Australian VLab Centre of Excellence Regional Focus Group meeting

28 May 2019

High resolution Himawari-8 Target Area Observations of Tropical Cyclone Veronica, 23-25th March 2019

Bodo Zeschke Australian VLab Centre of Excellence Point of Contact

…some slides not shown…

Request driven Himawari-8 rapid scan data

気象庁
Japan Meteorological Agency

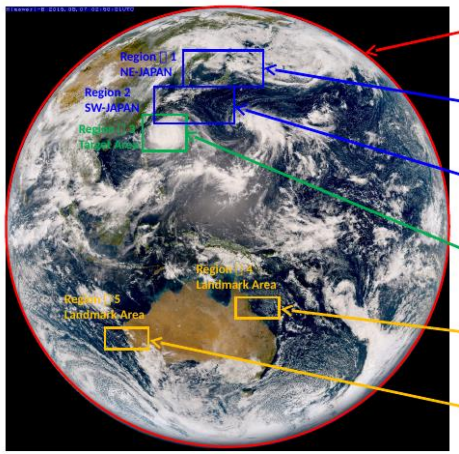
Protocol for Himawari-8/9 Request-driven Rapid Scan in WMO RA II and RA V
Draft v0.4, October 2017

RA II WIGOS Project
to Develop Support for NMHSs
in Satellite Data, Products and Training

The 5th Meetings of the Coordinating Group
21 October 2017, Vladivostok Russia

1

Himawari-8/9 Observation Areas



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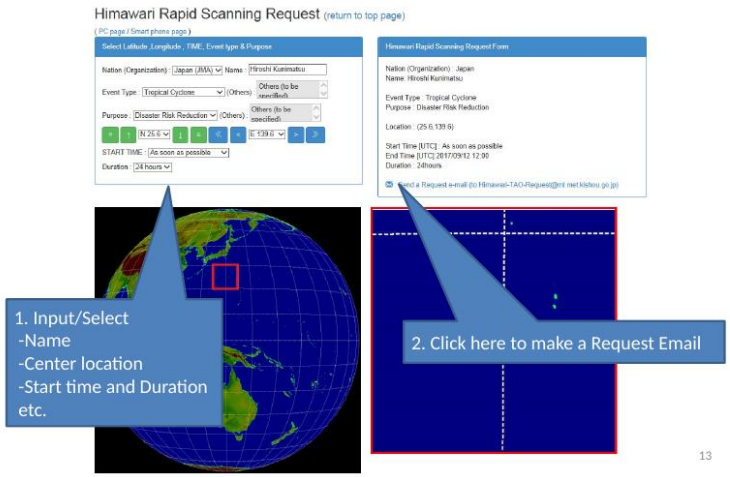
Request Website



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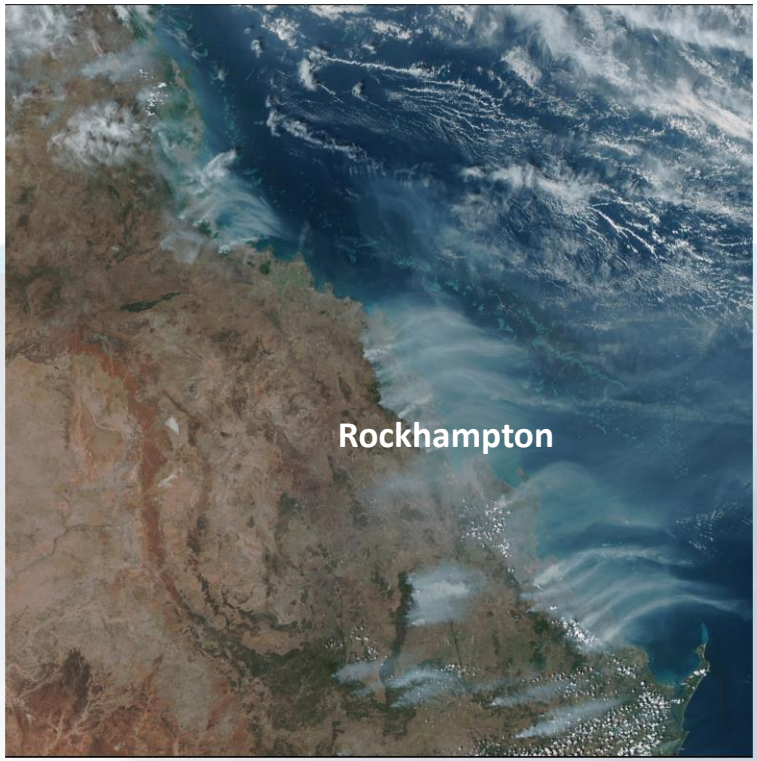
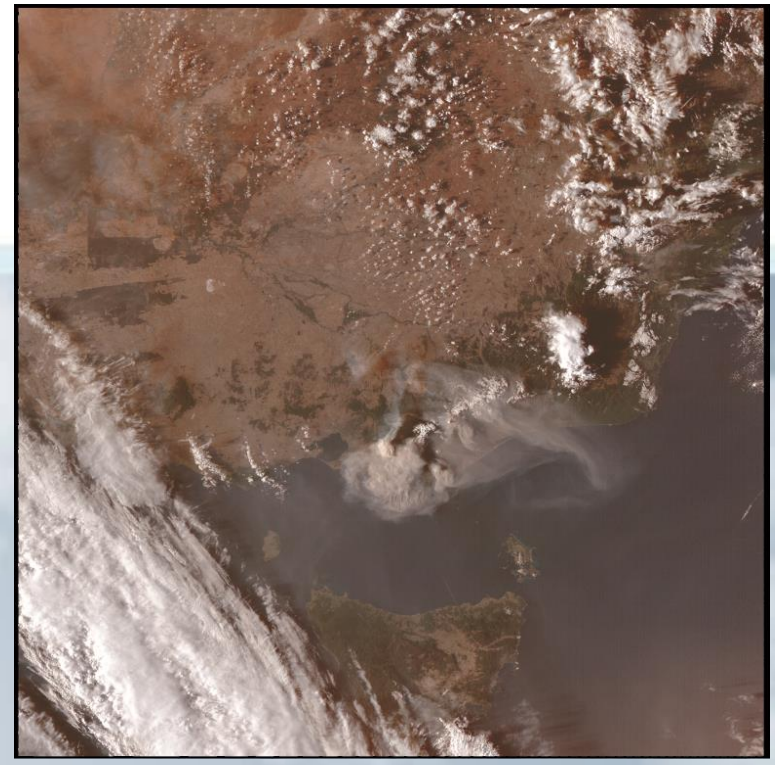
Previous Request Driven Himawari-8 Rapid Scan (2.5 minute) case studies presented at Australian VLab Centre of Excellence Regional Focus Group meetings

images courtesy JMA



30th November 2018
Queensland fires, Australia
(Regional Focus Group meeting, December 2018)



