

**8th Green Standards Week
Zanzibar, Tanzania, 9 - 12 April 2018**

ITU-R activities on ICT and Climate Change

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ITU-R ACTIVITIES



Establish and update international regulations governing use of the spectrum, through world and regional radiocommunication conferences adopting international treaties



Apply the international regulations governing use of the spectrum, ensuring the most efficient use of the orbit/spectrum resource for operation of radiocommunication services free from harmful interference



Produce global standards, Recommendations, reports and handbooks for wireless radiocommunication systems and applications



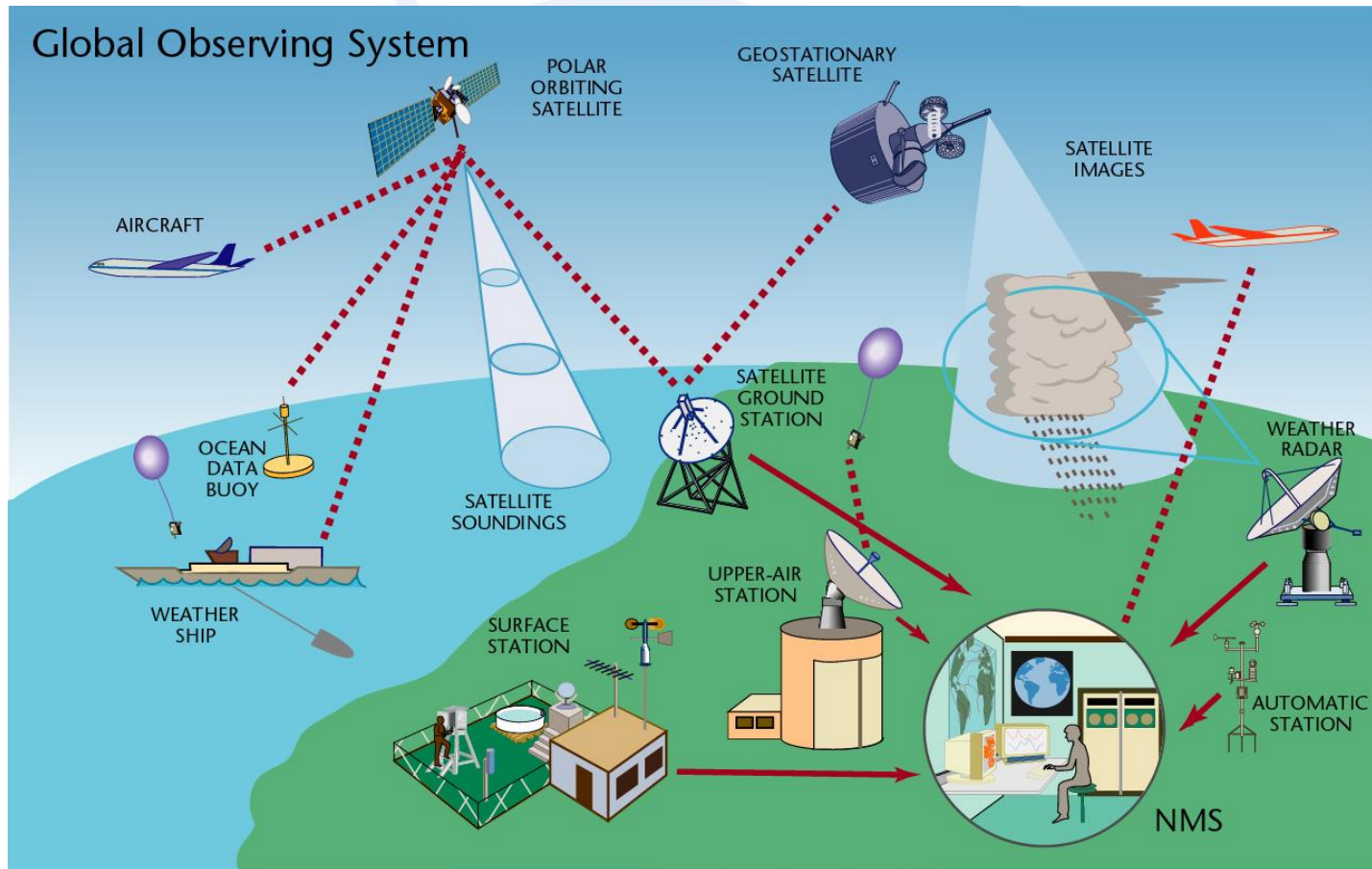
Inform and assist administrations on radiocommunication matters: organization of and participation in information and capacity-building seminars, participation in colloquiums and workshops



