

AOMSUC-10 Training Event Socratic question and feedback summary, with particular emphasis on Satellite data use by attendees



Bodo Zeschke BMTC

(image courtesy Stephen Gillespie)

AOMSUC-10 Training Event, showing the sessions where **Socratic** was used

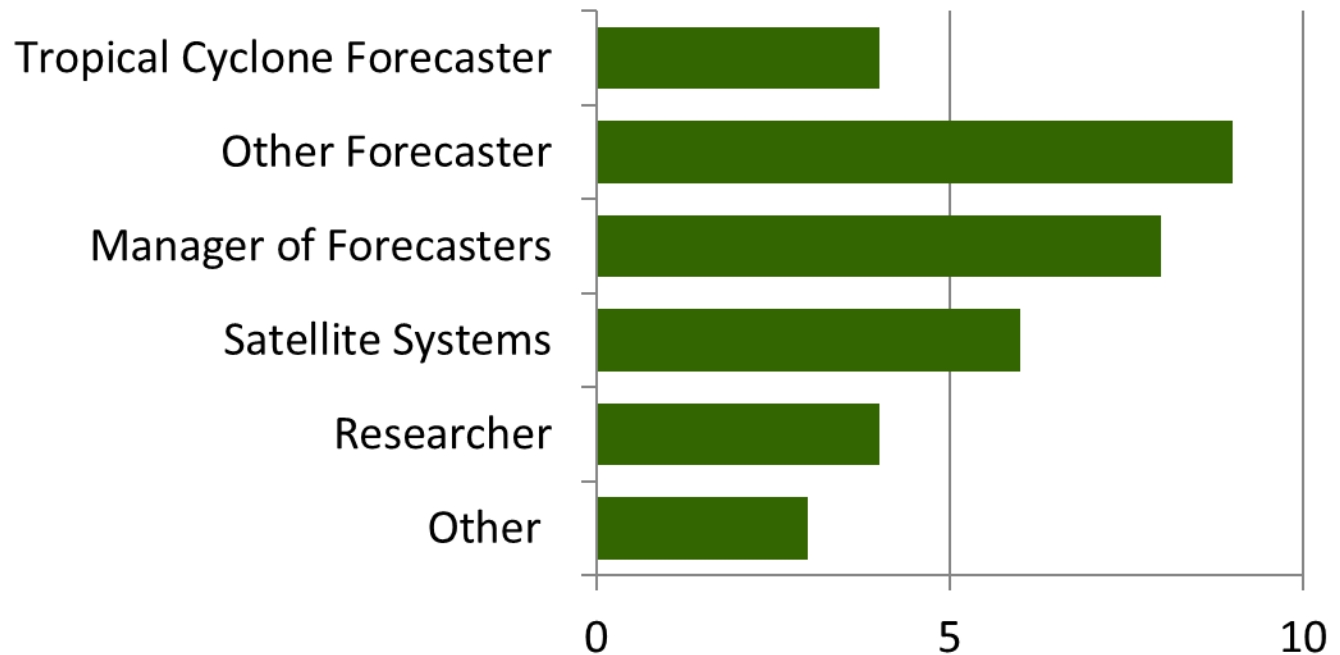
Local time /session	Monday, 2 nd December 2019	Tuesday, 3 rd December 2019
0830 (session 1)	Welcome session	A panel led discussion pertaining to how and where to access the satellite data
0915 (session 2)	Spectral bands and their uses	Introduction to the WMO Space-Based Weather and Climate Extremes Monitoring Demonstration Project
1000	Morning tea /Photo	Morning tea
1030 (session 3)	Application of the spectral bands to RGB composites	Group discussions that consolidate the content of the previous sessions. Experts to mentor the groups.
1115 (session 4)	Introduction to now-casting using satellite data and products: Tropical storm and Typhoon examples	
1200 (session 5)	Introduction to now-casting using satellite data and products: Thunderstorm examples	
1245	Lunch	Lunch
1400 (session 6)	Introduction to now-casting using satellite data and products: Precipitation examples.	13:30 to 14:30 LST. VLab Regional Focus Group (RFG) Weather presentation.
1445 (session 7)	Nowcasting applications using GEO-KOMPSAT-2A data and RGB products	A chaired post RFG discussion.
1530	Afternoon break	Afternoon break
1600 (session 8)	Spectral band / now-casting exercise with a short example or two using RAMMB/CIRA SLIDER	Future developments: utilizing data from multiple satellite platforms.
1645 (session 9)	Spectral band / now-casting exercise with examples using SATAID	Summary session including evaluation and review of the Training Event.
1730	Finish	Finish

