



New Zealand Aviation MET Symposium

Airport Observing Systems

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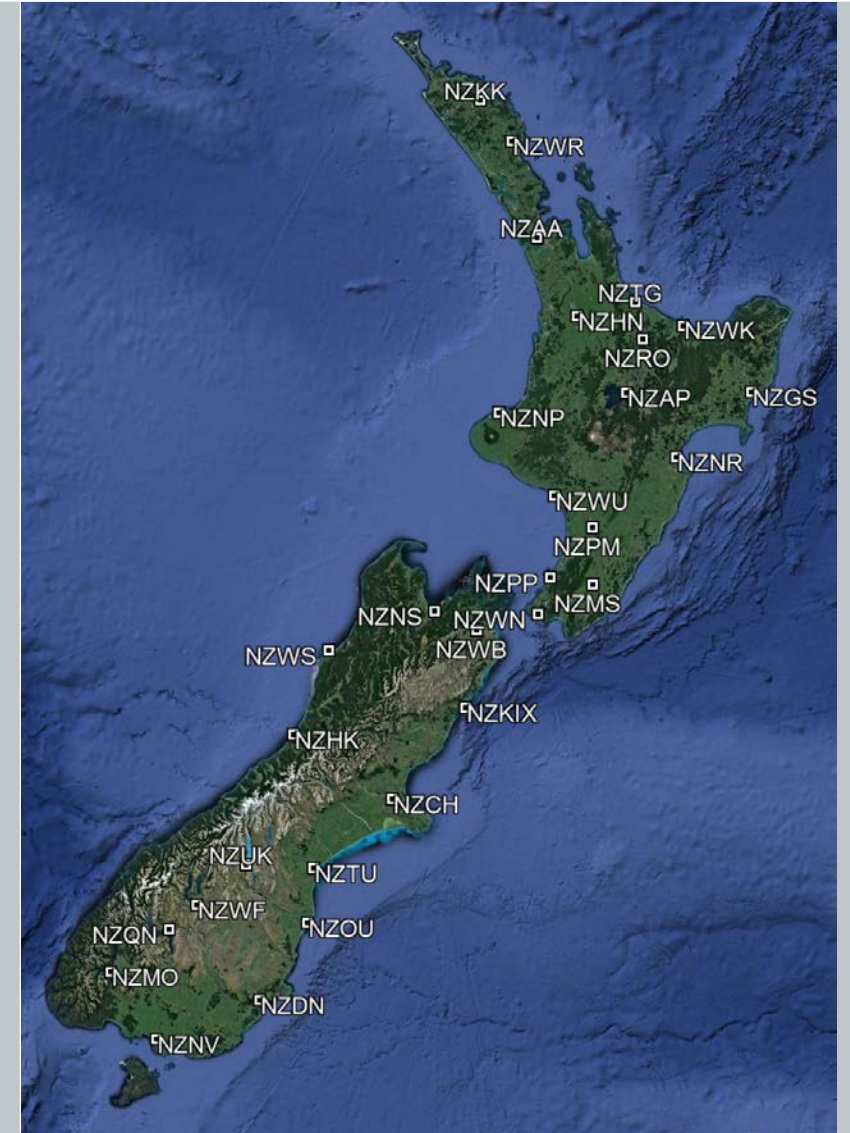
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Airport observing systems



Airport observing systems

- New Zealand is one of the few countries in the world to operate a fully-automated *Airport Observing System* across its national network
- Automated reporting at 31 airports produce ICAO-compliant AUTO METAR reports every half-hour
- The network is supported from the MetService *Engineering and Calibration* facilities at Paraparaumu



Airport observing systems

- AUTO METAR reports are also supplemented by data from our lightning detection network to advise of TS nearby airports
- The network also has 23 webcams giving forecasters round-the-clock views of airfield conditions
- In addition, there are another 16 AWS at other airfields in support of charter operators and GA

