



IWWG Matters: Report from the International Winds Working Group

Presented to CGMS-46 Plenary session

Co-Chairs: Régis Borde (EUMETSAT)
Steve Wanzong (UW-Madison/CIMSS)

Rapporteur: Jaime Daniels (NOAA/NESDIS)

Coordination Group for
Meteorological Satellites

CGMS-46, India, June 2018



OUTLINE

- **Outcomes of the 14th International Winds Workshop (IWW14)**
- **Status of HLPPs and CGMS-45 Recommendations**
- **Other Items of Relevance to CGMS**



14th International Winds Workshop

- Maison Glad Jeju Hotel, Jeju, Korea (23 April - 27 April 2018)

Local Coordinator: Sung-Rae Chung (NMSC/KMA),
Byung-il Lee (NMSC/KMA)

- **Sponsored by:** KMA, EUMETSAT, WMO, BAE Systems
- **Co-chaired by:** Régis Borde (EUMETSAT) and Steve Wanzong (UW-Madison/CIMSS)
- 40-45 participants
- **Sessions Covered:**
 - Status of operational AMV production
 - AMV derivation
 - AMV quality and impact
 - Use of satellite derived winds in NWP
 - Reprocessing and climate applications
 - Wind Profiles

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- **Plenary Discussions**
 - 3rd AMV Inter-comparison study results
 - Which AMVs for which model
- **Working Groups**
 - Wind extraction methods
 - Data assimilation



14th International Winds Workshop, main outcomes (1/2)

IWW14 Action 1: All AMV producers to implement the “Common QI module” in their algorithms. Due date: before IWW15

- Common Quality Indicator (QI) module (Fortran 90) was developed and supplied to the AMV producing centres.
- Common QI found useful during 3rd AMV Intercomparison.

IWW14 Action 2: AMV producers to adopt the new AMV BUFR template. Due date: end 2019.

- New AMV BUFR sequence is now officially referenced on the WMO website (Nov 2017).

IWW14 Action 3: NWP community to define the best configuration to be used by the AMV producers, for use in global and regional NWP models. Due date: before IWW15.

- In plenary discussion at IWW14 it became apparent that different AMV requirements are needed for producing AMVs that would meet the needs of Global NWP, Regional NWP and Nowcasting.
- Such requirements needs concrete studies which test different configurations of AMVs in the models.



14th International Winds Workshop, main outcomes (2/2)

IWW14 Rec 1 to AMV producers: To provide a 9-month overlap period when transitioning to a new generation of satellite and for major derivation changes.

- GOES-13 to GOES-16 overlap before the move to GOES-16 proved to be not sufficient for NWP users to evaluate AMV data before including into their operational chains.

IWW14 Rec 2 to EUMETSAT: To consider that “Tristar” configuration for tandem Metop-A/B/C is best for both AMV generation and to maximize ASCAT scatterometer coverage.

- ‘Tristar configuration’ of the 3 Metop Satellites will be applied only during commissioning of Metop-C.
- Tristar configuration is the best for both ASCAT winds coverage and for AVHRR AMV production.

IWW14 Rec 3 to AMV producers: To reduce as much as possible the product data latency.

- During the breakout sessions on Methods (WG1) and Data Assimilation (WG2) everyone agreed that AMV producers should strive for zero latency for NWP purposes.
- United State’s Polar AMV product needs to improve its product latency. Jeff Key (NOAA/NESDIS) has been made aware of this recommendation



Third AMV Intercomparison results

Third AMV Intercomparison

- Six agencies participated : CPTEC/INPE, EUMETSAT, JMA, KMA, NOAA/NESDIS, and the NWCSAF
- Funded via NWCSAF VSA; Analysis done by NWCSAF and UW-Madison/CIMSS.
- 3 tests performed using Himawari-8/AHI data on 21 July 2016 :
 - Test 1:** Prescribed configuration using the 10.4 μm channel with the 12 UTC triplet.
 - Test 2:** Own configuration using the 10.4 μm channel with the 12 UTC triplet.
 - Test 3:** Own configuration using the 10.4 μm channel with the 0530 UTC triplet. (against CALIPSO).

Main outcomes:

- JMA had the best overall performance using a new HA method (1DVAR plus differential evolution).
- Differences between centres is greater in the height assignment.
- Common QI has real skill in filtering collocated AMVs for an improved statistical agreement.