AOMSUC-10 Training Event

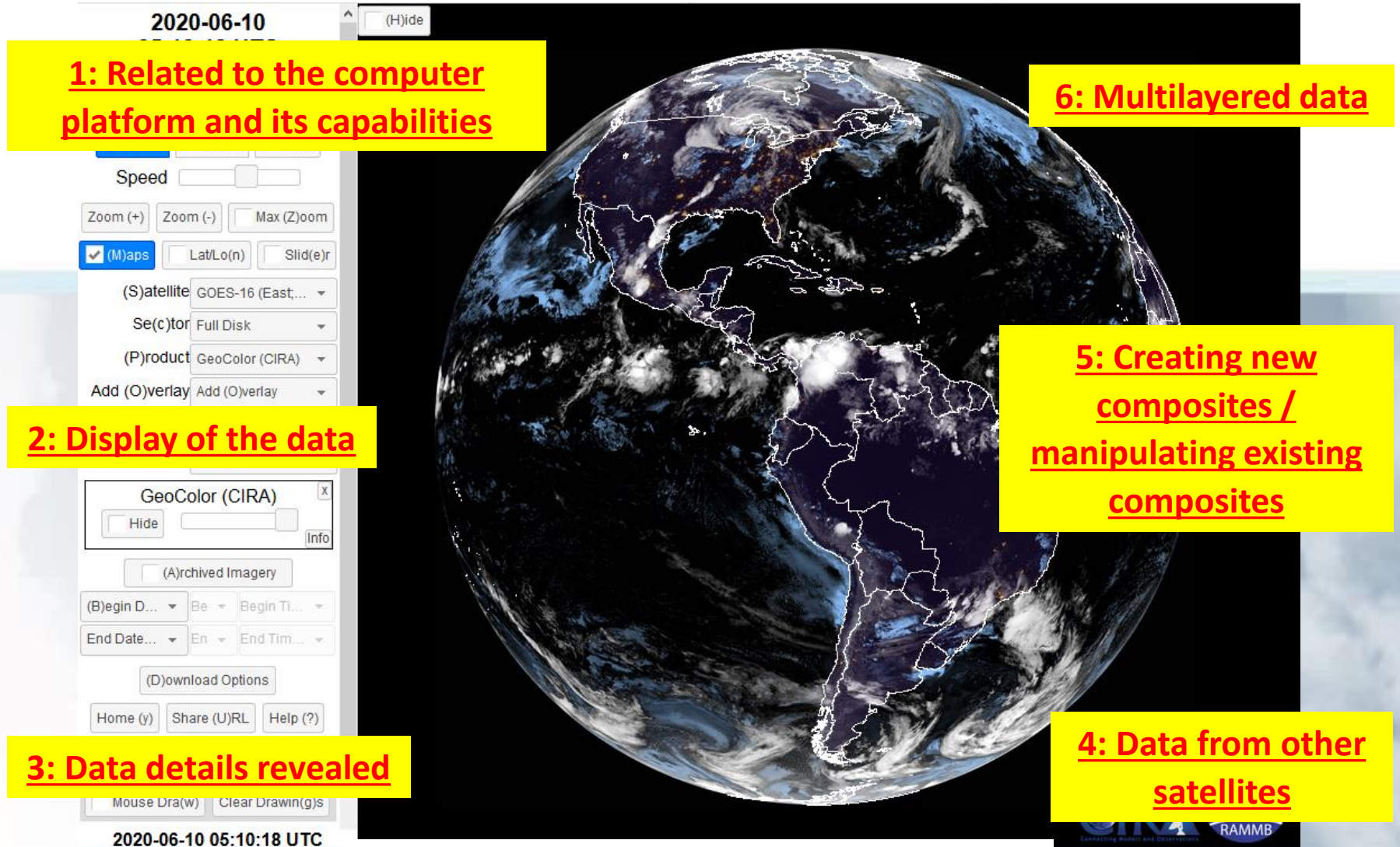
question: "Which of these options best describe your work?".



