

## 2.5 INTERNATIONAL ISSUES AND FUTURE SYSTEMS

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### 2.5.1 Introduction

The ITSC-19 Working Group on International Issues and Future Systems convened on Saturday 29 March 2014 and discussed the following topics:

- Open issues from ITSC-18,
- Global Observing System Design:
  - Gap analysis and mitigation ([www.wmo.int/oscar/space](http://www.wmo.int/oscar/space)) and
  - In-orbit calibration reference standard (CLARREO-like mission),
- Access to new mission data,
- User interaction before launch (requirements for SATURN) and during operations, and
- RFI and frequency management.

### 2.5.2 Summary of ITSC-18 Actions and Suggested Topics for Discussion

Very good progress has been made on most actions and recommendations from ITSC-18. In particular the following items have had notable success:

- Website update,
- Direct Broadcast survey,
- FY-3 early morning orbit studies,
- FY-3 L0/L1 software,
- Himawari-8 broadcast,
- User preparedness for new data, and
- Private initiatives for new satellite data.

There remain open issues and actions with the following:

- Action IIFS-3 (ITSC-18): Notify RFI in 1400-1427 MHz band;
- Recommendation IIFS-1 (ITSC-18): Registering Direct Readout stations with the national radio frequency authorities;
- Recommendation IIFS-3 (ITSC-18): FY-3 early morning mission still to be encouraged and confirmed;
- Recommendation IIFS-4 (ITSC-18): NRT access to Meteor-M global data; and
- Recommendation IIFS-9 (ITSC-18): RARS extension to other satellite systems.

### 2.5.3 Global Design of the GOS, Implementation and Continuity Issues

#### **GOS Design**

There is evidence, some of it presented at ITSC-19, that availability of hyperspectral sounders from four satellites (mid morning (METOP-A and -B) and early afternoon (EOS-AQUA and S-NPP)) is beneficial, for example in identifying areas at risk for tornadoes. Therefore the group recommends even more strongly implementing high frequency hyperspectral soundings in geostationary orbit. The group considered it would be helpful to collate examples where high frequency hyperspectral observations have proved useful.

**Recommendation IIFS-1 to ITWG community**

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

**Recommendation IIFS-2 to satellite agencies**

**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.**

There followed discussion on the potential use of the INSAT-3D sounder, which should be evaluated. It is felt that real benefit of a sounder will only be fully achieved with a hyperspectral sensor but the current mission is seen as a first step in this direction.

The group also discussed whether it was desirable to encourage agencies to launch into the same orbital planes instead of spreading the missions on different orbital planes (e.g., 13:30, 15:00 Equatorial Crossing Time). The discussion was inconclusive as there are good (e.g., A-train, ECT stability required by GCOS monitoring principles) and bad aspects (less coverage, cannot try new products such as tandem winds).

***Continuity***

It is now anticipated that no DMSP spacecraft will fly beyond F-19 in an early morning orbit. The WG recalled the importance of ensuring continuity with some margin (two failures from a gap). Acknowledging the analysis by NOAA that the continuity between S-NPP and JPSS series is at some risk, the WG expressed concern and strongly encouraged agencies to plan satellite series with a systematic policy to re-launch when a critical mission is no longer fulfilled.

It noted that the re-launch criteria included in the current CGMS Contingency Plan (2007) [http://www.wmo.int/pages/prog/sat/documents/CGMS\\_Contingency-Plan-2007.pdf](http://www.wmo.int/pages/prog/sat/documents/CGMS_Contingency-Plan-2007.pdf) would need to be refined and updated, especially as concerns sounding.

**Action IIFS-1**

**Steve English to request ITWG (involving NWP Group) to provide input to CGMS WG III – via Jérôme Lafeuille – for updating the CGMS Contingency Plan.**

It was also noted that the risks on the IR/MW sounding continuity increases the need for solid planning of a global RO constellation as part of a mitigation plan.

The group also noted that small mission scenarios can be envisaged as contingency measures, because they could potentially be procured quickly and cheaply to restore at least a component of the GOS (e.g. microwave sounding, RO) in the event of a gap.

***Calibration Reference Standard***

As part of GOS design, a reference payload such as CLARREO would (i) provide an in-orbit calibration reference and (ii) provide ultimately a climate benchmark. A pathfinder mission on the International Space Station (ISS) is a good step in this direction that will improve the value of currently operated or planned sounders. Noting that the accuracy of IASI, CrIS is estimated at the order of 0.2 K, reducing the uncertainty would reduce the time (number of decades) necessary to assess climate trends. The ITWG recommends such a mission, and encourages the community to then participate in testing and exploiting the results.

## **2.5.4 User Interaction Before and After Launch**

### ***Best Practices on User Preparation for New Missions***

The WG was informed about the Satellite User Readiness Navigator (SATURN) portal under development by WMO in the context of a CGMS action. The aim of SATURN is to provide guidance to users to find the most current technical information on new missions. SATURN also contains a reference timeline of mission preparation, including deliverables. The WG strongly supported the concept and will provide feedback.

#### **Action IIFS-2**

**Jérôme Lafeuille to circulate to WG members the draft ET-SUP paper describing the proposed SATURN concept (Satellite User Readiness Navigator).**

#### **Action IIFS-3**

**The WG members to provide feedback via Stephen English before ETSUP 17 April.**

#### **Recommendation IIFS-3 to WMO and agencies**

**WMO to pursue SATURN, and all agencies to actively contribute information to this portal.**

### ***User Interaction on Mission Status***

The WG stresses the importance of getting current information to the users when any event affects the quality of data, e.g., calibration changes, sensor anomaly, change of operation mode, and indication of the magnitude of the event.

#### **Action IIFS-4**

**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.**

#### **Recommendation IIFS-4 to CGMS**

**Implement notification process for ITWG recommended events.**

## **2.5.5 New Mission Data Access**

### ***GPM-Core***

The group welcomed establishment of a portal allowing FTP access to data at a very early stage after the launch.

### ***GCOM-W***

The group again welcomed the early access provided to AMSR2 and it was noted that trial dissemination has now begun with EUMETCast.

### ***FY-3***

The WG acknowledged the excellent responsiveness of CMA for both provision of early data in near real time from FY-3A and 3B, and their strongly collaborative approach to instrument cal/val. This has raised the profile of FY3, which is now regarded as a key part of the GOS by

all WG members. The group welcomed news that the instruments on FY-3C are performing well, and the data will be made available as soon as possible.

***METEOR-M***

ITWG confirms its previous recommendation to Roshydromet to provide NRT access to global data sets from Meteor-M, including selected data sets on the GTS. In addition the WG noted the availability of information online about DB for Meteor-M, and recommended making pre-processing software available.

**Recommendation IIFS-4 to Roshydromet**

**Make available pre-processing software for L0/L1 Meteor-M data.**

***MEGHA-TROPIQUES/SAPHIR***

The data are said to be soon available in near-real time. The ITWG recommends implementing them on the GTS without further delay.

**2.5.6 Frequency management**

WMO have drafted a position paper for WRC-15. Although there are no major issues for ITWG, the group recommended that the WMO position paper be shared and brought to the attention of the national authorities in charge of frequency allocation. The group reconfirmed the old action to contact Jean Pla and notify any RFI detected in protected band.