SCOPE OF ITU-R STUDIES FOR CC

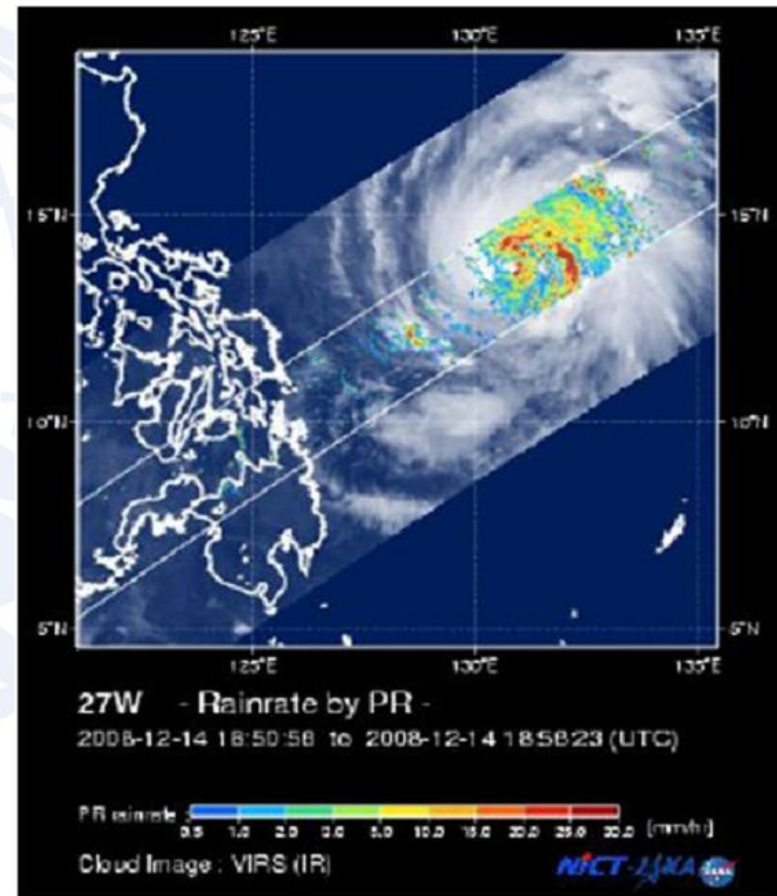
Activities	Major tasks	Radiocommunication involved	
UNDERSTANDING AND WEATHER FORECAST	Satellite observations of the Earth's atmosphere and surface	Earth exploration-satellites Meteorological satellite	
	The acquisition, processing, analysis and distribution of data from remote sensing satellites	Space operation	
	Solar radio monitoring	Radioastronomy	
	Space weather	Space research	
	Ground observation of atmosphere characteristic		Meteorological aids
			Radionavigation
ADOPTATION AND MITIGATION	Construction optimisation	Mobile systems	
	Traffic optimisation	Earth exploration-satellites	
	Energy, water and fuel savings	Mobile systems	
	Planting decision, irrigation planning	Radionavigation	
	Disseminating alert messages, coordination of relief activities and advice to public		Broadcasting
			Satellite
		Amateurs	

UNDERSTANDING OF CC



WEATHER FORECAST

- ✓ Estimated benefits of weather forecast in the EU 27- **61.5** billion€/year
- ✓ About 1/3 of EU GDP is weather-sensitive
- ✓ Most costly hazard - 9.2 bln USD
- ✓ 12 000 natural disasters worldwide, 3.5 mln people and economic losses- over 2.7 trl USD (1970-2015)