(image courtesy Stephen Gillespie)



AOMSUC-10 Training Event question: "What functionality would you most like to see on SLIDER?*"



The image shows a screenshot of the SLIDER (Satellite Live Image Display and Retrieval) web application. The main display area shows a satellite image of Earth, centered on the Americas. On the left side, there is a control panel with various settings. Overlaid on this screenshot are six yellow callout boxes, each containing a number and a suggestion for functionality. The suggestions are:

- 1: Related to the computer platform and its capabilities**
- 2: Display of the data**
- 3: Data details revealed**
- 4: Data from other satellites**
- 5: Creating new composites / manipulating existing composites**
- 6: Multilayered data**

The control panel on the left includes the following elements:

- Date: 2020-06-10
- Speed slider
- Zoom controls: Zoom (+), Zoom (-), Max (Zoom)
- Map controls: ☒ (M)aps, Lat/Lo(n), Slid(e)r
- Satellite selection: (S)atellite GOES-16 (East...)
- Se(c)tor: Full Disk
- (P)roduct: GeoColor (CIRA)
- Add (O)verlay: Add (O)verlay
- GeoColor (CIRA) panel with Hide and Info buttons
- (A)rchived Imagery checkbox
- (B)egin D... dropdown, Be... dropdown, Begin Ti... dropdown
- End Date... dropdown, En... dropdown, End Tim... dropdown
- (D)ownload Options button
- Home (y), Share (U)RL, Help (?) buttons
- Mouse Dra(w), Clear Drawin(g)s buttons
- Timestamp: 2020-06-10 05:10:18 UTC

*or an equivalent satellite image viewer

"What functionality would you most like to see on SLIDER?"

Related to the computer platform and its capabilities

1. It should be on a GIS platform
2. Ability to load satellite, observational data such as weather RADAR and NWP from the local PC.
3. Job scheduler with automatic download to specific official organization website.
4. Should be able to download the data into geoTIFF format.
5. An easily accessible archive of past data

Display of the data

1. The ability to change the projections of the imagery
2. Ability to rotate the earth within the display window
3. Ability to choose (zoom into) a specific subsector in the display such as a region or a country.
4. Ability to permit "limb viewing" of the atmosphere at the edge of the full disk earth image for satellites other than Himawari-8
5. Rocking animation
6. The slider function that permits side by side comparison of different display layers. See also <https://rammb-slider.cira.colostate.edu/> , specifically the Slider option.

"What functionality would you most like to see on SLIDER?"

Data details revealed

1. Information such as latitude and longitude and the value of the parameters of the display layers to be available whilst scrolling the mouse over the image display.
2. For the "Follow Feature" function on the web site <https://rammb-slider.cira.colostate.edu/> one attendee would like to see the latitude and longitude information so that the monitoring of storm and Tropical Cyclone movement can be more accurate.

Data from other satellites

1. Attendees would like to see a display that includes a wide range of satellite data, including GEO-KOMPSAT-2A, Fengyun-4A, the INSAT and polar orbiting satellites.

