



# International Issues and Future Systems

Cooperative actions with the international weather satellite community  
on issues involving polar remote sensing

# Items carried forward at ITSC-20 from ITSC-19

*Two items related to high frequency hyperspectral IR:*

**Recommendation IIFS19-1:** Provide examples to the Co-Chairs (Steve English, Jérôme Lafeuille) to show where high frequency soundings proved useful.

- *Status at ITSC-20: Still open. Expectation that results are likely to be presented at the WMO OSE workshop in Shanghai.*
- Now: Still open. To be discussed at ITSC-21, but noting launch of FY4A/GIIRS .

**Recommendation IIFS19-2:** Note the growing evidence of likely benefits from hyperspectral geostationary soundings, and where possible to work towards the provision of such instruments in plans for future geo systems.

- *ITSC-20: Still open. CMA have launched and EUMETSAT plan to provide hyperspectral geo sounders. Recommendation remains valid for other agencies to follow suit.*
- Now: Still open. Still useful to encourage others to follow EUMETSAT and CMA lead at ITSC-21.

# Items carried forward at ITSC-20 from ITSC-19

*Two items related to WMO and CGMS business*

**Action IIFS19-1:** Steve English to request ITWG (involving NWP Group) to provide input to CGMSWG III – via Jérôme Lafeuille – for updating the CGMS Contingency Plan.

- *Status at ITSC-20: Open, the action is continuing for feedback on the CGMS contingency plan.*
- Now: Still open. The need for updating the CGMS contingency plan was discussed at the recent CGMS-45 in June, and agencies and WMO agreed to focus on this topic over the coming months. WMO committed to organize a face-to-face meeting with agencies participating in CGMS WG III to address the plan, and the whole process of CGMS contingency planning. To be discussed at ITSC-21.

**Recommendation IIFS19-3:** WMO to pursue SATURN, and all agencies to actively contribute information to this portal (and two associated actions).

- *Status at ITSC-20: Still open. More feedback on SATURN is strongly encouraged.*
- Now: Still open, more feedback encouraged.

# Items carried forward at ITSC-20 from ITSC-19

*Two items related to use of data*

**Recommendation IIFS19-4:** CGMS to implement notification process for ITWG recommended events (Stephen English, on behalf of ITWG and in discussion with the NWP WG, to provide list of most relevant events affecting the quality of data, e.g., calibration changes, sensor anomaly, change of operation mode, and indication of the magnitude of the event justifying a notification.)

- *Status at ITSC-20: Still valid. Implementation of notification procedure still recommended.*
- Now: Still open. To be discussed at ITSC-21.

**Recommendation IIFS19-5:** Make available pre-processing software for L0/L1 Meteor-M data

- *Status at ITSC-20: Still open. Roshydromet still recommended to make DB software available to the community. This was discussed at ITSC-20 and there was encouraging progress.*
- Now: Remains open, would be useful to get an update at ITSC-21.

# New ITSC-20 actions and recommendations

## *Five items related to CGMS and WIGOS for current and future systems*

**Recommendation IIFS20-1:** Emphasize latency requirement in the HLPP Action 2.3 to increase the use of research and pre-operational satellites. (Action: Mitch Goldberg to propose to CGMS).

- *Status: Done, reported as Rec-18 of ITSC-20 to CGMS.*

**Recommendation IIFS20-2:** When an agency has two or more satellites in the same nominal orbit (e.g. 2pm) that they be staggered by phase (as Metop). With multiple satellites from different agencies it is recommended to stagger them in ECT. (Action: Mitch Goldberg to present to CGMS).

- *Status: Done, reported as Rec-1 of ITSC-20 to CGMS.*

**Recommendation IIFS20-3:** IIFS members to investigate optimal staggering to test working assumption that dual Metop configuration separated by about 180° is best option for future missions. (Action: IIFS members to provide evidence to IIFS co-chairs of advantages of orbit staggering).

