|  |  |  |
| --- | --- | --- |
| **WORLD METEOROLOGICAL ORGANIZATION**  **\_\_\_\_\_\_\_\_\_\_\_** |  | **INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO) \_\_\_\_\_\_\_\_\_\_\_\_\_** |
| DATA BUOY COOPERATION PANEL  ThirtY-Second SESSION  La Jolla, USA  17-21 October 2016 |  | DBCP-32 / Doc. 11.1  (12-Oct-16)  **\_\_\_\_\_\_\_**  ITEM: 11.1  ENGLISH ONLY |

**SATCOM Forum Report**

*(Submitted by* *Johan Stander)*

|  |
| --- |
| **SUMMARY AND PURPOSE OF DOCUMENT**  The document provides a summary of the first session of the Satcom meeting held 27-29 Sept Madrid |

**ACTION PROPOSED**

The Meeting is invited to note the information contained in this document when discussing how it organises its work and formulates its recommendations.

\_\_\_\_\_\_\_\_\_\_\_\_

**Appendix:** A.

**DISCUSSION**

**-A- Draft TEXT for inclusion in the final report** *(this part should be from half a page to one page long; but not exceeding one page, summarizing the facts and including the list of recommendations or actions proposed to the meeting by the author of the document)*

11.1.1 [Satcom2016](http://wis.wmo.int/page=Satcom2016) was the first formal session of the WMO-IOC International Forum of Users of Satellite Data Telecommunication Systems ([Satcom](http://wis.wmo.int/page=Satcom)) following its establishment under Resolution 31 of the Seventeenth Session of the World Meteorological Congress ([Res.31, Cg-17](http://library.wmo.int/pmb_ged/wmo_1157_en.pdf)) in 2015. Participation was by voluntary self-registration and by invitation through WMO and IOC processes.

The meeting was held at IFEMA – Feria de Madrid, in Spain as a side event of the Meteorological Technology World Expo 2016 ([Meteo Expo](http://www.meteorologicaltechnologyworldexpo.com/index.php)), 27-29 September 2016 hosted by Spain. Meteo Expo also included CIMO [TECO 2016](https://www.wmo.int/pages/prog/www/CIMO/cimo-teco-meteorex.html) and the "Metrology for Meteorology and Climate, 2nd conference" ([MMC-2016](http://mmc-2016.org/)).

Satcom2016 was also supported by the Association of Hydro-Meteorological Equipment Industry ([HMEI](http://www.hmei.org/)) and [UKIP Media Events](http://www.ukipme.com/). The meeting was chaired by Dr Michael Prior-Jones (UK) and co-chaired by Mr Johan Stander (South Africa). Secretariat support was provided by [WMO](http://public.wmo.int/).

11.1.2 Satcom is trying to help scientific users bring the right data, in the right format, to the right people, at the right time, for the right price. It’s a big challenge, but the forum has a lot of willing people who are keen to make it happen, and a lot of good connections into the industry, which he hoped will strengthen as the Forum begins its work in earnest.

11.1.3 The work plan included an information sharing stage, that included two sessions each of “satellite communications service providers”, “equipment manufacturers” and “users”. It also had three formal stages, one being the opening, one the elections of the Satcom executive committee (annex 2) and the other being review the working arrangements and deliverables based on discussions from this meeting and from the [report](https://www.wmo.int/pages/prog/www/ISS/Meetings/Satcom1_Paris2013/documents/Ad-hoc-Satcom-Final-Report.pdf) on the first [Ad hoc International Forum of Users of Satellite Data Telecommunication Systems](http://www.jcomm.info/index.php?option=com_oe&task=viewEventRecord&eventID=1298) (Paris, France, 03-04 October 2013), and setting up a prioritised work plan. The forum considered eight submissions from Satcom network providers, three from equipment manufacturers and three from users

11.1.4 The meeting had two sessions on Satcom Network Providers. Eight presentations were considered and summary can be provided if requested. There were several discussions, mostly involving clarifications. The meeting noted the success of satcom operators in fulfilling WMO requirements for making information available through the WMO information system, in particular the World Weather Watch Global Telecommunications Network (GTS). This included the incentive of Eumetsat by providing the services for free to non Eumetsat members if platform owners agree to make their data available in WIS. It further noted that Argos and Iridium, as stated by JouBeh, have provided data successfully to the GTS for many years. Some issues that would need following up, included the following:

* The meeting noted that the operators had different ways of managing stations that ceased to transmit or stations that drifted off frequency or time.
* It noted that de-allocating slots was difficult for some operators even when stations have been silent for a long period.
* It agreed that utilising time from GPS component helped avoid time drift.
* The meeting agreed that Satcom should look further into these issues and
* address the need for guidance on how to handle silent, obsolete or other problematic stations.