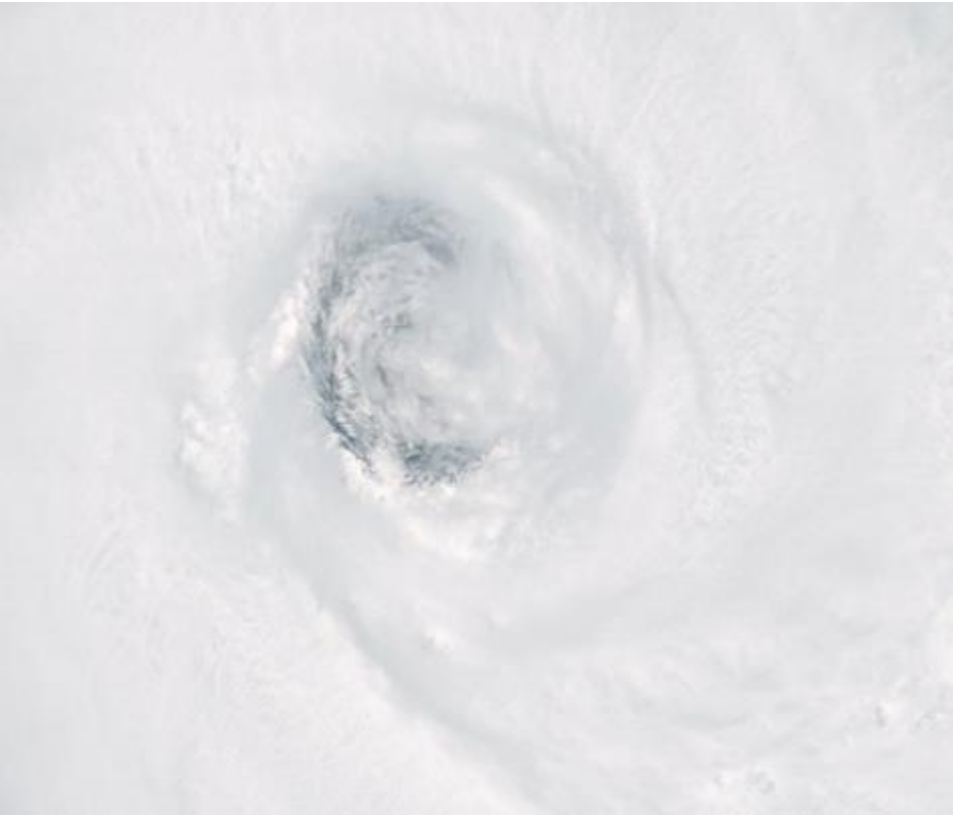
2-3rd March 2019
Victorian fires, Australia
(Regional Focus Group meeting, March 2019)

…some slides not shown…

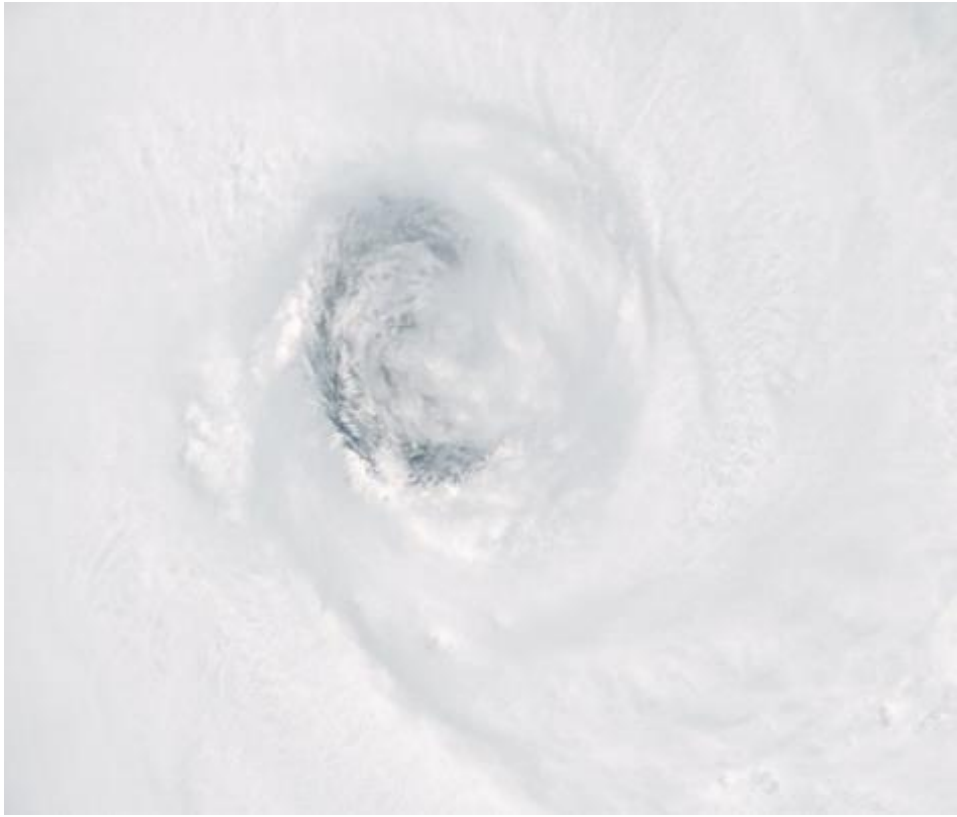
Animation 1: The eye – 23rd March 0230-0530UTC

comparing 2.5 minute Himawari-8 data with 10 minute data

animations courtesy JMA



2.5 minute Himawari-8 data
animation (rocking) (10ms)



