



WMO SPACE PROGRAMME

Update for GSICS GRWG-1

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System WMO Space Programme
World Meteorological Organization

WMO Programmes

World Weather Watch Programme

WMO Space Programme

Natural Disaster Prevention and Mitigation

World
Climate
Programme

Atmospheric
Research
and
Environment
Programme

Applications
of
Meteorology
Programme

Hydrology
and
Water
Resources
Programme

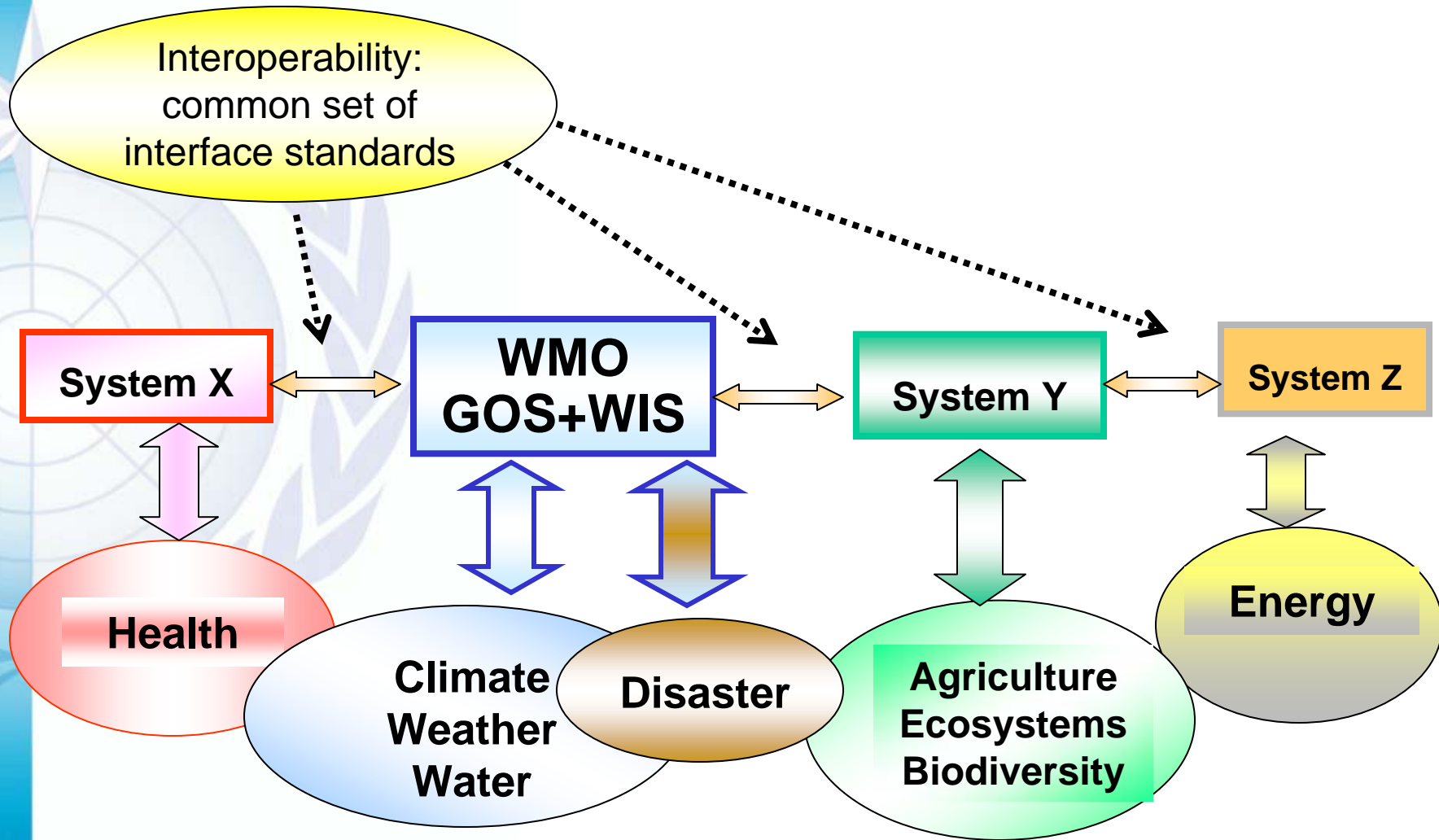
Education and Training Programme

Technical Cooperation Programme

Regional Programme

*...and WMO-co-sponsored Programmes
(e.g. WCRP and GCOS)*

WMO systems contributing to the Global Earth Observation System of Systems (GEOSS)