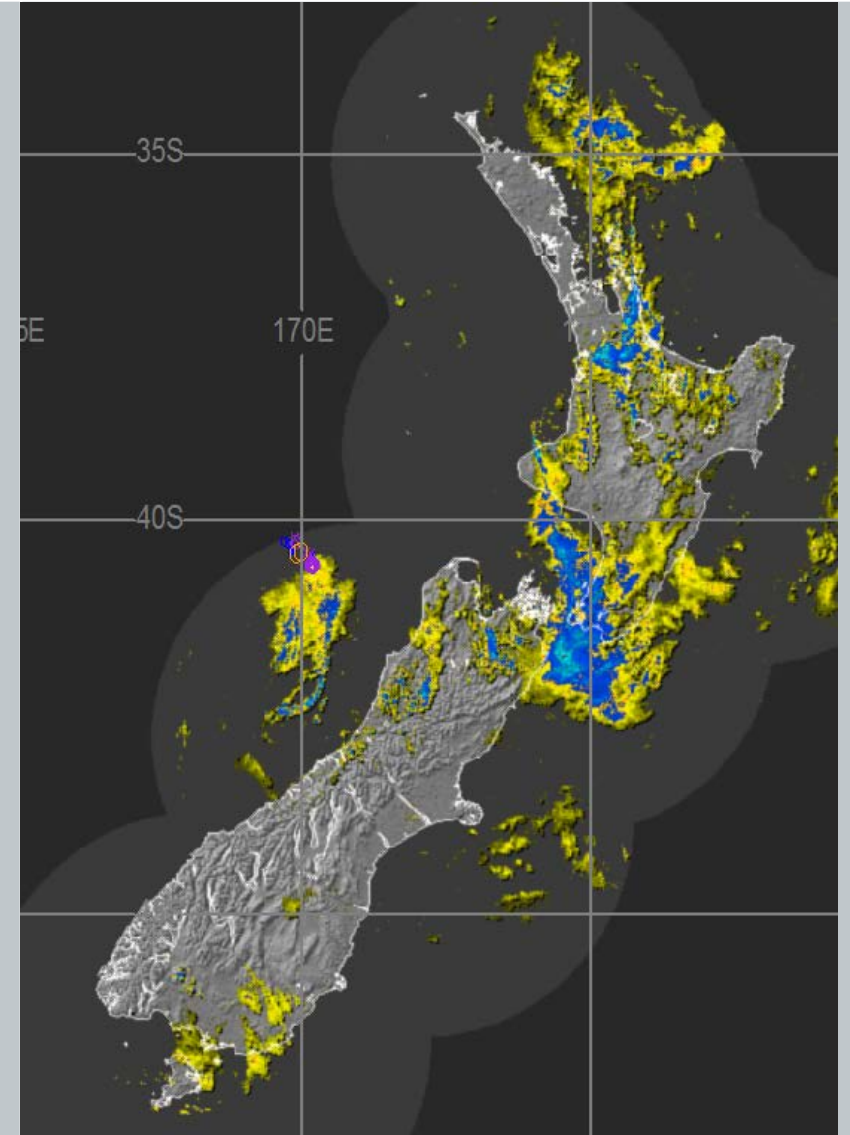


Weather radar



Weather radar

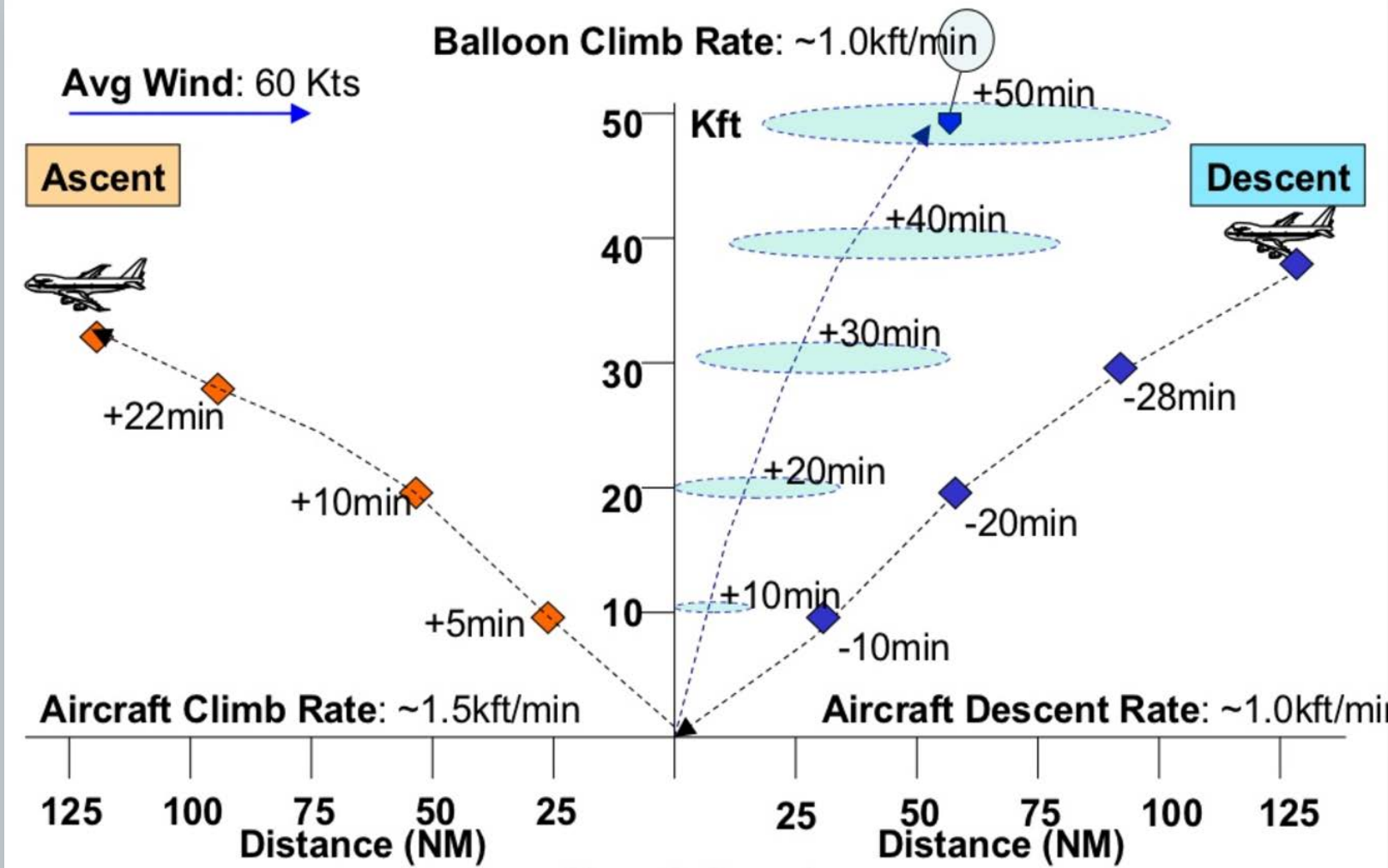
- There are 9 weather radar in our national network
- Planning is under way to add a 10th radar in coastal Otago
- It is due to go 'live' in 2019



