

WMO Space Programme	<p style="text-align: center;">GUIDELINES FOR REQUIREMENTS FOR OBSERVATIONAL DATA FROM OPERATIONAL AND R&D SATELLITE MISSIONS</p> <p style="text-align: center;">(Annex to paragraph 3.3.8 of the general summary of EC LIII)</p>	SAT-ST-04 Version 1 June 2001
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Preamble

Whilst there is a distinction between operational and research satellite programmes, there is an increasing convergence between their requirements for the space-based component of the Global Observing System and WMO should seek to establish a continuum of requirements for observational data from R&D satellite missions to operational missions. These requirements should be prioritized in the light of both scientific priorities and practicalities and cross-mapped against the needs of the scientific disciplines and Earth system components embraced by WMO, including areas such as the atmosphere, oceans and hydrology, observations needed to improve the monitoring and forecasting and prediction of weather and climate, and impacts of weather and climate variability on natural, social and economic resources. The establishment and maintenance of this continuum of requirements require a vigorous interactive dialogue fostered by the WMO amongst data users, operational satellite providers and R&D agencies. Commitments to address these requirements should allow an evolution by the space-based component toward a comprehensive Global Observing System that should help characterize the total Earth and climate system on a variety of time and space scales and should also provide for the effective transition of research to operational platforms based on the logical progression of scientific understanding and maturity of required technologies. The global monitoring of water resources (water cycle), ecosystems (carbon cycle), snow and ice and others are important categories in which observations are needed to improve prediction models and address global impacts. Issues and questions related to research categories such as these have proceeded well beyond the research domain and reflect items raised by policy makers and the general public. Consequently, such research categories have become, *de facto*, operational needs that should be addressed. The existing operational meteorological satellites in geostationary and low earth orbit (LEO) are the best starting point for defining an evolutionary and flexible architecture for the future Global Observing System. It is envisaged that such a system should be flexible enough to: (a) accommodate proven and existing operational meteorological and other environmental observations and services; (b) enhance these capabilities based on evolution of scientific understanding and technological innovations; and (c) adopt new and mature capabilities and provide the associated services mandated by emerging requirements.

Guidelines

1. In order to maximize the impact of data from operational and R&D missions and the associated expenditures in resources (manpower and financial) by operational users, there should be agreed upon guidelines in the form of requirements that must be met by space agencies responsible for potential R&D missions that would contribute to the space-based component of the Global Observing System. These requirements need further definition but, as a preliminary set, should include considerations relating to:

- (a) data dissemination,
- (b) user preparation for R&D data, and
- (c) data continuity for sufficient periods of time.

2. The agreed Guidelines for the Requirements for operational and R&D missions that contribute to the space-based component of the Global Observing System are, in outline, that:

(a) Data dissemination should be:

- (i) Available to WMO Members taking into consideration user and provider data policies,
- (ii) In data formats standardized where possible but well publicized in all cases to allow data access,
- (iii) Timely,
- (iv) Readily accessible from supported infrastructures (capabilities beyond current GTS capabilities must be established) (If possible, use the existing dissemination procedures of the meteorological satellite operators),
- (v) Based on a dialogue, encouraged and facilitated by WMO, between users and satellite agencies concerning data dissemination on a regional basis.

(b) User preparation for R&D data implies that:

- (i) Resources to enable use of research data must be provided,
- (ii) Training new users of new data and products must be organized and financially supported,
- (iii) On-line training systems, such as the Virtual Laboratory concept, should be used,
- (iv) International working groups should be used as forums for information,
- (v) Spending on technology must be supplemented with resources for utilization,
- (vi) WMO programmes using satellite data should put in place systems to provide early operational evaluations and feedback to satellite operators concerning the utility and benefits they have derived from usage of the data,
- (vii) WMO should encourage activities that focus on a dialogue between users and the satellite agencies concerning data usage on a regional basis.

(c) Data continuity for sufficient periods of time requires that:

- (i) A clear path for research capabilities to be adopted by operational agencies must be identified,
- (ii) Political high level agreements must be encouraged,
- (iii) More active participation of research satellite agencies in operational coordination and planning groups must be encouraged and expanded,
- (iv) Opportunities need to be fostered for satellite remote sensing capabilities to evolve,
- (v) R&D satellite operators must identify and confirm an intention to provide data for an identified period of time,
- (vi) There be continuity of calibration of data sets (bias estimations),
- (vii) Responsibility for long-term maintenance of data sets be identified.