



World Meteorological Organization

Weather • Climate • Water

Satellite User Preparedness

Ensuring the preparedness of users to the new generation of satellites

by WMO

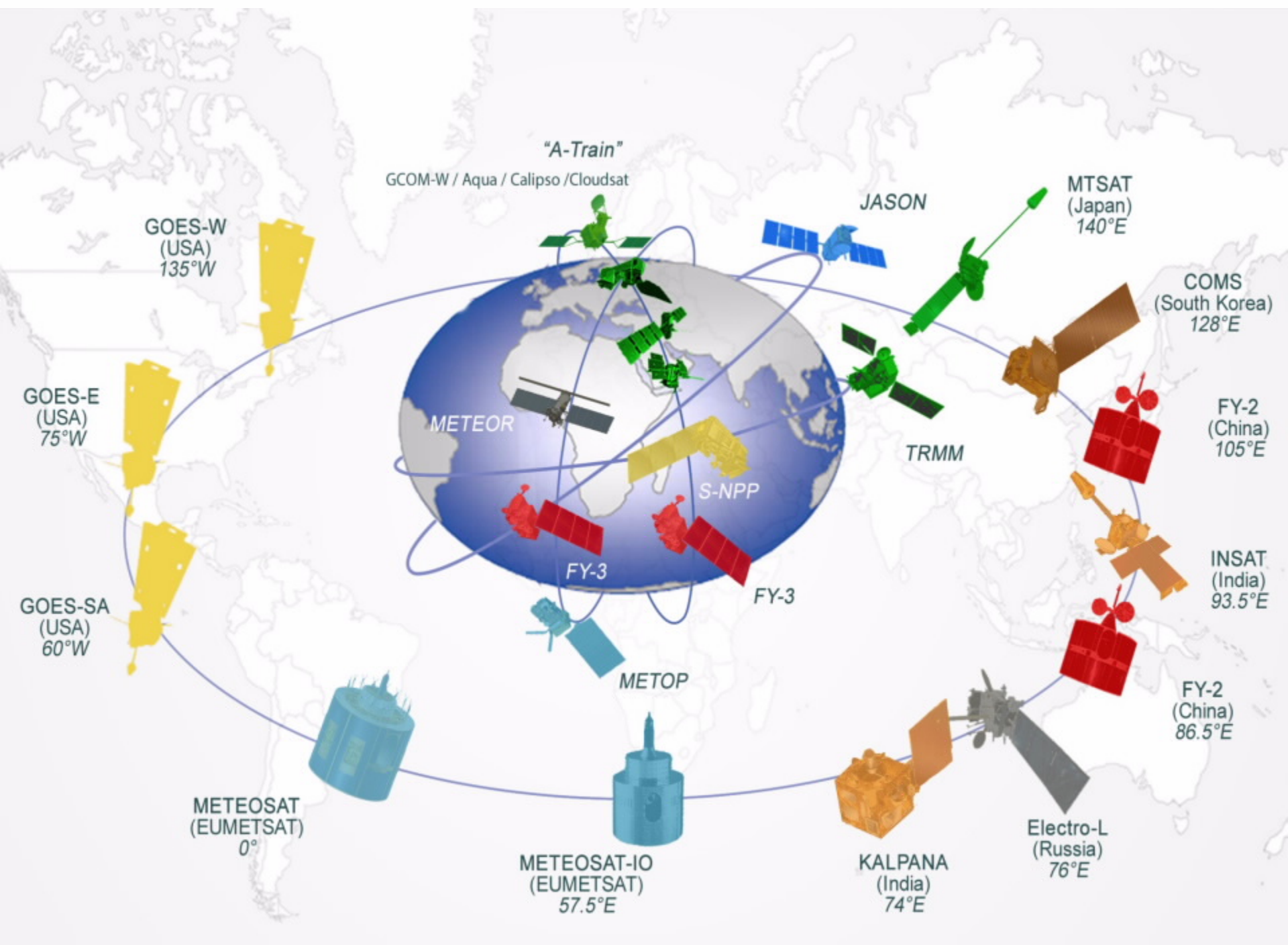
Presented to CGMS-41 plenary session, agenda item [C.5]

