RAV VLab Report

Australian VLab Centre of Excellence

VLMG-7 Meeting

St. Petersburg, 21 – 25 July 2014

Bodo Zeschke Australian VLab Centre of Excellence Point of Contact

Overview of Australian VLab Centre of Excellence and discussion of our activities

Australian Government
Bureau of Meteorology

- Overview of our RAV Centre of Excellence – introduction to our web page and resources
- Recent Training that we have been conducting (Science Week, AOMSUC Training Workshop)
- Our Regional Focus Group meetings.
- Focus of the training in Satellite Meteorology Applications, upcoming Remote Training.
- Collaboration with other CoE's
- Needs Analysis – future challenges

Australian LVab Centre of Excellence and RAV contacts – July 2014

Australian Government
Bureau of Meteorology

Roger Deslandes
(Head of CoE)

Bodo Zeschke
(Main Point of Contact)

RAV

Philippines

Singapore

Indonesia

PNG

Solomon Islands

Fiji

Vanuatu

Samoa

Melbourne

New Zealand

Satellite Champions

RAV contacts frequently attending our RFG meetings

Other RAV contacts

Australian LVab Centre of Excellence and broader contacts – July 2014

Australian Government
Bureau of Meteorology

- Satellite Champions
- Contacts frequently attending our RFG meetings
- other contacts

Roger Deslandes
(Head of CoE)

Bodo Zeschke
(Main Point of Contact)

Our new Melbourne VLab Centre of Excellence web page at http://www.virtuallab.bom.gov.au/

Australian Government
Bureau of Meteorology

Australian Government Bureau of Meteorology — Melbourne VLab Centre Of Excellence

Home | Satellite Products | Events | Training | News | Archive | Links | Contact Us | Search

Melbourne VLab Centre of Excellence

History of the Melbourne VLab Centre of Excellence

Mission Statement

Inspiring people through innovative & engaging development programs.

WMO BIP-M Learning Objectives
Basic Satellite Competencies
"Training Objectives"
(Environment Canada)

News

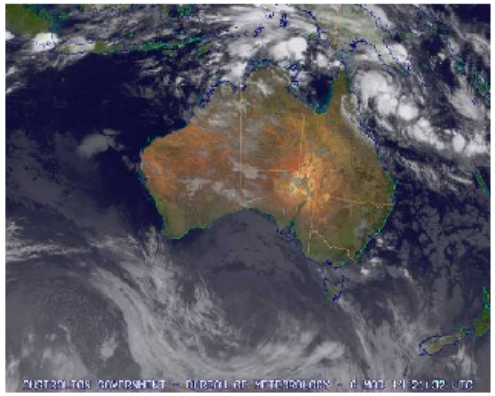
- Australian VLab Centre of Excellence has commenced monthly Regional Focus Group Meetings
- AOMSUC conference and training event resources now available!

Resources Library

- Regional Focus Group Weather and Forecast Discussion resources
- Region V Case Studies
- JMA Virtual Laboratory
- EUMETSAT Online Training Library
- COMET (ESRC)
- CIRA Virtual Resources Library
- WMO Virtual Resources Library

Sponsoring Satellite Operator

- JMA/MSC
- JMA Virtual Laboratory
- Himawari 8/9 sample data



Quick Links

- Upcoming Events UPDATED
- WMO VLab Homepage
- Melbourne CoE ISOBAR login
- Join a Webinar
- Contact Us

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st modified: Wed, 05 Feb 2014 23:30:40 +0000
ge count: 0048623

Visits to our Melbourne VLab Centre of Excellence web page

1 July 2013 to 16 July 2014

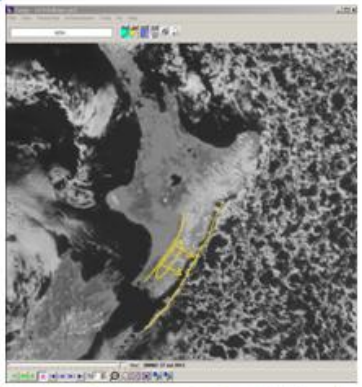
Australian Government
Bureau of Meteorology

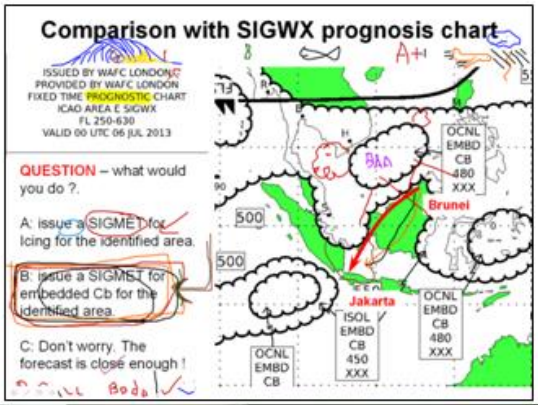
Country / Territory	Sessions
	7,412 % of Total: 100.00% (7,412)
1. Australia	2,895 (39.06%)
2. Indonesia	1,182 (15.95%)
3. United States	493 (6.65%)
4. South Korea	388 (5.23%)
5. China	347 (4.68%)
6. Japan	332 (4.48%)
7. New Zealand	219 (2.95%)
8. France	178 (2.40%)
9. Vanuatu	100 (1.35%)
10. United Kingdom	98 (1.32%)

