ITU-R activity for Earth observation and meteorology

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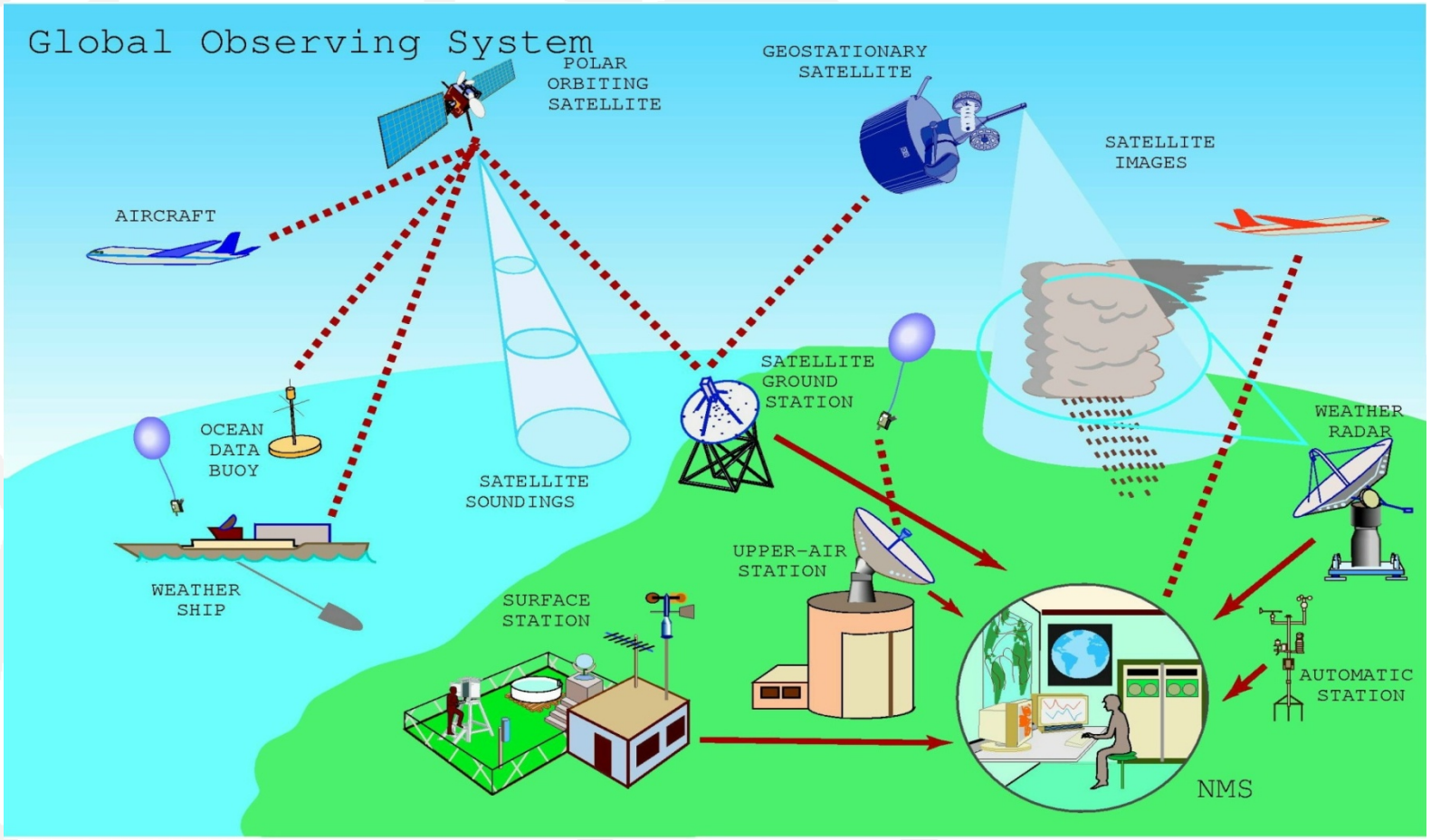
UN and earth monitoring

- “United Nations agencies have acknowledged the importance of spacebased technologies for monitoring the Earth’s climate system” (B.Ki-Moon, UN SecGen)
- WSIS action plan:Establish monitoring systems, using ICTs, to forecast and monitor the impact of natural and man-made disasters.

