METEOROLOGY PANEL

Future of MET Data

Or - big changes coming to legacy Annex 3 products

Ramon Oosterkamp – METP WG-MRAD member/MetService
Paula Acethorp – METP Member/CAA

CIVIL AVIATION AUTHORITY OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

MetService
TE RATONGA TIRORANGI

- Hazardous Weather Information Service (HWIS)
- Aerodrome Meteorological Observation/Forecast Information Service (AMOIS/AMFIS)
- Future of traditional alphanumeric code (TAC)

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SIGMETs over time…

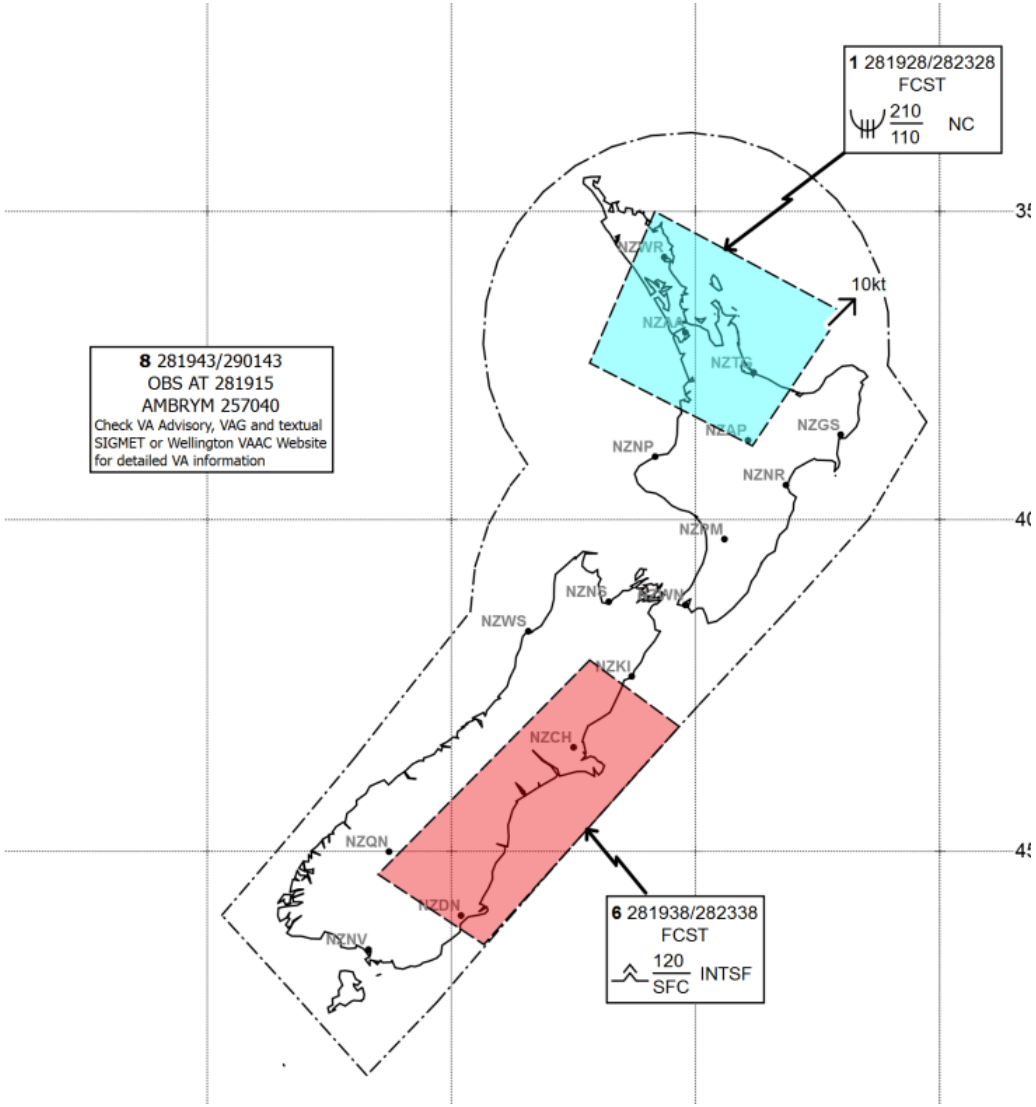
Text (free form?) SIGMETs – since 1961…

SIGMET information. Information prepared by a meteorological watch office regarding the occurrence or expected occurrence of one or more of the following phenomena:

