

**OTHER PROGRAMMES
JOINT WMO/IOC TECHNICAL COMMISSION (JCOMM)**

(Submitted by WMO and IOC)

Summary and purpose of document

This document provides an update on the status of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), including its interactions with satellite operators and CBS concerning oceanographic satellites.

ACTION PROPOSED

Note the information given and advise on CGMS/JCOMM interactions, as appropriate

Appendix: JCOMM Structure

JCOMM developments

1. The first session of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology and Oceanography (JCOMM) took place in Akureyri, Iceland, 19-29 June 2001. There were 113 participants from 42 Members/Member States and 11 international organizations (including representatives from EUMETSAT and ESA). The session demonstrated a very encouraging commonality of purpose amongst meteorologists and oceanographers, and a strong desire to see the JCOMM concept succeed. It adopted a comprehensive work plan, covering both major ongoing activities inherited from CMM and IGOSS, as well as new priority issues, including in particular the implementation of a comprehensive, integrated ocean observing and data management system for climate. The Commission also agreed a substructure appropriate to addressing this work plan, which is illustrated in the Appendix.

2. There was a clear recognition at the session of the importance of oceanographic satellites to all aspects of the work of JCOMM, and in this context the essential requirement to maintain consistent and coherent communication links with satellite operators, fully coordinated with GOOS, GCOS and WWW. Extensive and lively discussions took place at the session on ocean satellite issues, and the full text of the final report on this agenda item is given below for information. It was not possible to identify an appropriate person to fill the satellite rapporteur position during the session, but it is hoped that this rapporteur will be in place by the time of the CGMS session.

8.3 Remote Sensing (*agenda item 8.3*)

Present status of oceanographic satellites

8.3.1 The Commission recalled the essential role played by oceanographic satellites and their potential to further enhance operational oceanography. The Commission noted with appreciation the contribution made by satellite operators in the past in providing valuable data, products and services.

8.3.2 The Commission also recalled that data, products and services from satellites in the WWW Global Observing System constellation, both geostationary and polar-orbiting, were important for analyses of ocean surface variables such as sea-surface temperature, sea state, sea-ice and ocean surface wind. In particular, the Commission recognized the important contributions from the present operational geostationary constellation of satellites consisting of Meteosat-7 at 0° longitude and Meteosat-5 at 63°E (operated by the EUMETSAT), GOMS-1 at 76°E (operated by the Russian Federation), FY-2B at 105°E (operated by the People's Republic of China), GMS-5 at 140°E (operated by Japan), and GOES-10 at 135°W and GOES-8 at 75°W (operated by the USA). The operational polar-orbiting constellation consisted of METEOR-2 and 3 series satellites (operated by the Russian Federation), NOAA-15 and -16 (operated by the USA) and FY-1C (operated by the People's Republic of China).

8.3.3 The Commission also recognized the research and development satellites such as ERS-1 and -2 (operated by the European Space Agency), Topex-Poseidon (operated by NASA and CNES), QuikSCAT (operated by NASA) and ADEOS-1 (operated by NASDA). The Commission noted that significant products and services were already emerging from these satellites including ocean surface topography and sea level estimates from altimeters, ocean surface wind vectors, sea state and various ocean colour applications. In addition, it noted the importance of satellite radars for the mission of JCOMM. The Commission agreed that the future contributions from satellites such as Metop with its Advanced Scatterometer (ASCAT), NPOESS with its Conical Microwave Imager Sounder (CMIS) and altimeter, the Jason series with their altimeters, ICESat and ADEOS-2, presaged a vast increase in valuable data and products for operational oceanography. The Commission also noted the important role in telecommunications referred to under item 8.2.

8.3.4 The Commission recognized the importance of Satellite Application Facilities (SAF) of EUMETSAT, and their significant contribution to the goals of the Commission. It also recognized the contribution of commercial satellites to the goals of JCOMM in ocean observations, and in particular the value of space-based synthetic aperture radar for sea-ice observations.

8.3.5 The Commission recognized that the immediate challenge was to work with operators of satellites, through various mechanisms, to develop continuity and sustained operation, as discussed in the Integrated Global Observing Strategy Oceans Theme. The Commission also noted the significance of the conclusions of the OceanObs Conference, at which broad consensus was reached on the requirements of the Commission. In addition, the Commission recognized the challenges to be ready to fully utilize the voluminous data streams.

Observational requirements

8.3.6 The Commission agreed that it was of fundamental importance to identify the observational requirements of JCOMM in relation to continuing satellite missions and to establish a dialogue on the complementary value of JCOMM data and products to satellite agencies. Further, it recognized the importance to satellite agencies of providing strong and persuasive socio-economic and scientific arguments supporting such requirements and to keeping the agencies informed of the positive impacts experienced by users. Feedback from the user community represented by JCOMM, to the satellite agencies, would be most beneficial. The Commission noted that multiple paths existed for dialogue with satellite operators regarding these requirements. (see also paragraph 8.3.15).

8.3.7 The Commission noted the extensive consultation that had taken place in the development of the Oceans Theme of the Integrated Global Observing Strategy (IGOS) and in particular the consensus that had been reached with satellite agencies on observational requirements. Further, the Commission noted that the satellite agencies through CEOS had agreed to use the Oceans Theme report as the strategic approach to implementation. The Fourth Session of the GOOS Steering Committee had recommended that the Ocean Theme Team remain in place to guide the implementation of the Ocean Theme.