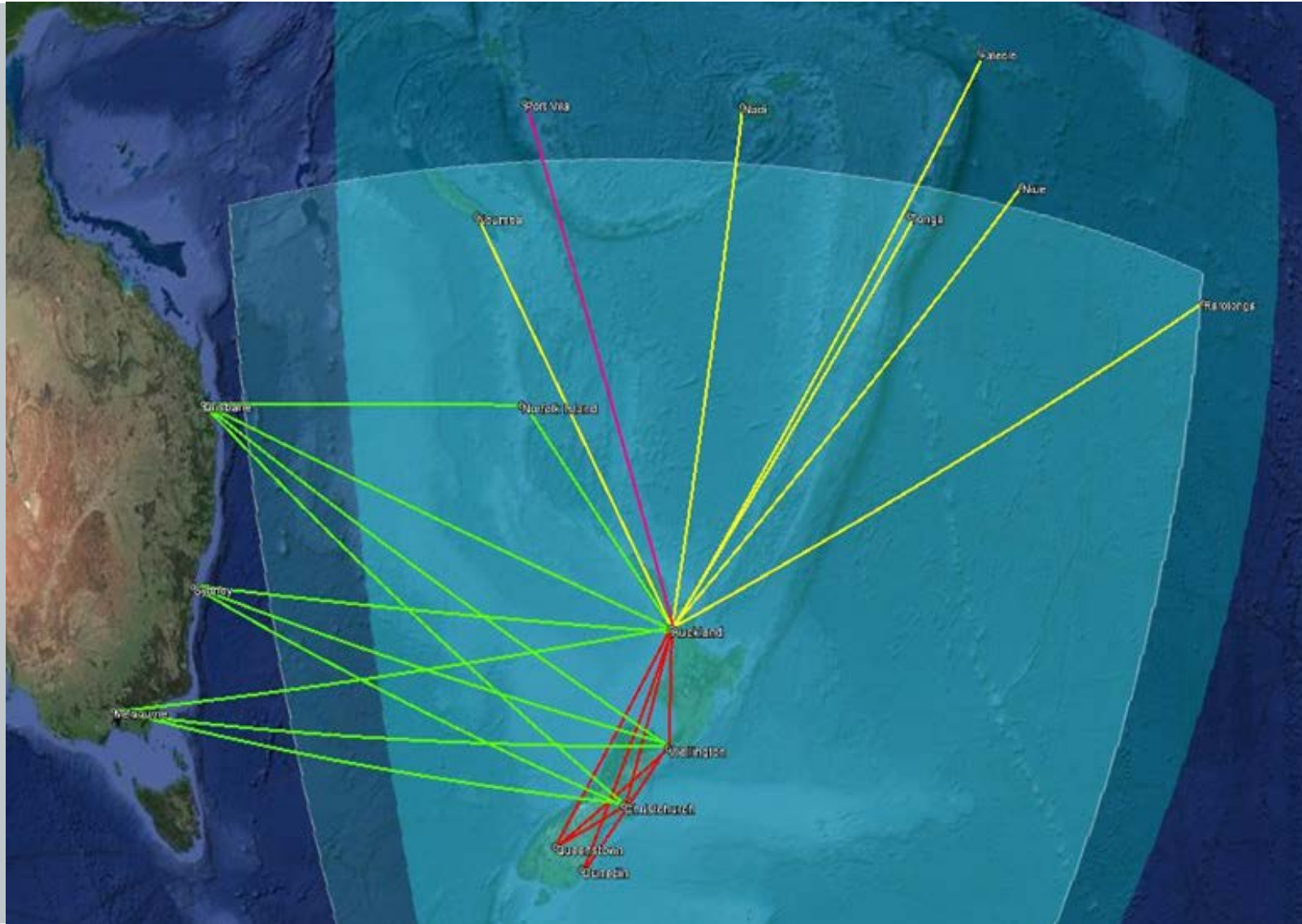
Aircraft-based observations



Aircraft-based observations



Aircraft-based observations



- Planned AMDAR reporting area

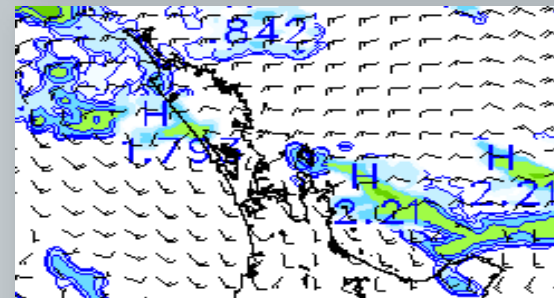
Aviation Forecast Operations

Paula Acethorp
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Resilience

- Phase 1A is completed – what can you expect now?
- Auckland forecast office staff – growing the numbers
- Generation of domestic aviation products being made ‘resilient’ over the next 12-18 months; delivery platforms next 12-24 months.