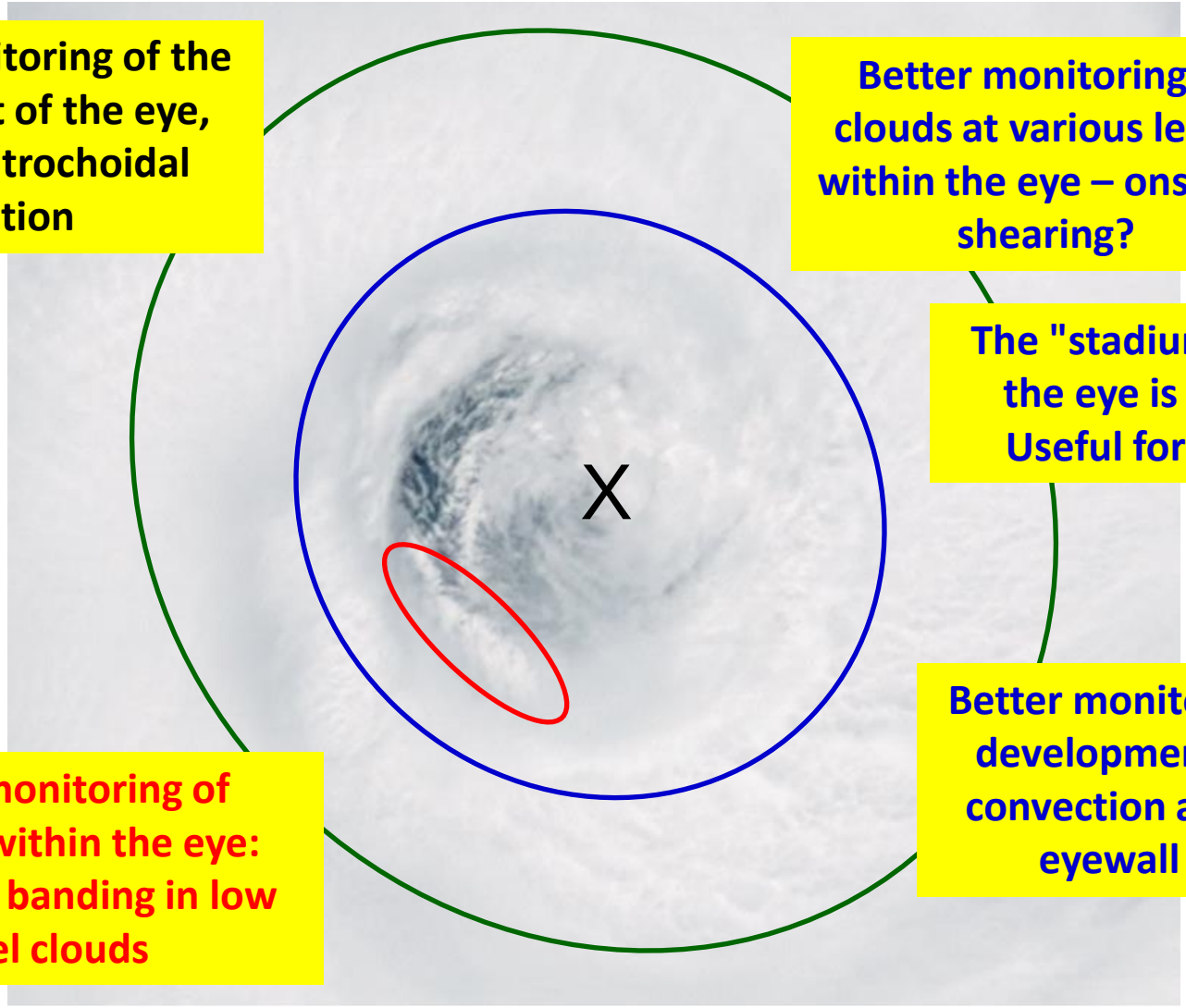
10 minute Himawari-8 data
animation (rocking) (40ms)

Please start the Power Point Slide Show to activate the animation

image courtesy JMA

The eye – 23rd March 0230-0530UTC

comparing 2.5 minute Himawari-8 data with 10 minute data



Better monitoring of the movement of the eye, including trochoidal motion

Better monitoring of clouds at various levels within the eye – onset of shearing?

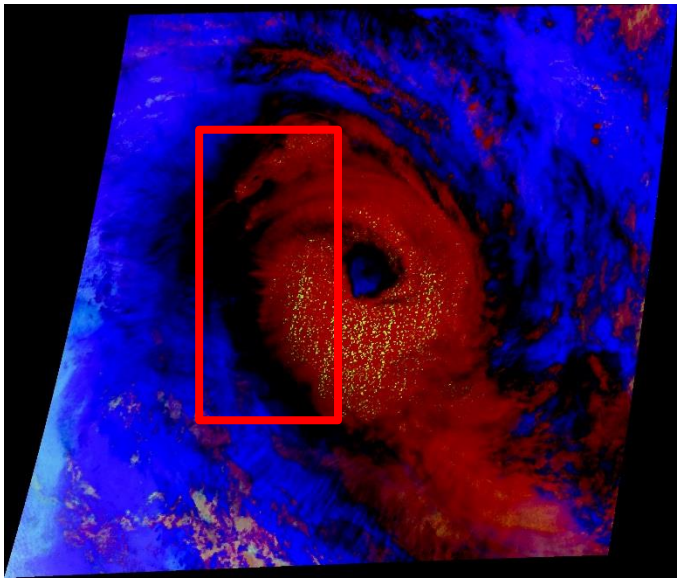
The "stadium effect" of the eye is apparent. Useful for teaching.

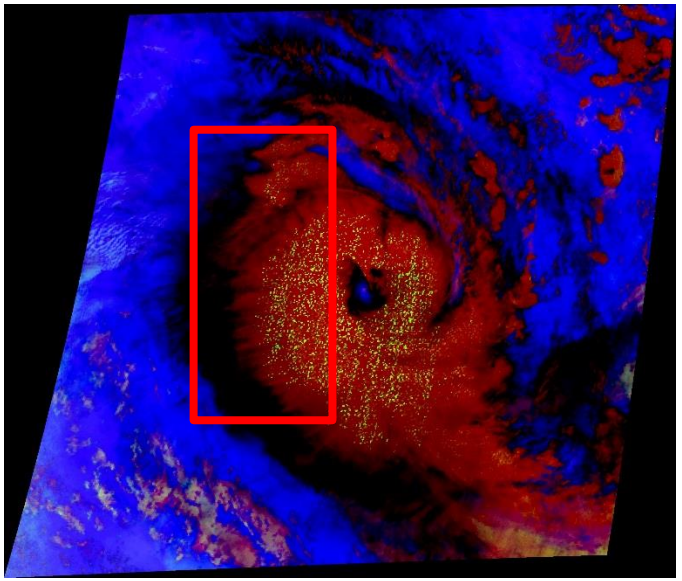
Better monitoring of the development of deep convection around the eyewall region

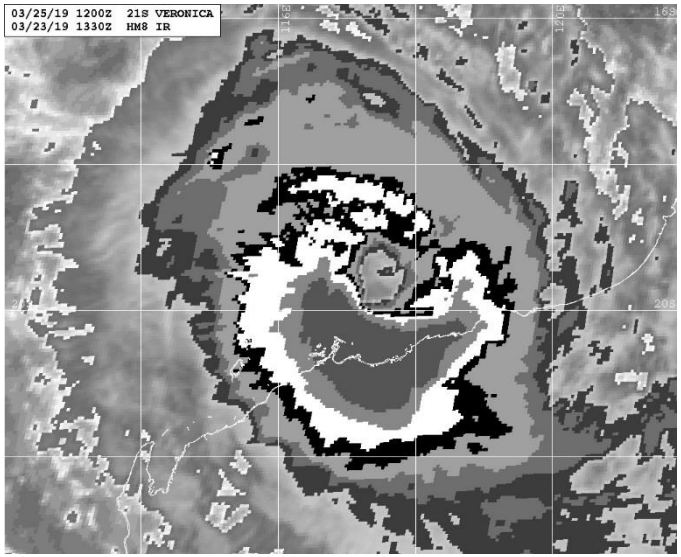
Better monitoring of features within the eye: transverse banding in low level clouds

