AOMSUC-10

2–7 December 2019
Melbourne, Australia

10TH ASIA-OCEANIA METEOROLOGICAL SATELLITE USERS' CONFERENCE

Australian VLab Centre of Excellence

Accessing Aviation Forecasting Resources utilising Satellite Data on our Regional Focus Group Meeting Archive

Bodo Zeschke

Bureau of Meteorology Training Centre
Australian VLab Centre of Excellence

Australian Government
Bureau of Meteorology

Content of this session

The Australian VLab Centre of Excellence Regional Focus Group meetings

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- **Aviation turbulence case studies**
- Aviation icing case studies
- Thunderstorm case studies with reference to aviation forecasting procedures and products

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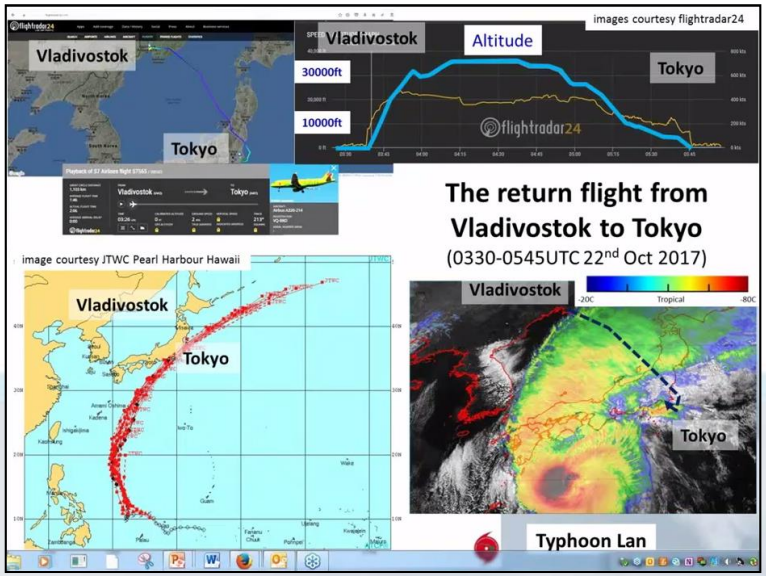
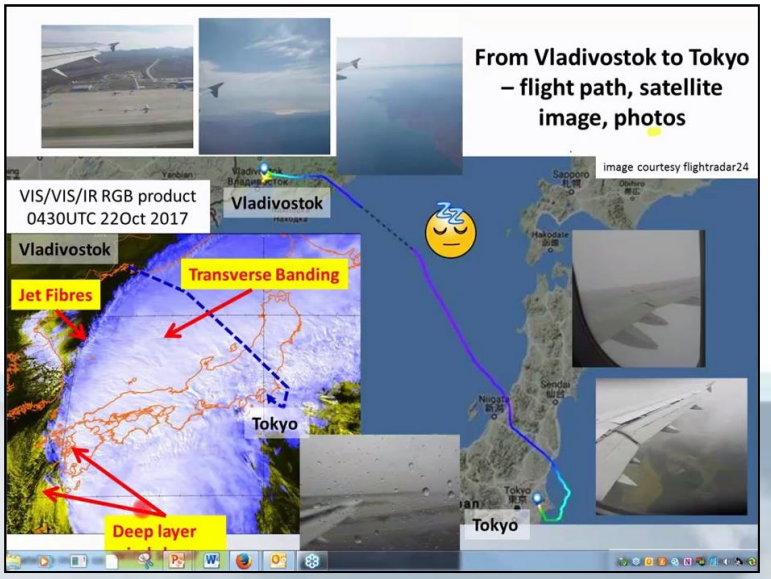
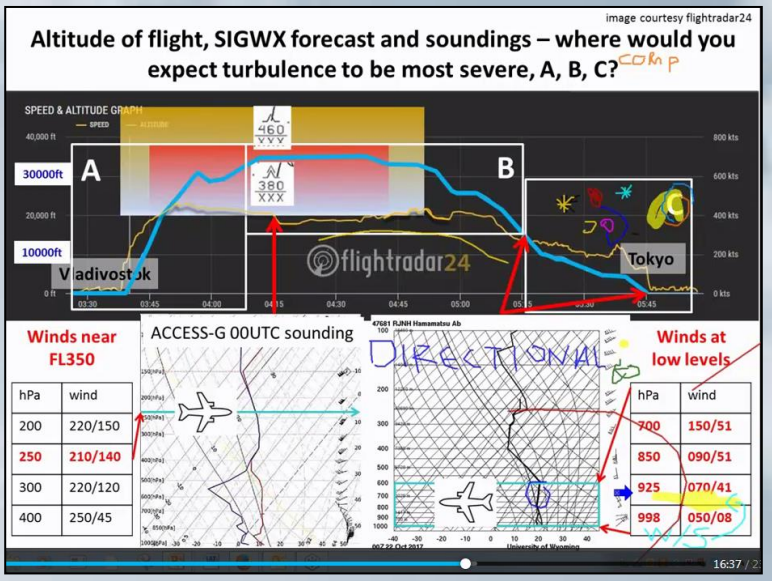
Turbulence experienced on the flight Vladivostok to Tokyo