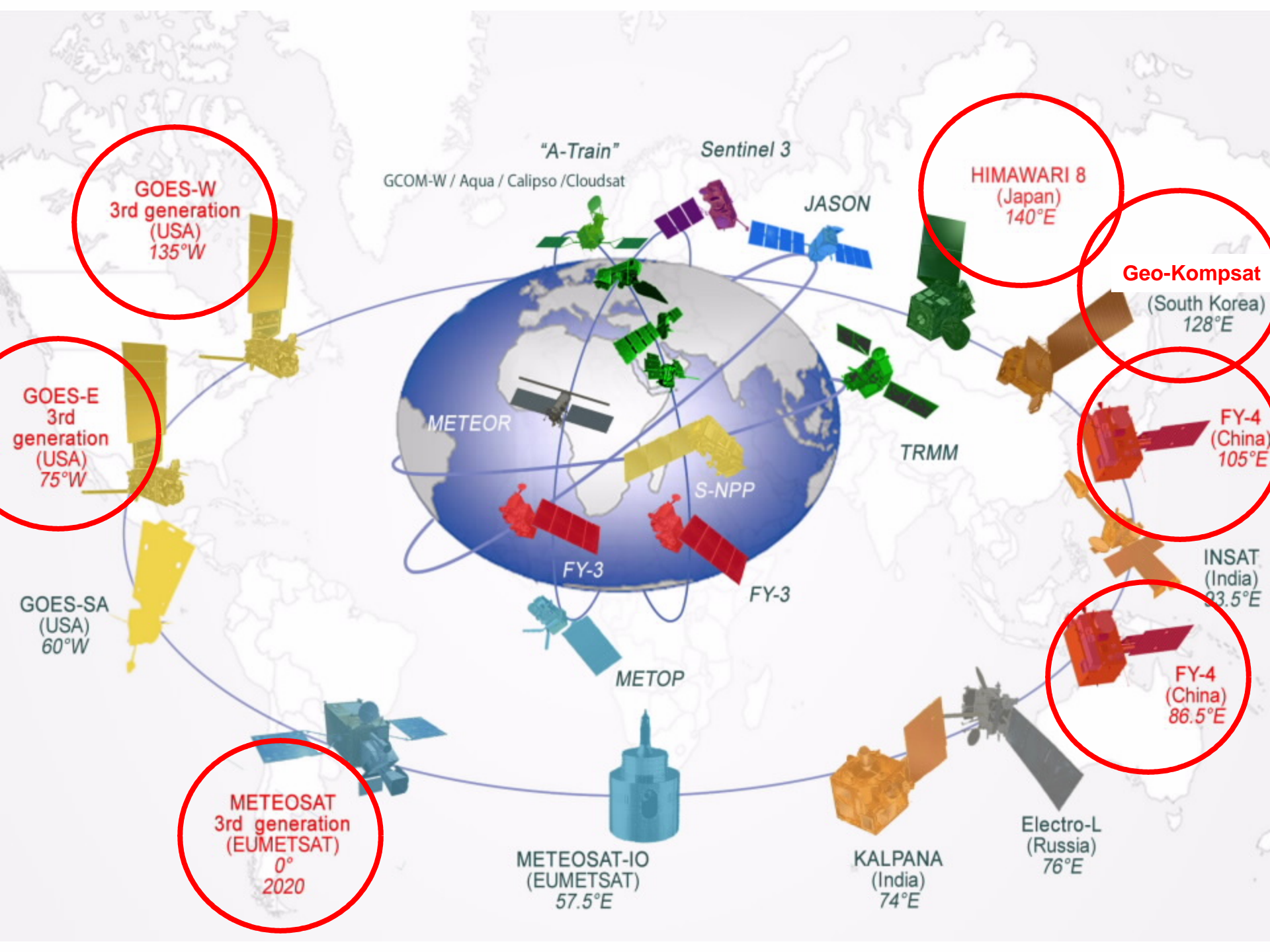
based on WMO Briefing to Side Event at 65th Executive Council, 17 May 2013