Creating new composites / manipulating existing composites

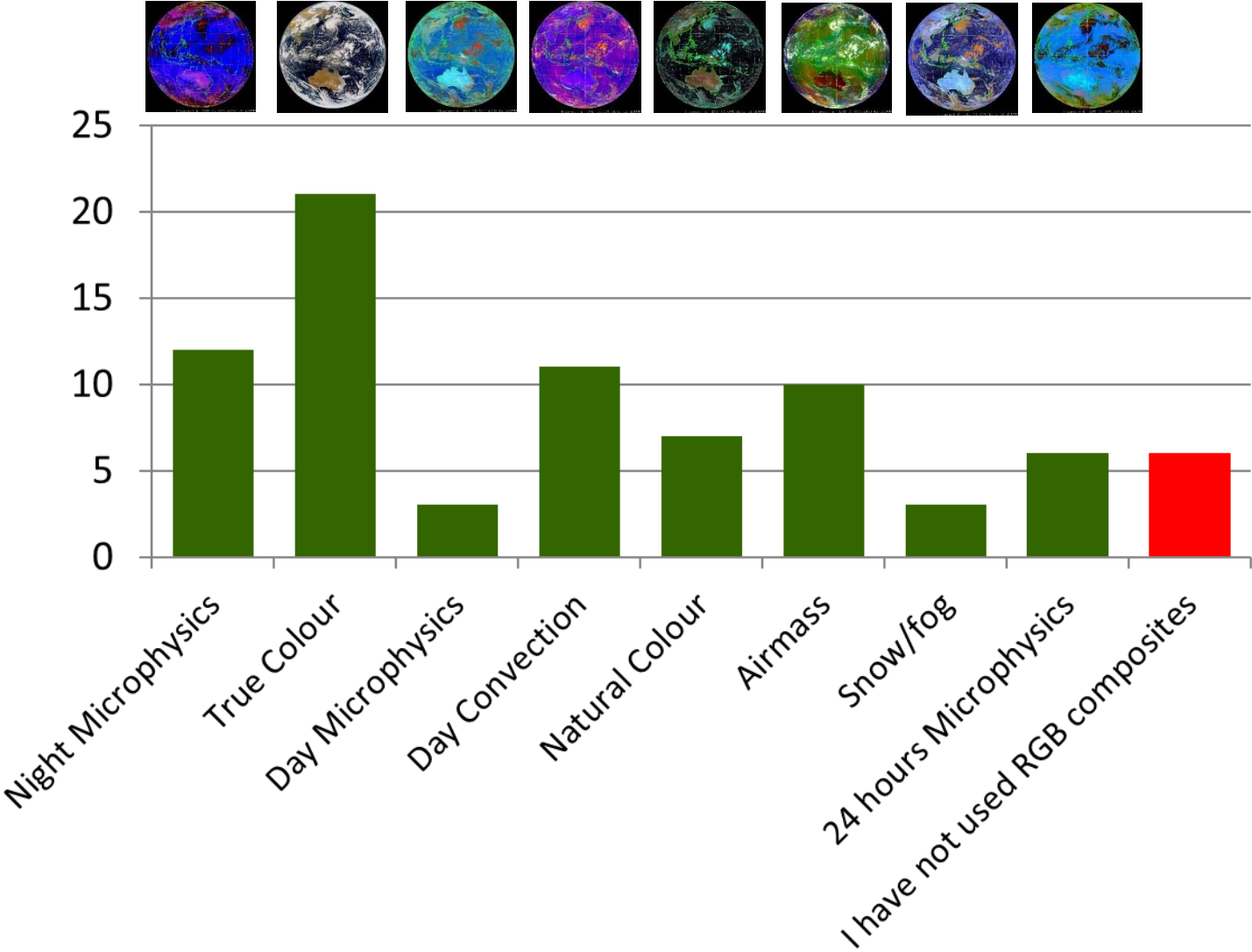
1. Ability to create RGB composites using selected bands, image differences and gamma corrections

"What functionality would you most like to see on SLIDER?"