Regional Focus Group meeting 31st October 2017

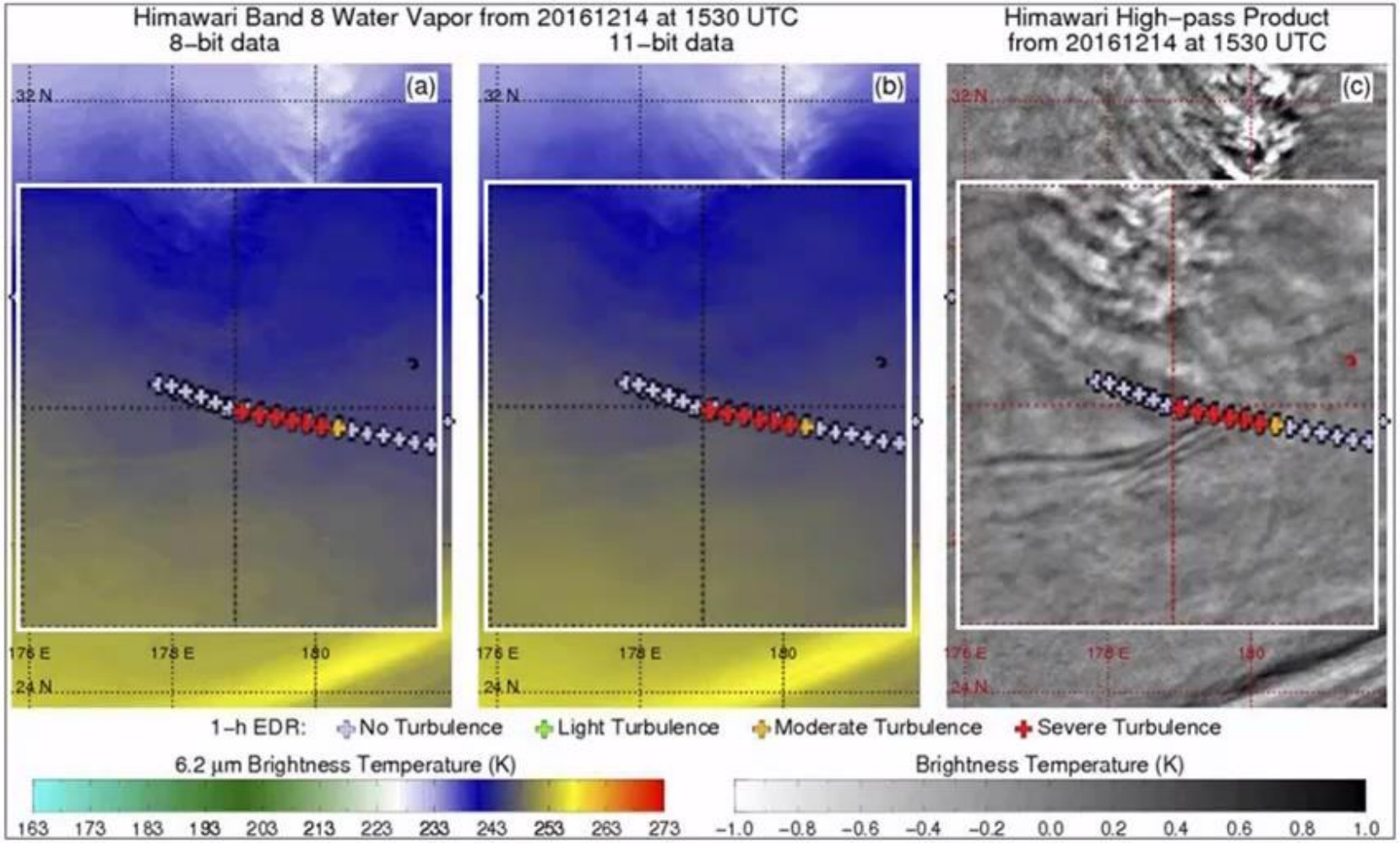






An approach for identifying turbulence signatures in Himawari-8 and GOES-16 water vapour imagery

(Dr Anthony Wimmers, NOAA affiliated)



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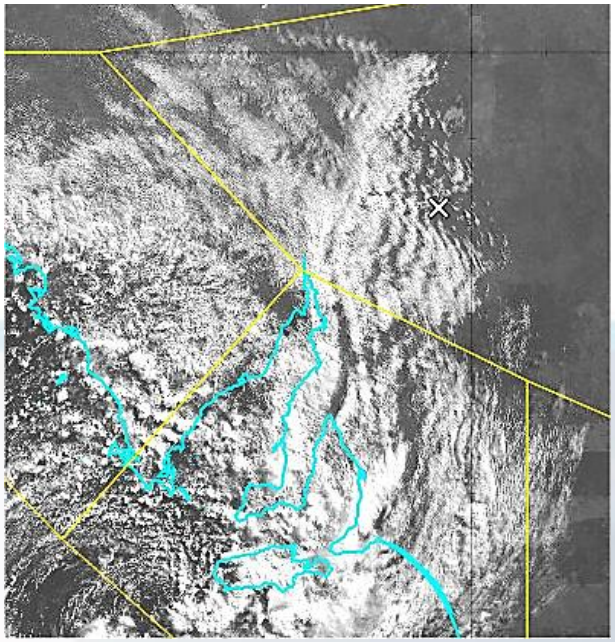
Example: potential turbulence, Flinders Ranges, South Australia

South Australia case study 9th May 2016, **Regional Focus Group meeting May 2016**