Ensuring user preparedness

- Satellites widely used by WMO Members in support of weather, climate, water applications
- New generation of geostationary meteorological satellites to enter operations in 2015-2018, including:
 - Himawari-8 (JMA)
 - FY-4 (CMA)
 - GOES-R (NOAA)
 - GEO-KOMPSAT-2 (KMA)
 - MTG (EUMETSAT)







Opportunities and Risks

■ Opportunities

- Capabilities improve (e.g., sampling rate, spatial resolution, spectral channels)
- Leading to more accurate and timely forecasts
- New products
- Improved service levels

■ Risks

- Data rates increase drastically, by factors of 10-100
- Data formats will change
- Data delivery mechanisms will change
- Operational services are dependent on current spacecraft

■ Affecting all WMO Regions



Guidance by WMO

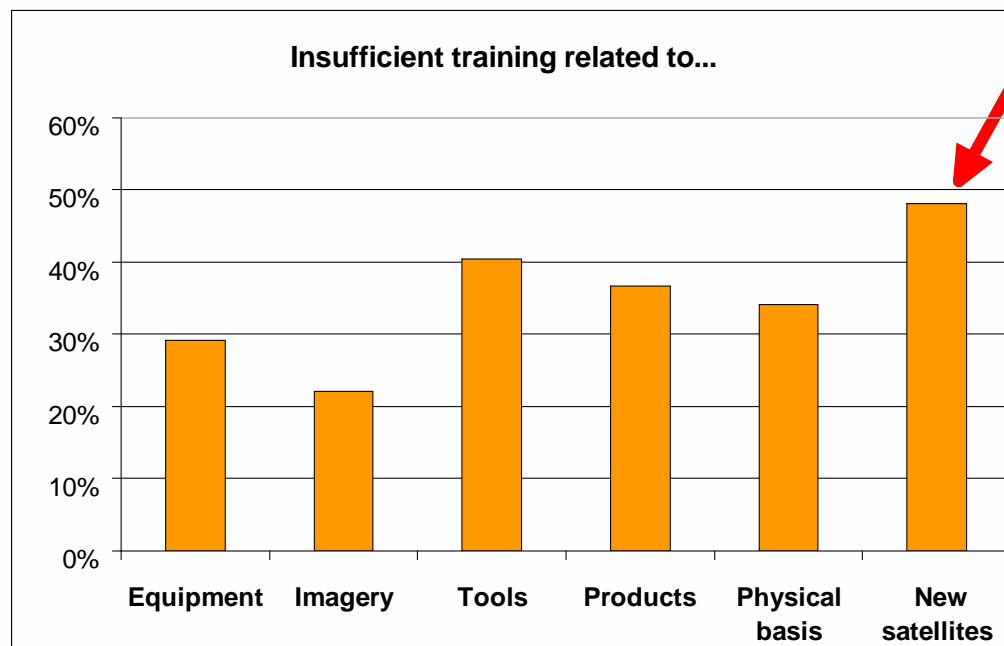
- CBS Guideline for Ensuring User Readiness for New Generation Satellites (2012)
 - “operational users [NMHSs] to establish user readiness projects 5 years prior to launch”
 - “satellite operators to assist users in introduction of new data streams into operations”
 - Technical / programmatic information
 - Format specification, test datasets, prototype products
 - Parallel operation / parallel dissemination
 - Training

http://www.wmo.int/pages/prog/sat/documents/SAT-GEN_CBS-15-GuidelineUserReadiness.pdf



Deficiencies in preparing users

- Many Members report they are insufficiently prepared to the new generation of meteorological satellites