High-level processes of the WMO Space Programme

WMO focal point for Earth-observation satellite matters

WMO programmes:
WWW, DPM...
GCOS

Collect, maintain, express requirements of WMO Programmes for space-based observations and related services

Database

Space Agencies
CGMS

Plan and implement space-based GOS meeting WMO requirements

Enhance user capability to benefit from sat products

Users

Global planning & coordination
- contingency, optimization
Calibration :GSICS

Enhance access to sat data

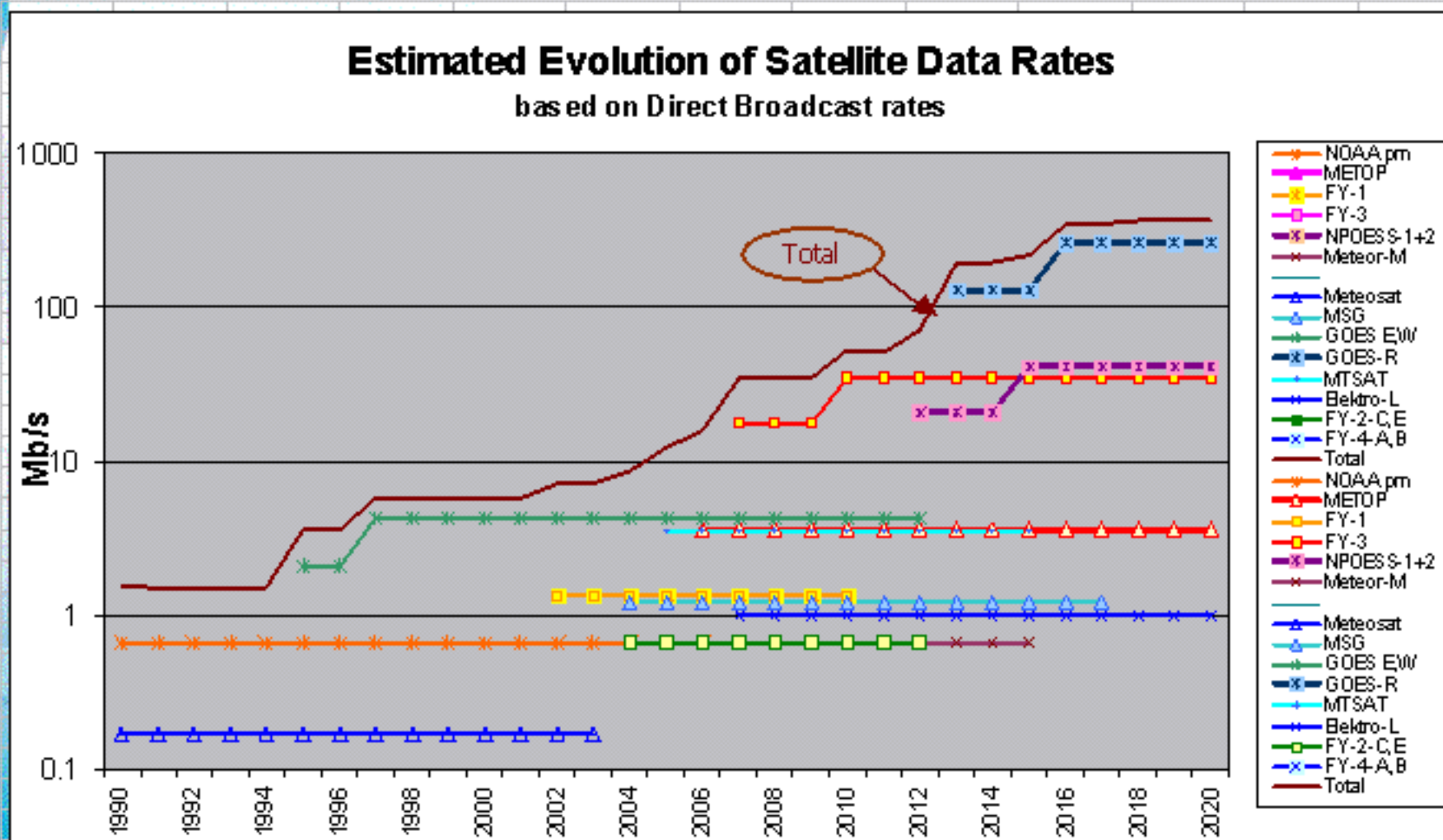
Information on data & products
Training (Virtual Laboratory)
Cooperation on tools and methods
Early use of R&D data