image courtesy BOM/JMA

Himawari-8 vis image 00UTC



Topography

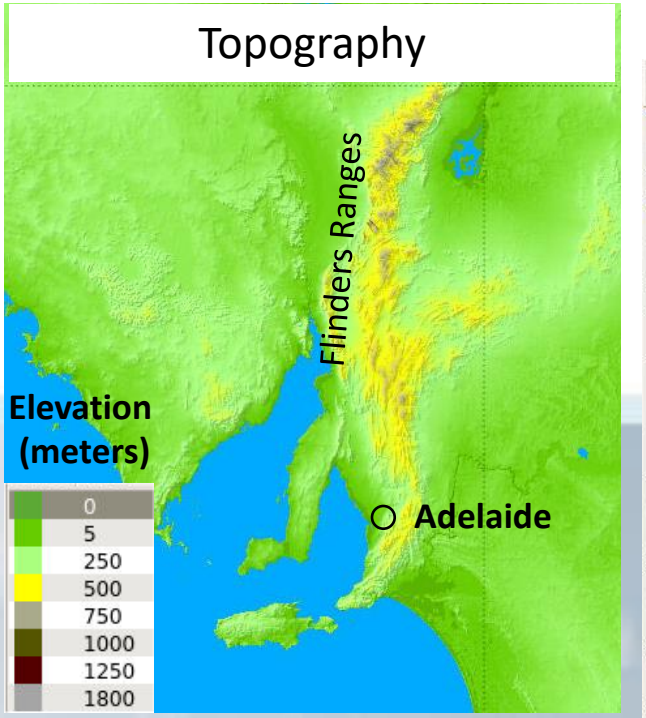
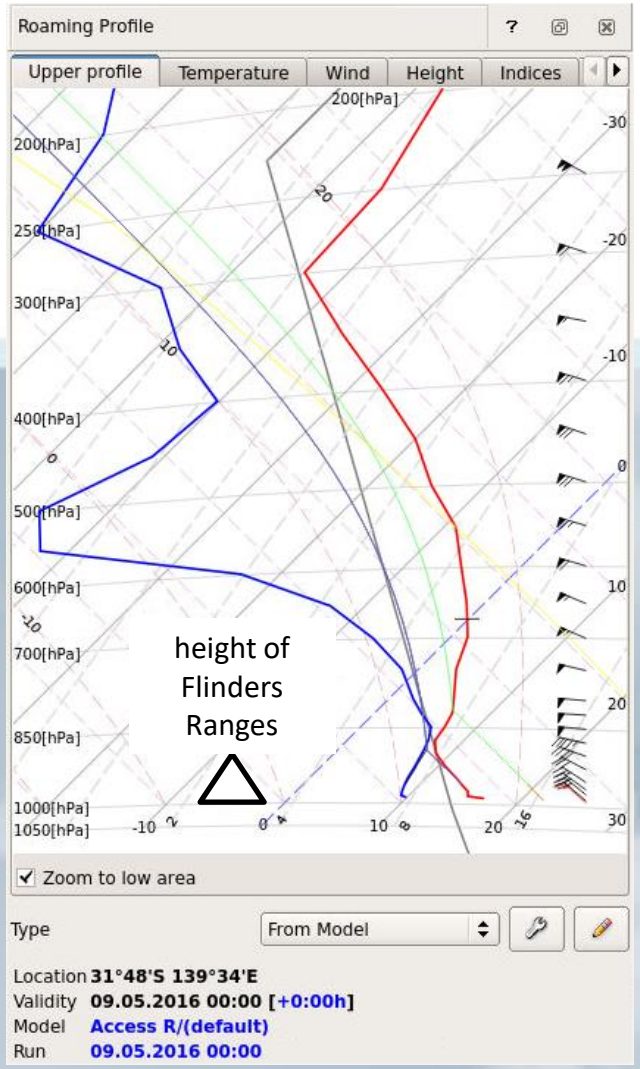
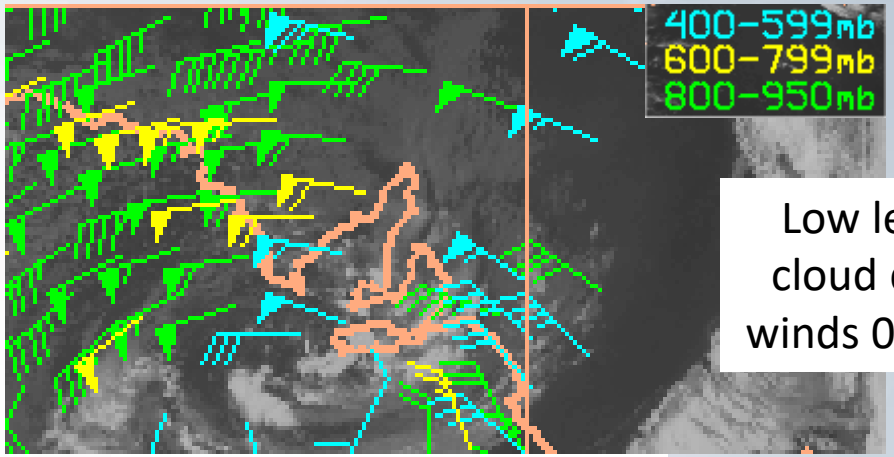