The importance of radio frequency allocation and management to data collection systems was highlighted. It was emphasized that spectrum management was a long process managed by ITU with much of the necessary coordination taking place in the mission planning stage. Participants raised the question of whether Satcom should interact with frequency allocation bodies either directly or through established groups such as the WMO Steering Group on Radio Frequency Coordination (SG-RFC), the CGMS or the Space Frequency Coordination Group (SFCG) and if so how? and investigate if Satcom should concern itself with spectrum management issues and if so what would this involve and how should Satcom go about this?

# 11.1.5 The meeting held two sessions on equipment manufacturers. Three presentations from industry were considered and summaries available if required. Presentations such as included “[How the satcom networks can best serve scientific equipment manufacturers](#_A7.1_Pacific_Gyre,), [Telemetry meets Water: Reliable Data for Measuring and Monitoring Tasks in Early Warning Systems (Surface Water, Groundwater, Water Quality)](#_A7.3_SEBA_Hydrometrie,) and [Satellite M2M communication service](#_A7.2_Rencos,_Satellite)” was very fitting.

The manufacturers’ presentations and use cases had provided a useful insight into the range of services used by a wide range of application areas. The meeting noted the manufactures recommendations on the future requirements for satcom systems and the lessons learned which fully aligned with discussions in the user sessions. It was agreed that one of the actions of Satcom should be to work with industry and users to put together some use cases that demonstrate the needs of users and the likely scale or uptake of services as well as involve manufactures in the development of use cases demonstrating the user requirements and potential uptake.

The meeting noted the significant relevance of involving the Commission for Hydrology and the Commission for Agricultural Meteorology in the Satcom forum in addition to JCOMM. It noted the common requirements for low data volumes and suitable packages that would facilitate the implementation of early warning systems.

11.1.7 The meeting had two sessions on Satcom users. Both sessions were chaired by Mr Johan Stander (South Africa), vice-chair of Satcom, Co-President of JCOMM and representative of EC-PORS. The session included a [statement from the Assistant Secretary General of WMO](#_A8.1_Statement_from), Dr Wenjian Zhang while the following presentations were fitting and seeks further investigation. “[The challenges of accessing Antarctic meteorological data in near real-time](#_A8.2_The_challenges), [Development of the Global Cryosphere Watch (GCW)](#_A8.3_Development_of) [Support to now-casting and real time reporting](#_A8.4_Support_to)”.

Mr Stander noted that, as indicated by the equipment manufacturers, many countries cannot cope with the pricing models for satcom services. He emphasised that this would be worse for least developed countries, small island developing states and small land locked countries and that supporting such countries should be a priority for Satcom and therefore Satcom should pay special attention to LDCs, SIDS, etc with an aim to facilitating their use of satcom systems.

The meeting noted that observing systems deployment and operation is driven by the needs of the services and research activities that use them. It agreed that, there is a real need to identify telecommunications necessary to meet observation system requirements with an aim to fully develop flexible pricing models that better match the users’ needs. Satcom services should also take into consideration other user requirements identified by equipment manufacturers and users. These included the different needs for: simplex and duplex communications, short burst and low volume data requirements, latency metrics, automatic and delayed activation of systems (including on demand or random activation for alerting systems). It also noted that some needs could be addressed by the equipment and terminal manufacturers such as robustness for operating in extreme environments, ability for basic I/O and programming of terminals and use of off the shelf solutions that can be applied across networks.

Satcom should work with satcom providers with an aim to introducing more flexible and focused access plans enabling greater use of satcom systems to facilitate new services.

The meeting decided that for suppliers to be able to address the above, Satcom should take the lead in identifying use cases that show the range of needs and applications as an initial priority. This should involve two components. First a survey of WMO and IOC members and building on the information call for case studies.

Conduct a market survey. The chair will coordinate with the vice-chair, WMO and IOC secretariats to prepare the survey, circulate this to the Satcom executive council for review and then distribute through WMO and IOC channels. For WMO, this will be the WIS Focal Points.