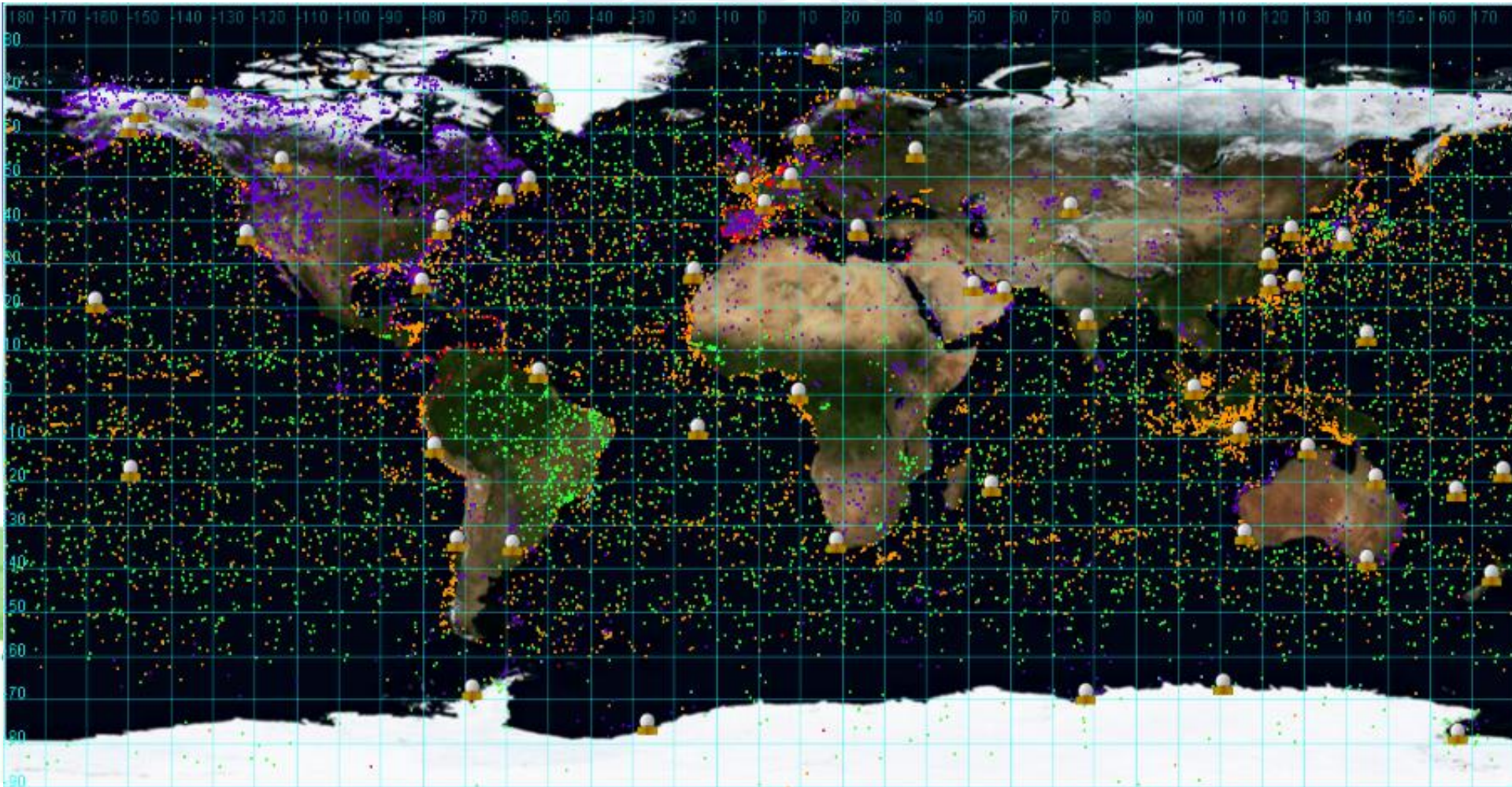


International Regulations

WRC-19 agenda item 1.2

to consider in-band power limits for earth stations operating in the mobile-satellite service, meteorological-satellite service and Earth exploration-satellite service in the frequency bands 401-403 MHz and 399.9-400.05 MHz, in accordance with Resolution 765 (WRC-15)