image courtesy BOM





Low level cloud drift winds 00UTC

image courtesy University of Wisconsin – CIMSS

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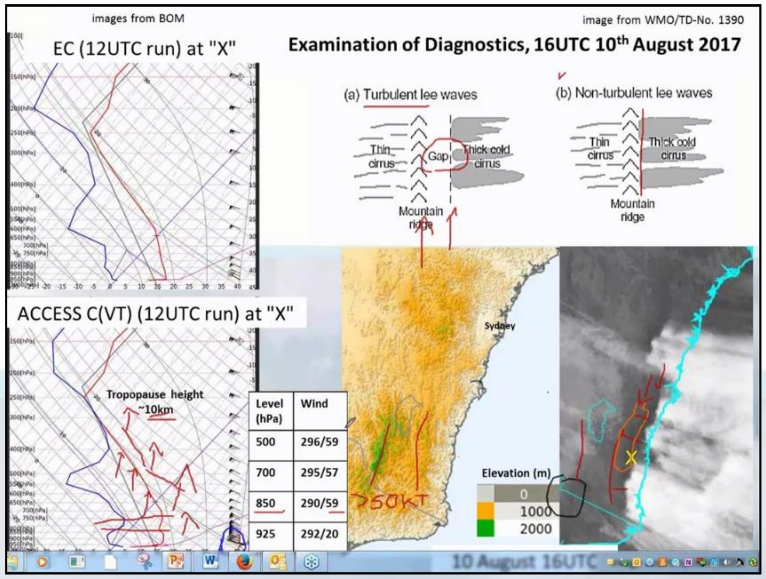
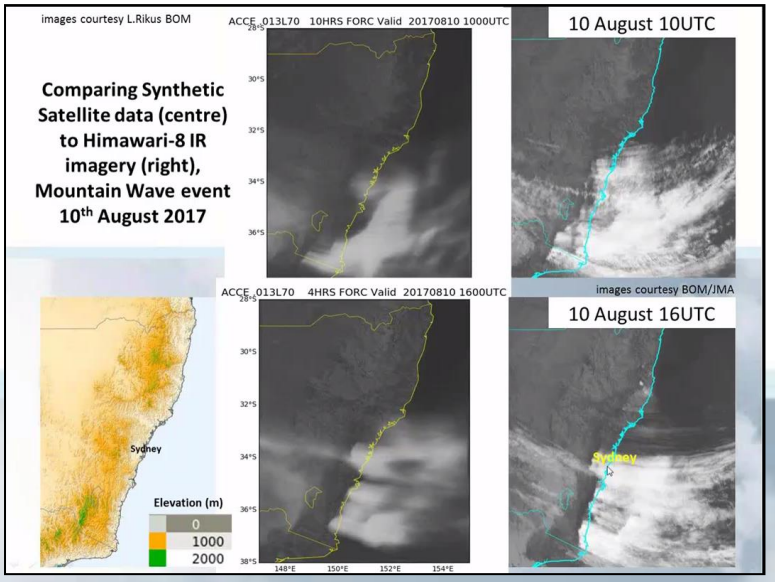
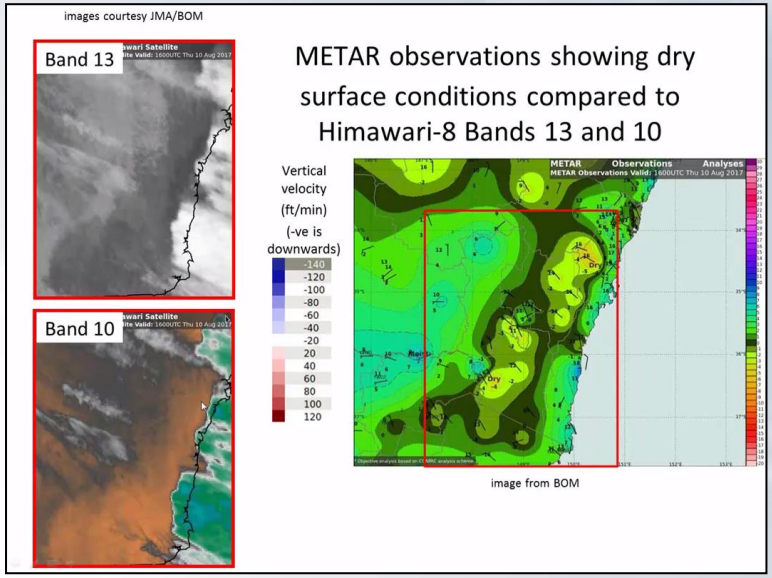
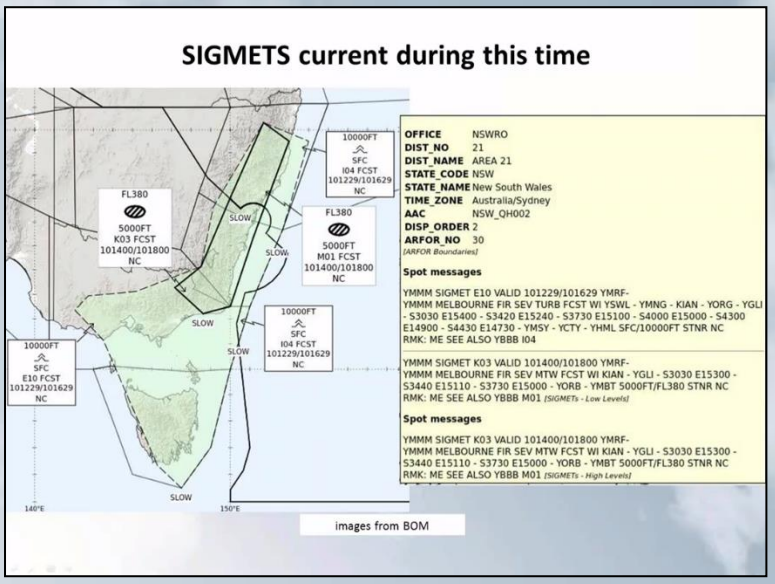
Turbulent lee waves case study