IGDDS
RARS

Training with the Virtual Laboratory

- Centres of Excellence in most of WMO Regions:
 - Nairobi, Niamey, Costa-Rica, Barbados, Melbourne, Nanjing
 - More recently: Muscat/Oman, Buenos Aires, Brazil (proposed)
 - Face-to-face training events and on-line sessions
- High Profile Training Event (HPTE, October 2006)
 - demonstrated potential of distance learning being given simultaneously in every WMO region
 - Around 2000 of meteorologists participated
 - More than 120 WMO Members were involved
 - Key lecture materials available for further use
 - Electronic notebooks (NOAA, Australia and China)

Data access aspects (1)

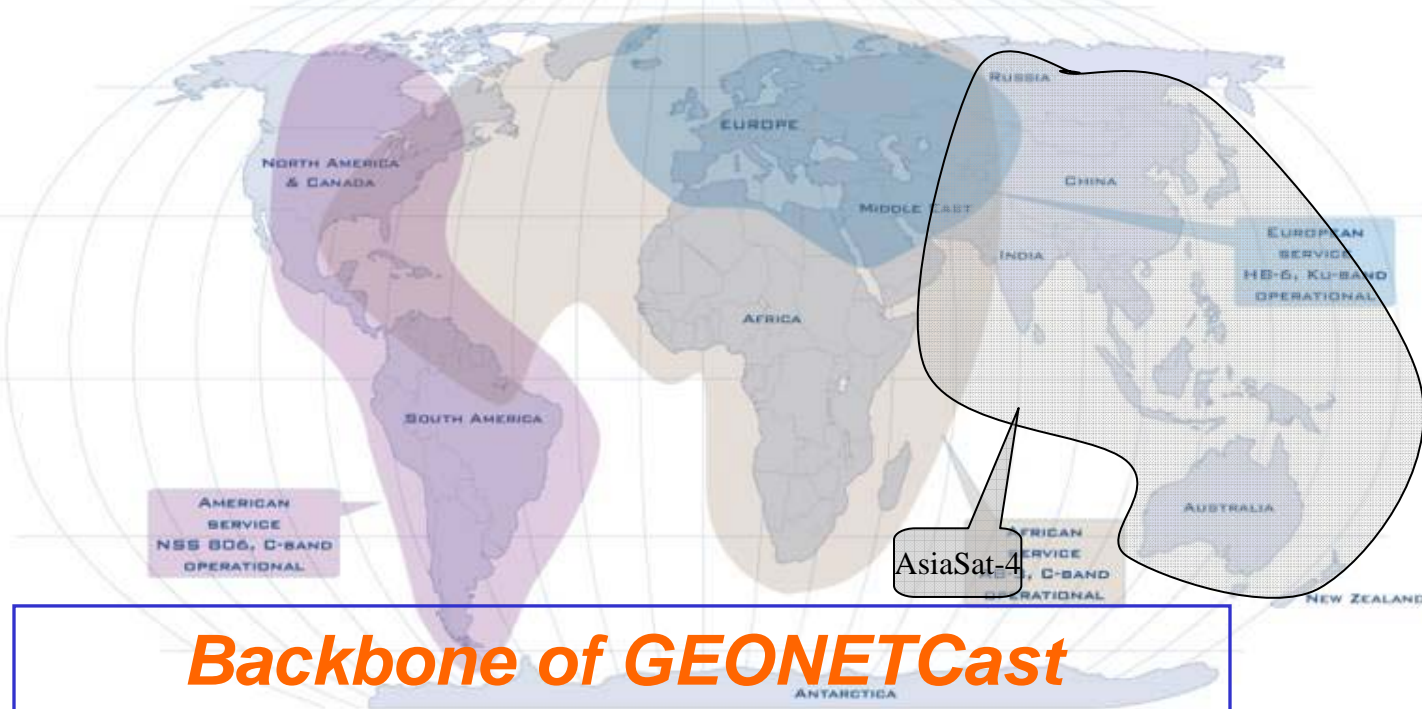


Integrated Global Data distribution Service (IGDDS) project

- To ensure that satellite data and products are available worldwide, timely and cost-efficiently, within WMO Information System
- An end-to-end approach involving
 - Capturing data requirements
 - Data acquisition
 - Data dissemination (PUSH) through DVB-S and GTS
 - Data access (PULL) via Internet
 - Data and user management
- Integrated: dissemination shall carry data from all satellites, surface data or products (one-stop shop)