- Source: WMO 2012 Satellite User Survey - 227 responses from 95 countries



Side Event at WMO Executive Council, May 2013

- Briefings by CGMS members on user preparation:
 - JMA (Himawari-8/9)
 - NOAA (GOES-R, NPP)
 - EUMETSAT
 - CMA (FY-4)
- Briefing by Australian Bureau of Meteorology
 - User perspective

<http://www.wmo.int/pages/prog/sat/meetings/EC65-SideEvent-UserPrep.php>



Ensuring the Preparedness of Users to the New Generation of Satellites

Side Event
WMO Executive Council, 65th Session

Venue: WMO HQ Geneva, Salle B
Date: 17 May 2013
Time: 13:30-14:30

Programme

Introduction
Wenjian Zhang, Director, WMO Space Programme

Up-to-date information on the Japanese Next-Generation Himawari-8/9 Satellites (10')
Tatsuya Kimura, JMA

Preparing users to GOES-R (and other satellites) (10')
Laura Furgione, NOAA

Preparing users to Meteosat Third Generation (and other satellites) (10')
Mikael Rattenborg, EUMETSAT

Preparing users to FY-4 (and other satellites) (10')
Yang Jun, CMA

User perspective: Plans for incorporating new satellite data streams into operations (10')
Sue Barrell, Bureau of Meteorology Australia

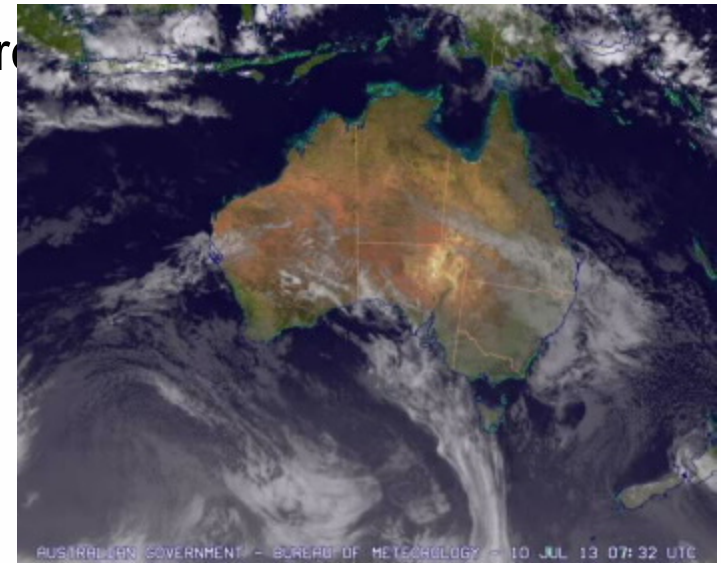
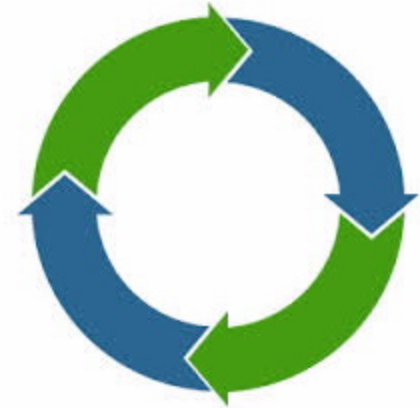
Discussion, Q & A

Summary and closure
Wenjian Zhang, Director, WMO Space Programme



Overview of User Preparedness

- Two areas of preparedness
 - New capability or
 - Improved capability over what already exists
- Continuity of service provision
 - Critical path, maintaining services across the transition
 - Legacy products and services
- Maximising value of service
 - Additional investment
 - New products and services