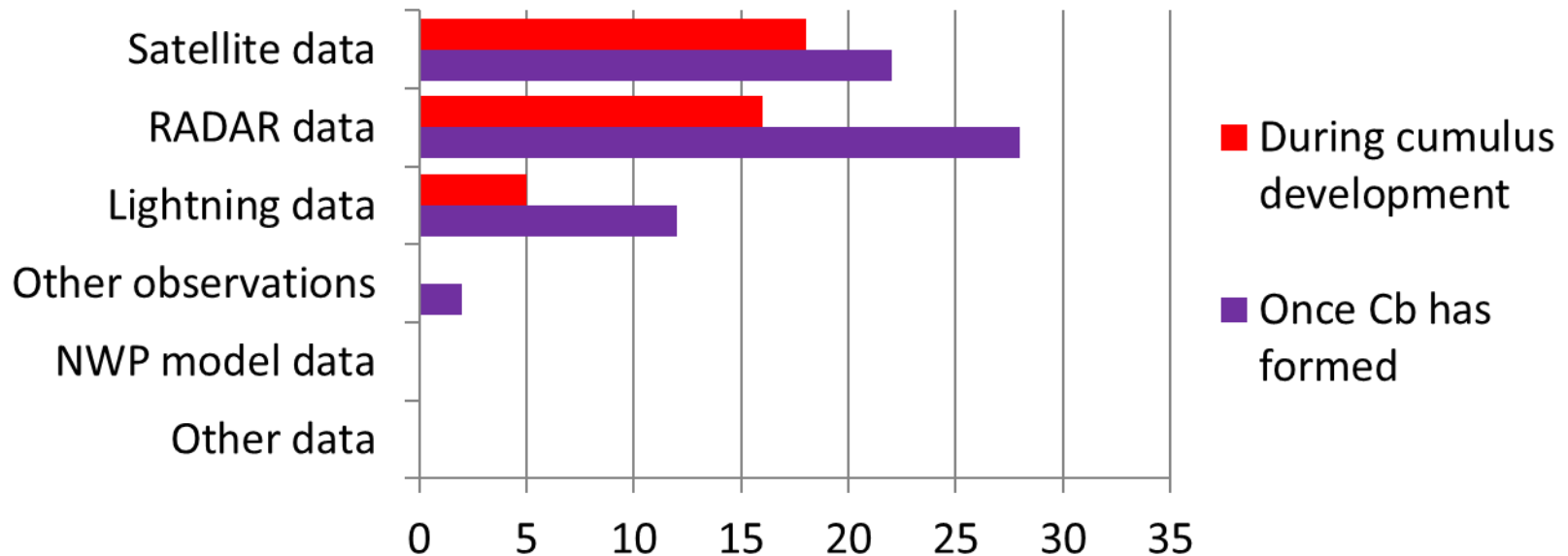
Multilayered data

1. Weather RADAR overlay
2. Other observational data overlay
3. Cloud drift winds
4. Lightning data that can be superimposed onto visible and infrared data. Lightning data from the GOES satellite. Lightning data over the Indian Ocean
5. Scatterometer (ASCAT) data processed in near real time.
6. Other microwave sensors
7. Addition of Level 2 satellite products (Geophysical quantity retrieved from single instrument data in original instrument projection Note: For example, temperature, humidity, radiative flux see http://www.wmo.int/pages/prog/sat/dataandproducts_en.php)
8. Quantitative Precipitation Estimate (QPE) data
9. Overlaying with NWP model outputs
10. Predefined products (what is meant by this)

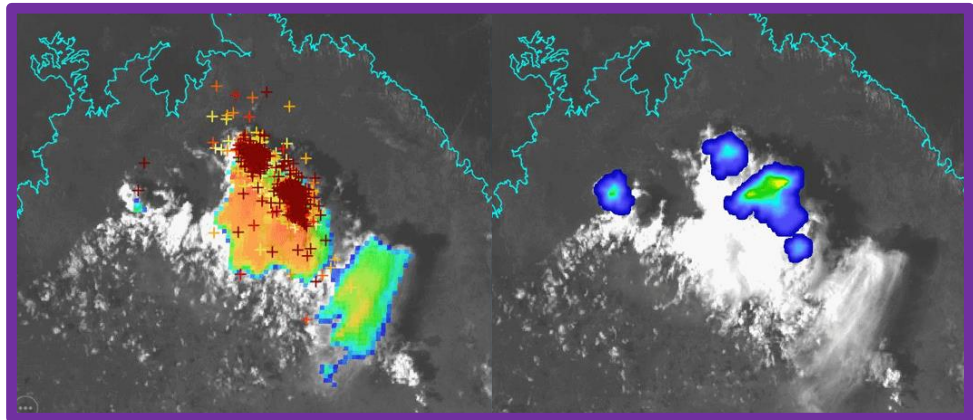
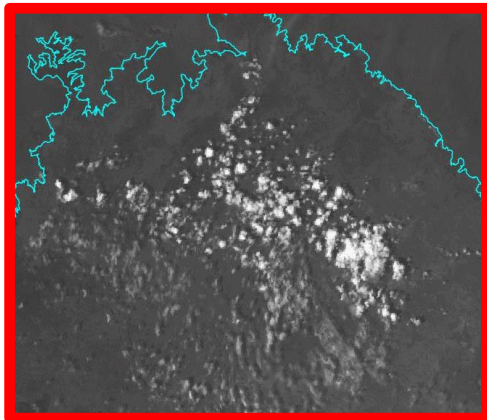
AOMSUC-10 Training Event question: "Which RGB composites do you use most during your work".