- *Status: Reminder e-mail sent to IIFS members 24/7. EUMETSAT led discussion. Can close.*

**Recommendation IIFS20-4:** Provision of high temporal frequency MW humidity sounding radiances (alongside cloud and precipitation sensitive observations). (Action: Jerome Lafeuille to present to WMO Vision 2040 workshop).

- *Status: Done. All recommendations from IIFS and other WGs have been conveyed (after consolidation) to ET-SAT on 17 Nov 2015, and taken into account in the contribution of ET-SAT to the WMO Vision 2040 workshop on 18 Nov 2015.*

**Recommendation IIFS20-5:** Provision of low-inclination MW humidity sounding to monitor diurnal cycle. (Action: Jerome Lafeuille to present to WMO Vision 2040 workshop).

- *Status: Done. All recommendations from IIFS and other WGs have been conveyed (after consolidation) to ET-SAT on 17 Nov 2015, and taken into account in the contribution of ET-SAT to the WMO Vision 2040 workshop on 18 Nov 2015.*

# New ITSC-20 actions and recommendations

## *Four items related to uncertainty characterisation*

**Recommendation IIFS20-6:** Achieve SI traceability of operational hyperspectral IR sounders, and ultimately MW sounders, recognising growing need for assessment of calibration uncertainties. (Action: Mitch Goldberg and Peng Zhang to present to GSICS).

- *Status: Done, presented to GSICS. SI traceability is done through field campaigns. Onboard traceability using methodology developed for CLARREO option for future generations.*

**Recommendation IIFS20-7:** Provide more GRUAN and tropical ARM sites, given the need for ground-based reference measurements. (Action: Mitch Goldberg and Peng Zhang to present to GSICS).

- *Status: Done, presented to GSICS. ARM sites advocated to the GRUAN group.*

**Recommendation IIFS20-8:** Develop best practices in pre-flight characterisation of MW sensors (Action: Mitch Goldberg and Peng Zhang to present to GSICS).

- *Status: Done, presented to GSICS. GSICS working on best practices for MW, plus Isaac Moradi to study the MW water vapor channel biases as a GSICS project.*

**Recommendation IIFS20-9:** Noting the progress made in characterising observation uncertainty for hyperspectral sounders encourage further characterisation of LBL model error and errors arising from cloud screening, with a view to considering hyperspectral sounders as an absolute reference. (Action: Mitch Goldberg to ensure this is delivered to IRC and RTWG.)

- *Status: Done, as Rec-12 of ITSC-20 to CGMS.*

# New ITSC-20 actions and recommendations

## *Six items related to radio frequency interference (RFI)*

**Recommendation IIFS20-10:** Clarify reporting procedure for notifying ITU of detected RFI. (Action: Rich Kelley to circulate proposed procedure and ITWG members to follow).

- *Status: Done, Richard Kelley provided information.*

**Recommendation IIFS20-11:** WRC outcomes to be provided to ITWG. (Action: Rich Kelley to email summary to ITWG mailing list).

- *Status: Done. Rich Kelley send a list of items promptly to Stephen English. This has now been sent to members of ITSC, albeit after a delay (fault of Stephen English).*

**Recommendation IIFS20-12:** IIFS and other ITWG members to provide information on current usage of protected bands to Rich Kelley. (Action: Stephen English to provide copy of recent ECMWF submission to OFCOM, and to request Met Office to provide copy of their submission as well as encourage other NMSs to provide similar information where it exists).

- *Status: Done. Reminder e-mail sent to IIFS members 24/7. Close this now as an on-going requirement as usage changes, should be part of business as normal for ITWG to provide this.*

**Recommendation IIFS20-13:** To make MW SRFs available to facilitate RFI investigations when needed. (Action: Stephen English to ask co-chairs to combine with Recs from other WGs and communicate to CGMS).

- *Status: Done. This was a major recommendation from ITSC-20 (Rec 11) that was presented to CGMS. However ITWG needs to see a positive response from agencies.*

**Recommendation IIFS20-14:** Update Steve English's study from 2005 on the value of individual MW protected bands. (Action: Sid Boukabara to ask Thomas Auligné to consider making this part of the FSOI intercomparison study and presenting to the WMO impacts workshop in Shanghai in 2016).