Global Observing System

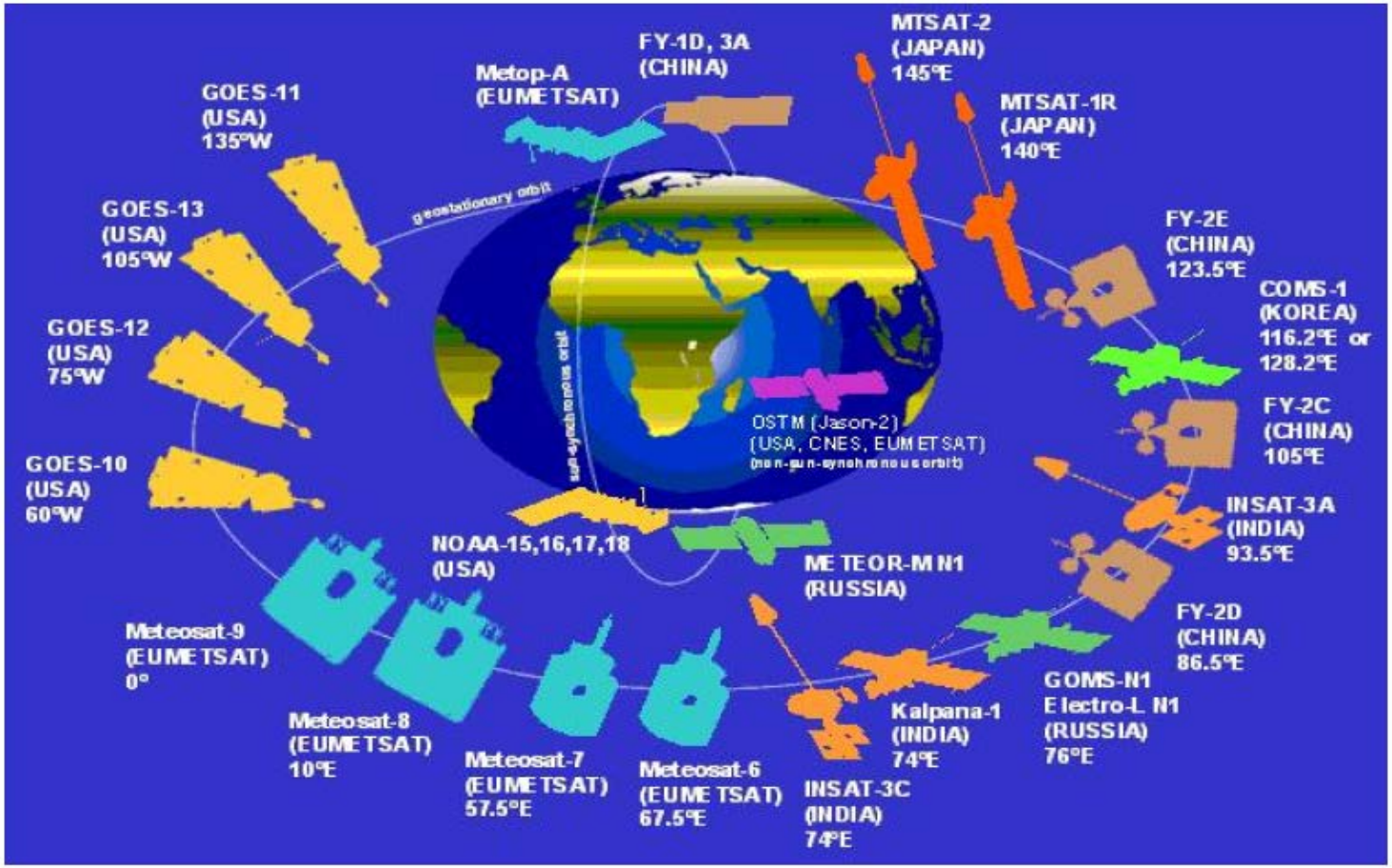


Radio applications for meteorology

- Meteorological aids :
  - Radiosondes : about 900 stations worldwide in the 400 MHz band (core) and 1675 MHz band (roughly 1 000 000 launches per year)
- Radiolocation :
  - Precipitation and Doppler radars : about 1000 radars worldwide in the 2.8, 5.6 and 9.4 GHz bands
  - Wind profiler radars (WPR) : about 200 radars in the 50, 900 and 1270 MHz bands
- Miscellaneous :
  - Lightning detection
  - Terrestrial data collection
- Satellites ...