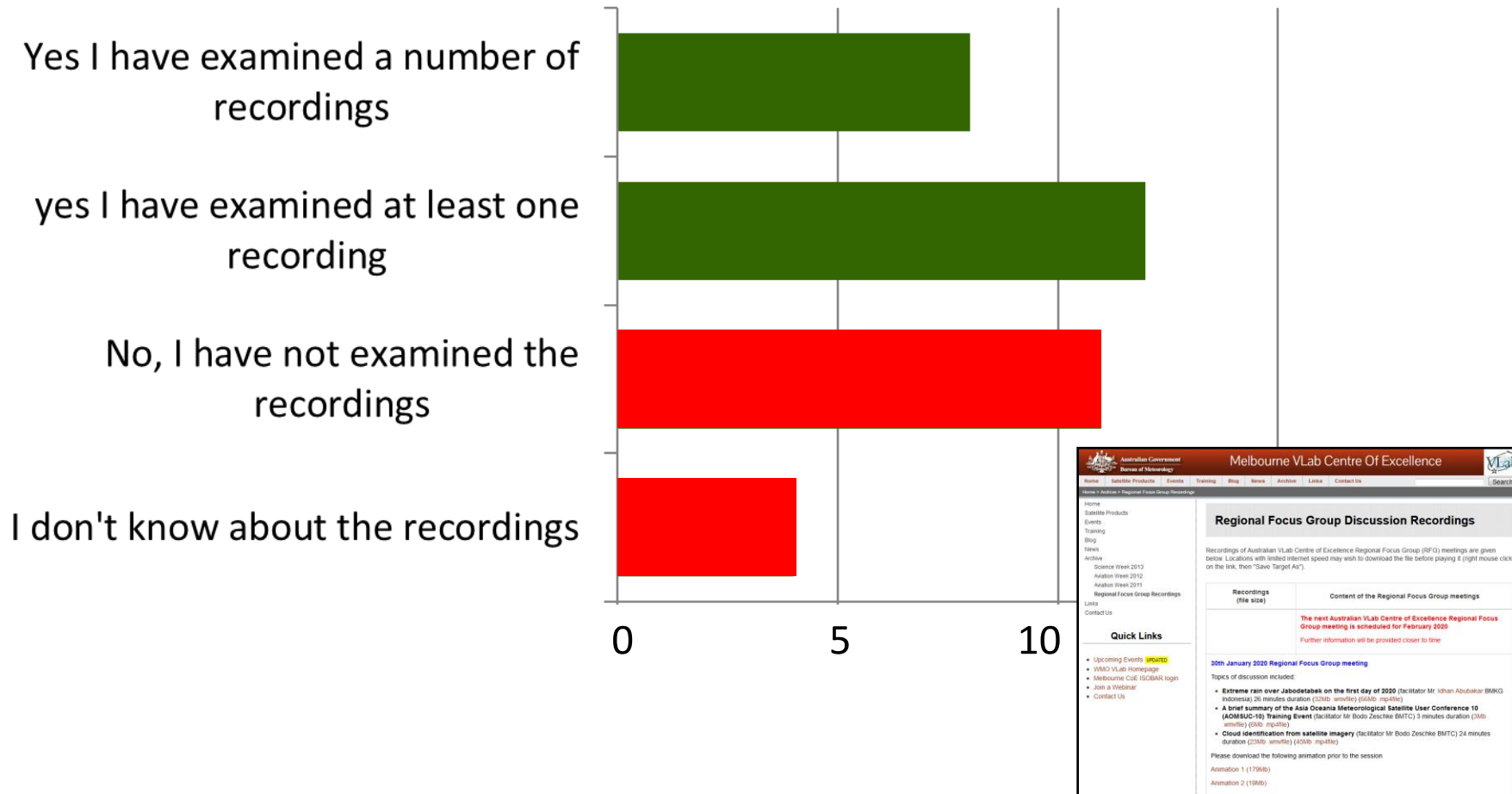
AOMSUC-10 Training Event question: "What data is most important when you are monitoring the development of thunderstorms".



