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Establishing Regional Requirements for Satellite Data in RA-V

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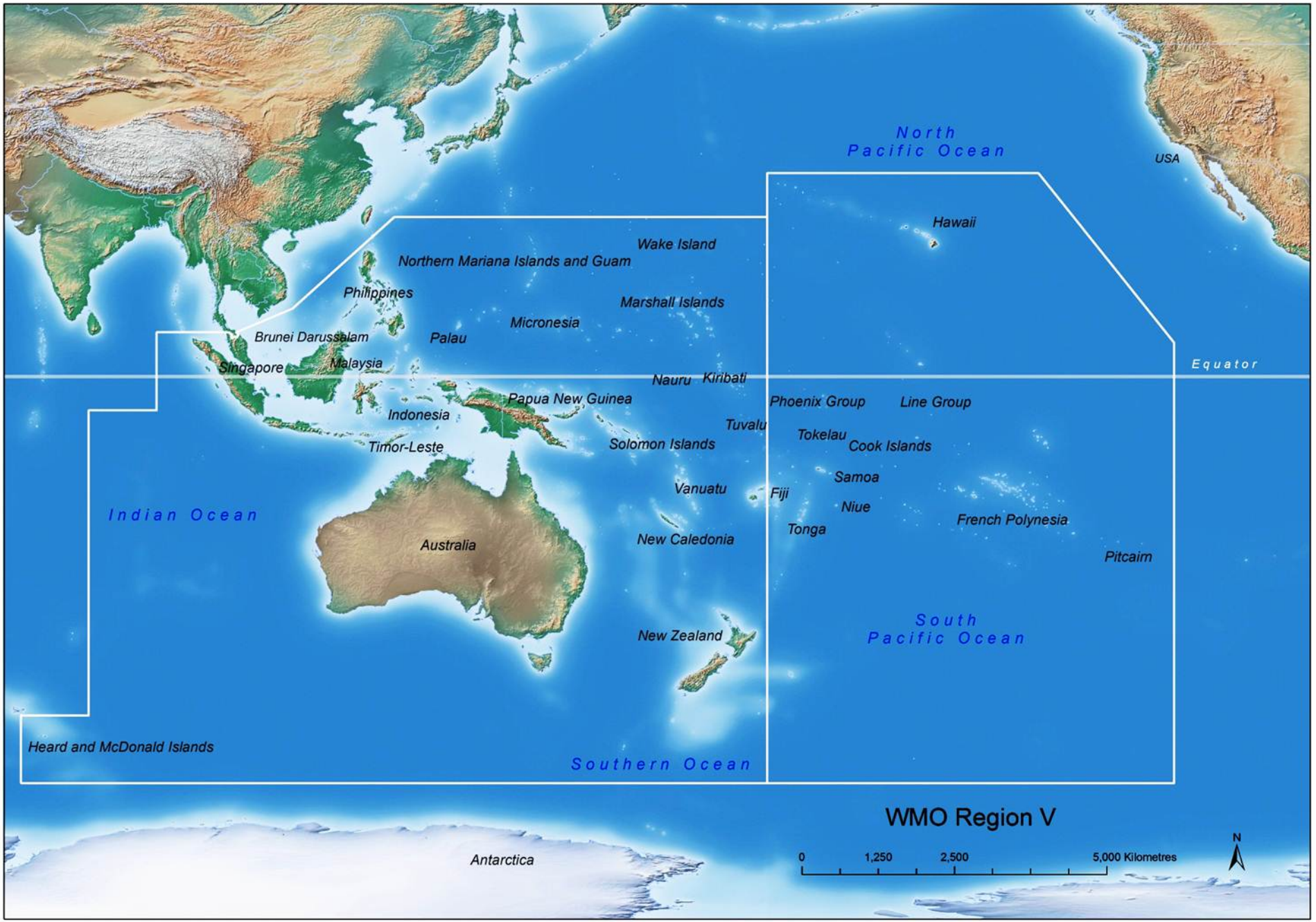
Background

Challenges:

- Access to satellite data. A dramatic expected increase in the volume of satellite data and products available over the next 5-10 years,
- Regional diversity of needs and capabilities of the various types of users (e.g., high-speed vs. low-rate)