Regional Focus Group meeting 17th August 2017









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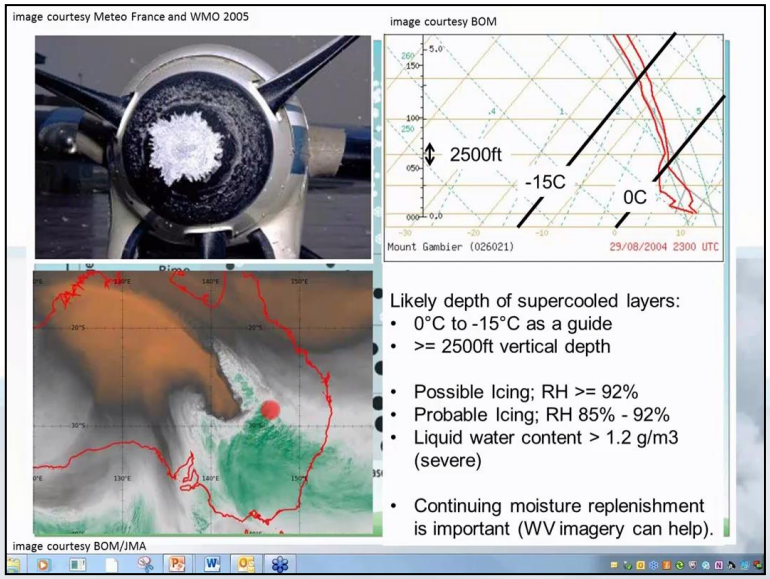
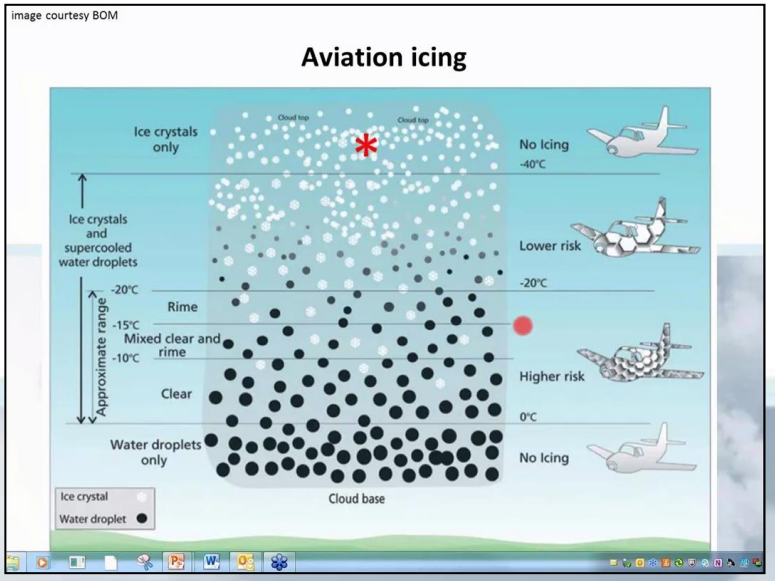
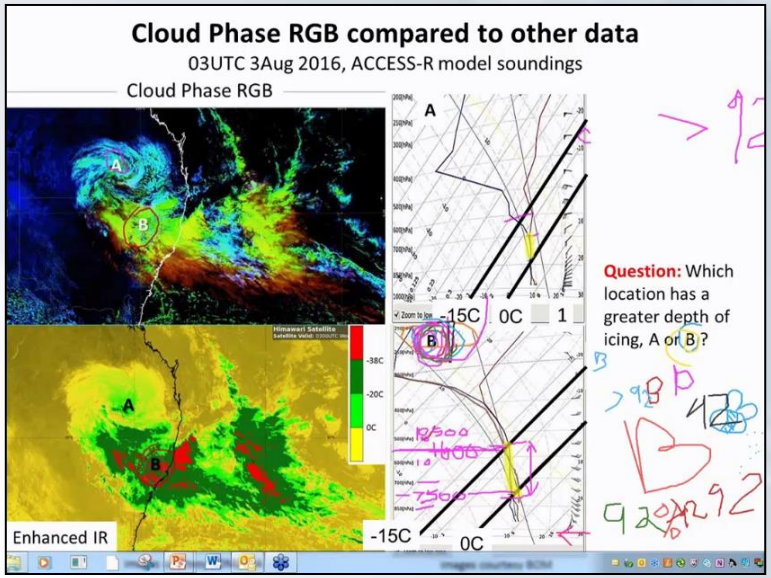
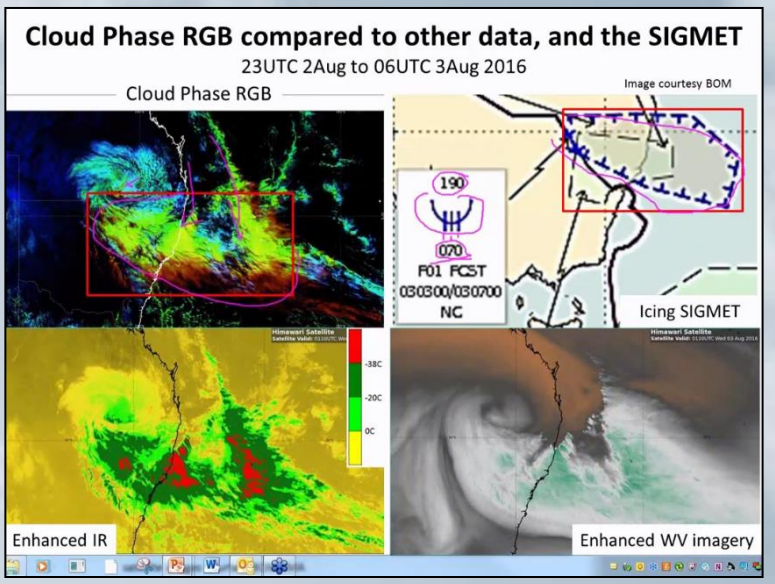
Icing case study

Regional Focus Group meeting 6th September 2016









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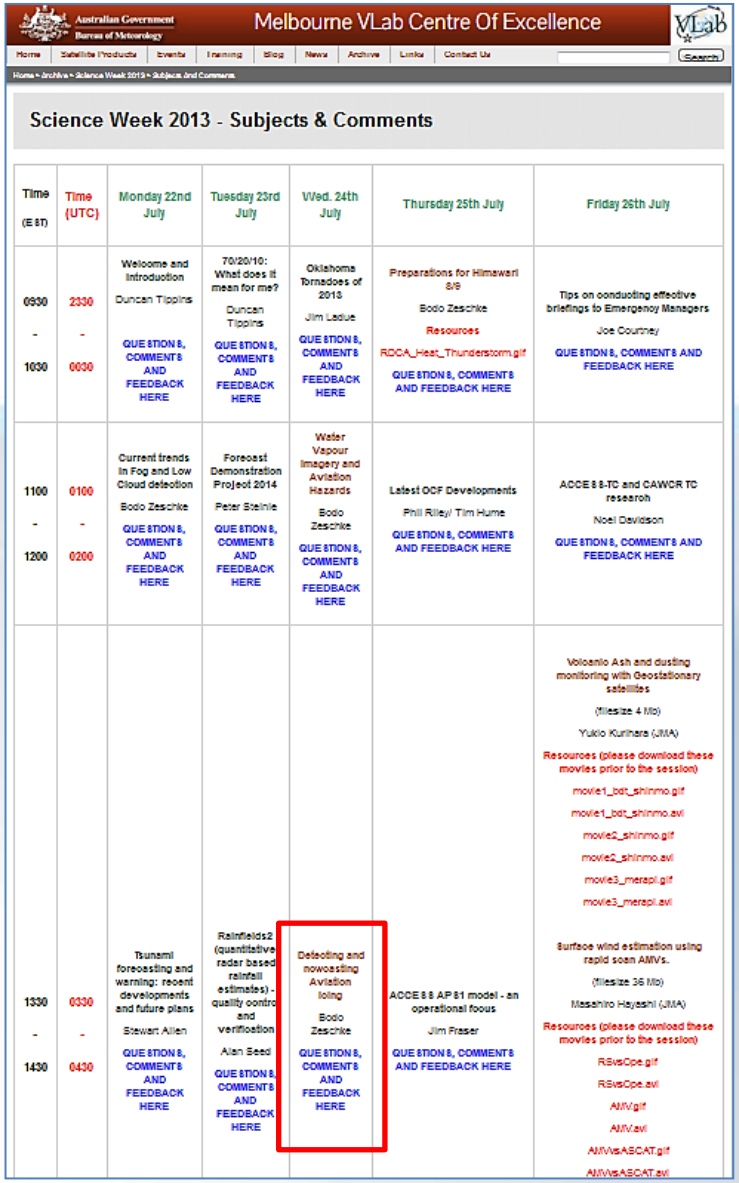
Additional Aviation Icing case studies