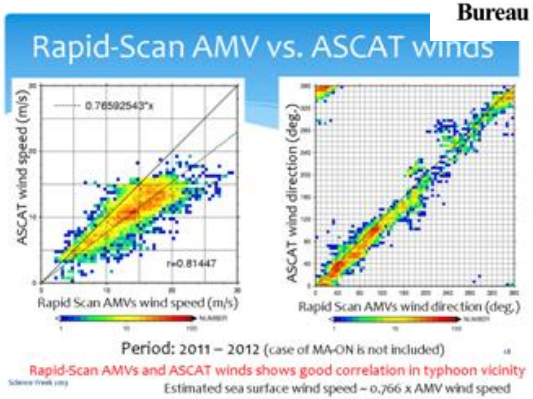
Google Analytics

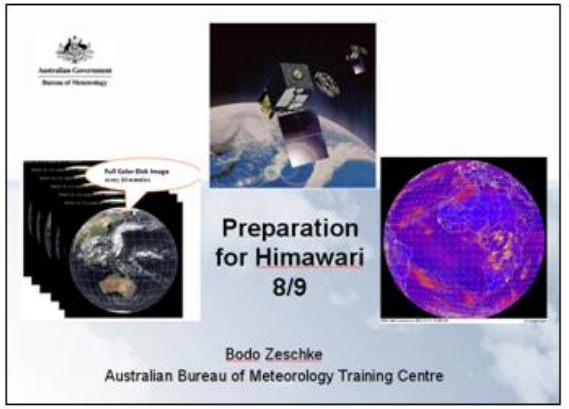
Science Week (22-26 July 2013)

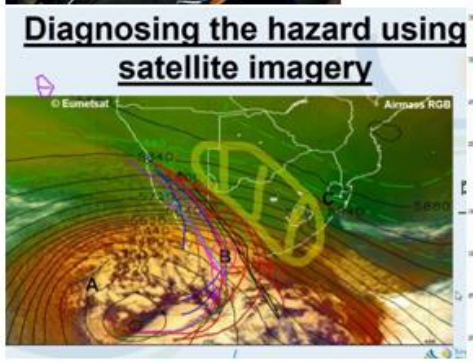
Australian Government
Bureau of Meteorology

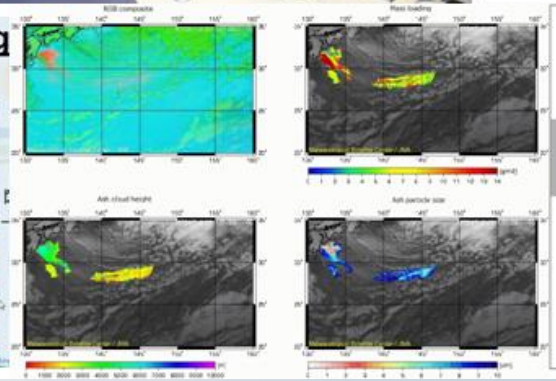


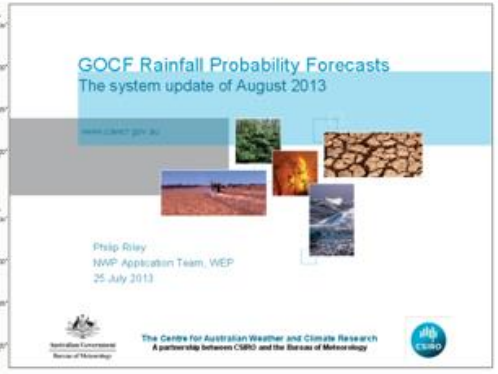












AOMSUC Training Workshop, 7-8 October 2013 (mini – APSATS)

Australian Government
Bureau of Meteorology

AOMSUC Training Workshop, 7-8 October 2013 (mini – APSATS)

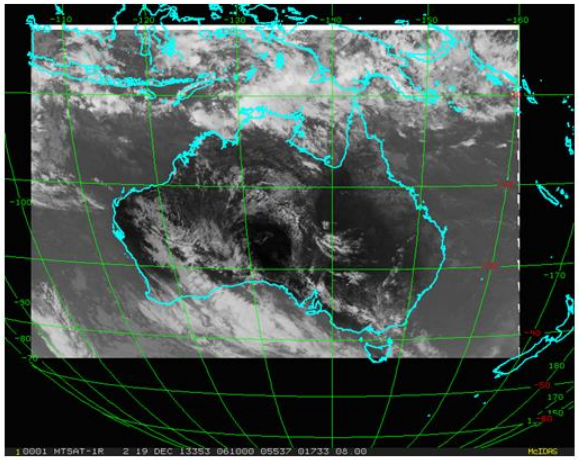
Australian Government
Bureau of Meteorology