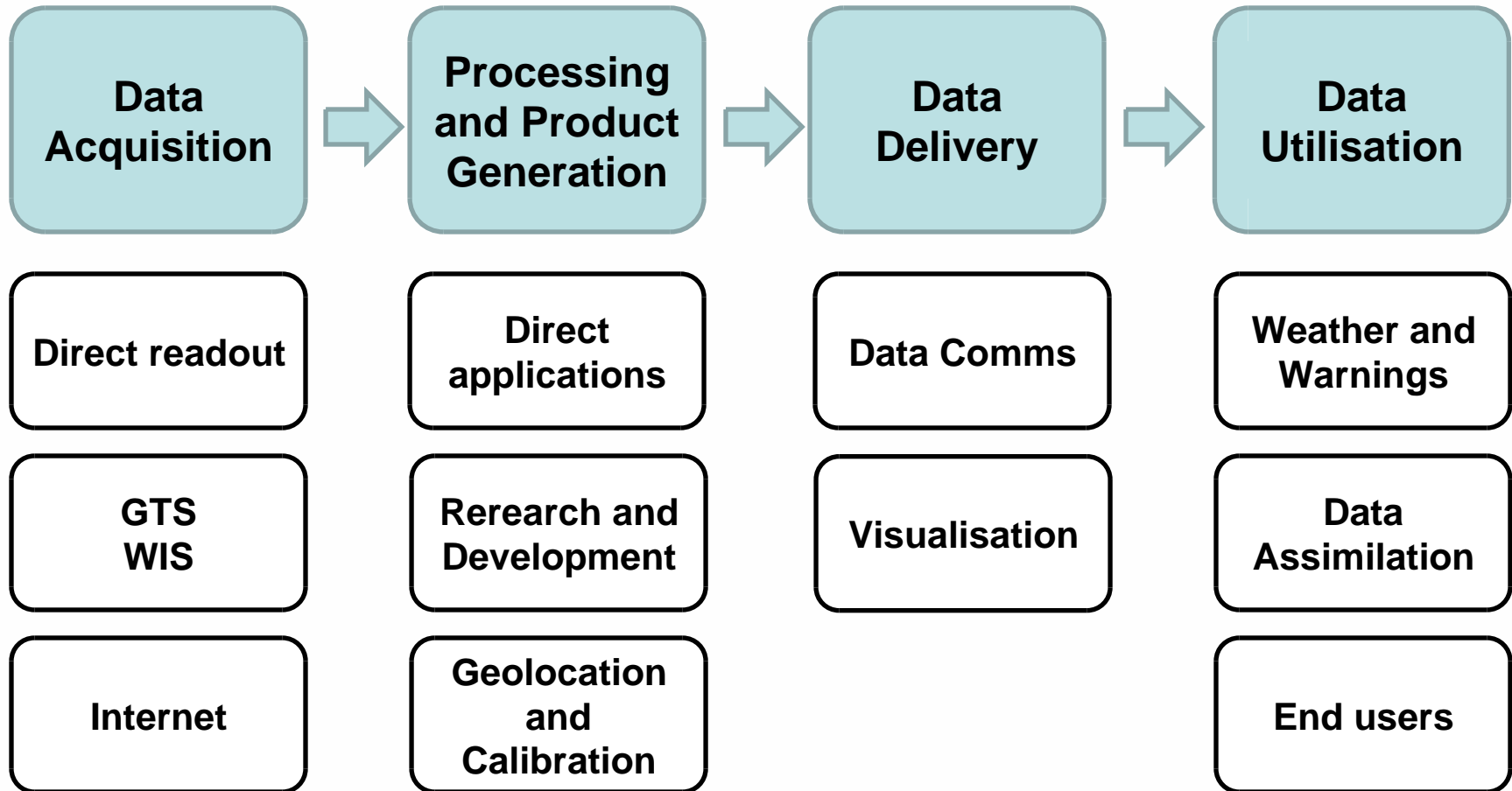
Australian Bureau of Meteorology Perspective

- Two major transition exercises
 - 2003 – transition from GMS-5 – GOES-9
 - SVISSR to GVAR
 - Need to maintain continuity of service
 - Forecasters
 - Products and website
 - Ingest and processing systems tested
 - Products migrated to new satellite
 - 2005 – transition from GOES-9 – MTSAT-1R
 - GVAR to HRIT