http://www.virtuallab.bom.gov.au/archive/science-week-2013/subjectsandcomments/



Australian Government Bureau of Meteorology — Melbourne VLab Centre Of Excellence

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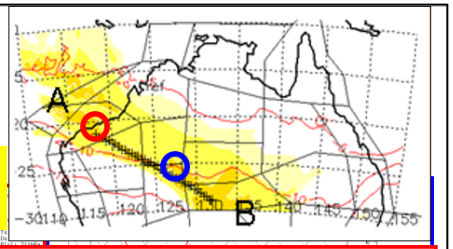
Home > Archive > Science Week 2013 > Subjects And Comments

Science Week 2013 - Subjects & Comments

Time (E ST)	Time (UTC)	Monday 22nd July	Tuesday 23rd July	Wed. 24th July	Thursday 25th July	Friday 26th July
0930 - 1030	2330 - 0030	Welcome and introduction Duncan Tippins QUESTION S, COMMENTS AND FEEDBACK HERE	70/20/10: What does it mean for me? Duncan Tippins QUESTION S, COMMENTS AND FEEDBACK HERE	Oklahoma Tornadoes of 2013 Jim Ladue QUESTION S, COMMENTS AND FEEDBACK HERE	Preparations for Himawari 8/9 Bodo Zeschke Resources RDCA_Heat_Thunderstorm.gif QUESTION S, COMMENTS AND FEEDBACK HERE	Tips on conducting effective briefings to Emergency Managers Joe Courtney QUESTION S, COMMENTS AND FEEDBACK HERE
1100 - 1200	0100 - 0200	Current trends in Fog and Low Cloud detection Bodo Zeschke QUESTION S, COMMENTS AND FEEDBACK HERE	Forecast Demonstration Project 2014 Peter Steinle QUESTION S, COMMENTS AND FEEDBACK HERE	Water Vapour Imagery and Aviation Hazards Bodo Zeschke QUESTION S, COMMENTS AND FEEDBACK HERE	Latest OCF Developments Phil Riley/ Tim Hume QUESTION S, COMMENTS AND FEEDBACK HERE	ACCESS-TC and CAWCR TC research Noel Davidson QUESTION S, COMMENTS AND FEEDBACK HERE
1330 - 1430	0330 - 0430	Tsunami forecasting and warning: recent developments and future plans Stewart Allen QUESTION S, COMMENTS AND FEEDBACK HERE	Rainfields2 (quantitative radar based rainfall estimates) - quality control and verification Alan Seed QUESTION S, COMMENTS AND FEEDBACK HERE	Defooting and nowcasting Aviation Icing Bodo Zeschke QUESTION S, COMMENTS AND FEEDBACK HERE	ACCESS AP1 model - an operational focus Jim Fraser QUESTION S, COMMENTS AND FEEDBACK HERE	Volcanic Ash and dusting monitoring with Geostationary satellites (filesize 4 Mb) Yukio Kurihara (JMA) Resources (please download these movies prior to the session) movie1_bdt_shinmo.gif movie1_bdt_shinmo.avi movie2_shinmo.gif movie2_shinmo.avi movie3_merapi.gif movie3_merapi.avi Surface wind estimation using rapid scan AMVs. (filesize 36 Mb) Masahiro Hayashi (JMA) Resources (please download these movies prior to the session) RSvsOpe.gif RSvsOpe.avi AMV.gif AMV.avi AMVvsASCAT.gif AMVvsASCAT.avi

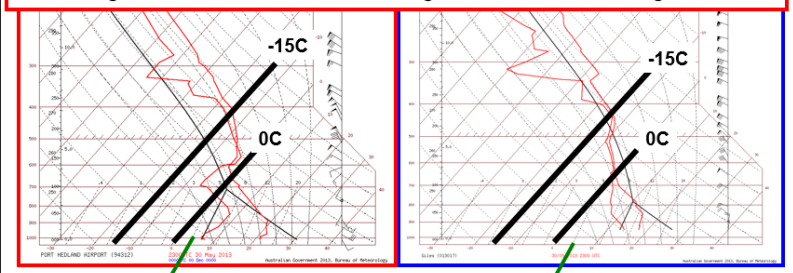
Western Australia

Port Hedland and Giles balloon soundings



Question – does the Giles sounding show worse icing conditions than Port Hedland ?

Worse icing | Same icing | Less icing



images courtesy BOM

Indonesia

Comparison with SIGWX prognosis chart

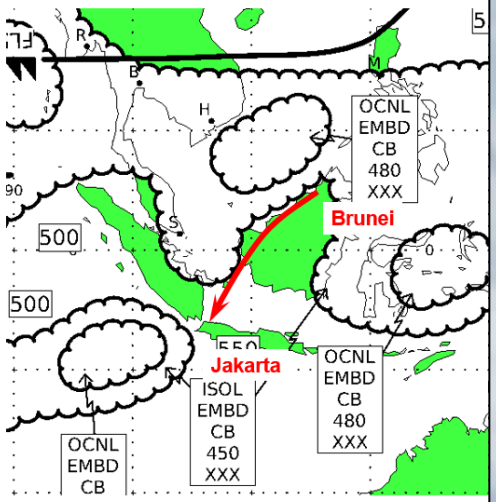
ISSUED BY WAFC LONDON
VALID 00 UTC 06 JUL 2013

QUESTION – what would you do ?.