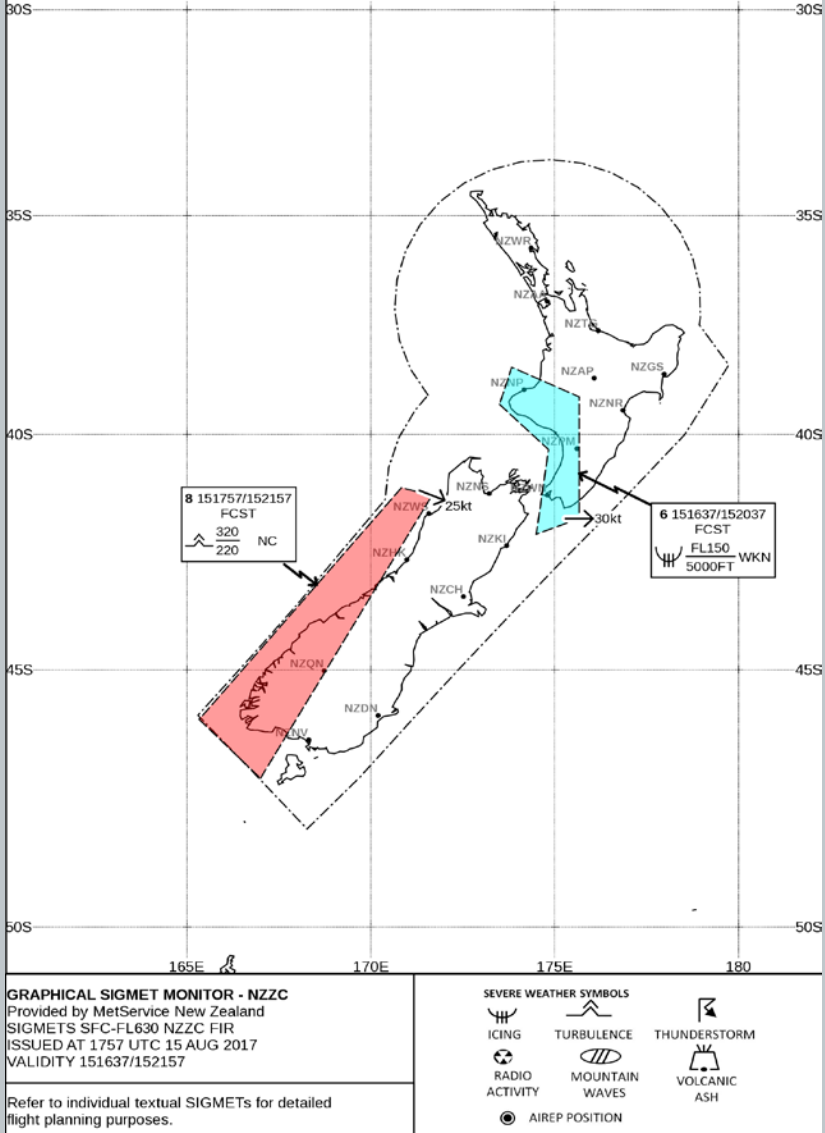
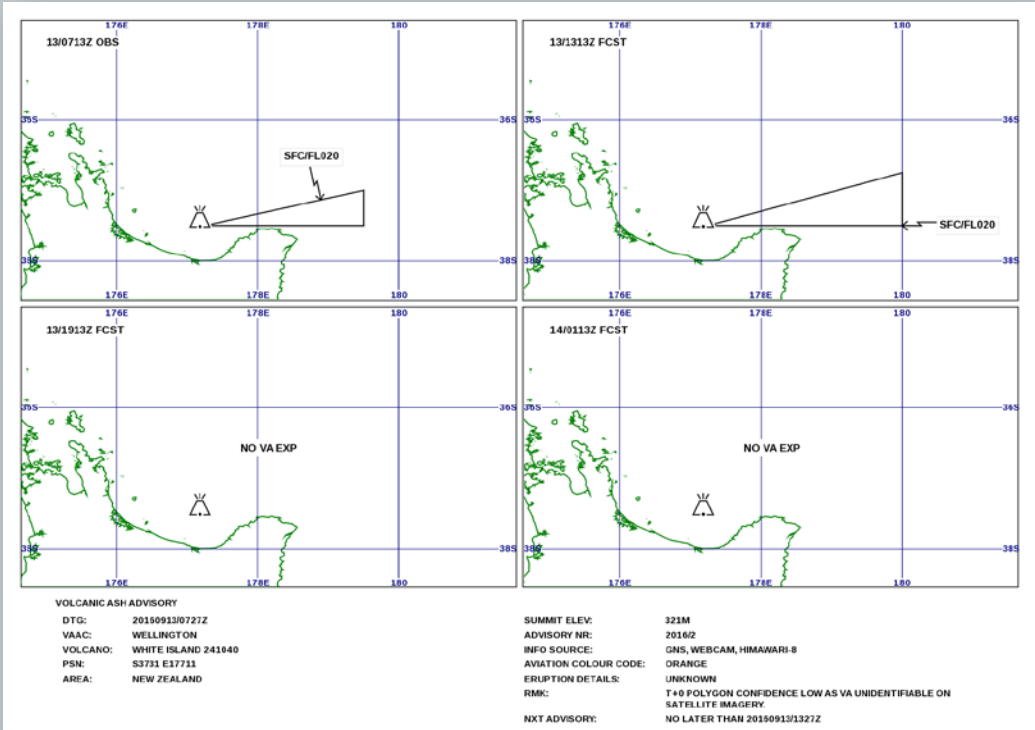
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TAF NZCH 091715Z 0918/101  
08010KT 9999 NSW NSC BECM
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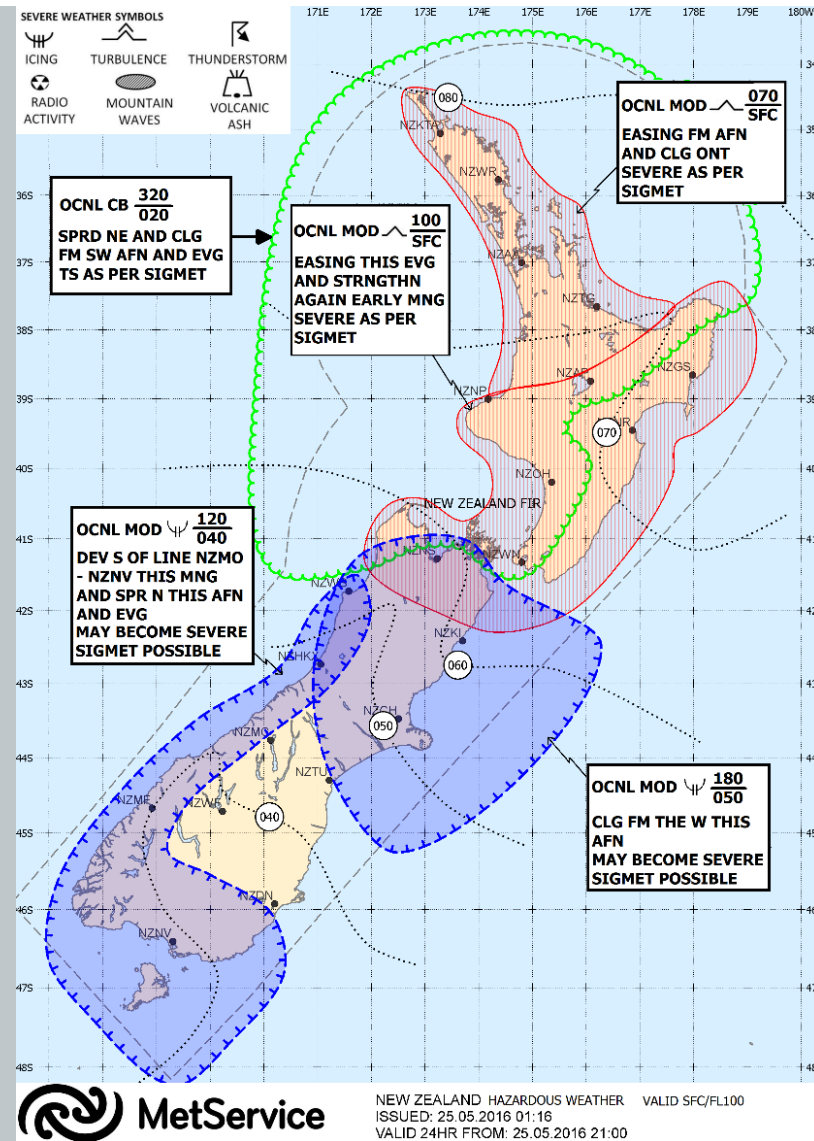
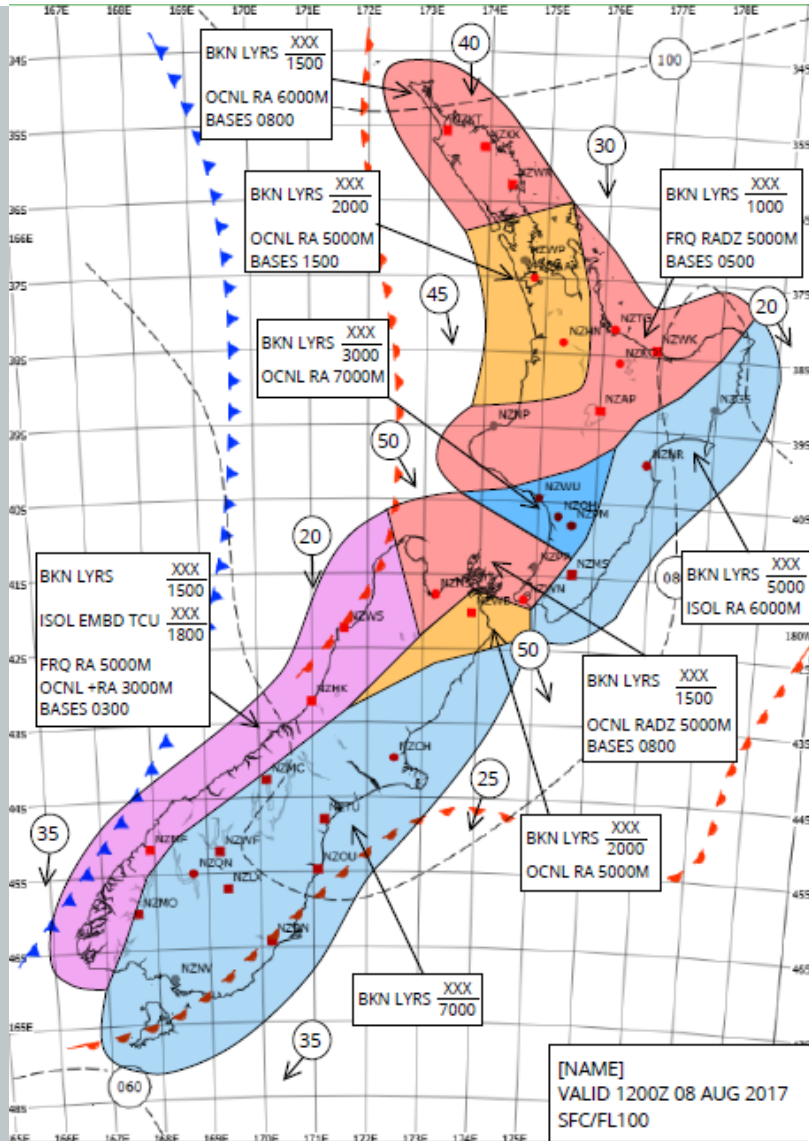
WRF in the cloud