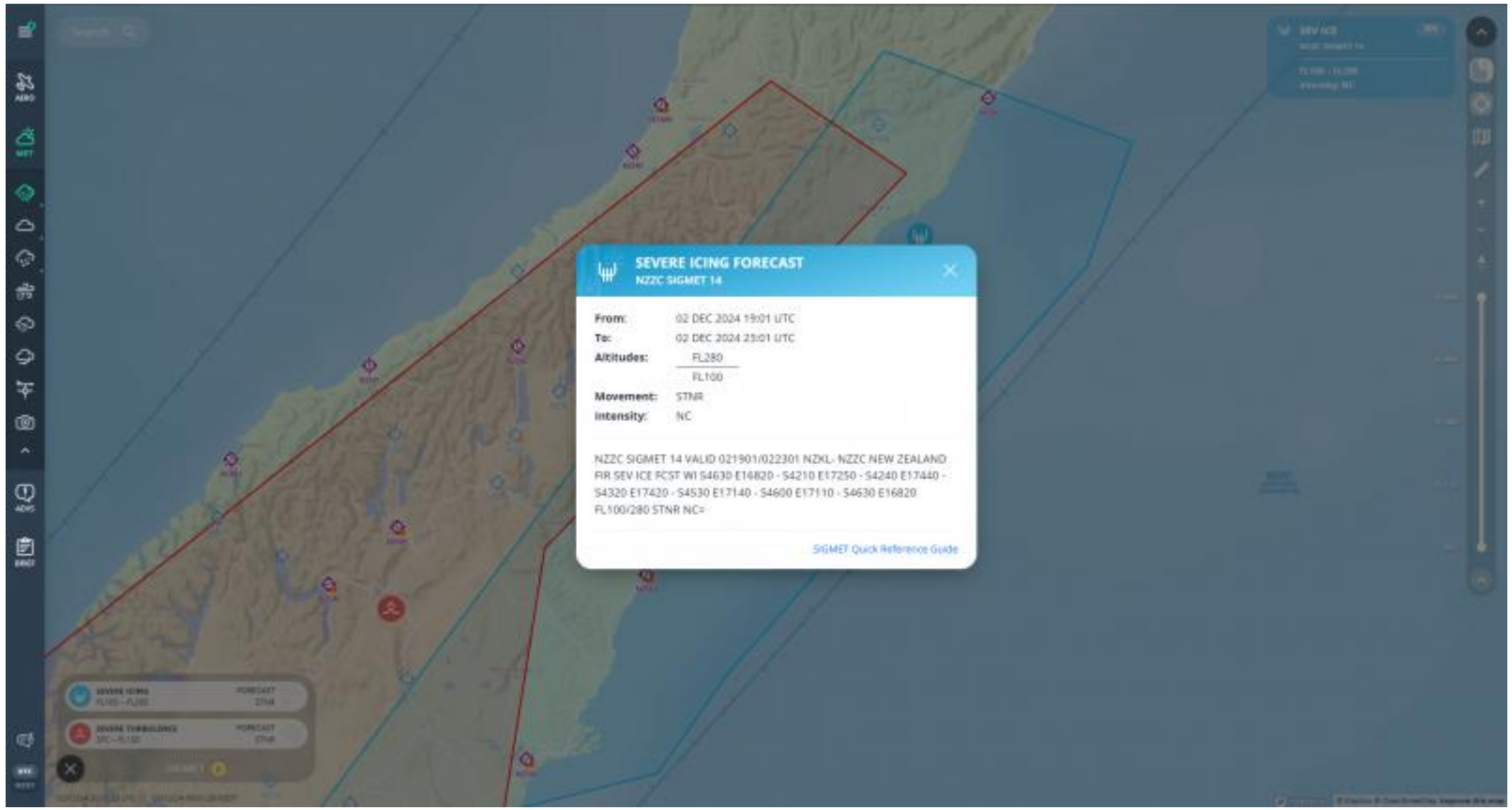
— Active thunderstorm area.
— Tropical revolving storm.
— Severe line squall.
— Heavy hail.
— Severe turbulence.
— Severe icing.
— Marked mountain waves.
— Widespread sandstorm/duststorm.