satellite images courtesy JMA/BOM, lightning data courtesy WeatherZone

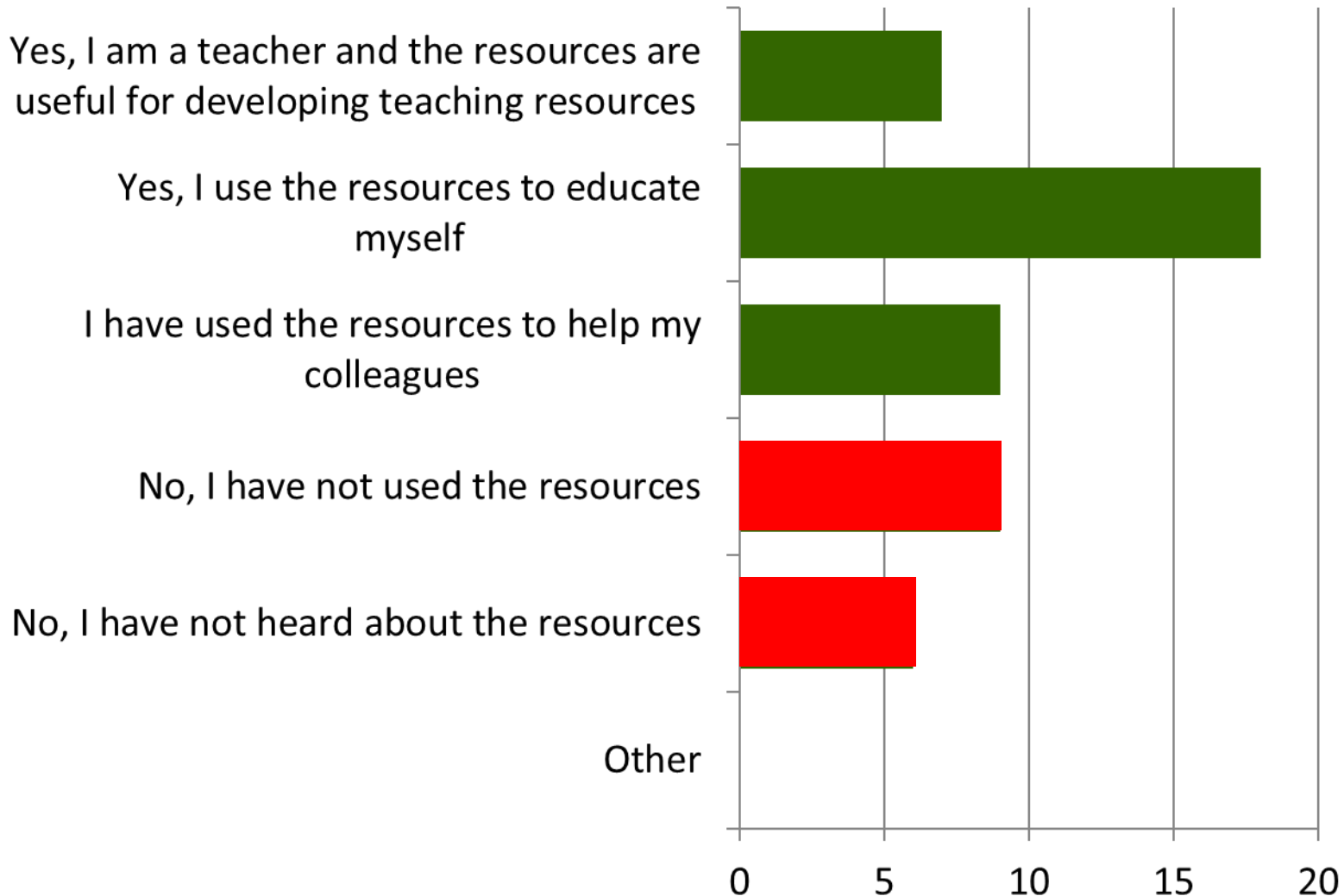


AOMSUC-10 Training Event question: "Have you examined the archived recordings of the Regional Focus Group meetings?"



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

AOMSUC-10 Training Event question: "Have you used Australian VLab Centre of Excellence resources in your work ?".