Addressing the challenges:

- “WMO Procedure for Establishing Regional Requirements”, based on experiences of RA-III and RA-IV
- Region-based expression of user requirements for data access and exchange, and tailored data access solutions
- Establishment of the WMO RA-V Task Team on Satellite User Requirements
  - Members from Australia, Indonesia and USA, plus satellite providers (JMA, KMA, EUMETSAT and NOAA NESDIS)


North
Pacific Ocean
USA
Hawaii
Wake Island
Northern Mariana Islands and Guam
Philippines
Marshall Islands
Micronesia
Brunei Darussalam
Palau
Singapore
Malaysia
Equator
Nauru
Kiribati
Papua New Guinea
Phoenix Group
Line Group
Indonesia
Tuvalu
Tokelau
Timor-Leste
Solomon Islands
Cook Islands
Samoa
Vanuatu
Fiji
Niue
Indian Ocean
French Polynesia
Tonga
Australia
New Caledonia
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South
Pacific Ocean
New Zealand
Heard and McDonald Islands
Southern Ocean
WMO Region V
Antarctica
0
1,250
2,500
5,000 Kilometres
N

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Establishing Regional Requirements (1)

The Task Team will:

1. Identify data and products already available

A	B	C	D	E	F	G	H	I	K
item	Product Type	Source	Provider	Data characteristics	Raw Format	End User Format	Geographical area	Frequency	Delivery Mechanism (internet, direct broadcast, ….)
Observation Products									
1	Visible channel data	MTSAT	Japan/JMA	0.675µm, 1.0km	HRIT	AREA, netCDF, IMG	GEO 145°E	hourly	DB, WEB, SATAID
2	Visible channel data	FY-2WEST FY2-EAST	China/CMA	0.77µm, 1.25km	S-VISSR	AREA, netCDF, IMG	GEO 86.5°E GEO 105°E	hourly	DB, CMACAST
3	Visible channel data	GOES-WEST	USA/NOAA	0.65µm, 1.0km	GVAR	AREA, netCDF, IMG	GEO 135°W	hourly	DB, WEB, CMACAST
4	Visible channel data	AVHRR/3 (NOAA-x, MetOp-x)	USA/NOAA Europe/EUMETSAT	0.63µm, 1.1km	HRPT, CCSDS	AREA, netCDF, IMG	LEO SWATH	Local twice daily Global daily	DB
5	Visible channel data	FY-3	China/CMA	multiple, 0.25km multiple, 1.0km	?	?	LEO SWATH	Local twice daily Global daily	DB
6	Visible channel data	MODIS (Terra, Aqua)	USA/NASA	multiple, 0.25km multiple, 0.5km multiple, 1.0km	CCSDS	AREA, HDF, netCDF, IMG	LEO SWATH	Local twice daily Global daily	DB, WEB
7	Visible channel data	VIIRS (Suomi-NPP)	USA/NOAA	multiple, 0.375km multiple, 0.75km	CCSDS	HDF, netCDF, IMG	LEO SWATH	Local twice daily Global daily	DB, WEB
8	Day/Night Band	VIIRS (Suomi-NPP)	USA/NASA	0.77µm, 0.375km	CCSDS	HDF, netCDF, IMG	LEO SWATH	Local twice daily Global daily	DB, WEB
9	Infrared channel data	MTSAT	Japan/JMA	multiple, 4.0km	HRIT	AREA, netCDF, IMG	GEO 145°E	hourly	DB, WEB, SATAID
10	Infrared channel data	FY-2WEST	China/CMA	multiple, 5.0km	S-VISSR	AREA,	GEO 86.5°E	hourly	DB, CMACAST

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Establishing Regional Requirements (2)

2. Gather user requirements using a variety of sources, eg
   - the outcome of WMO surveys
   - input from Regional Centres of Excellence
   - personal experience of Task Team members
   - global requirements registered in the WMO RRR database
   - other available documents eg. GEOSS user requirements activities
   - ….
   - **and the 4th Asia Oceania Meteorological Satellite Users Conference**

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Establishing Regional Requirements (3)

3. Analyse the requirements, flag which requirements are not being met
4. Prioritise the unmet requirements
5. Where requirements are not being met = where effort needs to be focused

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Establishing Regional Requirements (4)

6. The Task Team formulates recommendations about:
   - Existing data/products to be included in existing distribution services (e.g., new product on DVB-S service) or moving a product from one service to another (e.g., Internet product to be put in LRIT) or assigning lower priority to an existing product (or removing it if obsolete);
   - Amendments of existing products or development of new products;
   - Evolution (upgrade, or consolidating) of data dissemination means;
   - Training, and other tools to enhance access and usage of data

   The Task Team develops a short-term action plan to implement these recommendations.