Monthly Regional Focus Group Meetings (since October 2013)

Australian Government
Bureau of Meteorology

HICE MTSAT-IR rapid scan access to data

The first day of data – 19 December 2013 in the infrared channel

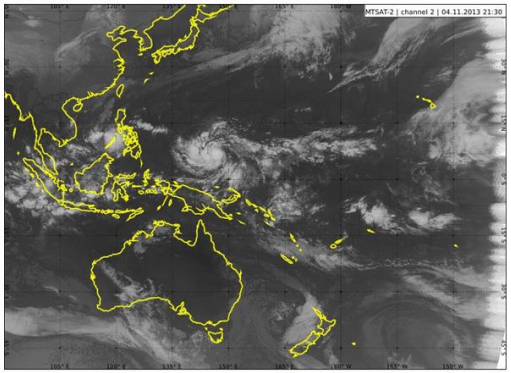


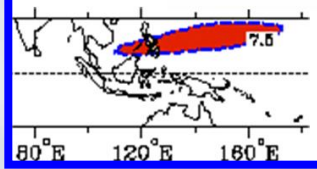
images courtesy Japan Meteorological Agency (JMA) and Australian Bureau of Meteorology (BOM)

The past 24 hours ...

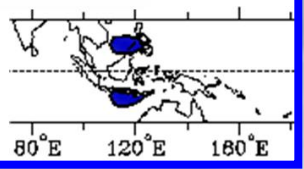
ENSO
NEUTRAL

IOD
NEUTRAL





MJO OLR (LHS)
ER=1 OLR (RHS)
6 November 2013



MONITORING OF ASH-CLOUD FROM MOUNT SINABUNG AND MOUNT MERAPI ERUPTION 18 November 2013

MOUNT SINABUNG – NORTH SUMATERA
Coord. : 3°10'12"N 98°23'31"E

MOUNT MERAPI – YOGYAKARTA
Coord. : 7°32'26.99"S 110°26'41.34"E

Remote Sensing Division
Indonesia Meteorological, Climatological, and Geophysical Agency

BMKG

Equivalent potential temperature along the South China Sea Surge

(images courtesy Australian Bureau of Meteorology (BOM))

Certificates of Participation for our Guest RAV presenters

Australian Government
Bureau of Meteorology

Certificates of our BMKG and Met Service New Zealand presenters

Ongoing and future Training Opportunities

Australian Government
Bureau of Meteorology

Present / ongoing	Regional Focus Group Weather and Forecast Discussions	First Tuesday of the month at 02UTC
Future	Advanced Forecaster Course Science Week.	29 July – 1 August 2014
Future	Advanced Satellite Meteorology online course (6 online lectures, 1 online practical session)	Late August 2014
Future	Blended learning regarding effective use of Himawari 8/9 data – with Bureau, RAV and RAII stakeholders	Late 2014 / Early 2015

Enabling Skills – Foundations for the Training

Satellite Skills and Knowledge for Meteorologist Forecasters

Interpretation of satellite imagery is not an end in itself but contributes to higher order forecaster competencies. In particular, it forms part of "Analyse and continuously monitor the weather situation" and "Forecast … phenomena and parameters".

Thus we have designated the satellite interpretation requirements as contributing skills rather than as competencies in their own right

Satellite interpretation skills

Interpret satellite imagery, data and derived fields to support forecaster competencies, in particular, analysis, diagnosis, prognosis and weather forecasts.

Elements

1. Identify surface features
2. Identify cloud types and their characteristics
3. Identify and interpret atmospheric systems
4. Identify and interpret atmospheric phenomena
5. Interpret derived fields
6. Identify and interpret oceanic features and systems

Application conditions

Satellite interpretation does not happen in isolation. It should always be considered in conjunction with other observation types, numerical guidance and conceptual models. These will provide a context for the interpretation and, in turn, the satellite data contributes to the full analysis.

The performance and knowledge requirements that support these skills should be customised based on the particular context of the organisation, its service requirements and available satellite data. Meteorologists who are in different locations and performing different job tasks will have access to different satellites with different characteristics, varied display and manipulation systems and tools. They will also be dealing with different meteorological systems, phenomena and job tasks.

This document covers the full range of possible skills and knowledge requirements. Any individual will require only a subset of these, according to their needs.

The focus of this document is on meteorological forecasting. Other uses of satellite data, for example, research, oceanography, hydrology, climatology and other specialist areas, need to be considered separately and will be covered in other documents.