The meeting noted a common need among manufacturers’ users and the users participating in Satcom2016 and recognized the importance of early warning systems as a part of the climate adaptation strategies being put in place. It noted that Eumetsat has a special channel to support such activity and that Inmarsat has within its terms of reference (annex 3) a role in supporting emergencies at sea. It agreed that all satcom providers should be made aware of this societal need and to seek their support in establishing a special package under the WMO disaster risk reduction programme.

Explore the possibility of establishing a “WMO branded disaster alerting tariff” considering hydrological community (flood warnings) as a test case and find candidate projects. Establish contacts with networks at senior level (use WMO brand) and try and build a consensus.

The meeting noted that many of the identified needs of users were available from some providers but the users were not aware of these services or simply did not know how to go about accessing them. This was typified by the slow uptake of Eumetsat’s high data rate services and by the availability of special channels for alerting systems. The meeting agreed that the chair should update the Satcom Buyers Guide as it would be very beneficial. It noted that the Guide could be published as a formal WMO numbered publication and could be accompanied by a web page containing more dynamic and recent information.

11.1.8 The meeting unanimously elected Dr Michael Prior-Jones (UK) as the Chair of Satcom and Mr Johan Stander (South Africa) as the vice-chair.

The chair presented the list of candidates, noting that with the retirement of Mr Tom Gross from IOC of UNESCO, that he was unable to fill the IOC secretariat position as this time. The meeting reviewed the list of candidates, including three positions proposed by the chair (B. Hodge representing Australia, S.Burns representing CGMS and D.Meldrum representing the wider user community).

The meeting noted the close link between the work of the Joint Tariff Agreement (JTA) and the goals of Satcom and the importance of representation of the JTA on Satcom.

11.1.9 **The meeting adopted the following recommendations**:

(i) Involve manufactures in the development of use cases demonstrating the user requirements and potential uptake.

(ii) Satcom should pay special attention to LDCs, SIDS, etc with an aim to facilitating their use of satcom systems.

(iii) The meeting unanimously elected Dr Michael Prior-Jones (UK) as the Chair of Satcom and Mr Johan Stander (South Africa) as the vice-chair.

(iv) The meeting agreed to having JTA as a sub-programme of Satcom and a representative on the executive committee (annex 2)

(v) The meeting agreed to the membership of the Satcom Executive Committee as per Annex 2 noting that IOC secretariat will provide someone for the ICO secretariat position later.

(vi) Update the Terms of Reference of the Satcom Executive Committee and Membership as proposed in Annex 3.

(vii) Current membership of Satcom will be those who registered for Satcom2016. Future registrations can be online or via normal WMO/IOC notification processes.

11.1.10 **The meeting decided on the following action items**:

**Action1** Address the need for guidance on how to handle silent, obsolete or other problematic stations.

**Action2** Investigate if Satcom should concern itself with spectrum management issues and if so what would this involve and how should Satcom go about this?

**Action3** Operators to provide a brief statement on future plans, bandwidth and capacity to the Chair of Satcom.

**Action4** Monitor the potential pros and cons of utilising small satellites as a part of future solutions and service systems.

**Action5** Prof. Byong-Lyol Lee (President CAgM) to brief CAgM management group on Satcom and their potential participation

**Action6** Mr Johan Stander (Co-president JCOMM) to brief president of CHy on Satcom and their potential participation.

**Action7** Satcom should work with satcom providers with an aim to introducing more flexible and focused access plans enabling greater use of satcom systems to facilitate new services.

**Action8** Conduct a market survey. The chair will coordinate with the vice-chair, WMO and IOC secretariats and Mr Simon Van Dries to prepare the survey, circulate this to the Satcom executive council for review and then distribute through WMO and IOC channels. For WMO, this will be the WIS Focal Points. Mr Stander will liaise with IOC.

**Action9** Identify case studies on satcom requirements, draw up call for case studies and example template and send out via official channels and via personal contacts

**Action10** Explore the possibility of establishing a “WMO branded disaster alerting tariff” considering hydrological community (flood warnings) as a test case and find candidate projects. Establish contacts with networks at senior level (use WMO brand) and try and build a consensus.