Near-real time dissemination by satellite broadcast (DVB/S)

- EUMETSAT's EUMETCAST covers RA VI, RA I, RA III, RA IV
- ✓ NOAA plans to continue over RA III & IV
- ✓ FengYunCast demo in RA II and RA V expected to evolve into an operational component of IGDDS

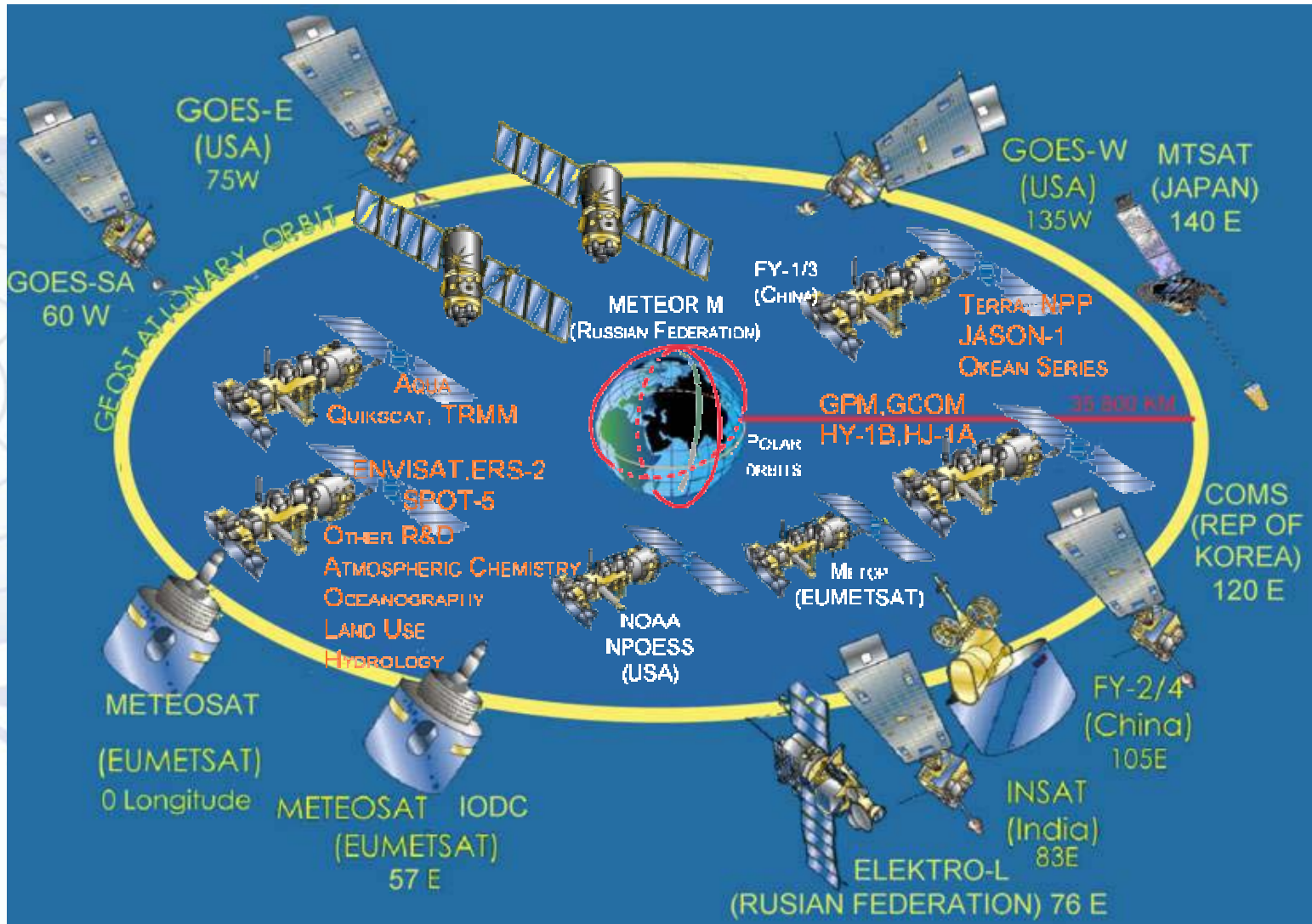


Backbone of GEONETCast

WMO Space Programme and the space-based GOS

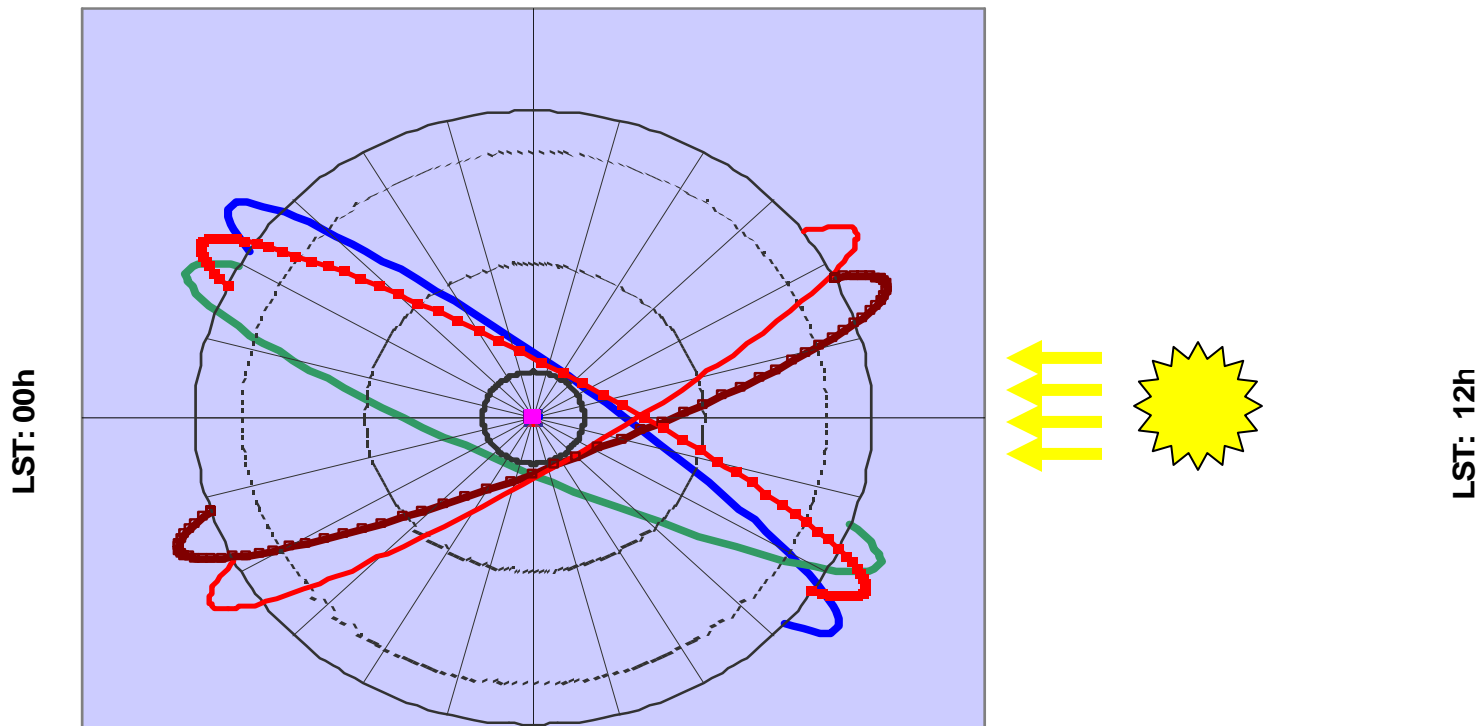
- Space-based GOS implemented by WMO Members through their space agencies (operational or R&D)
- Technical coordination achieved through CGMS
- Need to address global planning at WMO level
- WMO Space Programme recently involved in
 - Global Contingency Planning
 - Optimization of the GOS
 - GSICS
 - Fostering cooperative missions (IgeoLab)
- Consultative Meeting (CM-7) confirmed the WSP in this role
- And encouraged to initiate Space Weather activities

Space-Based component of the Global Observing System (GOS)