Context

In addition to the general competencies of a meteorological forecaster, the following conditions and background skills and knowledge will apply.

General conditions

- Imagery includes single and multiple channels and combinations of channels, including RGB displays, and synthetic satellite imagery from numerical model predictions.
- Satellites include geosynchronous and polar orbiting satellites with passive and active sensing.
- Satellite interpretation does not happen in isolation but occurs within the context of all other observations, guidance and situational awareness

Element 3, Identify and interpret synoptic and mesoscale systems

Description

Identify and interpret broadscale, synoptic and mesoscale atmospheric systems, their characteristics, strength and stage of evolution and deduce atmospheric dynamical and thermodynamical properties

Performance components

For each system, select and apply conceptual models to locate and identify the system, its orientation, strength and stage of evolution, taking into account departures from climatological or idealised models.

Note that a full analysis or prediction involves all available data and guidance and is a higher order competency. The satellite interpretation task is not an end in itself but contributes to this higher level task.

Identify and interpret the following systems. (Categories are not exclusive and some feature relate to more than one category.)

1. **Broadscale systems and features:**
   - Intertropical convergence zones, monsoon and trade wind regimes
   - Westerly regimes with embedded cyclones and anticyclones
   - Polar easterlies and systems
   - Broadscale waves, jet streams, and convergence and frontal zones
   - Zonal, meridional flows, mobile and blocking systems
   - Upper and low level circulations

These are presently being developed by Roger Deslandes (BMTC), Ian Bell, Bodo Zeschke (BMTC), Ian Mills (Eumetsat) and Mark Higgins (Eumetsat)





Preparing RAV Forecasters and Stakeholders for Himawari 8/9

Band	Central Wavelength [μm]	Spatial Resolution
1	0.43 - 0.48	1Km
2	0.50 - 0.52	1Km
3	0.63 - 0.66	0.5Km
4	0.85 - 0.87	1Km
5	1.60 - 1.62	2Km
6	2.25 - 2.27	2Km
7	3.74 - 3.96	2Km
8	6.06 - 6.43	2Km
9	6.89 - 7.01	2Km
10	7.26 - 7.43	2Km
11	8.44 - 8.76	2Km
12	9.54 - 9.72	2Km
13	10.3 - 10.6	2Km
14	11.1- 11.3	2Km
15	12.2 - 12.5	2Km
16	13.2 - 13.4	2Km

気象庁
Japan Meteorological Agency

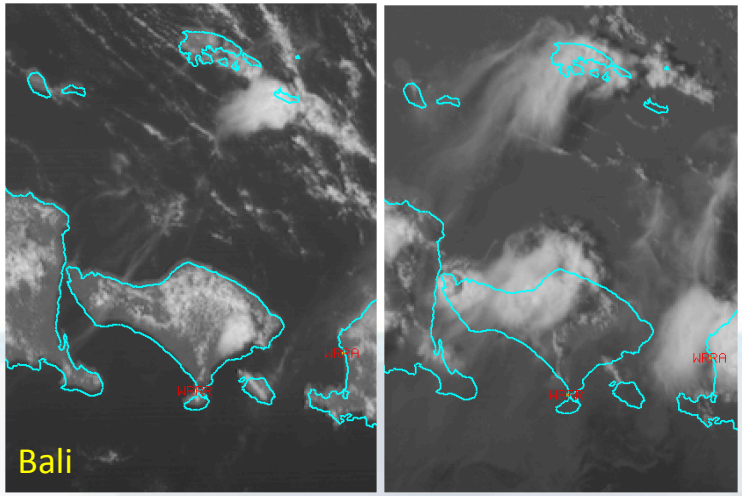
Images from Japanese Meteorological Agency

images courtesy JMA and BOM

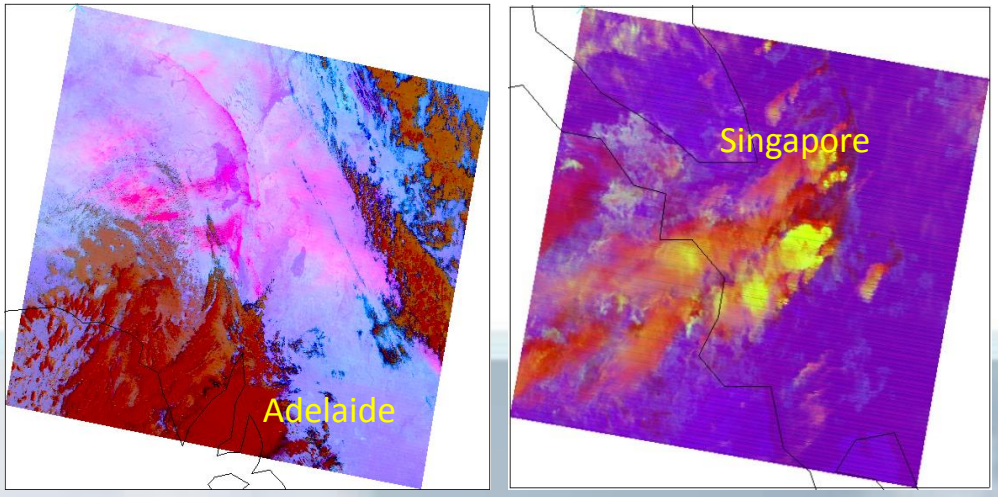
Images courtesy MODIS Rapid Response Team NASA/EOSDIS