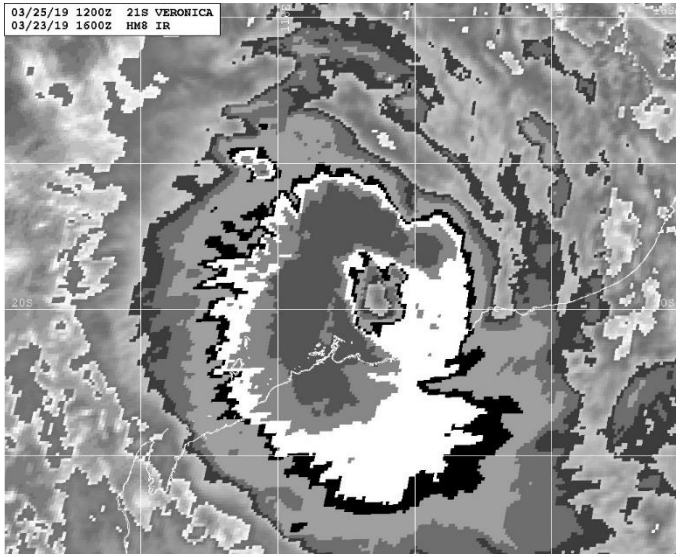
Cirrus fanning developments

23rd March 1330-16UTC. Night Microphysics RGB / Dvorak enhanced IR





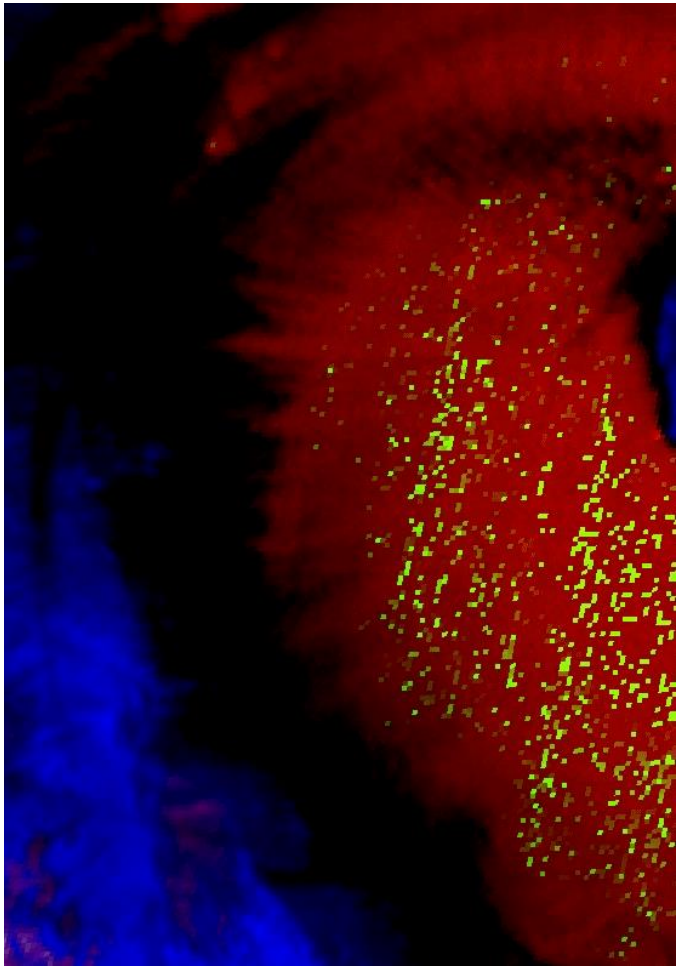




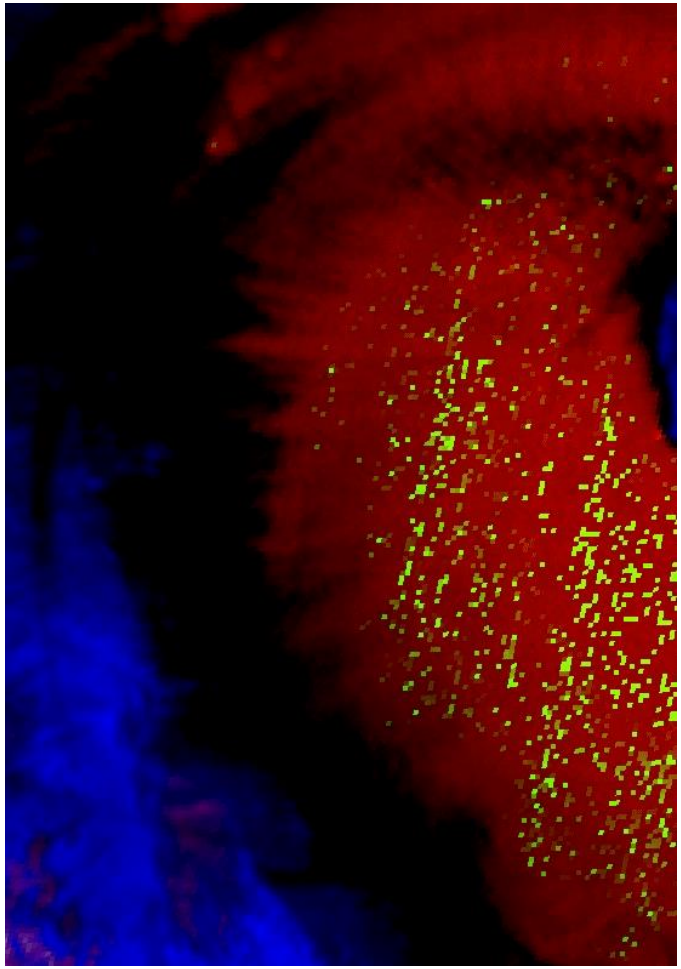
Please start the Power Point Slide Show to activate the animation

Animation 2: Cirrus fanning developments

23rd March 1330-1600UTC, Night Microphysics & True Colour RGB
comparing 2.5 minute Himawari-8 data with 10 minute data