- *Status: Open. This information was not presented at Shanghai. Need remains, but not necessarily FSOI. ITSC-21 issue.*

**Recommendation IIFS20-15:** NMSs to attempt to provide an assessment of the economic value of bands based on the impact assessment, as was done by the Met Office in 2005. (Action: IIFS members to investigate in their countries).

- *Status: Open. Reminder e-mail sent to IIFS members 24/7. No response. ITSC-21 issue.*

# New ITSC-20 actions and recommendations

## *Five items on planning and preparing for future observing systems*

**Recommendation IIFS20-16:** WMO and CGMS satellite operators to further maintain OSCAR and SATURN, noting the strong positive feedback from ITWG Members. (Action: IIFS members to review SATURN and provide comments to Stephan Bojinski [sbojinski@wmo.int](mailto:sbojinski@wmo.int))

- *Status: Reminder e-mail sent to IIFS members 24/7.*

**Recommendation IIFS20-17:** Provide information on best practice for the design phase of new programmes. (Action: Dieter Klaes to circulate his paper from the ECMWF satellite seminar, and IIFS members to provide similar information to IIFS co-chairs for their agencies if possible.)

- *Status: Done (also now available on ECMWF website).*

**Recommendation IIFS20-18:** The NWP community to continue to produce and make available Nature Runs to support preparations for, and fair evaluation of, potential future observations. (Action: IIFS co-chairs to bring recommendation to attention of WMO, ECMWF and GMAO.)

- *Status: Done, ECMWF are producing new nature run.*

**Recommendation IIFS20-19:** Welcoming the decision of CMA to operate FY-3E on the e-am orbit but noting the current lack of any long-term plan for this orbit, to consider follow-up and back-up missions ensuring continuity of e-am post FY-3E and DMSP. (Action: Nancy Baker and Peng Zhang to pass Rec to DoD and CMA.)

- *Status: Done. CMA: ISCC\* is the formal forum for consultation regarding the future Fengyun programme. DoD: Discussion continues, no definitive decision has been taken.\* Paul Menzel, Mitch Goldberg and Steve English are members of ISCC.*

**Recommendation IIFS20-20:** Continue the SSMIS 60 GHz UAS capability, noting the trend for NWP models to extend higher in the stratosphere and lower mesosphere and the development of thermosphere modelling for Space Weather applications. (Action: Nancy Baker to report to DoD and Jerome Lafeuille to raise at WMO Vision 2040 workshop.)

- *Status: Done. All recommendations from IIFS and other WGs have been conveyed (after consolidation) to ET-SAT on 17 Nov 2015, and taken into account in the contribution of ET-SAT to the WMO Vision 2040 workshop on 18 Nov 2015.*

# New ITSC-20 actions and recommendations

*Three items related to coordination under CGMS*

**Recommendation IIFS20-21:** WMO to promote standards to foster interoperability and usability of possible missions from commercial providers. (Action: Jerome Lafeuille or his successor to provide information when the need arises).

- *Status: Done. WMO is developing a position paper on what types of satellite data users consider critical for applications, and which principles should apply to these data (int'l exchange, transparency, etc.). WMO engages satellite operators in CGMS in this process.*

**Recommendation IIFS20-22:** Secure full government control for observations classed as essential under WMO Res 40. (Action: Mitch Goldberg to Report to CGMS).

- *Status: Done, as Rec-7 of ITSC-20 to CGMS*

**Recommendation IIFS20-23:** Noting the strong overlap of interest among the CGMS international science groups for some subjects (e.g. ITWG, IWWG and ICWG about MTG-IRS) co-chairs to ensure coordination where appropriate of communications to CGMS. (Action: Mitch Goldberg to Report to CGMS).

- *Status: Done. The science group collaboration is done through CGMS working group 2. So far there is very good coordination between the Winds and Cloud working groups.*