Preparing RAV Forecasters and Stakeholders for Himawari 8/9

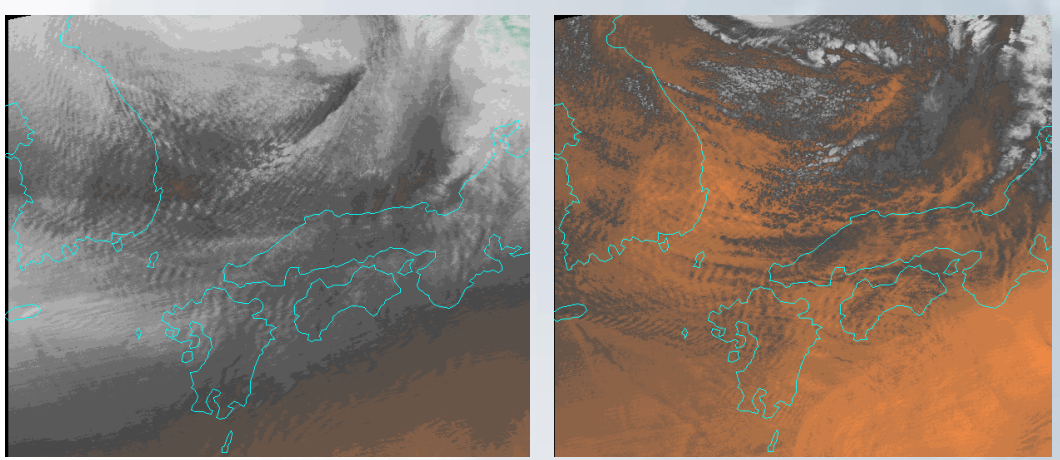
Australian Government
Bureau of Meteorology



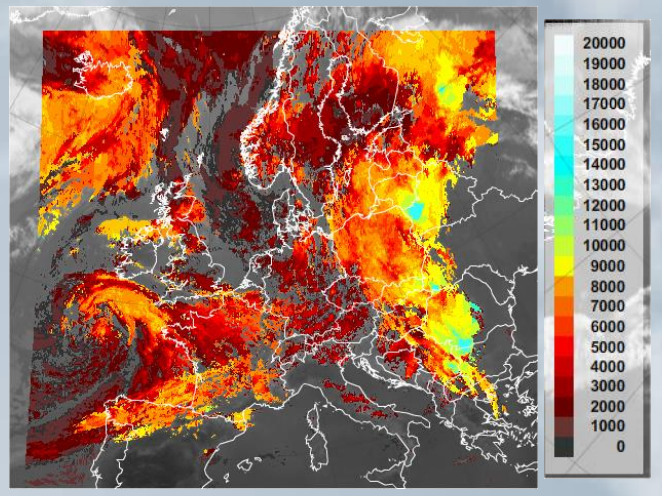
Rapid Scan Case Studies



RGB product analysis case studies with HYDRA



water vapour channel case studies



Derived products

image courtesy EumeTRAIN

Science Week 29th July – 1st August 2014

Australian Government
Bureau of Meteorology

Tuesday 29th	Wednesday 30th	Thursday 31st	Friday 1st
Opening session, introduction. Himawari 8/9 and the Forecaster	Review of day 1	Antarctic Forecasting	Cool Season Convection
JMA presentations	Satellite Case Study 2: RGB Products	Latest Smart Tools and Procedures in the GFE	New Zealand Chart Discussion
Rapid Scan Data	Satellite Case Study 3: RGB Products / Derived Products	The Application of FY3/FY4 (CMA)	Lessons learned from major TC forecasting challenges
Satellite Case Study 1: Rapid Scan Data / Water Vapour Channel data	Final Satellite Session - Summary	South African Weather Service sessions	Communicating risk during Severe Weather Events: the TC case

Conducting Blended Remote Training Sessions

(already tested during the Regional Focus Group meetings of May and June)