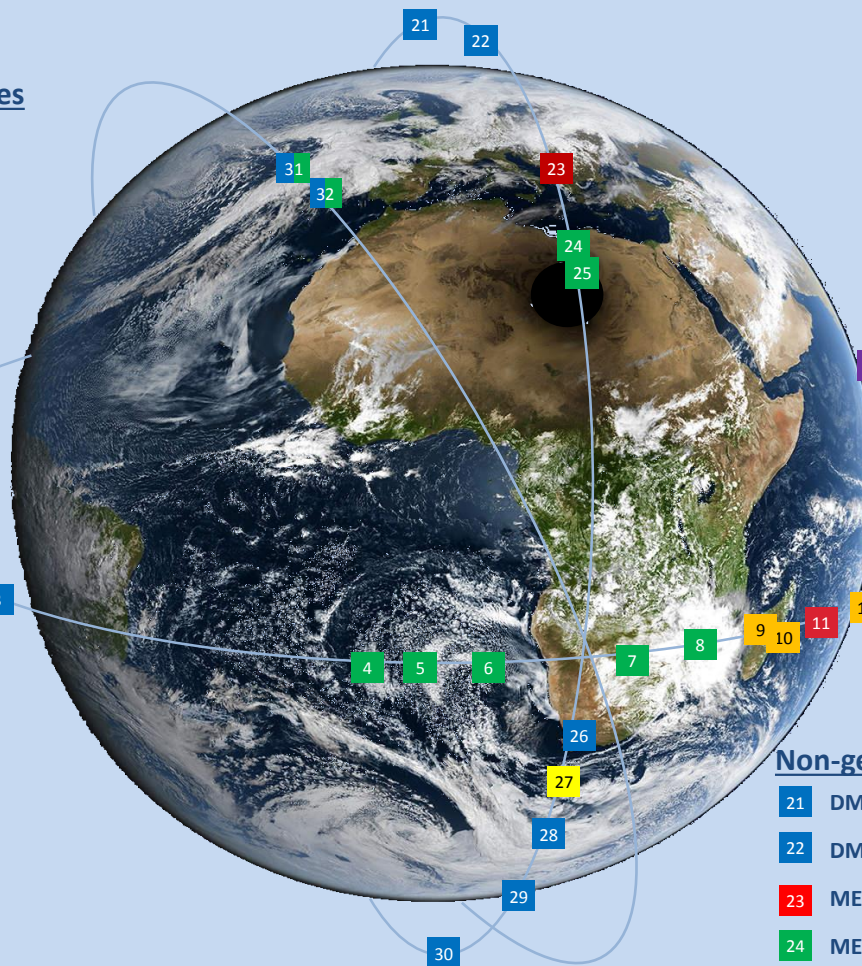
International Regulations



Currently operational Meteorological Satellites (Status: June 2016, Information Source: CGMS)

Geostationary Meteorological Satellites

- 1 GOES-15 (USA) 135°W
- 2 GOES-14 (USA) 105°W (stand-by)
- 3 GOES-13 (USA) 75°W
- 4 METEOSAT-11 (EUMETSAT) 3.4°W (stand-by)
- 5 METEOSAT-10 (EUMETSAT) 0°
- 6 METEOSAT-9 (EUMETSAT) 9.5°E
- 7 METEOSAT-8 (EUMETSAT) 41.5°E
- 8 METEOSAT-7 (EUMETSAT) 57.5°E
- 9 INSAT-3C (INDIA) 74°E
- 10 KALPANA-1 (INDIA) 74°E
- 11 ELECTRO-L N2 (RUSSIA) 77.8°E
- 12 INSAT-3C (INDIA) 82°E
- 13 FY-2E (CHINA) 86.5°E
- 14 INSAT-3A (INDIA) 93.5°E
- 15 FY-2G (CHINA) 105°E
- 16 FY-2F (CHINA) 112.5°E (stand-by)
- 17 FY-2D (CHINA) 123.5°E
- 18 COMS-1 (SOUTH KOREA) 128.2°E
- 19 HIMAWARI-8 (JAPAN) 140.7°E
- 20 HIMAWARI-7 (JAPAN) 145°E (stand-by)