A: issue a SIGMET for Icing for the identified area.

B: issue a SIGMET for embedded Cb for the identified area.

C: Don't worry. The forecast is close enough !



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Storm-Top Features identified in high resolution satellite data
Australian Vlab CoE Regional Focus Group meeting of January 2016

http://www.virtuallab.bom.gov.au/archive/regional-focus-group-recordings/

21 January 2016 Regional Focus Group meeting

Some highlights of the EUMETSAT-CHMI Course on the use of Rapid Scan data for monitoring and nowcasting of High Impact Weather. Resources adapted to Himawari-8 data.

- **Introduction, different speeds of rapid scan, satellite image products. Working through exercises 1-3** 26 minutes duration (59Mb .wmv file) (75Mb .mp4 file)
- **Types of stormtop features and associated severe weather. Working through exercises 4 and 5** 24 minutes duration (54Mb .wmv file) (79Mb .mp4 file)
- **Overshooting Top detection / Convection Initiation algorithm resources. Summary.** 4 minutes duration (4Mb .wmv file) (8Mb .mp4 file)

Please download the following animations prior to

Animation 1 (11Mb)

Animation 2 (14Mb)

Animation 3 (15Mb)

Animation 4 (14Mb)

Animation 5 (12Mb)

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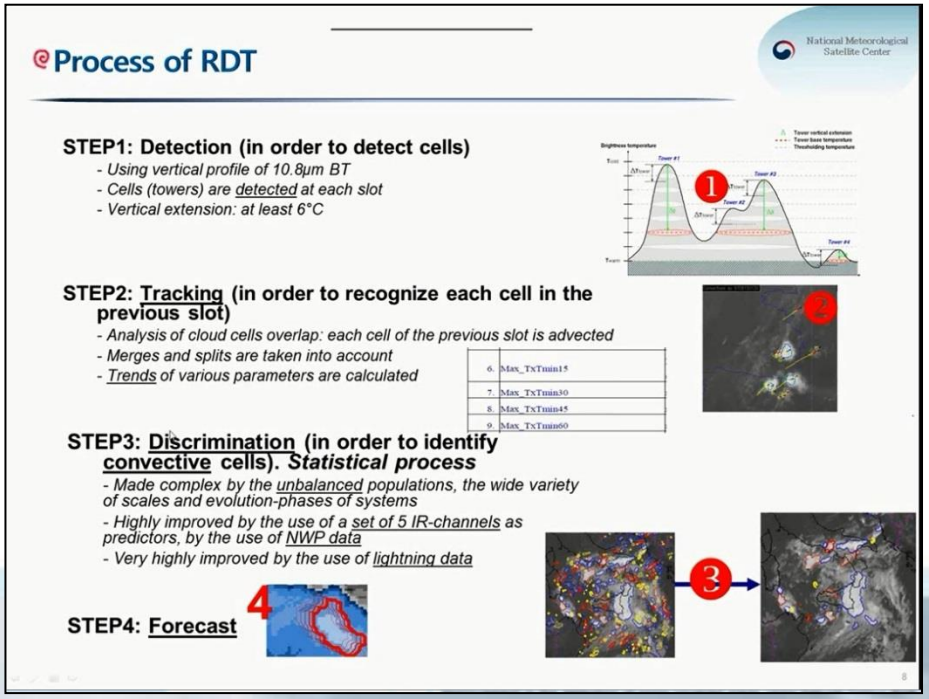
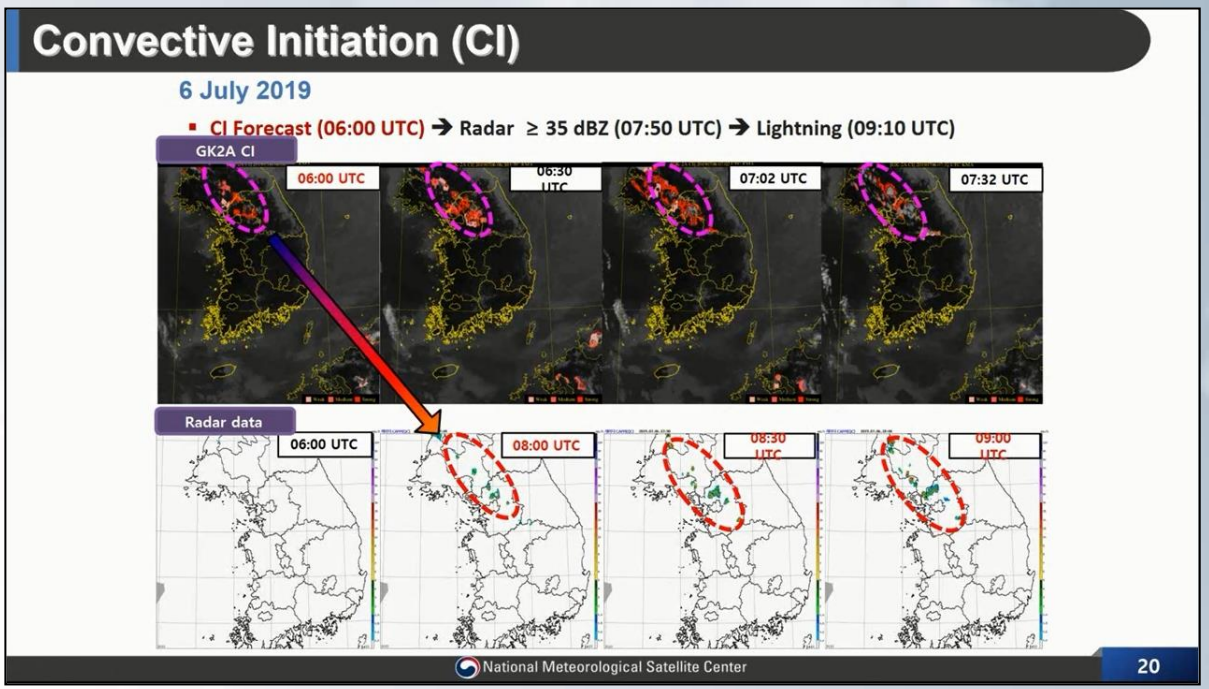
CI and RDT methods of KMA, for use by Aviation