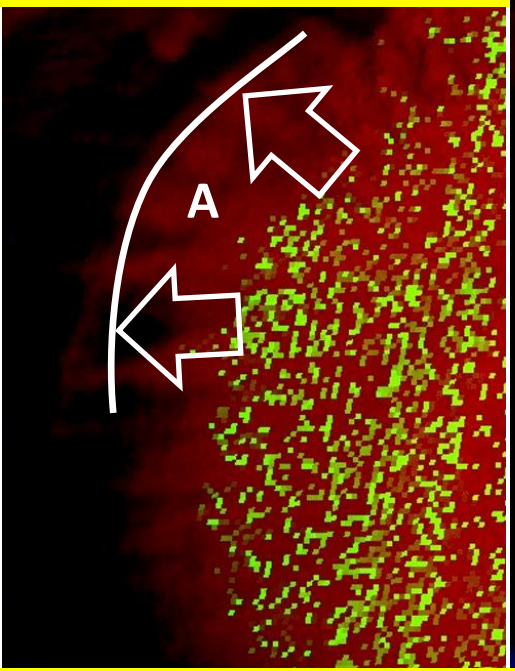
2.5 minute Himawari-8 data
animation (20ms)



10 minute Himawari-8 data
animation (80ms)

animations courtesy JMA

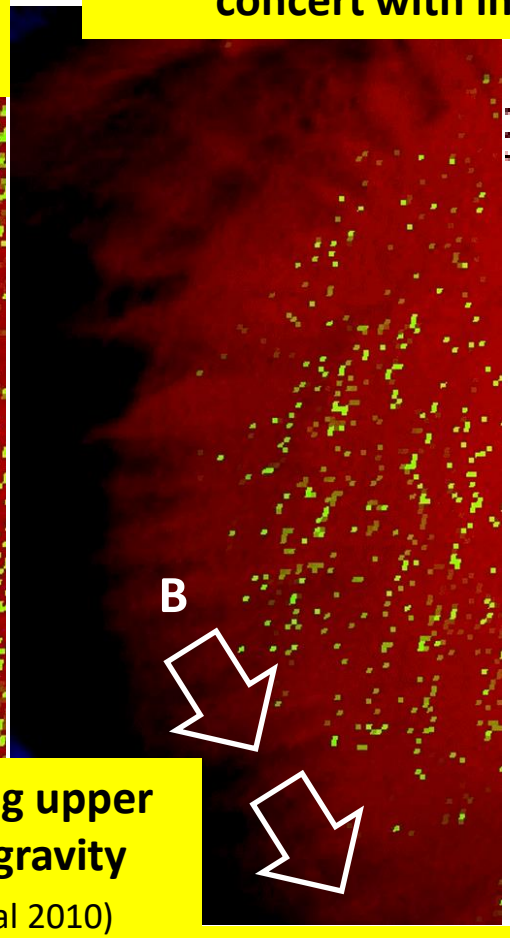
Image mapping issues more apparent in 2.5 minute data

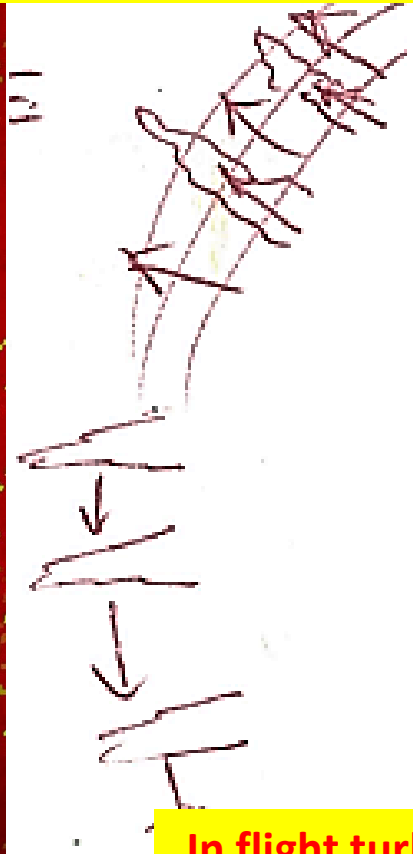


Can be related to strong upper level divergence and gravity wave activity (Knox et al 2010)

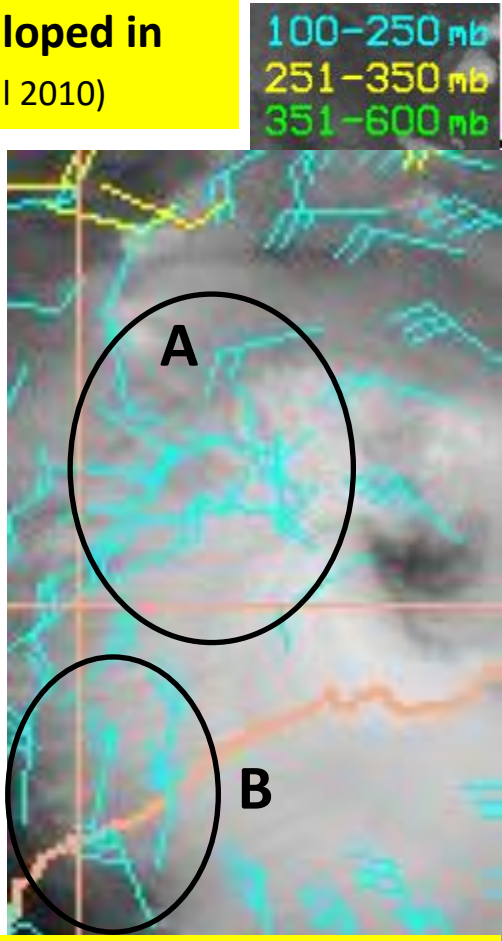
image courtesy JMA

The bands often (but not always) developed in concert with intensification (Knox et al 2010)





Variations in 3.9 micron signal of stormtops



In flight turbulence from transverse banding associated with convection

image courtesy CIMSS University of Wisconsin-Madison

1. Cirrus expanding radially in waves upon the canopy of TC Veronica.
2. Transverse banding appears stationary at "A" and moving at "B"
3. Note also the change in "golden speckling" of cloud tops.

…some slides not shown…

Regional Focus Group Weather and Forecasting Discussion 26th March 2019

High resolution Himawari-8 observation case study of the Bunyip and Licola fires

Bodo Zeschke Australian VLab Centre of Excellence Point of Contact

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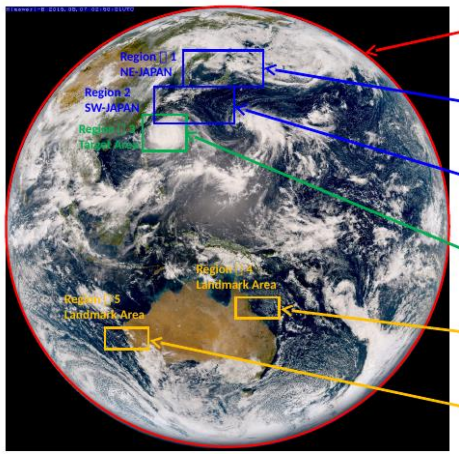