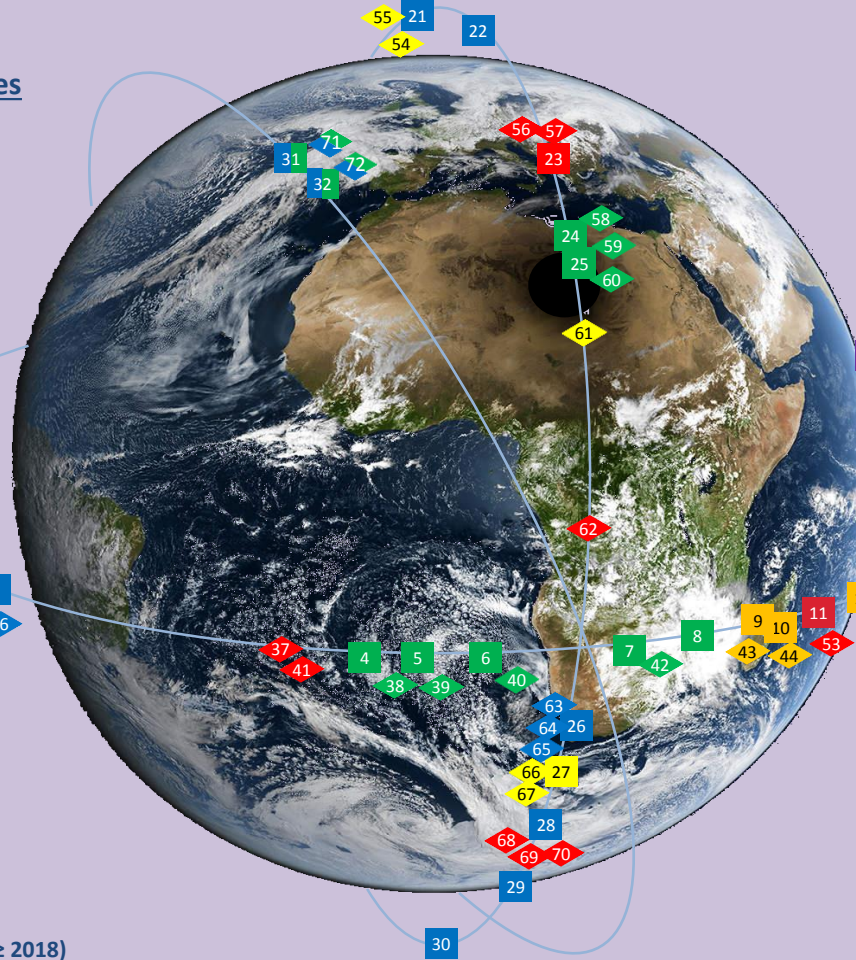
Non-geostationary Meteorological Satellites

- 21 DMSP-F17 (USA) ECT 06:20 descending
- 22 DMSP-F17 (USA) ECT 07:08 descending
- 23 METEOR-M N2 (RUSSIA) ECT 09:10 descending
- 24 METOP-A (EUMETSAT) ECT 09:30 descending
- 25 METOP-B (EUMETSAT) ECT 09:30 descending
- 26 SNPP (USA) ECT 13:29 ascending
- 27 FY-3B (CHINA) ECT 13:38 ascending
- 28 NOAA-19 (USA) ECT 14:36 ascending
- 29 DMSP-F16 (USA) ECT 16:12 ascending
- 30 NOAA-18 (USA) ECT 17:53 ascending
- 31 JASON-2 (USA, EUROPE) 66° inclination
- 32 JASON-3 (USA, EUROPE) 66° inclination

Planned Meteorological Satellites in the Timeframe 2016 - 2026 (Status: June 2016, Information Source: CGMS)

Geostationary Meteorological Satellites

- 33 GOES-T (USA) 137°W (≥ 2019)
- 34 GOES-R (USA) 89.5W (≥ 2016-11)
- 35 GOES-S (USA) 75°W (≥ 2018)
- 36 GOES-U (USA) 75°W (≥ 2025)
- 37 ELECTRO-L N3 (RUSSIA) 14.5°W (≥ 2017)
- 38 MTG-I1 (EUMETSAT) 0°E/9.5°E (≥ 2020)
- 39 MTG-S1 (EUMETSAT) 0°E (≥ 2022)
- 40 MTG-I2 (EUMETSAT) 0°E (≥ 2023)
- 41 ELECTRO-L N5 (RUSSIA) TBD (≥ 2025)
- 42 METEOSAT-8 (EUMETSAT) 41.5°E (≥ 2016-09)
- 43 INSAT-3DR (INDIA) 74°E (≥ 2016-08)
- 44 INSAT-3DS (INDIA) 74°E (≥ 2022)
- 45 FY-4A (CHINA) 86.5°E (≥ 2016)
- 46 FY-2H (CHINA) 86.5°E (≥ 2017)
- 47 FY-4C (CHINA) 86.5°E (≥ 2020)
- 48 FY-4B (CHINA) 105°E (≥ 2018)
- 49 FY-4D (CHINA) 105°E (≥ 2020)
- 50 GEO-KOMPSAT-2A (SOUTH KOREA) 128.2°E (≥ 2018)
- 51 GEO-KOMPSAT-2B (SOUTH KOREA) 128.2°E (≥ 2019)
- 52 HIMAWARI-9 (JAPAN) 140°E (≥ 2016)
- 53 ELECTRO-L N5 (RUSSIA) TBD (≥ 2019)



