

ET-SAT TERMS OF REFERENCE AND PRELIMINARY WORK PLAN

(Submitted by the Secretariat)

Summary and Purpose of Document

The document introduces the Terms of Reference of ET-SAT, as defined by the WMO Commission for Basic Systems at its fifteenth session (CBS-15) and the preliminary work plan devised by the CBS Management Group.

It explains the role of ET-SAT within WMO and its interactions with satellite related groups such as CGMS and CEOS.

ACTION PROPOSED

The Expert Team is invited to:

- Note the Terms of Reference
- Review and finalize the work plan provided in Appendix

APPENDIX:

- 1 Draft ET-SAT Work Plan For the Period 2013-2014
- 2 ET-SAT in the WMO governance framework

ET-SAT TERMS OF REFERENCE AND PRELIMINARY WORK PLAN

1. BACKGROUND

The Expert Team on Satellite Systems (ET-SAT) and the Expert Team on Satellite Utilization and Products (ET-SUP) are the two main pillars by which WMO Members can advise the WMO Space Programme on technical satellite matters. In addition, strategic guidance is provided by a Consultative Meeting on High-level Policy on Satellite Matters (CM). (See Appendix 2)

Involving satellite operators, ET-SAT is focusing on space-based systems (including technical characteristics, planning, integration and standardization). Involving representatives of various user communities, ET-SUP is focusing on the application of satellite observations and on user support. Direct interaction between the two teams is desirable, hence a joint session to be held during ET-SUP-7/ET-SAT-8.

ET-SAT and ET-SUP are reporting to the Commission for Basic Systems (CBS), one of the eight technical commissions of WMO. Both ET-SAT and ET-SUP were re-established by the fifteenth session of CBS (CBS-15) in September 2012, in continuity with the previous ET-SAT and ET-SUP, though with updated Terms of Reference and membership.

2. TERMS OF REFERENCE OF THE EXPERT TEAM ON SATELLITE SYSTEMS

The Terms of Reference agreed by CBS-15 are as follows:

- (a) Assist CBS in assessing the status of implementation of the space-based subsystem of WIGOS and the adequacy of implementation plans for meeting established requirements for satellite data and products;
- (b) Provide technical advice with respect to both operational and R&D environmental satellites to assist in the implementation of integrated WMO-coordinated observing systems;
- (c) Identify and assess opportunities and/or problem areas concerning satellite technology and plans of relevant satellite operators, and inform CBS timely and comprehensively through the ICT-IOS;
- (d) Assess the prospects, plans and progress of R&D and demonstration satellite systems, technologies and mission with regard to their operational use or transition to operational service;
- (e) Coordinate with other relevant CBS Teams on satellite related issues, programmes, systems and technologies;
- (f) Coordinate with ET-SUP with a view to making recommendations and receiving input on matters, such as the exchange, management, and archiving of satellite data and products, radio frequency utilization, as well as education and training and other appropriate capacity-building measures related to the use of satellite data in all WMO Programmes;
- (g) Hold joint and/or overlapping meetings as appropriate with ET-SUP, to facilitate interaction between users and providers of satellite systems, data and products.

3. ET-SAT, CGMS AND CEOS

Since ET-SAT is composed of representatives of satellite operators contributing, or potentially contributing, to WMO programmes, it has by construction a large overlap with the CGMS membership. This is a strength, which enabled ET-SAT to play a significant role in e.g. reviewing the “CGMS baseline” before its adoption by CGMS-39, and the Implementation Plan for Evolution of Global Observing Systems (satellite aspects) before its adoption by WMO.

CEOS and CGMS have largely overlapping memberships, and similarly ET-SAT involves representatives of a number of CEOS member agencies. The link with CEOS is looser since, unlike CGMS, CEOS is not committed to support WMO requirements. However it is anticipated that more convergence will arise, in particular in the area of the climate monitoring architecture.

4. WORK PLAN

A preliminary work plan is provided in Appendix. It was derived from the Terms of Reference, taking into account the guidance from the CBS Management Group which recommended to specify: priority, objective, outcome, deliverable, activity, due date, lead responsibility, other expert groups involved, effort in days, and status.

