

WORLD METEOROLOGICAL ORGANIZATION

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COMMISSION FOR BASIC SYSTEMS  
OPEN PROGRAMME AREA GROUP ON INTEGRATED OBSERVING SYSTEMS

EXPERT TEAM ON SATELLITE SYSTEMS

ITEM: 1.5

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## **GUIDANCE FROM THE CHAIR OF OPAG-IOS**

*(Submitted by Dr. Lars Peter Riishojgaard, USA, Chair, OPAG-IOS)*

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### **Summary and Purpose of Document**

This document contains information about other activities of WMO and of the space agencies that are relevant to the work of ET-SAT

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### **ACTION PROPOSED**

The Eighth Session is invited to take note of the contents of this document in their discussions throughout the meeting

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## DISCUSSION

### 1. WIGOS

In spite of various difficulties, especially as concerns resource allocation, the WIGOS implementation appears to be proceeding largely according to plans. The Inter-Commission Coordination Group on WIGOS (ICG-WIGOS) had a very successful meeting in Geneva in March 2013 where good progress was reported on a number of important issues, in particular the development of the necessary WMO Regulatory Material, on Quality Management and on Regional Implementation initiatives.

Good progress is noted in the Secretariat in implementing the OSCAR (Observing System Capability and Review) tool, i.e. the three databases supporting the Rolling Review of Requirements. The ET members are invited to familiarize themselves with this important resource and to report back any concerns or questions to the relevant Secretariat staff. OSCAR has gained very substantial visibility and is being widely adopted by the WMO members, and it is therefore important to ensure that the information contained in it is correct and updated. While the requirements database is “technology free” by construction, it is nevertheless clear that some of the requirements listed in it can realistically only be met via the operation of space-borne observing systems, and this database is therefore also offered as a resource that the space agencies can refer to regarding those observing systems that may be used to meet requirements for one or more of the WMO application areas.

It is important to note that while the initial implementation and development efforts have been very successful, the plans for sustaining, maintaining and updating the databases still need to be further developed. Discussions with Meteo-Suisse concerning the longer-term future of these resources are ongoing. Given the importance of these databases to the Rolling Review of Requirements – and hence to WIGOS - ET-SAT and the other OPAG-IOS teams are invited to carefully monitor the continued progress towards sustainability.

Among the key WIGOS documents are the *WMO Vision for the GOS in 2025* and the *Implementation Plan for the Global Observing System* that has been derived from it. ET-SAT is invited to comment on the Vision in particular and to help ensure that this document continues to strike the right balance between a system that is continually evolving to meet user needs while remaining realizable within the financial and programmatic constraints of the space agencies.

### 2. WMO Impact Workshop

During the period since ET-SAT-7, one of the most important events taking place under the auspices of OPAG-IOS was the “Fifth WMO Workshop on the Impact of Various Observing Systems on NWP” which took place in Sedona in May of 2012. These Impact Workshops have developed into being the premier venue for comparing the impacts of all major components of the Global Observing System on numerical weather prediction (NWP) skill, and they are typically attended by all major NWP centers around the world and by other relevant experts. It is important to point out that due to the power and versatility of NWP diagnostics, these meetings are important not just to NWP practitioners but to all stake-holders interested in assessing and developing observing systems.

Once again, the overarching message from the Fifth Impact Workshop was that collectively, satellite data are critical to maintaining and improving NWP skill, in particular since they provide the only practical way to achieve truly global data coverage. While there was no unanimity at the meeting about specific rankings of observing systems in terms of their contribution to skill, all major NWP centers agreed that the following types of observations were the top five contributors to skill: AMSU-A (microwave temperature sounder), AIRS/IASI (hyper-spectral infrared temperature and humidity sounders), radiosondes, aircraft observations, and atmospheric motion vectors (AMVs) from geostationary and polar orbiting satellites. Of these five, three are space-based, which provides further evidence that satellite data are important to skill.

In contrast to previous meetings, however, the consensus is that the impact of individual sensors and

systems is becoming increasingly difficult to isolate, due to the proliferation of satellites and satellite sensors.

A recurring theme throughout several presentations and discussion session held during the Workshop was the need for additional direct wind measurements. In fact, wind observations of any type were found to have the largest impact on forecast skill of all observation types. This was interpreted by the Workshop participants to indicate that the current Global Observing System is excessively biased toward mass observations and that additional wind observations are required, especially over the oceans and in the Southern Hemisphere.

The Final Report from the Workshop can be found on the WMO website at ([http://www.wmo.int/pages/prog/www/OSY/Meetings/NWP5\\_Sedona2012/Final\\_Report.pdf](http://www.wmo.int/pages/prog/www/OSY/Meetings/NWP5_Sedona2012/Final_Report.pdf))

### **3. New satellite missions; ADM/Aeolus**

Several new satellite systems will be launched over the coming years, including a new generation of geostationary satellites with new capabilities and new requirements in terms of data processing and telecommunications.

The ET-SAT members are invited to take note of ESA's ADM/Aeolus mission in particular. This is a technology demonstration mission developed by ESA and it is unique in the sense that the data from the mission will be made available to the NMHS users in near-real time as part of the Global Observing System once the satellite is past the commissioning phase. The satellite is now just over two years away from launch. In contrast to many other new missions, ADM/Aeolus is not an incremental improvement over existing capabilities but a demonstration of a brand new measurement principle, namely direct active sensing of the atmospheric flow using a space-based UV lidar. It is therefore to be expected that the learning curve for both data product generation and data utilization will be longer than for other new space missions. The ET-SAT members are invited to follow the final development and pre-launch phases of this mission and to keep their national stakeholders informed about data access, processing software and Cal/Val plans.

### **4. ET-SUP and ET-SAT**

Due to the scheduling of this year's meetings, ET-SAT-8 provides a unique opportunity for interaction between the two OPAG-IOS Expert Teams dealing with satellite matters, ET-SAT and ET-SUP. The ET-SAT members are invited to take advantage of this opportunity to brief expert-level representatives of the WMO user community, and to listen to any questions and concerns from the user group regarding their plans for system development, data dissemination and processing.

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