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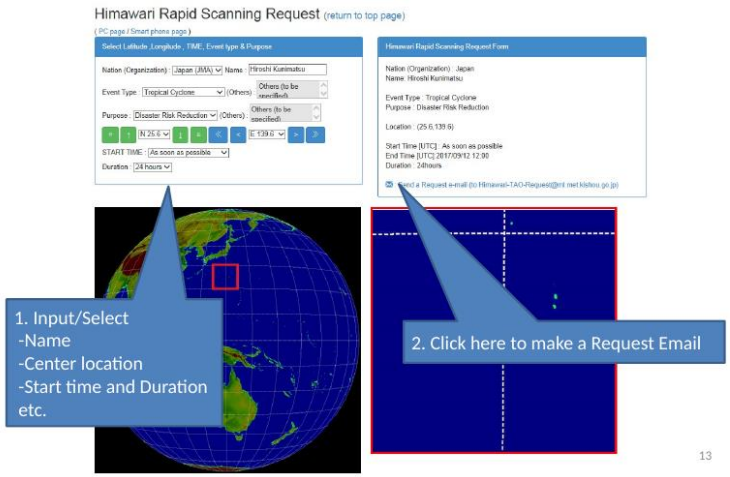

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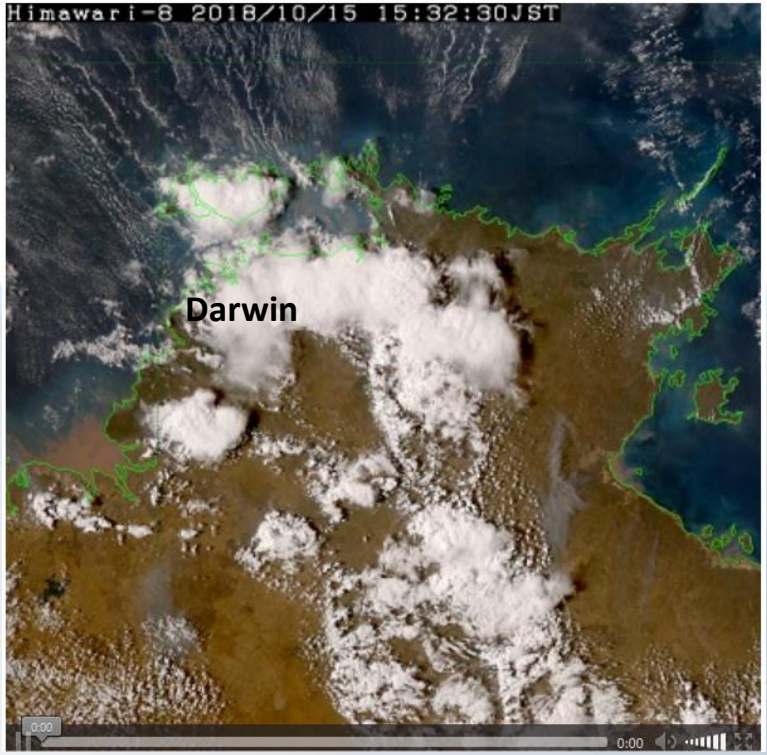
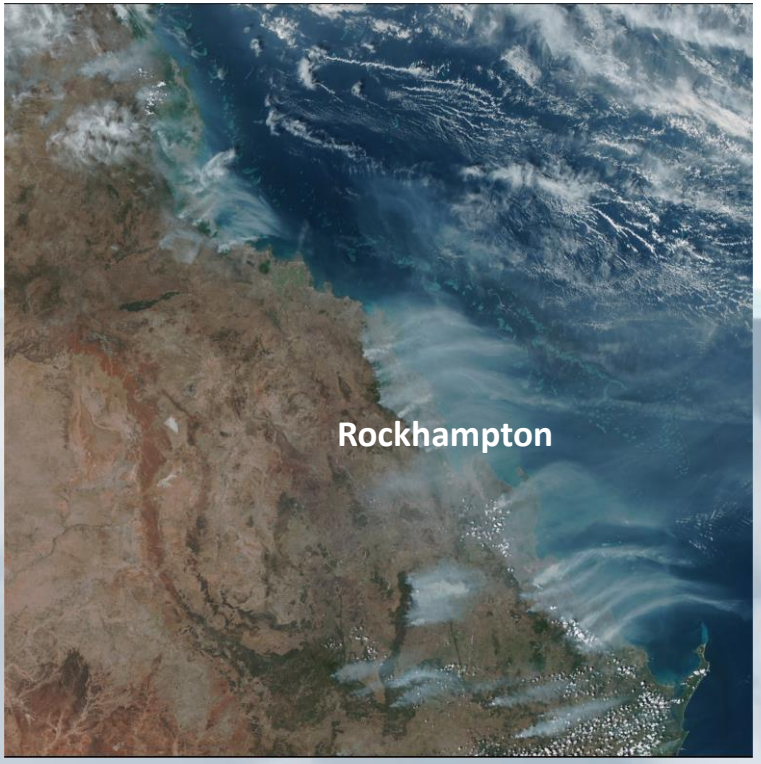
The Bureau has made previous requests for Request Driven Himawari-8 Rapid Scan (2.5 minute) data already

images courtesy JMA



15th October 2018
Top End, northern Australia



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(case study presented during the Regional Focus Group meeting, December 2018)

