlight with precise recommendation and look forward
to results at next IWW10***

Scientific need and need for further algorithm development



Introducing Recommendations from CGMS 35 to the 9th International Winds Workshop

Recommendation 35.11:

IWW9 should discuss the height allocation to atmospheric layers and pursue tests within NWP assimilation and forecast systems.

Ideas for NWP SAF monitoring site or other monitoring efforts ?

=> suggest discussion in WG 2 and 3



**Introducing Recommendations from CGMS 35
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Recommendation 35.12:

CGMS 35 recommends to put the CGMS wind statistics on the new IWWG web site and to discuss at IWW9 whether a strict adherence to CGMS collocation criteria should be followed and whether the criteria need to be re-defined.

=> discussion in WG 1



**Additional point for discussion
and a look into the future**

- **With new hyper-spectral sounders (e.g. the IRS on Meteosat Third Generation) we would even better observe 3-d changes of moisture fields**
- ***=> which advances have to be made to use observations of 3-d evolution of moisture and cloud fields in time (spatial scale important)***
- ***=> wind fields, how and at what scale? Vertical motions?***
- ***Revisit utilisation of hyperspectral sounders in more detail (study?)***



Additional points (1)

- producers document precisely steps of AMV processing, shortened ATBD
- more stringent tests before derivation of vector: cloud phase, check change of vertical development, to extent possible use channels that all have on their satellites
- use A-train to better understand relevant physics
- error characterisation (expected error),
- scale of observation and error correlation length (400 - 800 km?), structure functions?
- vertical error
- new height allocation methods, we note that initial vector height is still important
- target window size, continue study testing all sizes, test influence of QI
- What do we trace on small scales ? How to obtain small-scale dynamic info ?
- What do we trace in cases of convection ? Can we extract dynamical information in such cases ? Cloud cooling/heating rates
- Anisotropy tracking ? verify anisotropic error estimates with models, RaSo. Assimilate anisotropic wind component error information.
- Need for independent height and wind error estimates? If so, what input may be used?



Additional point (2)s

- use of rapid scans for better winds
 - Ideas for fostering international collaboration; this group really works together very well for the benefit of all; this should be maintained.
 - Guidance IRS scanning mode for humidity tracking or wind extraction ?
 - Generally positive experience with scatterometer data. Encourage NRT availability of ISCAT backscatter data
 - AVHRR winds, use optical depth
 - Reprocessing of winds
 - similarity of MISR winds ! I.e. bias not due to height assignment: stratify MISR by cloud type for better comparison
 - note the very valuable cooperation with users (NWP); for increased focus on mesoscale mesoscale NWP modellers may be invited (NCEP?)
 - Report in BAMS by outgoing and new chairs?
- Above points are focussed on data producers; consider points from DA point of view



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=>Run new date case, extract on a grid, estimate height from same target/search box size as well as “as is” in operational algorithm; Report target albedo/BT; only with ECMWF forecast; 10.8microns only; (CIMSS/NESDIS)



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⇒ **conclusions and follow-on actions to be discussed in WG 3**

Recognised AMV heights in best agreement with Calipso; (best - low level, inversion correction and cloud base HAM); write up a paper/report; 'Prescribe' which AMV HAM are most reliable; (R.Borde, G.Seze)

Suggest adding most up-to-date cloud type/analysis info into the AMV product (i.e. new EUMETSAT CLA product, Geocat cloud product info, Now-casting SAF cloud type); (all AMV producers)

⇒ **gives insight into future polar systems**

Slide: **Take advantage of supplementary satellite data – CALIPSO, MISR, and EUMETSAT polar ground stations (Norway, DOE ARM)**



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Recommend work toward derivation of ΔH_{error} (AMV Producers and collaborating cloud teams);

AND ΔH_{layer} (K.Bedka, C.Velden, J-G. Pereda,); Evaluate/Stratify by cloud properties and AMV characteristics and communicate with NWP for guidance (Met Office, ECMWF)

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 - more stringent tests before derivation of vector: cloud phase, check change of vertical development, to extent possible use channels that all have on their satellites – **OK! Re-evaluate thresholds related to possible vertical development ; Optimise use of Cloud phase and Cloud mask for HA purposes;**
 - use A-train to better understand relevant physics – **Ongoing work**
 - error characterisation (expected error)
 - scale of observation and error correlation length (400 - 800 km?), structure functions?
 - vertical error – **develop HA uncertainty measures (in terms of hPa)**
 - new height allocation methods, we note that initial vector height is still important – **Explore the possibility of stereo HA (FY-2C and 2D) ???**
 - target window size, continue study testing all sizes, test influence of QI
 - What do we trace on small scales ? How to obtain small-scale dynamic info ?
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- similarity of MISR winds ! i.e. bias not due to height assignment: stratify MISR by cloud type for better comparison – **It would be good if more MISR data studies are performed – use ECMWF first guess, stratification by cloud type**
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