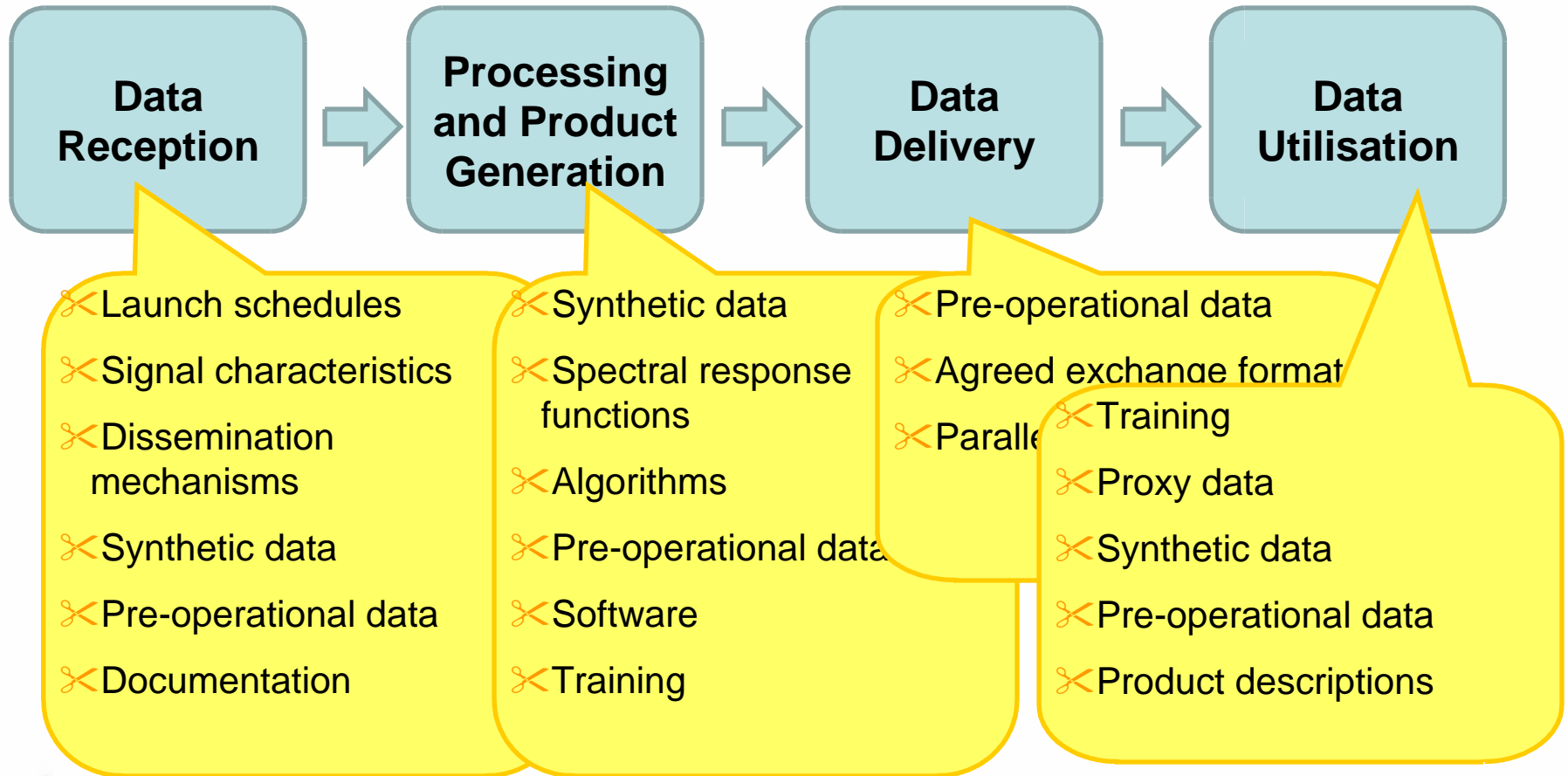
Satellite Data Value Chain

✂ Different stages in the chain cover different activities and require a range of organisational capabilities



