

# Products and Software Working Group

Co-chairs: Liam Gumley and Nigel Atkinson

Summary of group report

ITSC20

# Agenda

- High Level Priority Plan – achievements since ITSC-19 and future work
- PSWG Action items review
- A.O.B.

### *1.1.3 Facilitate the evolution of research short-term missions to an operational status*

- Tom Pagano (JPL) has been funded by NASA for a technology demonstration of hyperspectral sounding on small satellites (CubeSat Infrared Atmospheric Sounder or CIRAS)

**Recommendation: NASA is encouraged to share products of the CIRAS demonstration project with appropriate science teams (e.g. CrIS, IASI, NWP centers) for evaluation.**

**Recommendation: Agencies to release details of instrument characteristics (e.g. channel definitions and data formats) well in advance of launch.**

- This helps to ensure rapid progress with both operational and research missions.

## *1.4.1 Evaluate standards for dissemination mechanisms*

**Action: PSWG members to review the “Guide To The Direct Broadcast Network (DBNet)”, which contains sections on dissemination mechanisms.**

## *1.4.2 Facilitate the transition to new direct readout systems (GOES-R, JPSS, FY-3, Meteor-M)*

- Achievement noted in the FY-3C evaluation and use of FY-3 DB data
- Progress with Meteor-M
- Level 2 products for FY-3?

Also:

**Action: PSWG members to review the list of software packages in the document linked from the PSWG web site and send corrections or additions to the co-chairs.**

*1.4.3 Work together to define a set of recommendations seeking affordable future receiving stations or alternatives to direct read-out solutions*

**Recommendation: Agencies are encouraged to make future missions compatible with existing ground stations for direct broadcast, e.g. with regard to data rate, frequencies, polarisation, encoding etc., so that station operators do not have to buy new hardware (where possible) to support new satellite missions.**

**Recommendation: Agencies to consider “cloud” data delivery methods, where appropriate, as an alternative to direct readout for providing real-time data.**

*1.4.4 Provide level-1 processing software packages, consistent with global processing software, for processing of Direct Broadcast data from the new generation of LEO satellites.*

- This is happening
- Noted EUMETSAT are considering release of a Metop scatterometer winds package

*1.4.5 Further enhance the Regional ATOVS Retransmission Services (RARS) initiatives through inclusion of the NOAA Direct Broadcast Real Time Network (DBRTN) and an extension to advanced sounders for at least half of the globe.*

- Addressed through the DBNet Coordination Group

**Recommendation: Consider ways for DBRTN and hyperspectral sounder data to be made available via rebroadcast services in the Asia-Pacific region.**

**Recommendation: Retransmission services are encouraged to consider broadening the scope to include imager products, level 2 products and full hyperspectral content.**

- Widen the user base beyond NWP? Needs thinking about.

*2.1 Support the user-provider dialogue on regional/continental scales through regional coordination groups*

- Addressed through the GODEX-NWP (formerly NAEDEX/APSDEU)

*2.3 Increase access to, and use of, data from R&D and pre-operational missions.*

- Availability of data from missions such as Rapidscat, Aqua, Terra, GPM is highly appreciated

**Recommendation: JAXA/JMA to consider providing more geographical coverage for GCOM-W1 DB, and the release of level 1 software for AMSR2.**

## *2.6 Develop efficient standardized data handling for high-resolution imaging and hyper-spectral instruments*

- Achievements of CVIIRS noted (EUMETSAT's compact VIIRS format used in EARS)

**Recommendation: The PSWG supports the NWP SAF proposal to create a processing package for MTG-IRS (called IRSPP) that handles the PC compression aspects (e.g. creating reconstructed radiances).**

### *3. Enhance the quality of satellite-derived data and products*

**Recommendation: Agencies are encouraged to develop instrumented ground sites for validation.**

- E.g. Lake Titicaca (Peru) and Lake Quinghai (China) – already used for monitoring, but not instrumented

### *3.3.3 Conduct an intercomparison study between the different methods to derive level 2 data from infrared hyperspectral sounders*

- Achievements noted; more comparisons planned.

**Recommendation to participants in level 2 comparison studies:  
Results of level 2 comparison studies should be published in  
the open literature **and also presented at ITSC-21****

*3.5.1 Establish a common vocabulary and methodology with appropriate error propagation to include the errors associated with validation data*

**Action: Martin Burgdorf to circulate the document from the FIDUCEO project that addresses errors associated with validation data.**

*3.5.3 Agree on standardized procedures to derive NedT estimates for microwave sounders, and include such estimates in the disseminated BUFR data.*

**Action: Nigel Atkinson to circulate his Technical Memorandum on NedT to the PSWG group, and to the co-chairs of NWP group.**

**Action: Nigel Atkinson to inform PSWG when samples of AMSU/MHS/HIRS BUFR files with NedT encoding are available, in order to check whether they can be decoded OK.**

- An encoding scheme (proposed by EUMETSAT) is planned for next AAPP update release
- Note NWP working group also has an action on this

*3.6.2 Report on the progress within the Nowcasting community toward the use of hyperspectral sounders and work toward common products to serve the requirements of the global community.*

- Various initiatives are listed in the report

**Recommendation to ITWG co-chairs: consider whether there is an unmet requirement for training on the applications of hyperspectral sounder products, and, if so, whether ITWG should provide a short course.**

- Noting that the IPWG does courses on precipitation products

*4.2.1 Continue to foster optimum use of satellite data for weather forecasting, climate applications, and environmental assessments including hazardous events*

**Recommendation: ITWG members work with VLab to promote training activities related to satellite data**

- Vlab = WMO/CGMS *Virtual Laboratory for Training and Education in Satellite Meteorology*
- Event week coming up “Preparing for the Next Generation of Satellites” (16-20 November). See <http://www.wmo-sat.info/vlab/next-generation-of-satellites/>
- ***Share this with your colleagues!***

# Review of action items

- Good progress made in dialogue with KMA on support for next generation sounder

**New action: Graeme Martin to implement in CSPP GEO the algorithms to be made available by KMA**

- Currently a problem with IAPP for Metop-A

**Action: SSEC to modify IAPP so that it does not rely on Metop-A AMSU channel 8, and also to look at implementing improved bias correction (see poster by Szuchia Moeller).**

- 2 actions on metadata and ADL lessons learnt remain open, but agreed that they would be completed soon.

# Actions (cont.)

- Action on creating portable binary code: Ray will circulate document to the group for comment.
- Liam gave an update on progress with implementing new NASA L1 products for S-NPP, and differences with the existing NOAA ones:
  - NASA products are in part addressing climate requirements
  - Operational users can continue to use the NOAA L1 products

# A.O.B.

## **Recommendation to JPSS: Support development of VIIRS flood product as part of CSPP**

- Requested by Katerina Melnik

## **Recommendation to JPSS: Support implementation of a polar winds product as part of CSPP**

- Proposed by the DB Packages Technical subgroup
- Based on Jeff Key's work

## **Recommendation to NOAA: Investigate the feasibility of providing a VIIRS cluster analysis in the CrIS footprint, including timeliness implications.**

- A request from the NWP working group

## **Recommendation to NOAA: clarify plans for distributing GOES-R data to users outside the GRB area.**