7. Data providers will strive to address the agreed requirements. Requires active collaboration between users and data providers

C	D	E	F	G	H	I	J	K	L	M	N	O	P
Product Name	Data characteristics	Format	Geographical area	Frequency	Size (kB)	size comment	Format expected in the Future	FINAL Size (compressed) - kB	Basic Application	Priority		Timeliness (min)	Required data rate (kb/s)
GOES imagery over the Region - A	GEO satellite, channel VIS, WV, IR, Resolution 4km	level 1B original from Satellite	SAM	15 - 30 minutes	16500	three images	Geotiff	8250	1)Product and Image generation.	P1	Real time	15	73.3
GOES imagery over the Region - B	GEO satellite, channel VIS, WV, IR, Resolution 12km	tiff image	SAM	30 minutes	2100	three images	Geotiff	1050	warning (+Synoptic analysis)	P1	Real time	5	28.0
GOES imagery over the Region - C	GEO satellite, other channels	level 1B original from Satellite	SAM	30 minutes	5500	GOES (+1ch South America)	Geotiff	2250	1)Product and Image generation.	P2	Real time	10	30.0
GOES imagery from other regions	GEO satellite, channel IR Resolution 4km	level 1B original from Satellite	to be defined	3 hours	5500	One ch/ additional GEO Sat.	Geotiff	2250	1)Product and Image generation.	P1	Real Time	20	15.0
MSG imagery over the Region - A	GEO satellite, channel VIS, WV, IR. Resolution 4km	level 1B original from Satellite	30N, 30S, 50W, 50E	15 – 30 minutes	40500	six channels compress	Geotiff	40500	1)Product and Image generation	P1	Real time	10	540.0
MSG imagery over the Region - B	GEO satellite, channel VIS, WV, IR. Resolution 12km	tiff image	15N, 37S, 71W, 25E	30 minutes	2100	three images	Geotiff	1050	synoptic Analysis	P1	Real time	10	14.0
MSG imagery over the Region - C	GEO satellite, other channels	level 1B original from Satellite	60N, 60S, 60W, 60E	30 minutes	13500	full disk one channel	Geotiff	6750	1)Product and Image generation.	P2	Real time	10	90.0
Regional Wind vectors from GEO - A	Low,middle, and high level. Low resolution.	Tiff mage	SAM	3 hours	2100	3 images	Geotiff	1050	Synoptic analysis	P1	real time	10	14.0
Regional Wind vectors from GEO - B	From IR, WV, VIS and 3.9 Retrieval zonal, meridional, height and quality indicator	BUFR	SAM	3 hours	8000	four images (4 channels)	BUFR	8000	Product generation. Synoptic analysis Assimilation	P1	real time	30	35.6
Global Wind vectors from GEO	From IR, WV, VIS and 3.9 channels. Retrieval zonal, meridional, height and	BUFR	Global	3 hours	40000	(5 satellites)	Bufr	40000	Assimilation	P3	real time	60	88.9
Polar regions Wind vectors from LEO - A	Retrieval zonal, meridional, height and quality indicator	BUFR	POLAR	3 hours	7000		Bufr	7000	Sy				.1

Example from RA-III

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User requirements session at Training Workshop on Preparation for Advanced Meteorological Imagers

Tuesday 8 October 2013

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Outcomes from Workshop 1
Tuesday 8 October

- Geostationary VIS/IR = most important data
- Much interest in high resolution data and products
- Other high priority: hotspot and flood products
- Challenges in using satellite data
  - Knowledge about available satellite data
  - Information on where to access data eg. Scatterometer data/products
  - Training

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The next user requirements session at this conference:

Thursday 10 October 2013
15:20 – 16:20

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Thank you

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