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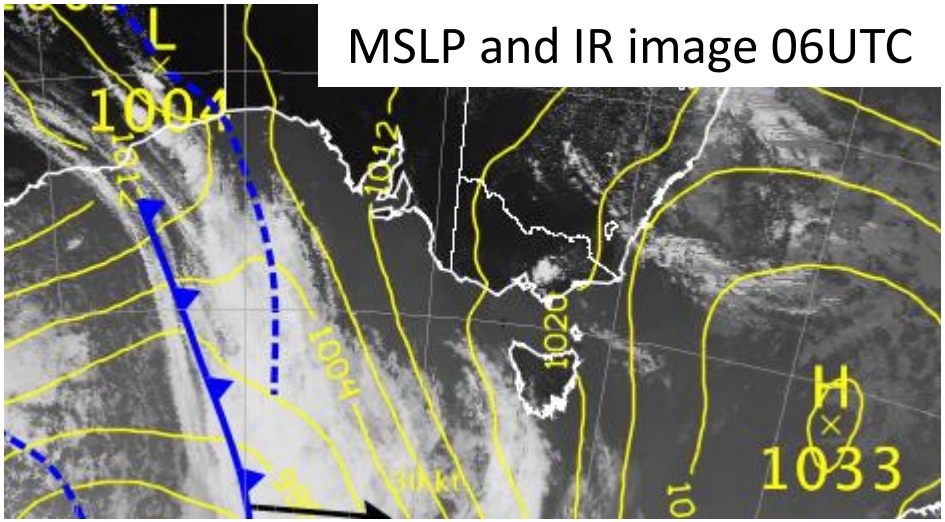
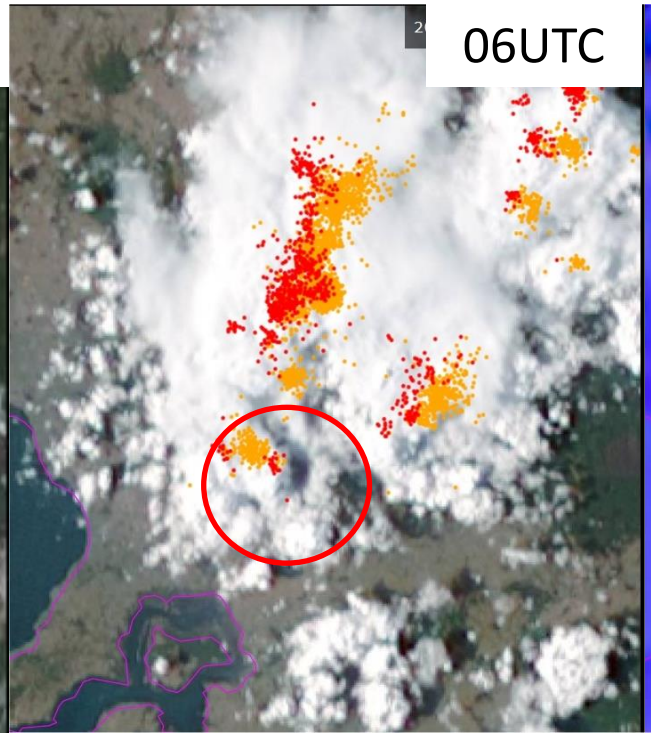
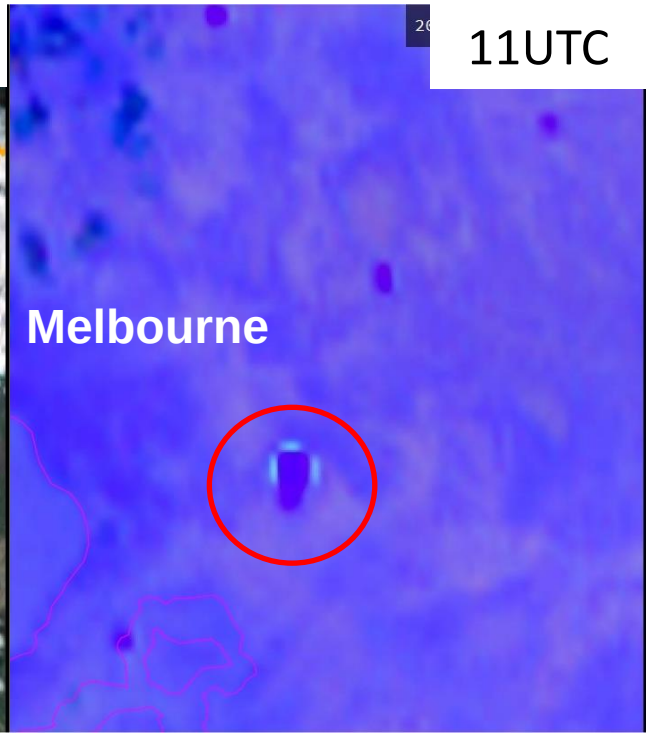
image courtesy JMA/BOM

Initiation of the Bunyip fire by lightning

01-11UTC 1st March 2019







True Colour RGB / Night Microphysics RGB / Lightning data

images courtesy JMA/BOM

lightning data courtesy WeatherZone

animation courtesy JMA/BOM

Animation 1: Himawari-8 2.5 minute True Colour imagery

0300-0730UTC 2nd March 2019, rocking animation 2.5 minute (10ms) vs 10 minute data (40ms)

2.5 minute (10ms)

10 minute (40ms)

Please start the Power Point Slide Show to activate the animation

images courtesy JMA/BOM

From Animation 1: Himawari-8 2.5 minute True Colour imagery

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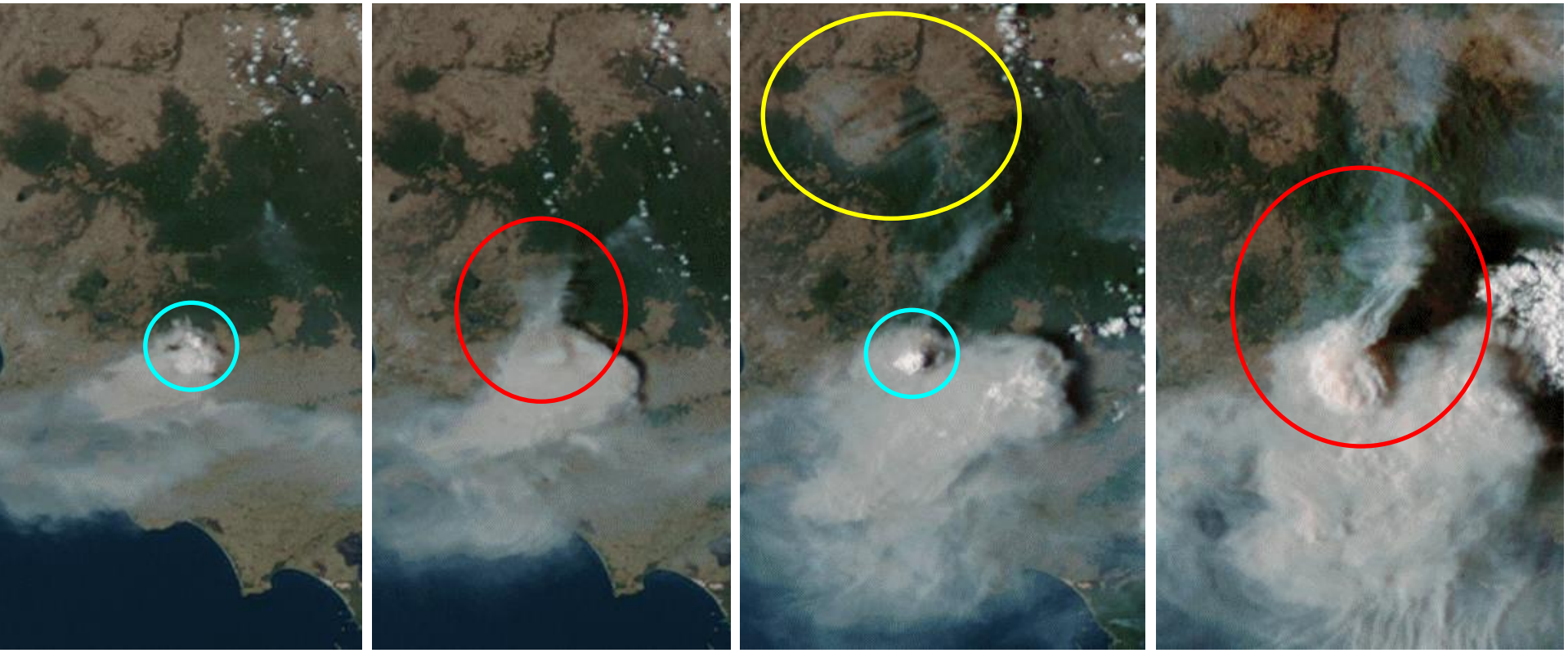