SIGMETs over time…

Graphical SIGMET Monitor (2015)



SIGMETs over time…



PreFlight (2022)

SIGMETs over time…

Challenges remain globally…

- Gaps in services – some States not disseminating SIGMET
- Inconsistent data across FIR boundaries
- Not all phenomenon covered (eg high altitude crystal icing)
- Coarse resolution of complicated phenomena
- Low temporal resolution

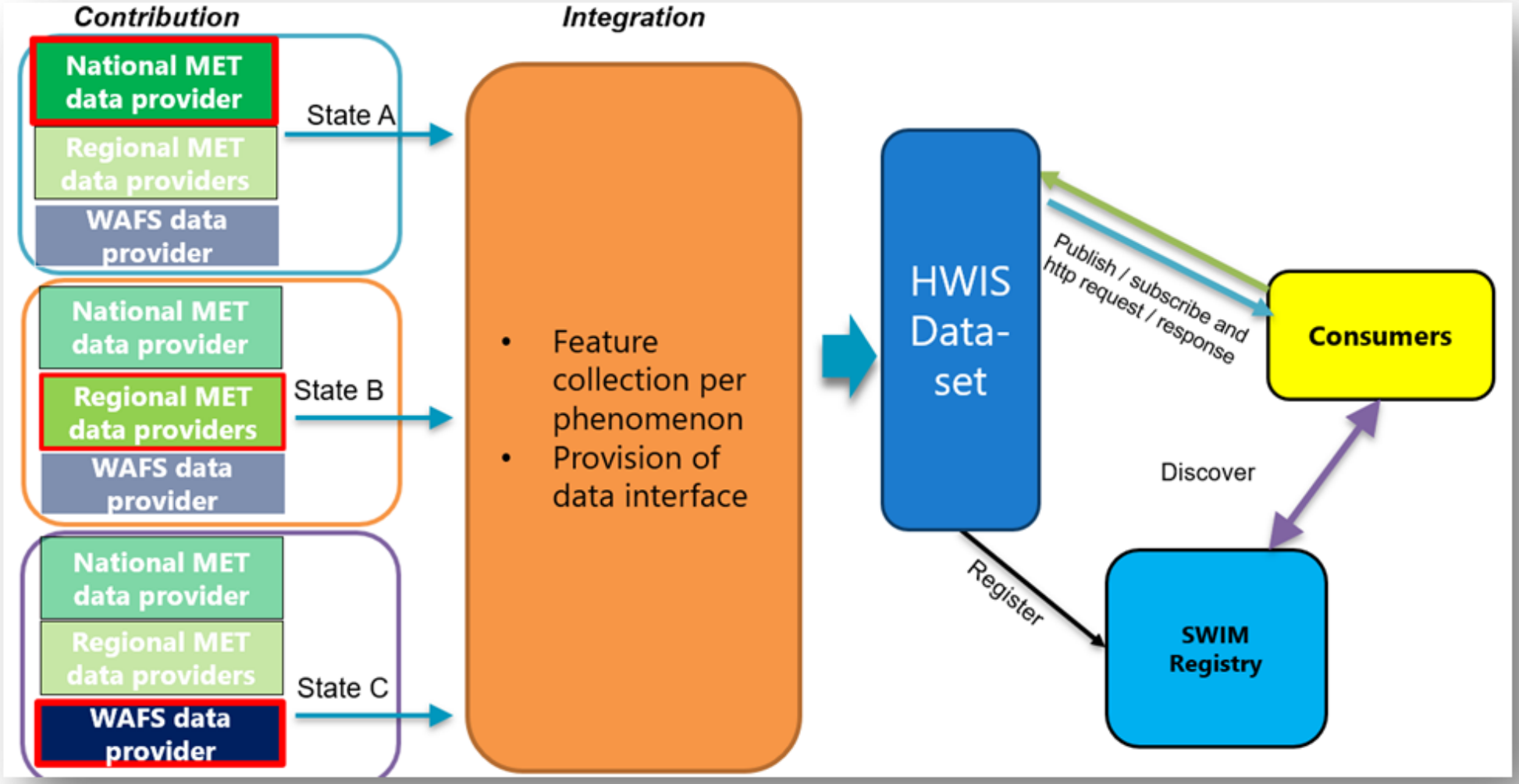
HWIS – Hazardous Weather Information Service