Graphical forecast product developments

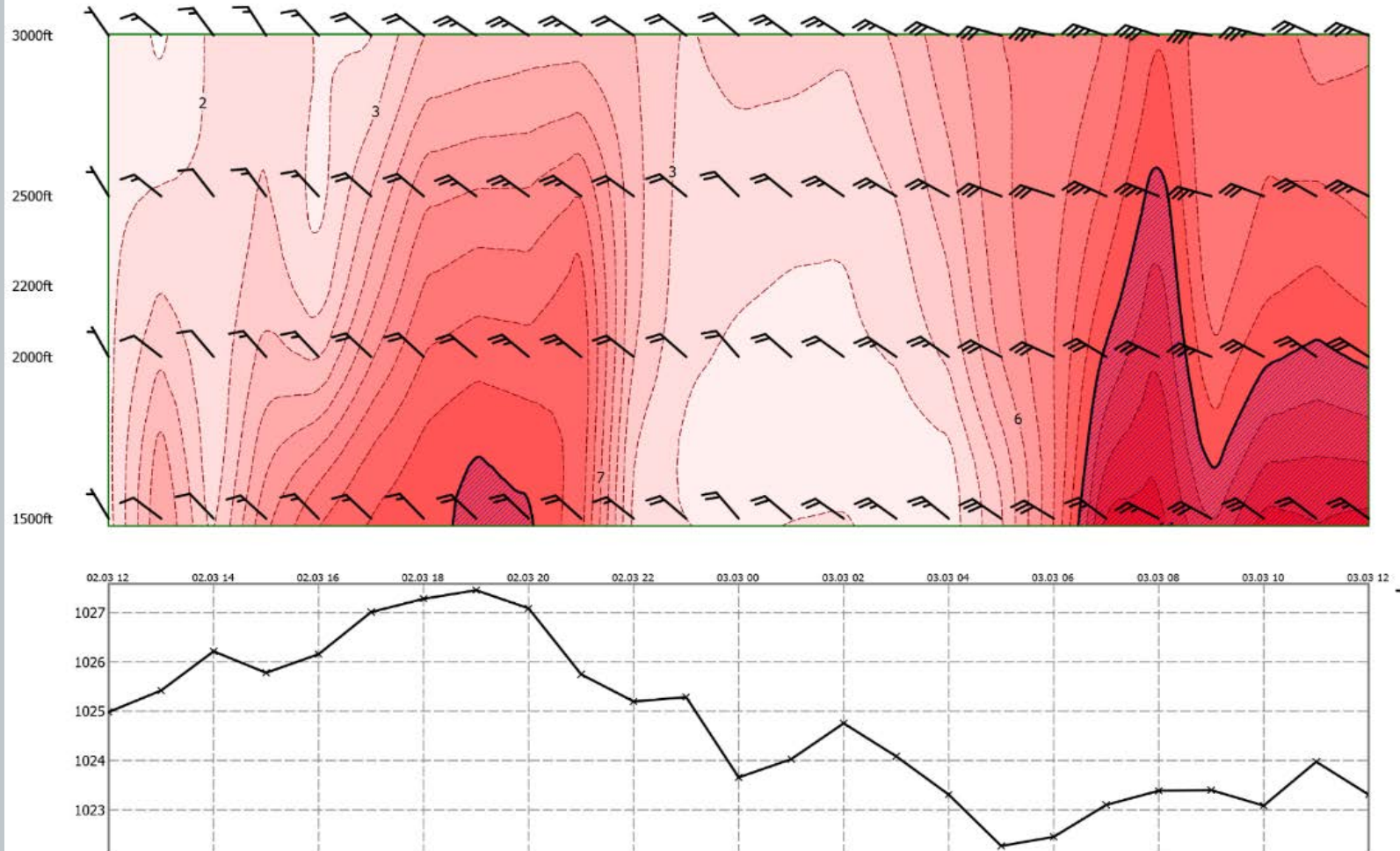
- Done – new volcanic ash graphic, graphical SIGMET monitors



Prototypes - ARFOR & Sit Brief replacements



TAF QNH & 2000 ft wind replacement concept

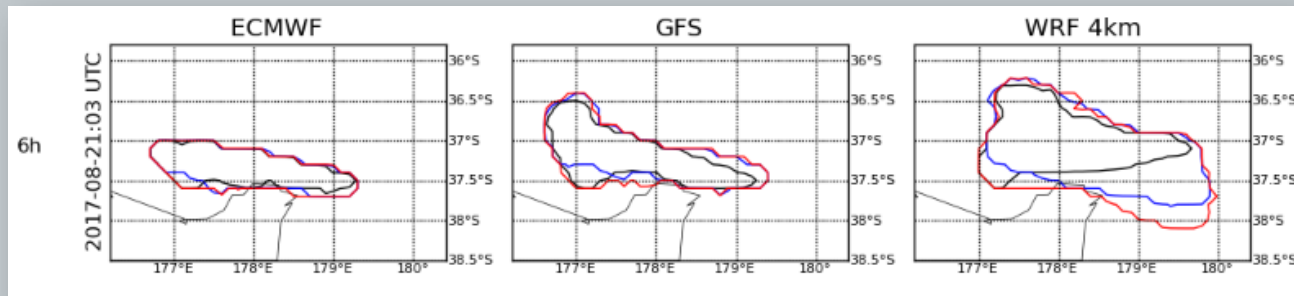


NZQN WINDSHEAR/QNH
Valid 02.03.2016 12:00 - 03.03.2016 12:00

What else?