5. CONCLUSION

The Expert Team is invited to note its Terms of Reference and to review and finalize the work plan provided in Appendix 1.

DRAFT ET-SAT WORK PLAN FOR THE PERIOD 2013-2014

Priority	Objective	Outcome	Deliverable	Activity	Due	Lead	Other ETs	Status as of May 2013
1	Asses actual and planned capabilities of operational and R&D satellites constituting the space-based component of WIGOS and their adequacy to meet WMO requirements	Provide a comprehensive and current information on satellite actual/planned capabilities for use by Members as a reference	Updates on current/planned satellite missions captured in OSCAR	Meeting and emails	Yearly update, and when necessary	ET-SAT chair, co-chair and Secretariat		<ul style="list-style-type: none"> - Updates provided at each ET-SAT meeting - Major development completed by the Secretariat in implementing OSCAR/space (www.wmo.int/oscar) - ET-SAT to provide guidance on OSCAR and review the assessments of satellite plans - Scenario being explored to maintain the RRR database with support of hosting member
1	Assess actual and planned capabilities of operational and R&D satellites constituting the space-based component of WIGOS and their adequacy to meet WMO requirements	Awareness of actual/anticipated gaps, as a basis to trigger contingency actions or stimulate additional plans	Updated gap analysis (assessment of actual/anticipated gaps with respect to the provisions of the WIGOS Manual)	Meetings	Yearly update	ET-SAT chair, co-chair and Secretariat		<ul style="list-style-type: none"> - EC-65 resolution on gaps in essential observations - the gap on early morning orbit and opportunities with CMA are being explored, after the Tiger Team.
1	Assess actual and planned capabilities of operational and R&D satellites constituting the space-based component of WIGOS and their adequacy to meet WMO requirements	Progress on actions identified in the Implementation Plan of Evolution of GOS (space aspects) to implement the Vision for WIGOS	Report on actions of the EGOS-IP (chapter 6)	Meetings	Yearly update	ET-SAT chair, co-chair and Secretariat	IPET-OSDE	<ul style="list-style-type: none"> - Chapter 6 (space-based observation) of IP-EGOS was entirely reviewed, approved by CBS-XV and EC-65
1	Assess actual and planned capabilities of operational and R&D satellites constituting the space-based component of WIGOS and their adequacy to meet WMO requirements	Ensure that the Vision provides a relevant, ambitious, but achievable high-level goal for evolution.	Propose updates to the Vision of GOS (space aspects)	Meetings	Yearly update	ET-SAT chair, co-chair and Secretariat	IPET-OSDE	<ul style="list-style-type: none"> - Inputs provided for updating the Vision http://www.wmo.int/pages/prog/www/OSY/Documentation/Vision2025.html. Still need to refine e.g. atmospheric composition, radio-occultation.