0300UTC 0430UTC 0600UTC 0730UTC

Development of Pyrocumulus
Injection of smoke into regions with southerly winds
Transverse banding in smoke plume

…some slides not shown…

animation courtesy JMA/BOM

(2.5 minute data)

10ms rocking animation

Animation 4: True Colour RGB. Licola Fire

3rd March

0300 to 0730 UTC

(10 minute data)

40ms rocking animation

Please start the Power Point Slide Show to activate the animation

images courtesy JMA/BOM

True Colour RGB. Licola Fire

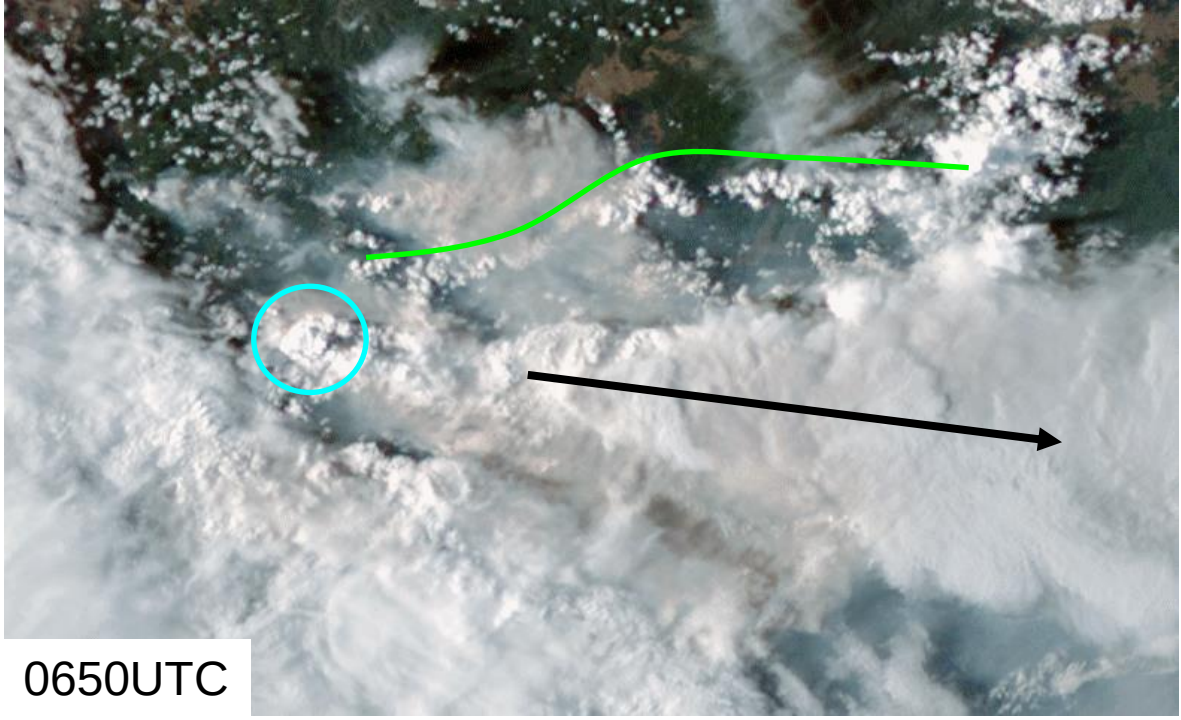
3rd March

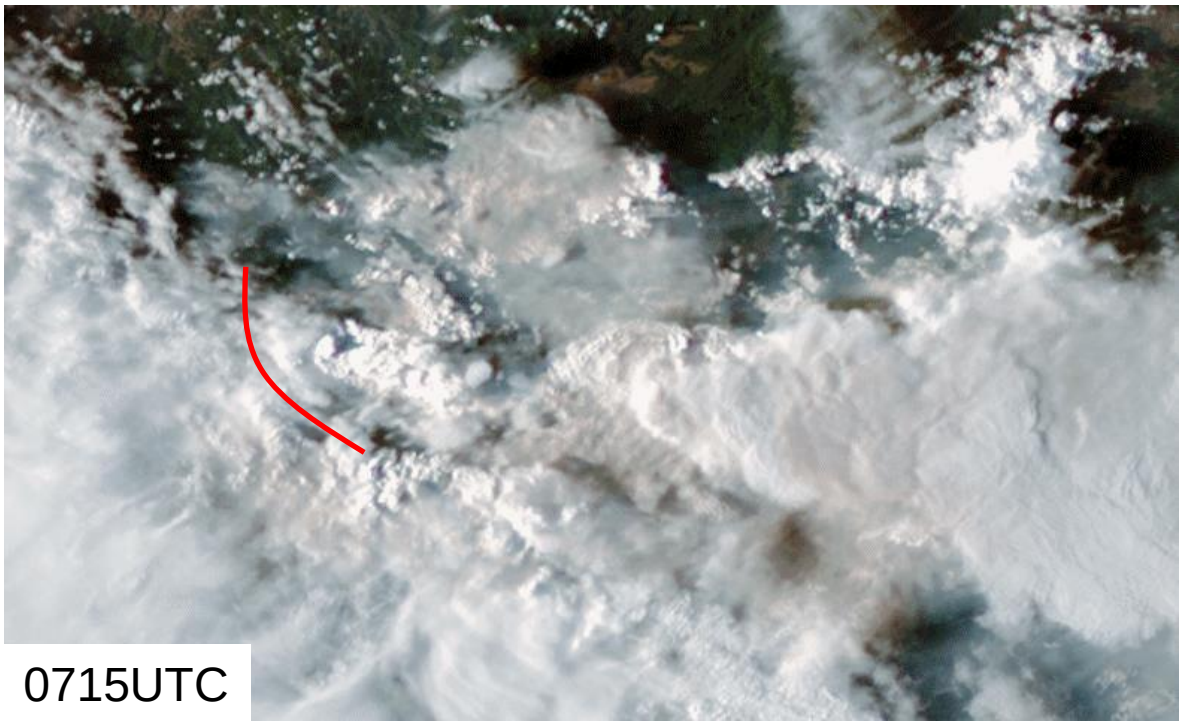
Development of fire updraft

Backshear against the prevailing flow

Upper level Pyrocumulus / Pyro Cb cloud

Low level boundaries





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