Satellite Data Value Chain

✂ Different stages in the chain require different preparatory activities



Way forward

- Development of user preparedness plans necessary
 - CGMS-40 WMO-WP-13
 - R40.03: “Satellite operators and trainers to take note of the new “CBS Guideline for ensuring user readiness for new generation satellites” and plan appropriate projects to ensure user readiness”
- Briefing at WMO Exec Council May 2013
 - Operators are making good progress in addressing this issue
 - e.g. JMA activities re Himawari-8
 - GOES-R Proving Ground
- Information may be hard to find for some users
 - Want to ensure users are empowered to make decisions



Requested Action

- Agencies are requested to nominate focal points for a "task team" to prepare an online 'user guide'
 - to be published on the WMO website
- Designed as a one-stop shop for information on
 - receiving systems
 - proxy datasets
 - training material
- Users can use this information to
 - Effectively plan their own activities to adjust to changes
 - Minimise service delivery risk associated with transition to new systems



4th Asia-Oceania Meteorological Satellite Users Conference

- 9-11 October 2013
 - Hosted by the Bureau of Meteorology in Melbourne
- Side event 7-8 October
 - Focus on user preparedness for next generation GEO
- <http://www.virtuallab.bom.gov.au/events/aomsuc/>





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Thank you for your attention

www.wmo.int/sat

Background Material



Guidelines on user readiness for new satellite systems, adopted by CBS in Sept 2012 (Summary)

NEW

- Information/training of prospective users
 - User conferences and workshops on new capabilities
 - Portals providing instrument specifications, data formats
 - Proxy data sets, tools and demonstration products
 - Guidance on receiving hardware/software
 - Training material and training events
- System operation
 - Some overlap period of old/new satellites
 - Some overlap of old/new dissemination systems
 - Satellite-independent dissemination system (e.g. *GEONETCast*)
- User organizations
 - Set up a user readiness project (e.g. ~5 years) prior to launch
 - Networking through online collaboration

Education and Training Capacity building



WMO-CGMS Virtual Laboratory
for Education and Training in Satellite Meteorology



<http://vlab.wmo.int>



**A network of 13 Centres of Excellence
sponsored by 8 satellite operators**

To provide training on meteorological and environmental satellite systems, data, products and applications;

To foster research and the development of applications for societal benefit at the local level by the National Met Services.

**To assist NMSs in preparing for new
generation satellites**



Online resources maintained by WMO Space Programme:

<http://www.wmo.int/sat>

OSCAR
Satellite capabilities
wmo.int/oscar

Data Access,
Preprocessing Software,
Analysis Tools

Product Access Guide
(*under development*)

OSCAR
World Meteorological Organization

Satellite GOES-12 (S-America)

Satellite status

Associated satellite programme and related satellites

Satellite Payload

Satellite Field of View

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Data Access & Tools

Data Access and Software Tools

GEO Satellite Data Access

Satellite	MET U.S. Data Specifications	MET Imagery	Sea-RT Data
COMS	HRIT/ LBT	AMS SIRV/YSMC	YMS/MSHC
Dante-S	HRIT/ LBT		(By upon request)
PI-2	S-VISOR(SRT) DMC/Car	LWS	S-VISOR DMC/Car
GOES	QAR	SAMS200 Online DMPO Imagery	NOAA CLASS DOPO
INSAT-3A	LWS	LWS	LWS
Falcons	LWS	LWS	LWS
Meteorol-QP	SUNSTAR	LWS	SUNSTAR Data Centre