**Action11** The chair to review and update the Satcom Buyers Guide. Satcom will investigate web hosting options (WMO to host, IOC to link or mirror)

**Action12** Mr Johan Stander will liaise with JTA inviting them to formally confirm participation in Satcom as a sub-programme

**Action13** Investigation of a mechanism to allow random activation

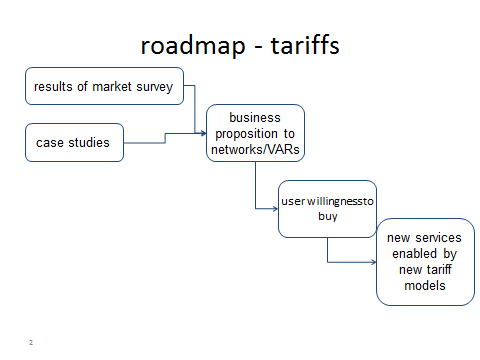
**Action14** Look into training and outreach, starting with a standard set of slides and help desk contact.

**-B- Background information** *(if necessary, provide additional material to further explain the information in part A but that will not be included in the report of the meeting)*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ANNEX 1**

# Tariffs road map



# Annex 2. Elected Executive Committee

|  |  |  |
| --- | --- | --- |
| **Name** | **Role on EC** | **Org or Country** |
| Michael Prior-Jones | Chairperson | UK |
| Johan Stander | Vice-chair | South Africa |
| Bryan Hodge\* | Member representative | Australia |
| David Meldrum\* | User community rep | UK |
| Sean Burns\* | Meteorological Satellites | CGMS |
| Yann Bernard | Operator rep | CLS/ARGOS |
| Mariuxi Chavez | Operator rep | ORBCOMM |
| Allan Place | Operator rep | JouBeh Technologies |
| Wolfgang Marxer | Manufacturer rep | SEBA Hydrometerologie |
| Andy Sybrandy | Manufacturer rep | Pacific Gyre |
| Eric Locklear | Subprogram - Joint Tariff Agreement | JTA |
| <position vacant> | IOC secretariat | IOC |
| Remy Giraud | Liaison to WMO CBS | ET-CTS, CBS, WMO |
| David Thomas | WMO secretariat | WMO |
| Etienne Charpentier | WMO secretariat | WMO |
| (\* Indicates one of three nominated by Chair) | | |

# Annex 3 – Updated TOR for Satcom Executive Committee

**TERMS OF REFERENCE OF THE SATCOM FORUM EXECUTIVE COMMITTEE**

The function of the Forum Executive Committee (Forum-EC) is to conduct the sessional and intersessional business, as well as all other matters in support of the Chairperson’s duties to meet the needs of the Forum members.

Terms of Reference

The specific tasks of the Forum-EC are to:

1. Assist the chairperson in the preparation of reports, and their submission, if needed, to the Secretariats of the co-sponsoring Organizations for distribution.
2. Annually review the functions and duties of the Forum and recommend any changes to the Chairperson for discussion and approval at the Forum Session.
3. Analyze the Forum budget, and advises the Chairperson.

Membership

1. The membership shall include:
   1. Chairperson
   2. Vice-Chairperson
   3. Three additional members proposed by the Chairperson and elected by the Forum.

These members will serve a term of 4 years with an optional 4-year appointment

* 1. Representatives of the Forum sub-programmes
  2. Representatives of the Secretariats of the co-sponsoring Organizations (presently WMO and IOC, *ex officio*)
  3. Representatives of Operators and service providers of Satcom systems (*ex officio*)
  4. Representatives of Satellite equipment manufacturers (*ex officio*)

2. Careful consideration should be made to ensure a proper mix that represents co- sponsoring Organizations Members/Member Nations/Member States, user groups, and subject matter experts.

Meetings

1. As necessary, the Chairperson will convene and organize all Forum-EC meetings. The meetings can be in person, or teleconference.
2. If decisions are needed by the Forum-EC as permitted/requested by the Forum Session or the Chairperson during the inter-session, the Forum-EC shall attempt to form a consensus on decisions. If a consensus cannot be reached in a timely manner, the chair may opt to make the decisions by election. E~~e~~lections for ~~those~~ decisions may be organized with a quorum consisting of at least four members of the Forum-EC, including the Chairperson or his nominated deputy.

2.1 The following members of the Forum-EC shall have a vote if a decision is made by election:

i. Chairperson

ii. Vice-Chairperson

iii. The three additional members as defined under Membership 1.iii above

* 1. The following groups of members of the Forum-EC shall have one vote per group if a decision is made by election:
     1. Representatives of the Forum sub-programmes
     2. Representatives of the Operators and service providers of Satcom systems

ii. Representatives of Satellite equipment manufacturers

2.3 Where a single vote is held by a group of representatives, it is recommended that they come to a consensus of those who attend the meeting as to how they use their vote. If unable to come to consensus, they should abstain from voting.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_