Status of HLPPs

HLPP.3.2.1 - Establish commonality in the derivation of AMV for global users where appropriate (e.g., through sharing of prototype algorithms) and consider backwards compatibility when designing AMV algorithms for the 16-channel imagers, so that present state-of-the-art algorithms can be applied to old imagery.

- 3rd AMV Intercomparison study completed
- Design and adoption of new AMV BUFR sequence
- Common QI showed skill in filtering collocated AMVs, NOAA/NESDIS Forecast Independent QI becomes the Common QI

HLPP.3.2.2 - Continue research into improved derivation and assimilation of high resolution winds for use in high resolution data assimilation and nowcasting. ICWG and IWWG to liaise as appropriate on the provision of further information characterising the AMV derivation for enhanced QC and error characterisation .

- Many advanced imagers available with more to come.
- Plenary discussion organized at IWW14 on this topic. IWW14 Action 3 on NWP to define best configuration for global and regional models.



Status of CGMS-45 Recommendations

A45.02- to CGMS space agencies, IROWG, IPWG, IWWG, ICWG, ITWG: CGMS International Science Working Groups and CGMS space agency members to formulate science questions, including the impact of data latency, in view of the 7th Impact WS 2020 (ref. CGMS-45-WMO-WP-02) and provide these to Iriishojgaard@wmo.int

- US Polar AMVs latency issues previously discussed.

A45.03- from WGII: IWWG to liaise with the NOAA representative on PSTG (Jeff Key, jeff.key@noaa.gov) regarding the potential use of 3D winds from AIRS for Year of Polar Prediction studies.

- EUMETSAT IASI AMVs not operational yet. (Operational production potentially foreseen mid-2019, after Metop-C commissioning). Dave Santek AIRS AMVs now extended to CrIS and IASI

A45.04: CGMS to invite the ISWGs to nominate experts for participation in the OSCAR/Space Science and Technical Advisory Team.

- Regis Borde nominated by IWWG co-chairs 1 Aug 2017



Status of CGMS-45 Recommendations

A45.12- to IWWG: IWWG to prepare a proposal to CGMS on how to fund the analysis of the future AMV International Intercomparison studies.

- This action can be closed.
- Future AMV international intercomparison studies will be funded in the same manner of the two last studies, through a VSA contract of the EUMETSAT Nowcasting SAF. Future AMV international intercomparison studies will be funded in the same manner of the two last studies, through a VSA contract of the EUMETSAT Nowcasting SAF.

43.12: IWWG to liaise with the application focal points in the WMO RRR process (on IPET-OSDE) to provide feedback on the winds-related observation requirements in the RRR database.

- Done for wind capabilities
- Plenary discussion at IWW14 for wind requirements. IWW14 Action 3 taken to define: NWP community to define the best configuration to be used by the AMV producers, for use in global and regional NWP models. Due date: before IWW15
- Propose to close A43.12



Other items of relevance to CGMS

A44.06: To enhance coordination, ISWGs to discuss with ICWG co-chairs key items for collaboration.

- There are several logical linkages between the CGMS International Science Working Groups and the IWWG continues to cultivate its interactions/collaborations with the ICWG.

A44.19: CGMS agencies to explore possibilities to derive winds from new upcoming satellites and opportunities.

- Answer: Wind profiles with AIRS, IASI, CrIS, preparation for MTG-IRS. AMVs to be developed with Sentinel 3...etc

ICWG2 to be hosted UW-Madison/SSEC, EUMETSAT, NOAA in Madison, Wisconsin, USA, October 2018.

IWW15 to be hosted by ESA/KNMI in Utrecht, Netherlands, April 2020.



Recommendations from IWWG for the attention of CGMS 46

Recommendation 1 to AMV producers: To provide a 9-month overlap period when transitioning to a new generation of satellite and for major derivation changes.

Recommendation 2 to EUMETSAT: To consider that “Tristar” configuration for tandem Metop-A/B/C is best for both AMV generation and to maximize ASCAT scatterometer coverage.

Recommendation 3 to AMV producers: To reduce as much as possible the product data latency.



Further Information

Please visit the IWWG Web page:

<http://cimss.ssec.wisc.edu/iwwg/iwwg.html>