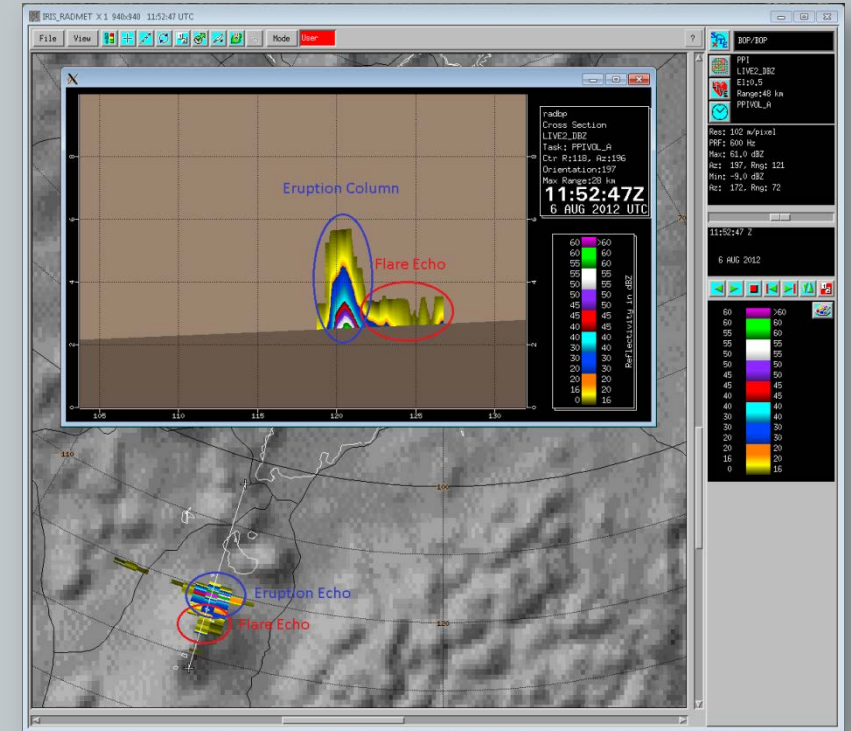
VAAC Wellington activities

- Radar alerts – a tool to detect New Zealand volcanic eruptions
- HYSPLIT – ensemble forecasting, soon to be in the cloud



- VAAC Darwin back-up arrangements

FVAU05 ADRM 190110
VA ADVISORY
DTG: 20170419/0102Z
VAAC: DARWIN
VOLCANO: TEST 9999-999 |
PSN: S6000 E16000



VAAC Wellington - future

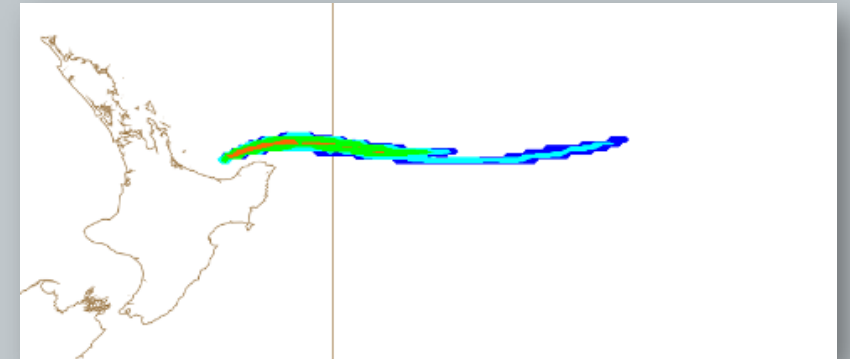
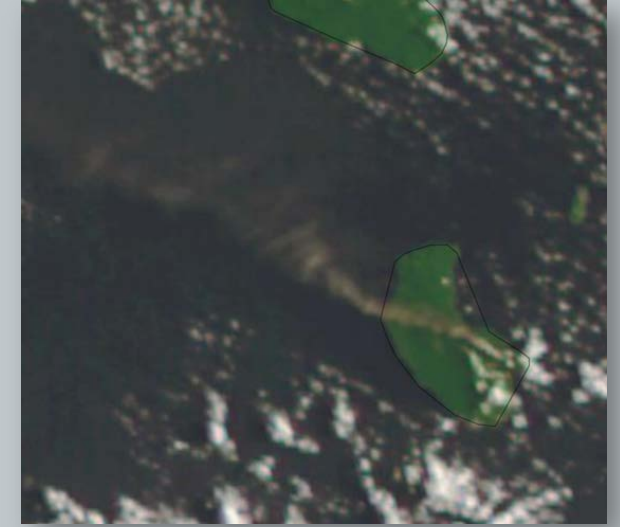
VOLCAT plans

- VOLcanic cloud analysis toolkit

Concentration charts?

- Rolls-Royce position

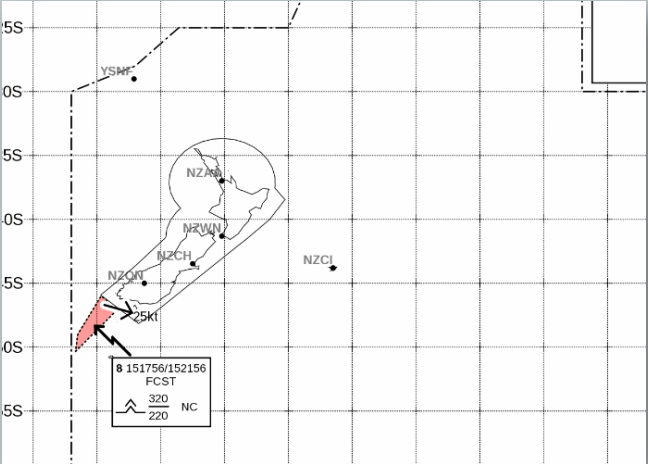
“Engines exposed to a cumulative volcanic ash dose of 14.4 g s/m³ or lower, between actual ash concentrations of 0.2 to 4 mg/m³ should not lead to a significant reduction in engine related flight safety margins (e.g. 2 hours at 2 mg/m³)” (All RB211 and Trent Engines)