- Phenomenon-based service (SIGMET is FIR-based) – consistent global coverage
- Multi-provider system – gives redundancy, improves skill
- If a FIR lacks local HWIS contribution, the global WAFS hazard data will be integrated to ensure a seamless service

HWIS – Hazardous Weather Information Service

- Initially for CB, turbulence and icing
  - Volcanic ash, tropical cyclone, sand/dust storm later
- System Wide Information Management (SWIM) integrated service, machine readable
- Will (eventually) replace traditional SIGMET and WAFS data
  - Will cover all users - can ‘visualise’ it as a traditional SIGMET, or make the most of the data granularity & resolution in aviation decision making tools

Planned system overview



Current planned implementation phases

Phase 0: Concept and preparation (2020-2024)

Phase 1 - Trial and demonstration phase (2025-2028)

Phase 2 - Preparing Regional implementation (2028-2030)

Phase 3 - Preparing Global implementation (2030-2033)

System functionality

- Each contracting State has the responsibility to provide hazardous weather information, SIGMETs, into the system
- MetService currently is New Zealand's 'contributor'
- Integrators are responsible for compiling the HWIS contributions into a single HWIS data set and make them available as a SWIM-service
- Who our regional integrator will be is still TBC

Still a large number of technical details to work through – such as update cycle, hierarchy of hazardous information, consistency across borders, cost recovery etc

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Aerodrome Meteorological Observation Information Service (AMOIS) – proposed for Annex 3

- Based on existing aerodrome observation requirements (METAR/SPECI/MET Report)
- Additional optional fields, developed by MET Panel, in consultation with users – availability depends on local needs and capability
- Can be generated from an hourly manual METAR or be generated automatically every second – or somewhere in between, and with some elements updated more regularly (eg 1min wind, half hour temperature).

AMOIS – Annex 3 proposal

New optional elements

1. Atmospheric pressure at aerodrome elevation (QFE)
2. Ground/runway temperature
3. Lightning
4. Liquid water equivalent (LWE)
5. Low-level wind shear (LLWS)
6. Moisture;
7. Precipitation rate
8. Winds aloft

AMOIS – Annex 3 proposal

Can also include:

- Additional relevant observation information beyond the 16 km radius (eg Kaukau wind could be included in Wellington Airport AMOIS data).
- Sea surface conditions (for stations on offshore structures)
- Runway visual range (RVR) values
- Cross wind and head/tail wind components of wind and gusts.
- Volcanic ash deposition

Planned for Amd 83 to Annex 3 – November 2027

Aerodrome Meteorological Forecast Information Service (AMFIS) – proposed for Annex 3

- Based on existing aerodrome forecast requirements (TAF/landing trend/take off forecasts).
- Additional optional fields, vertical extent, forecast length (30+hr), depending on user requirement.
- Can include probabilities in 10% increments (from 10-100%), change groups not mandatory when hourly forecast data is provided.

Planned for Amd 83 to Annex 3 – November 2027

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Removal of traditional alphanumeric code (TAC)

- With the introduction of IWXXM format products, time to plan for cessation of TAC and abbreviated plain language products in Annex 3.
  - Note – does not included volcano observatory notice to aviation (VONA), which only becomes a requirement in 2025.
- Proposed that production and exchange of TAC and abbreviated plain language products **will be ceased in November 2030** – allowing sufficient lead time for planning (by providers and users).
- MET providers can still provide legacy TAC products if users require – likely will be a “visualisation” of the applicable data service.