8.3.8 The Commission noted that a WMO/CEOS data base of requirements and available observing systems, both satellite and in situ, allowed for a Rolling Review of Requirements process, presently used by the WMO CBS Open Programme Area Group on Integrated Observing Systems in redesigning the WWW Global Observing System. Both the data base and the rolling review process would be of importance in activities related to JCOMM. The Statement of Guidance of that process would provide an indication of how well the observational data requirements in the CEOS/WMO data base would be met by present and planned observing systems. The Commission therefore agreed that JCOMM should participate in the CBS Rolling Requirements Review process. To this end, it requested the co-presidents, in consultation with other members of the JCOMM Management Committee and officers of GOOS, to designate one or more JCOMM experts to participate in this process and in particular to participate in the appropriate CBS expert teams (see also paragraph 5.2.3).

Interactions with satellite operators

8.3.9 The Commission agreed that it was important to have active interactions with the satellite operators. It noted that the Ocean Theme had resulted in constructive and fruitful interactions with satellite operators, particularly those involved with oceanographic measurements. The Commission further noted that the GOOS Scientific Committee had recommended to the IGOS Partners that the Ocean Theme be continued for the purposes of guiding implementation of ocean satellite programs, including regular review of the requirements and available satellite data.

8.3.10 The Commission noted that the fifty-second session of the WMO Executive Council (EC-LII) had agreed that a mechanism for discussions with satellite operators should be provided through the convening of "Consultative Meetings on High-Level Policy on Satellite Matters" at one to two year intervals. EC-LII was of the view that the Consultative Meetings should give early consideration to:

- Evaluating satellite missions to ensure, *inter alia*, the better use of existing and planned R&D missions in support of WMO Programmes and provide an assessment on their operational utility and to
- Reviewing and revising the space-based component of the WMO Global Observing System to take into account both operational and R&D opportunities and the need to maximize cost efficiency and effectiveness of satellite observing programmes.

The Commission noted that the topics for the Consultative Meetings were germane to the needs of its programme. The Commission agreed to the importance of participating in the Consultative Meetings and requested the WMO Secretary-General that it should be represented at future such meetings.

8.3.11 The Commission noted that the First Consultative Meeting on High-Level Policy on Satellite Matters had developed and recommended to the WMO Executive Council, guidelines for requirements that should be agreed upon in order to provide operational users within WMO with a measure of confidence in the availability of R&D observational data, and data providers with an indication of their utility.

8.3.12 The Commission noted the outcome of a panel discussion on the need for enhanced international low earth orbiting satellite cooperation, organized and hosted by NESDIS on 17 October 2000, in connection with the 28th Plenary meeting of CGMS at Woods Hole, Massachusetts, USA. Participants on the panel included representatives of CMA, CNES, ESA, EUMETSAT, IGBP, ISRO, NASA, NASDA, NOAA, PLANETA, ROSHYDROMET, and WMO. The participants at Woods Hole had agreed that satellite and user organizations should work together as partners in contributing towards the development of a more complete polar operational satellite system, with a commitment to long-term observations.

8.3.13 The Commission noted that, through the nomination by WMO at the 28th Plenary Meeting of CGMS, IOC had become a CGMS member. Thus, both IOC and WMO would represent their user communities at future meetings of CGMS. The Commission expressed its pleasure at this development and requested that IOC and WMO continue their strong and important cooperative roles at future CGMS meetings.

8.3.14 The Commission noted that both WMO and IOC had become Partners within the Integrated Global Observing Strategy (IGOS) Partnership. IGOS sought to provide a comprehensive framework to harmonize the common interests of the major space-based and *in situ* systems for global observation of the Earth, principally in support of GCOS, GOOS and GTOS. It was being developed as an over-arching strategy for conducting observations relating to climate and atmosphere, oceans and coasts, the land surface and the Earth's interior.

8.3.15 The Commission noted the developments within WMO to expand the definition of the present space-based component of the Global Observing System of the WWW to include R&D satellites. The Commission also recognized the considerable progress within the Ocean Theme that, among other things, had developed and promoted procedures for the transition of R&D satellites into a sustained mode. It agreed that this transition process was of particular importance. The Commission recognized the value of these processes and of continued direct dialogue with, and involvement of, satellite agencies in the JCOMM Programme. The JCOMM Management Committee and the Observations Programme Area Coordination Group were requested to ensure these interactions were coordinated and constructive. To this end, the Commission agreed to

include a satellite expert as a member of the Observations Coordination Group. Action in this regard is taken under agenda item 16.

User feedback

8.3.16 The Commission noted the importance of assessing the value of satellite observations of ocean variables to end-users. These end users included the offshore oil and gas industry, the fishing industry, aquaculture, ship routing, environmental agencies, etc. These organizations tended to use combined data products, where the remote sensing data had been assimilated through models and combined with *in situ* data. In October 2000, EuroGOOS had convened a conference, jointly with EUMETSAT, at which a wide range of users presented detailed technical analysis of their requirements, with a summary of economic factors. The main recommendation of the conference was that the JASON-2 mission should be supported by EUMETSAT as an Optional Programme.

3. With regard to the EuroGOOS recommendation noted by JCOMM in paragraph 8.3.16 above, it is a pleasure to record here the appreciation of the Commission for the recent decision by the EUMETSAT Council to make a 25% contribution to Jason-2.

JCOMM STRUCTURE