Regional Focus Group meetings
May 2017, October 2019

May 2017





October 2019

…some slides not shown…

PV anomaly and associated convection, turbulence, icing

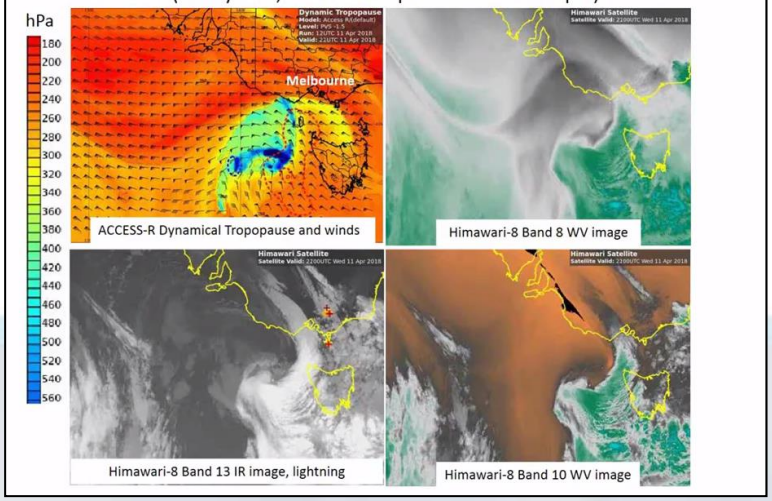
Regional Focus Group meeting 28th June 2018

animations from JMA/BOM, lightning data from WeatherZone

Please start the Power Point Slide Show to activate the animation

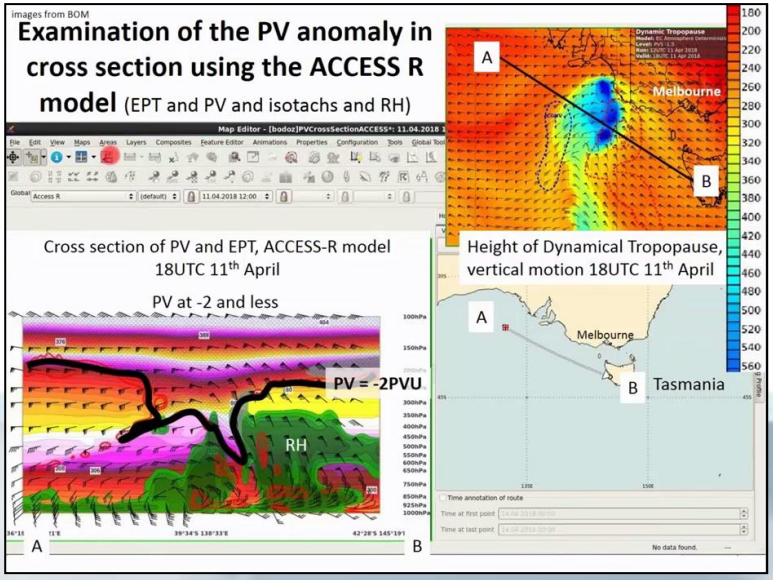
Animation 1: WV, IR imagery and upper atmosphere PV.

(hourly data, 12UTC 11th April to 06UTC 12th April)



images from BOM

Examination of the PV anomaly in cross section using the ACCESS R model (EPT and PV and isotachs and RH)



images from JMA/BOM

Himawari-8 satellite data, night time

(20UTC 11th April 2018)

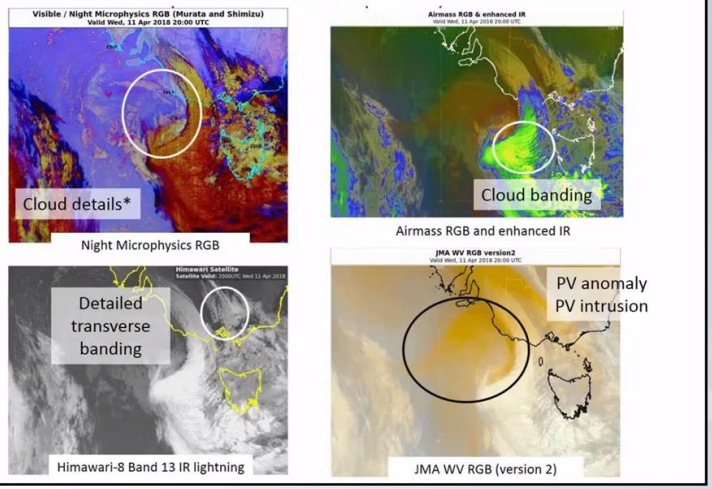
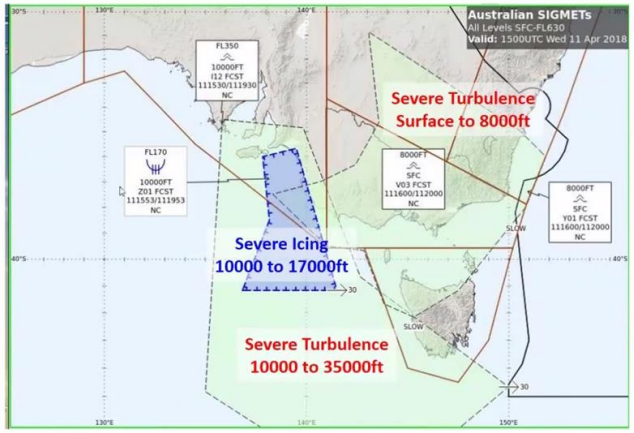


image from BOM

Significant weather events

SIGMETS issued as at 15UTC 11th April 2018



Deep convection and heavy precipitation study

Regional Focus Group meeting October 2016