"Topics for discussion at future Regional Focus Group meetings"

AOMSUC-10 Training Event attendee's responses

1. A broad range of topics – not confined to satellite meteorology 1	6. Case Studies, including extreme / hazardous events 7	11. Interseasonal events (ENSO) 2
2. NWP and derived products topics 9	7. Weather and Forecast discussions, including contributions by Australian and overseas presenters 5	12. Intraseasonal events (MJO, Tropical Waves, monsoon etc.) 6
3. Developing training resources 1	8. Satellite data used in forecasting process 6	13. Synoptic events (Tropical Cyclones, Cyclogenesis etc.) 4
4. Himawari-8 data and data products 1	9. Aviation Forecasting 2	14. Synoptic/mesoscale events (thunderstorms, MCS's etc.) 5
5. Polar Orbiting Satellites 4	10. Climate topics 4	Topic number of responses

Additional Topics of Interest

1. Useful techniques for comprehensive analysis of multiple satellite data with varying temporal/spatial resolution.	6. Real-time analysis of Sea Surface Temperature. In what situations does it have diurnal signal variability? i.e. calm versus stormy seas.	11. Space based drought monitoring
2. Cloud type classification using satellite images.	7. Cumulus development into thunderstorms and their decay.	12. Fire weather predecessor conditions (NDVI, Land Surface Temperature)
3. Developing Cloud Climatologies under different wind flow regimes and their use in nowcasting.	8. Use of geostationary lightning mapper data.	13. Is machine learning or deep learning technology really helpful for weather forecasting?
4. Use of cloud relative motion to diagnose thunderstorms, tropical systems, etc.	9. Coastal land/sea breeze induced convective systems	
5. Characteristics of tropical waves.	10. Mountain area snow analysis	

Report

The report "AOMSUC Training Event Socrative Surveys result summary" has been posted on the Australian VLab Centre of Excellence web page at http://www.virtuallab.bom.gov.au/index.php/download_file/view/1519/300/

AOMSUC-10 Training Event Socrative Surveys result summary

Bodo Zeschke BMTC, Australian VLab Centre of Excellence, February 2020

1: Overview

The AOMSUC-10 Training Event was conducted on the Royal Melbourne Institute of Technology (RMIT) University Campus, Melbourne Victoria during the 2-3 December 2019. There were 45 attendees from 25 countries including Australia, China, Fiji, French Polynesia, India, Indonesia, Japan, Laos, Malaysia, Maldives, Myanmar, New Zealand, Philippines, Russia, Thailand, Tuvalu, Samoa, Singapore, Solomon Islands, South Korea, Sri Lanka, Switzerland, Timor Leste, Tonga and the USA as shown in Appendix 1.

This paper provides a summary of the feedback from questions posed to the attendees during ten of the sessions (Refer to Training Event schedule in Appendix 2). Questions covered topics pertaining to meteorological satellite data use and the effectiveness of the resources and the training delivered by the Australian VLab Centre of Excellence. The 33 questions included 26 multiple choice questions and 7 short answer questions. The Socrative cloud-based learner response system was utilised with attendees answering questions anonymously (Zeschke 2018).

Examination of the subset of 23 single answer questions indicated that an average of 34 attendees participated with numbers ranging between 30 and 39 (43%). As the questionnaires were conducted anonymously the responses are very likely to be genuine. A summary of questions and responses are given in Appendices 2 to 9.

The questions and corresponding answers have been grouped into seven topics. These are summarised in sections 2 and 3. Topics included feedback regarding:

1. Participant's familiarity with the Socrative cloud based learner response system.
2. The profile of the participants with respect to their satellite meteorology work.
3. Satellite projects, satellite data and data viewers
4. The use and availability of RGB composites
5. The use of satellite data in detecting and monitoring convection
6. The use of data from multiple satellites
7. The activities of the Australian VLab Centre of Excellence.

2: Detailed analysis

2.1: Participants familiarity with the Socrative cloud based learner response system.

Almost half of the participants have used Socrative or similar to interact within the classroom. 6 attendees were interested to know more about Socrative (Refer to Appendix 3). This familiarity with Socrative may be the result of attendance at previous Australian VLab Centre of Excellence Regional Focus Group meetings during which Socrative was used. Some of the respondents also attended AOMSUC-9, during which Socrative was used.

2.2: The employment profile of the participants.

A majority of respondents (21 of the 34) work as weather forecasters or are the managers of forecasters. Of the remainder 10 work in research or within the field of satellite systems (refer