Presenter / Main Coordinator

Local Coordinator

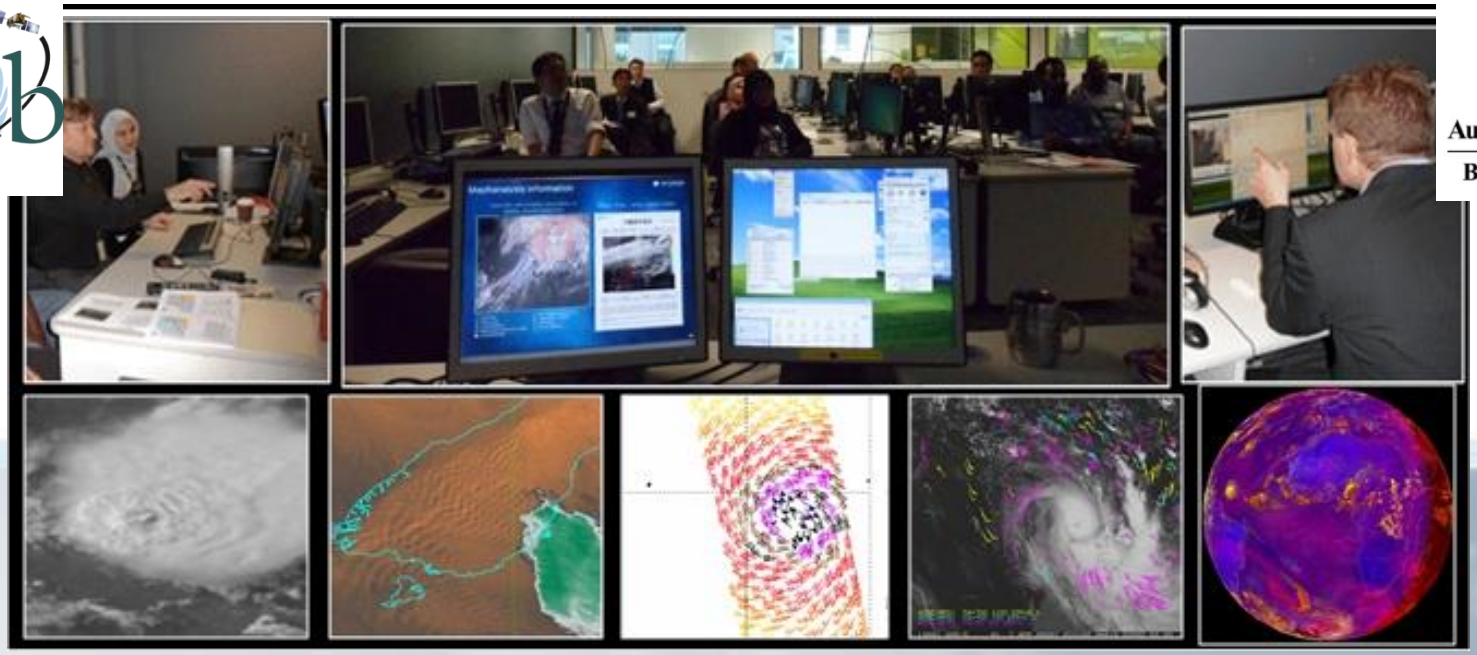
Graduate Diploma of Meteorology Class of 2014

Webinar software

Remote audience (BOM RFC, BMKG, etc….)

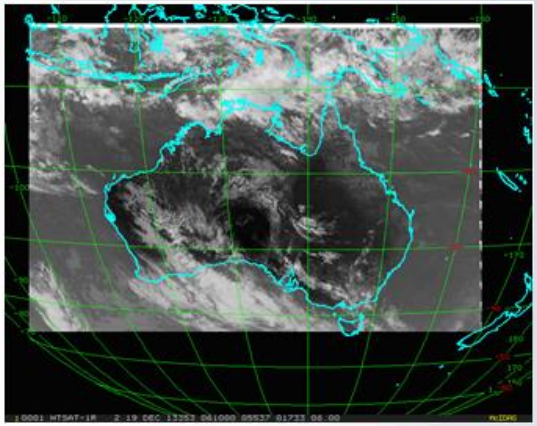
Thanks to Vesa for his advice..

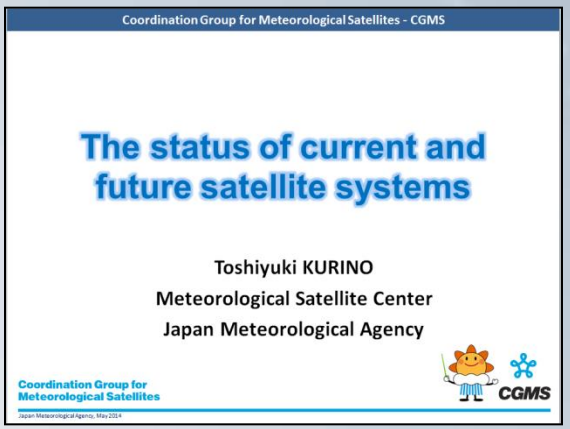
Advanced Satellite Meteorology - August 2014