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Product Access Guide

Product Access Guide

Browse by Domain and Product category

Atmospheric Domains > Temperature and Humidity

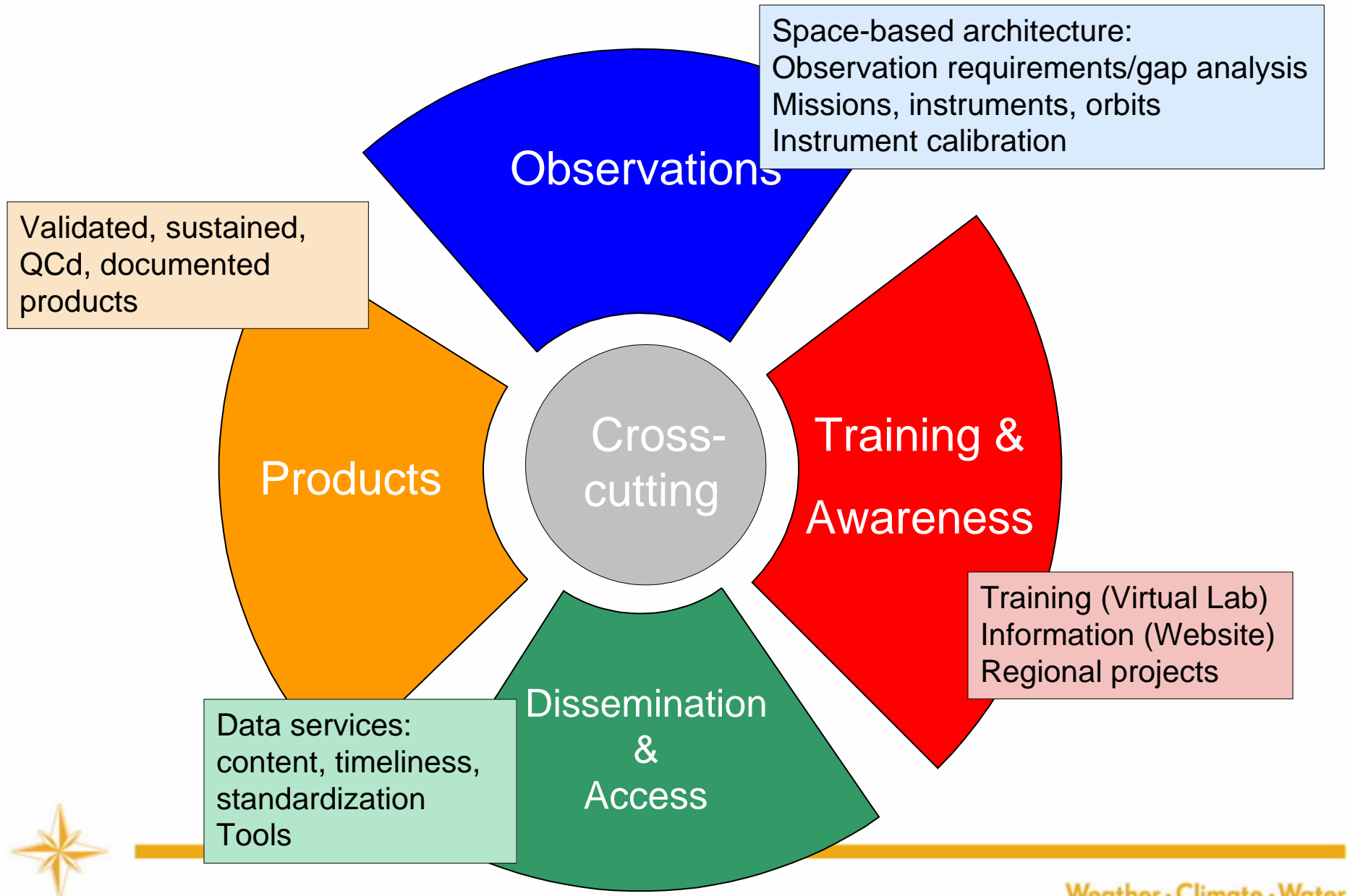
- Temperature and Humidity
- Wind Vectors
- Clouds
- Radiative Fluxes
- Precipitation
- Lightning
- aerosols/Dust/Volcanic ash
- Coarse and Trace Gases

Oceanic Domains

- Sea Surface Temperature
- Sea Level
- Sea State
- Ocean Surface Wind
- Ocean Color
- Ocean Surface pollution / Oil Spills



WMO Space Programme Activities



Space Programme Governance