Pri o r i t y	Objective	Outcome	Deliverable	Activity	Due	Lead	Other ETs	Status as of May 2013
2	Provide technical advice on implementation of integrated satellite observing systems	Input to the definition of the climate monitoring architecture, actions on agency side	Input on the definition of the Architecture for Climate Monitoring from Space	Meeting	Oct 2013 (TBC)	ET-SAT chair, co-chair and Secretariat	Architecture team, CEOS-WGC	Strategy document is published. Physical architecture, governance to be defined WIGOS IP tasks 2.1.2 / 3.1.2 (TBC)
2	Provide technical advice on implementation of integrated satellite observing systems	Improved integrated planning of the operational constellations in the space-based component	Inputs to WIGOS TT on Regulatory Material, oversight of GSICS guidance on integration	Meeting and document		ET-SAT chair, co-chair and Secretariat	WIGOS TT-RM, GSICS	- Update of GOS Manual, approved by EC-65, will be the basis for the satellite part of the WIGOS Manual - Dual use of observation systems (e.g. meteorology and space weather) to be further investigated
2	Provide technical advice on implementation of integrated satellite observing systems	Provide guidance on instrument standardization	Guidance on interoperability and standardization of satellite observing systems,	Meeting, document	2014	chair, co-chair and Secretariat	CIMO OPAG-CB	As a first step, ET-SAT reviewed a draft Volume of the CIMO Guide on satellite observations. Feedback just received from CIMO
3	Assess progress of R&D and demonstration satellite systems, and identify opportunities and/or problem areas concerning satellite technology and plans	Enhance operational benefit of new technologies, and leverage research on operational needs	Assess R&D and demonstration satellite systems with regard to their operational use or their transition to operational service; identify research/development needs		Yearly update	ET-SAT chair and Secretariat		
3	Coordinate with ET-SUP on satellite utilization	Active user-provider dialogue for optimal use of available capabilities	Information and response on data access, product development, capacity building, and related matters		Yearly	chair, co-chair and Secretariat	ET-SUP	ET-SAT provided input to data access information. See CIMO Guide above.
3	Coordinate with other relevant CBS teams on satellite related matters	Coordination with SG-RFC on radio frequency utilization for timely protection of the necessary spectrum	Provide feedback on draft WMO position		Yearly update	ET-SAT chair and Secretariat	SG-RFC	ET-SAT was kept informed of SG-RFC activity
5	Coordinate with other relevant CBS teams on satellite related matters	Coordination with ICTSW on space weather observations, products	Feedback on space-based observation of Space Weather			chair, co-chair Secretariat	ICTSW	

ET-SAT IN THE WMO GOVERNANCE FRAMEWORK

(See the WMO web site: www.wmo.int under “Governance” for more information)

1. Congress

The supreme body of the organization is the World Meteorological Congress that meets in ordinary sessions every four years, and where all WMO Members are represented. At its sixteenth session (Cg-16) in May 2011, the Congress adopted the four-year budget and plan for the 2011-2015 financial period. It approved a new description of the WMO Space Programme (http://www.wmo.int/pages/summary/prog_description_en.html#sp), confirmed Space Weather activities, adopted Resolution 19 on the Architecture for Climate Monitoring from Space, it reaffirmed the importance of interoperability and integration of observation capabilities, and improved accessibility of data and products.

An extraordinary session of the Congress was held, for the first time in the history of WMO, in October 2012 on the Global Framework for Climate Services (GFCS). The next ordinary Congress session will be in May 2015. The President is Dr David Grimes, from Canada.

2. Executive Council

The Executive Council meets annually. It involves 37 persons elected among the Permanent Representatives of WMO Members. It implements the decisions of the Congress, taking actions on the recommendations of the 6 regional associations and the eight technical commissions.

The sixty-fifth session of the Executive Council (EC-65) was held from 15 to 23 May 2013. It adopted two recommendations stemming respectively from ET-SAT and ET-SUP.

3. Regional Associations

The six regional associations meet every four years. They are covering respectively:

- RA I: Africa
- RA II: Asia
- RA III: South America
- RA IV: North America, Central America and the Caribbean
- RA V: South-West Pacific
- RA VI: Europe

4. Technical Commissions

There are eight technical commissions :

CAS	Commission for Atmospheric Sciences
CBS	Commission for Basic Systems
CIMO	Commission for Instruments and Methods of Observation
CCI	Commission for Climatology
CHy	Commission for Hydrology
CAeM	Commission for Aeronautical Meteorology
CAGM	Commission for Agricultural Meteorology
JCOMM	Joint Technical Commission for Oceanography and Marine Meteorology (with the Intergovernmental Oceanographic Commission of UNESCO (IOC))

5. CBS structure

The CBS meets in ordinary session every four years (last session was in September 2012 in Jakarta, Indonesia), and in an extraordinary session in-between. The next extraordinary session is expected to be in September 2014 in Paraguay.

The CBS, like every other technical commission and regional association, has established a management group (CBS-MG) which meets when needed. The CBS-MG monitors the work programmes of all the CBS expert teams.