Sessions	Date / time	Content (yet to be finalised)
Session 1	11th August 04-05 UTC	• **Advanced visible, infrared, water vapour image interpretation.** • Interpretation of microwave scatterometer data • Interpretation of cloud drift wind data • **Effective use of rapid scan imagery** • **Introduction to and interpretation of RGB products.**
Session 2	12th August 02-03 UTC	
Session 3	15th August 04-05 UTC	
Session 4	25th August 04-05 UTC	
Session 5	26th August 02-03 UTC	
Session 6	28th August 04-05 UTC	
Practical Session 1	29th August 04-06 UTC	

Working with our Sponsoring Satellite Operator (Japan Meteorological Agency)



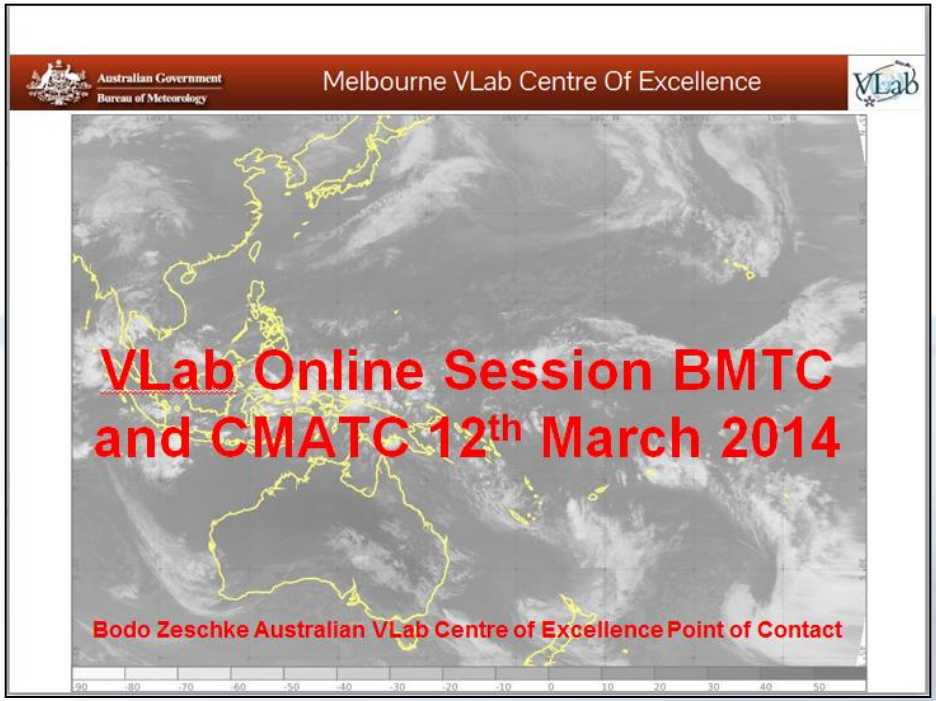


Contents of the Regional Focus Group meeting, 1st July 2014

Latest developments pertaining to Himawari 8/9 relevant to RAV and RAII forecasters. Review of the visit of Mr. T Kurino (JMA) to the Bureau of Meteorology (Bodo Zeschke)

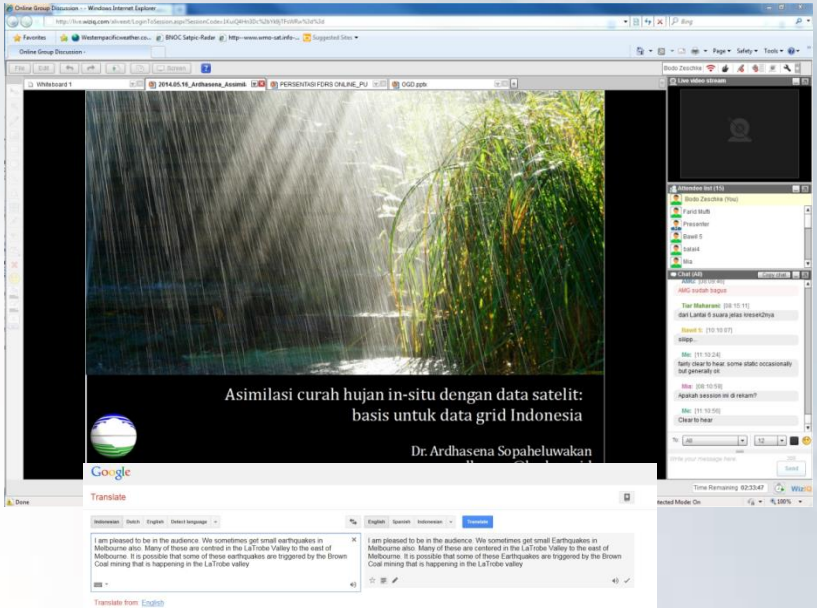
Upcoming online training pertaining to the effective use of Himawari 8/9 data, as offered by the Australian VLab Centre of Excellence. (Bodo Zeschke)