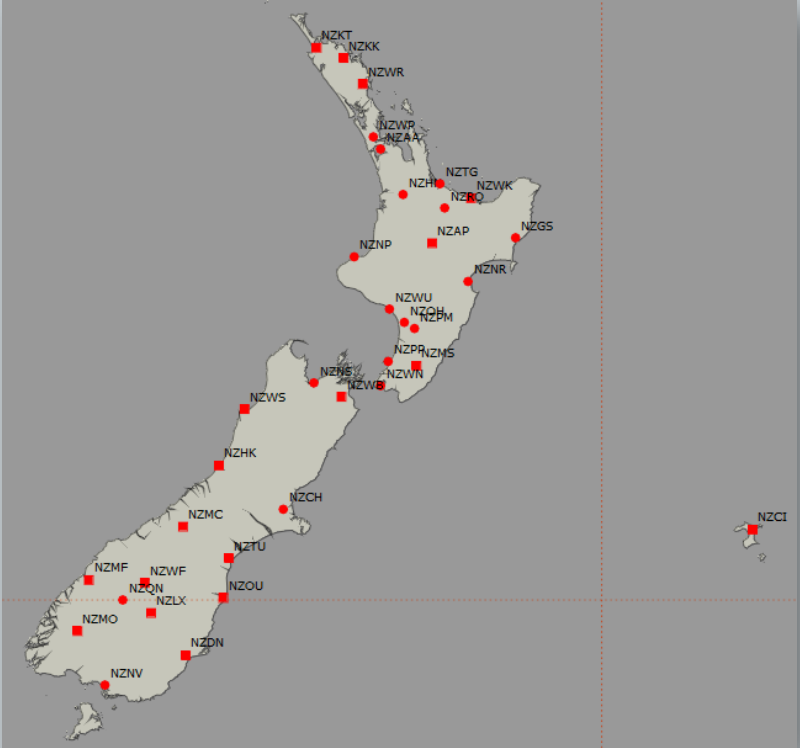
Review of products

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NZWN:  
METAR 202330Z AUTO 19026KT 9999 VCSH SCT023/// BKN028/// BKN034///  
10/05 Q1007 NOSIG RMK KAUKAU 18033KT
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Trends – are they still required?



Harmonised phenomena-based warnings – can we make NZZC/NZZO SIGMETs seamless?



TAFs – what’s still useful; what new locations are required? What criteria should we use?

The future forecaster

- Video briefings via MetService TV
- Embedded/consulting meteorologists



HISTORIC MOMENT: Rocket Lab's Electron rocket blasted off from Mahia last month, the first of the company's three planned test flights. Picture supplied

Aviation Portal, API

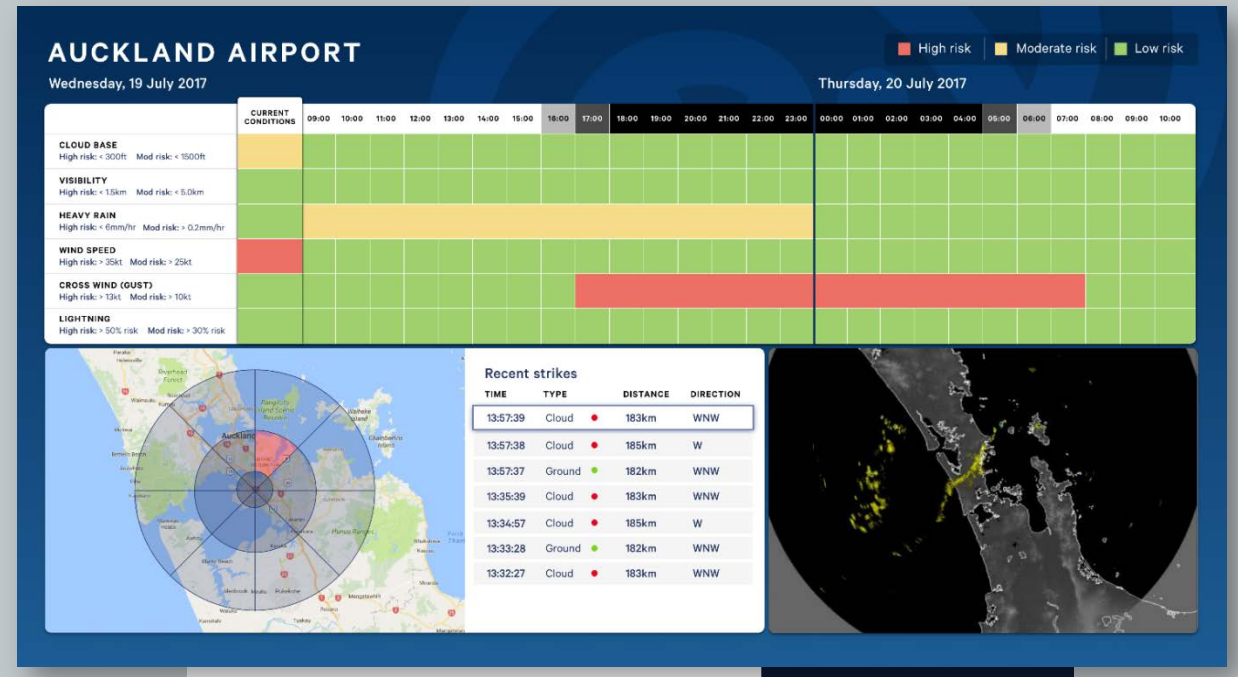
Matthew Corey

Manager, Data, Analytics, Platforms

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New platform – aviation portal refresh

- New portal will preserve functionality but add capabilities
- Modular widgets = configurable
- Responsive – mobile-friendly
- Single login and user administration
- Looking for beta-testers!



MET CDM

Ray Thorpe

General Manager Sales New Zealand

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Future best practice centred around MET-CDM

MetConnect | Help | Logged in: Ray Thorp | Org Admin Contacts | Contact Us | Logout

Lightning Prox | **Apt Wx Risk** | Strike cast | + | Administration

NZ Airports Weather Risk Forecast
Auckland_Airport

Auckland Airport Weather Risks

Issued at 10:30 NZT 18 Apr 2018

Monday 18 Apr (times in NZ local time)

	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
Cloud base	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Visibility	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Runway wet	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Cross wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Monday 18 Apr (times in NZ local time)

	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Cloud base	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Visibility	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Runway wet	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Cross wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Tuesday 19 Apr (times in NZ local time)

	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
Cloud base	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Visibility	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Runway wet	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Cross wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Tuesday 19 Apr (times in NZ local time)

	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
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Visibility	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Runway wet	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Cross wind	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