The CBS has defined four “Open Programme Area Groups (OPAG)”:

OPAG-IOS	OPAG on Integrated Observing Systems
OPAG-ISS	OPAG on Information Systems and Services
OPAG-DPFS	OPAG on Data Processing and Forecasting System
OPAG-PWS	OPAG on Public Weather Services

ET-SAT and ET-SUP are part of the OPAG-IOS, which is Chaired by Mr. Lars Peter Riishojgaard (USA), with Mr Jochen Dibbern (Germany) as Co-chair.

Within OPAG-IOS, the following groups and rapporteurs have been established:

ICT-IOS ¹	Implementation/Coordination Team of the OPAG IOS
IPET-WIFI	Inter-Programme Expert Team on WIGOS Framework Implementation
IPET-OSDE	Inter-Programme Expert Team on Observing System Design and Evolution
ET-SAT	Expert Team on Satellite Systems
ET-SUP	Expert Team on Satellite Utilization and Products
ET-SBO	Expert Team on Surface-based Observing system
ET-ABO	Expert Team on Aircraft-based Observing System
SG-RFC	Steering Group on Radio-Frequency Coordination
R-SEIS	Rapporteur on Scientific Evaluation of Impact Studies
R-MAR	Rapporteur on Marine Observing Systems

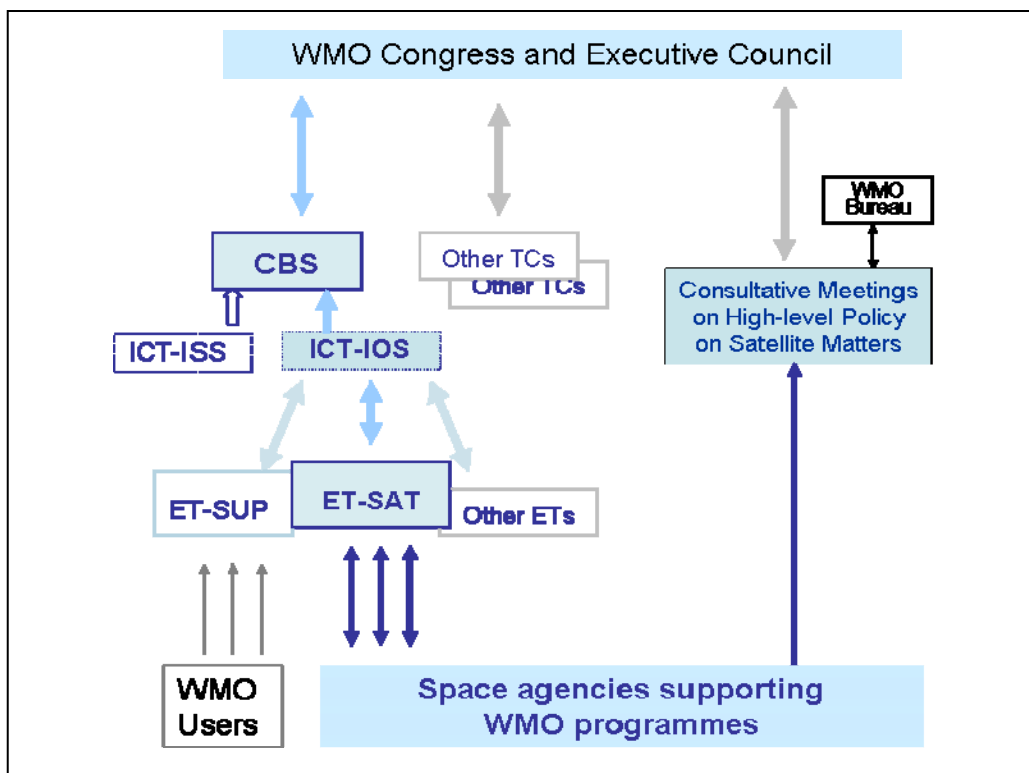


Figure 1: Schematic illustration of ET-SAT in the WMO governance framework

¹ ICT-IOS is composed of representatives of each of the other groups. It consolidates the results of the various teams and rapporteurs, for submission to the CBS.