Collaboration with CMATC

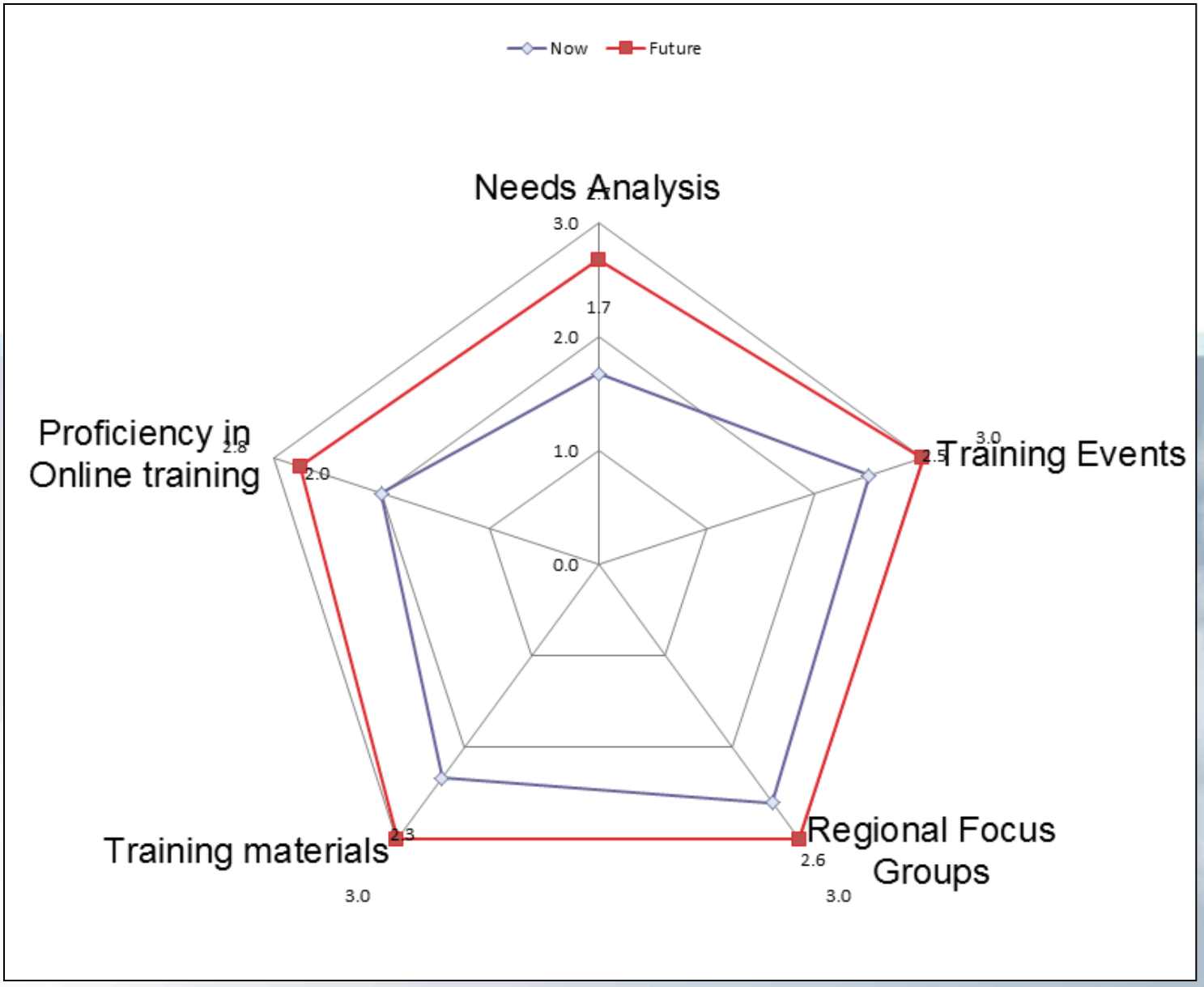


- Visit of CMA Training Centre Delegation to the Bureau of Meteorology 11-14 March
- VLab Online Session with CMATC, 12th March 2014
- CMA contribution to AOMSUC (presented by S. Bojinski)
- CMA contribution to the 2014 Science Week

Collaboration with BMKG



Summary - Australian Vlab CoE Needs Analysis



Challenges

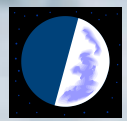
- Staffing

Roger Deslandes
(Head of CoE)

Bodo Zeschke
(Main Point of Contact)

- Geographical Location

10am



8pm /
9pm

- Capacity Development vs Business Model

- Internet Issues