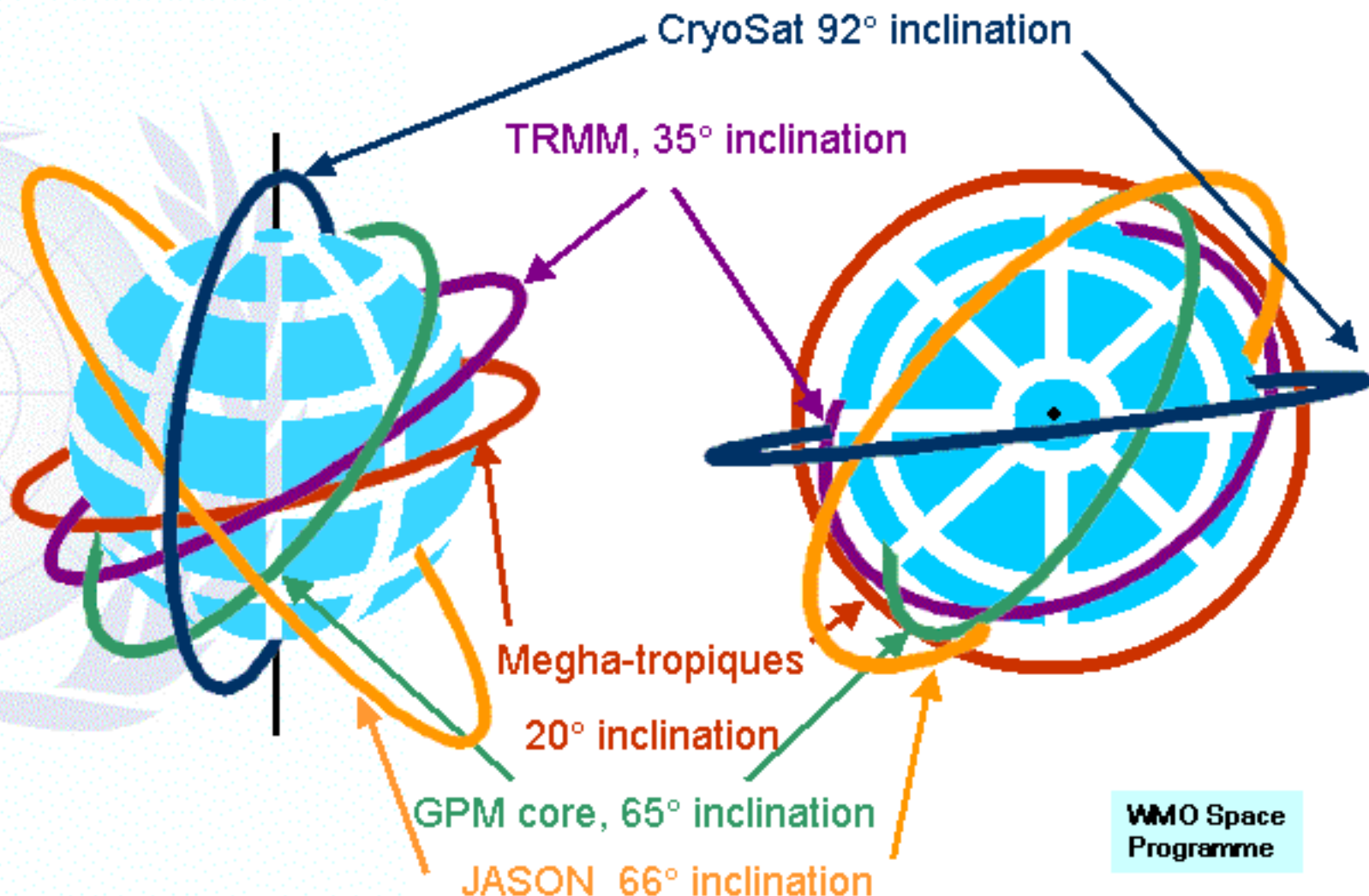
Updating the GOS baseline

- Current baseline defined in 2002 with 2015 horizon
 - Implementation Plan for Evolution of the GOS (WMO TD 1267)
- Need to look forward to 2025 horizon
- Optimize the observing constellations although redundancy needed
 - Regularly distributed ECT for LEO sounding missions



Different types of LEO orbits

non sun-synchronous



WMO Space Programme

Increased relevance of GSICS

- Climate monitoring: long-term data consistency is a prerequisite to detect climate change
- Climate modeling: absolute accuracy needed to solve radiation budget or water cycle equations
- NWP: need for consistent data quality
- Global optimization of the space-based observation efforts:
 - Need for agencies to rely on each other's missions
 - Requires intercomparability of data from # mission
- Global access to multi-satellite data
 - Need to facilitate data merging

GSICS Implementation

- CGMS action decided in Nov 2005
- GSICS Implementation Plan April 2006
- Preliminary endorsement June, confirmed Nov 2006
- 1st GSICS Executive Panel October 2006
Chair: Dr Mitch Goldberg
Agreed Terms of Reference for GRWG, GDWG
- Participants to-date: CMA, CNES, EUMETSAT, JMA, NOAA, ROSHYDROMET
- Strong support by CGMS, GCOS, CEOS