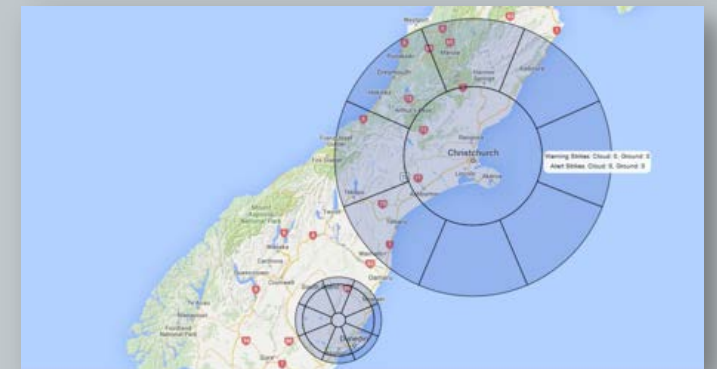
Definition of risks

	Cloud base 1500ft or less and cloud cover 5 oktas or greater
	Cloud base 1800ft or less and cloud cover 5 oktas or greater
	Cloud base greater than 1800ft
	Visibility 5000m or less
	Visibility between 5000m and 7000m
	Visibility greater than 7000m
	Rainfall 0.2mm or more in last hour or the hour before
	Rainfall 0.2mm or more in the hour before but 0mm in the last hour
	Rainfall less than 0.2mm in the last two hours
	Wind speed 35kt or more
	Wind speed between 25kt and 35kt
	Wind speed less than 25kt

- AIR TRAFFIC CONTROL
- IN-FLIGHT AIRCRAFT
- AIRPORT OPERATIONS

Lightning circles

- Real-time visual proximity alerts
- User-configurable number and size of range rings
- There are eight segments per range ring (north, northeast, east, southeast, south, southwest, west, northwest)
- Place lightning circle over your asset or area of interest (airport, hotel)
- All lightning detected by the LDN is displayed on screen
- As these lightning strikes approach your asset and events pass over the lightning circle, the lightning circle segments will turn red
- Regional-to-local lightning awareness



Lightning alerts

- Email alerts - direct to your computer or mobile phone
- SMS txt alerts – direct to your mobile phone
- Alerts are geofences based on the boundaries of your asset or area of interest
- Two levels of warning:
 - Alert
 - Warning
- All clear messages are sent

**** Lightning in Watch Zone ****

Lightning activity has been detected in the Lightning Watch Zone at Wellington Airport, 22.66 km E at 12:59 PM, May 03, 2017 UTC.

You are receiving this email because you are subscribed to email alerts for the MetraWeather Lightning Activity business rule. Go to <https://www.metconnect.com.au/mango/login> to view further details in your MetConnect dashboard.



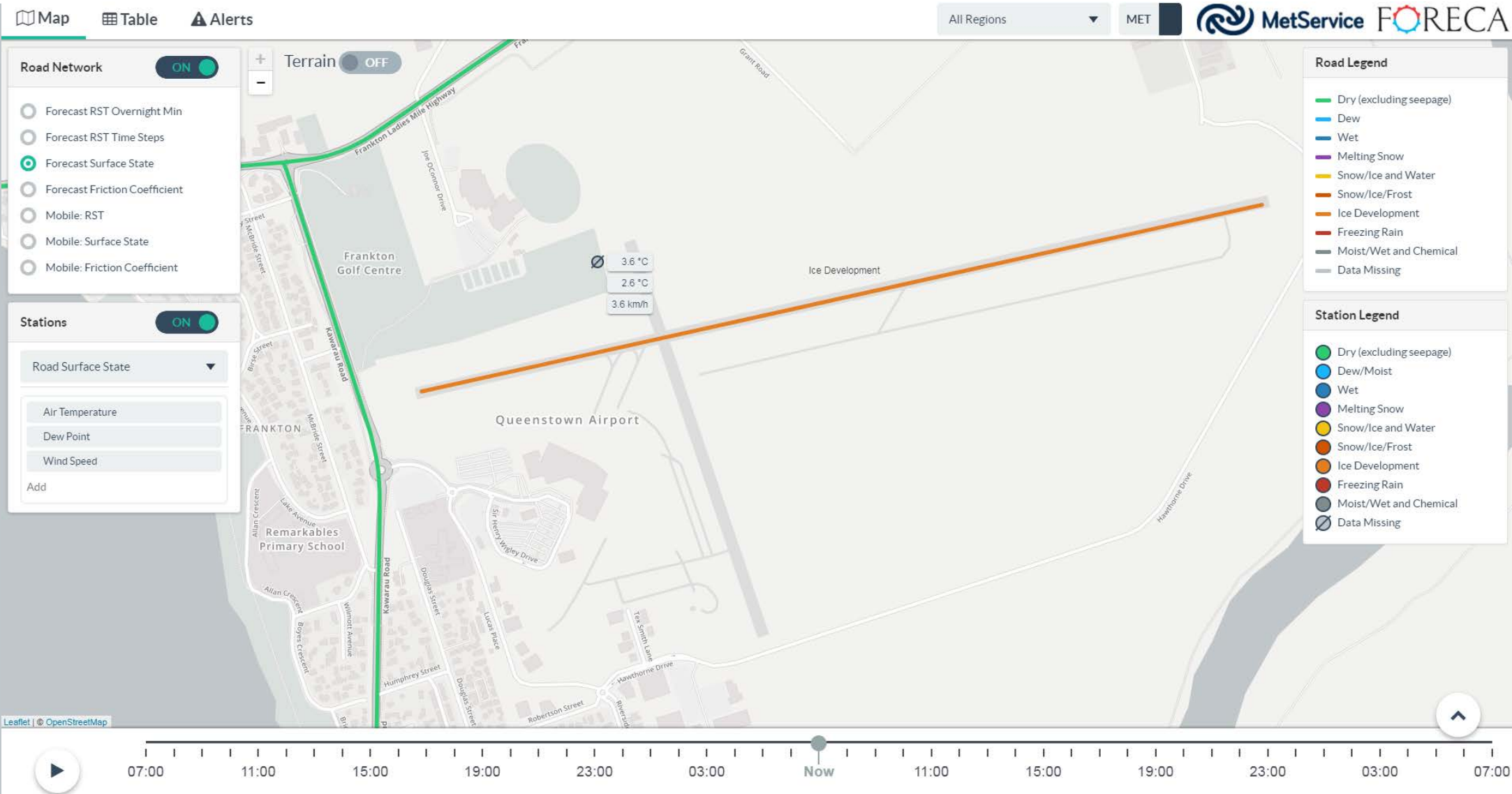
Forecast runway surface state



Forecast runway surface state



Forecast runway surface state



Forecast – example of 30m resolution



SPLDN – current and potential locations



TOA

Thank you