Constellation of METSAT

Constellation of meteorological satellites of WMO Global Observing System (status 2008)



ITU Overview

191 Member States
+700 Sector Members

ITU

Helping the World Communicate

ITU-T

Telecommunication standardization of network and service aspects

ITU-D

Assisting implementation and operation of telecommunications in developing countries

ITU-R

Radiocommunication standardization and global radio spectrum management

ITU–R
The strategic goal of ITU-R

- To ensure interference-free operations of radiocommunication systems by implementing the Radio Regulations
- To establish Recommendations intended to assure the necessary performance and quality in operating radiocommunication systems
- to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum and satellite-orbit resources

RESOLUTION 71 (REV. GUADALAJARA, 2010)

The WRC Cycle

ITU Member States

RA

Rec

Reports

CPM Report

CPM-2

WRC

WRC Resolu-tion

SC and Study Groups:
SG-1: Spectrum management
SG-3: Radiowave propagation
SG-4: Satellite services
SG-5: Terrestrial services
SG-6: Broadcasting service
SG-7: Science services

Radiocommunication Bureau

CPM-1

Next WRC Agenda

Adopted by ITU Council

CPM: Conference Preparatory Meeting
Rec: ITU-R Recommendation
RR: Radio Regulations (treaty status)

SGs: Radiocommunication Study Groups
SC: Special Committee (Regulat. & Procedural)
RA: Radiocommunication Assembly
WRC: World Radiocommunication Conference

CPM2-11

- 14-25.02.11, 1101 participants, 109 Member States and 69 ITU-R Sector members
- long-range lightning detection systems in frequencies below 20 kHz
- new allocation of the band 7750-7850 MHz for meteorological satellite systems

CPM2-11

- additional spectrum between 275 GHz and 3000 GHz for Earth exploration satellite service.
- inclusion of a new provision in the RR urging administrations to duly recognize the importance of Earth observation;
- radiolocation allocations in the range 3-50 MHz for oceanographic radars

CPM2-11

- Draft Mod Resolution “Principles for the allocation of frequency bands”

New considering

“that ITU should promote the introduction of new applications to address issues such as emerging technologies, climate change(e.g. collection of Earth observation data), disaster management and other socio-economic matters”

- **WRC**-Geneva, 12-23 Jan-17 Feb 2012

ITU-R Study Groups

Services	Task	SG
Meteorological Earth exploration-satellite	Weather and climate prediction. Detection and tracking of earthquakes, tsunamis hurricanes, typhoons, forest fires, oil leaks etc. Providing warning information. Assessment of damage and providing information for planning relief activities	7
Amateur	Receiving and distributing alert messages Assisting in organizing relief operations in areas	5
Broadcasting	Disseminating alert messages, coordination of relief activities and advice to public	6
Fixed	Delivering alert messages and instructions to telecommunication centers , exchange of information between different teams/groups for planning and coordination relief activities	4,5
Mobile	Distributing alert messages, exchange information and advice to individuals and/or groups of people involved in relief activities	4,5

ITU-R SG 7

	WP 7B	WP 7C	WP 7D
Services	EESS, Metsat, SRS, SOS		RA
	Bus	Sensors	
Study results	Series SA 48 Recs 13 Reports Handbook	Series RS 30 Recs 15 Reports 2 Handbooks	Series RA 14 Recs. 8 Reports Handbook

http://www.itu.int/ITU-R/index.asp?category=study-groups&rlink=rsg7&lang=en

Rapporteur, who would represent the Study Group at the various ITU-T activities and events on ICT and Climate Change that are planned to be held, notably in the 'Joint Coordination Activity on ICT and Climate Change' (JCA-ICT&CC).

Terms of reference of the Rapporteur

– to liaise between Study Group 6 and the ITU-T Group JCA-ICT&CC on activities on ICT and Climate change;

– to represent Study Group 6 at discussions on ICTs and Climate in other Study Groups and at the relevant ITU-T Study Groups as deemed necessary (for example, ITU-T SG 5);

– to report back to Study Group 6 and its Working Parties on this issue.