Non-geostationary Meteorological Satellites

- | | |
|--|---|
| 54 FY-3E (CHINA) ECT 06:00 desc. (≥ 2018) | 63 JPSS-1 (USA) ECT 13:30 asc. (≥ 2017-01) |
| 55 FY-3H (CHINA) ECT 06:00 desc. (≥ 2021) | 64 JPSS-2 (USA) ECT 13:30 asc. (≥ 2021) |
| 56 METEOR-M N2-2 (RUSSIA) ECT 09:00 desc. (≥ 2017) | 65 JPSS-3 (USA) ECT 13:30 asc. (≥ 2026) |
| 57 METEOR-M N2-4 (RUSSIA) ECT 09:00 desc. (≥ 2021) | 66 FY-3D (CHINA) ECT 14:00 asc. (≥ 2016-12) |
| 58 METOP-C (EUMETSAT) ECT 09:30 desc. (≥ 2018-10) | 67 FY-3G (CHINA) ECT 14:00 asc. (≥ 2021) |
| 59 METOP-SG A (EUMETSAT) ECT 09:30 desc. (≥ 2021) | 68 METEOR-M N2-1 (RUSSIA) ECT 15:00 asc. (≥ 2017) |
| 60 METOP-SG B (EUMETSAT) ECT 09:30 desc. (≥ 2023) | 69 METEOR-M N2-3 (RUSSIA) ECT 15:00 asc. (≥ 2020) |
| 61 FY-3F (CHINA) ECT 10:00 desc. (≥ 2019) | 70 METEOR-M N2-5 (RUSSIA) ECT 15:00 asc. (≥ 2022) |
| 62 METEOR-M N3 (RUSSIA) ECT 12:00 asc. (≥ 2021) | 71-72 SENTINEL-6 A/B(USA, EUROPE) 66° incl. (≥ 2020/2025) |

PRODUCE GLOBAL STANDARDS

<p>Report ITU-R BT.2385 Reducing the environmental impact of terrestrial broadcasting systems</p>	<p>Report ITU-R BT.2299 Broadcasting for public warning, disaster mitigation and relief</p>
<p>Report ITU-R RS.2178 The essential role and global importance of radio spectrum use for Earth observations and for related applications</p>	<p>Report ITU-R M.2291 The use of International Mobile Telecommunications for broadband public protection and disaster relief applications</p>
<p>Report ITU-R S.2151-1 Use and examples of systems in the fixed satellite service in the event of natural disasters and similar emergencies for warning and relief operations</p>	<p>Report ITU-R S.2151 Use and examples of systems in the fixed satellite service in the event of natural disasters and similar emergencies for warning and relief operations</p>
<p>Recommendation ITU-R RS.1883 Use of remote sensing systems in the study of climate change and the effects thereof</p>	<p>Recommendation ITU-R F.1105-3 Fixed wireless systems for disaster mitigation and relief operations</p>
<p>Recommendation ITU-R BT.1774-2 Use of satellite and terrestrial broadcast infrastructures for public warning, disaster mitigation and relief</p>	<p>Recommendation ITU-R M.1042-3 Disaster communications in the amateur and amateur-satellite services</p>
<p>Recommendation ITU-R M.1637 Global cross-border circulation of radiocommunication equipment in emergency and disaster relief situations</p>	<p>Recommendation ITU-R S.1001 Use of systems in the fixed-satellite service in the event of natural disasters and similar emergencies for warning and relief operations</p>
<p>Recommendation ITU-R M.1854 Use of mobile-satellite service in disaster response and relief</p>	<p>Report ITU-R M.2149 Use and examples of mobile-satellite service systems for relief operation in the event of natural disasters and similar emergencies</p>

https://extranet.itu.int/brdocsearch/R-REC/Forms/folders_inforce.aspx



INFORM AND ASSIST

Second ITU/WMO Seminar

- ✓ Presentation of new developments of radio-based space and terrestrial systems and applications employed for weather, water and climate monitoring
- ✓ Presentation of associated radio spectrum and its future use as well as illustration of the socio-economic importance of the radio services within the context of the SDGs.
- ✓ Presentation of the new edition of the WMO/ITU Handbook on the “Use of Radio Spectrum for Meteorology”