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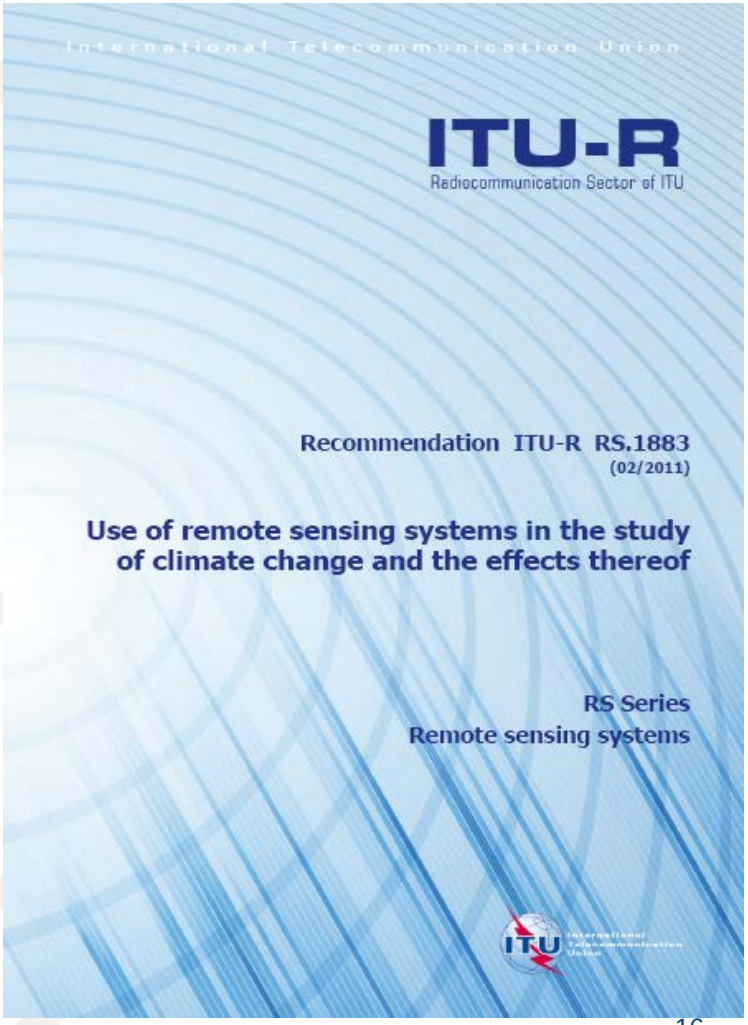
ITU-R SG7 highlights

- an extensive overview of the use of spectrum by Earth observation radiocommunication applications
- overview of solar radio monitoring applications
- benefits from spectrum use by the radio space service

http://www.itu.int/pub/R-REP-RS.2178-2010

ITU-R SG7 highlights

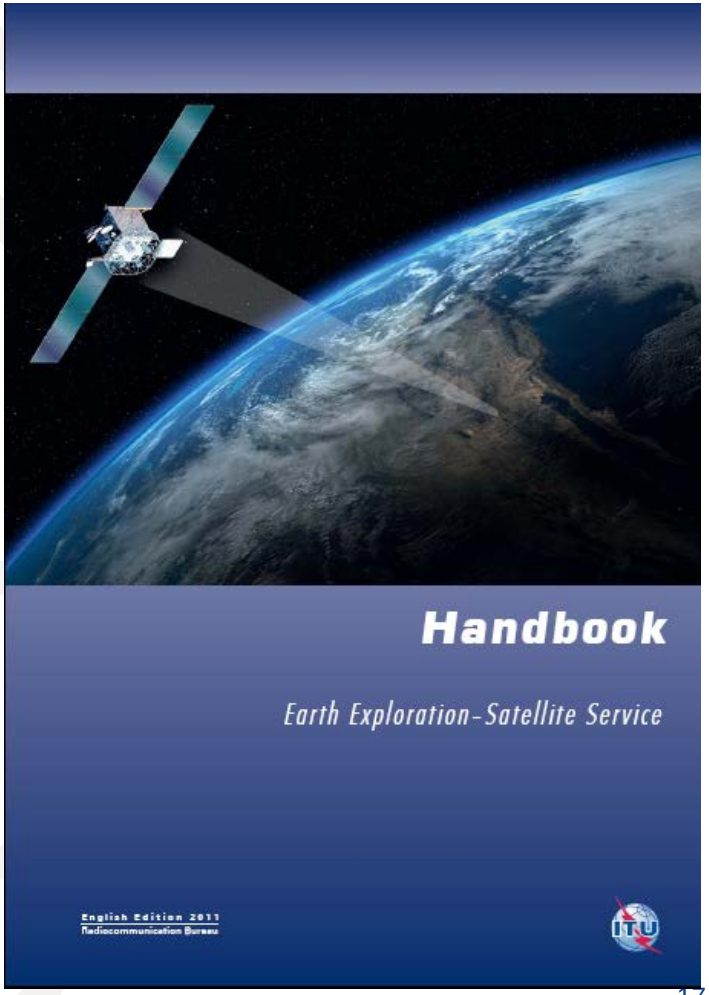
- Guidelines on the provision of satellite-provided remote sensing data for the purpose of studying climate change
- summary of status of major climate variables and forcing factors



http://www.itu.int/rec/R-REC-RS.1883-0-201102-I/en

ITU-R SG7 highlights

- development of EESS systems. Basic definitions, technical principles and applications
- to assist administrations in spectrum planning, engineering and deployment aspects



http://www.itu.int/pub/R-HDB-56

ITU-R Notification activity

- International recognition of satellite systems derived from recording in Master International Frequency Register (MIFR)
- Recorded space science systems:
  - 50 Metsat systems
  - 140 earth exploration satellite systems

Questions?