

SIGMET Reference Material

1. INTRODUCTION

Overall Responsibilities

From Annex 3 to the Chicago Convention on International Civil Aviation - Meteorological Service for International Air Navigation, SIGMET information is defined as:

SIGMET information: Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

Also from Annex 3:

3.4.1 A Contracting State, having accepted the responsibility for providing air traffic services within a flight information region or a control area, shall establish, on the basis of regional air navigation agreement, one or more meteorological watch offices, or arrange for another Contracting State to do so.

3.4.2 A meteorological watch office shall:

- (a) maintain continuous watch over meteorological conditions affecting flight operations within its area of responsibility;
- (b) prepare SIGMET and other information relating to its area of responsibility;
- (c) supply SIGMET information and, as required, other meteorological information to associated air traffic services units;
- (d) disseminate SIGMET information;
- (e) ... (not applicable to SIGMET)
- (f) supply information received on pre-eruption volcanic activity, a volcanic eruption and volcanic ash cloud for which a SIGMET has not already been issued, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to its associated VAAC as determined by regional air navigation agreement; and
- (g) supply information received concerning the release of radioactive materials into the atmosphere, in the area for which it maintains watch or adjacent areas, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to aeronautical information service units, as agreed between the meteorological and appropriate civil aviation authorities concerned. The information shall comprise location, date and time of the release, and forecast trajectories of the radioactive materials.

International Aviation

In New Zealand the Meteorological Authority under the Convention, the CAA, contracts MetService to provide all operational responsibilities to international aviation including the production of SIGMET for both the New Zealand FIR (NZZC) and the Auckland Oceanic FIR (NZZO). MetService undertakes this task from their offices in Wellington – designated the Wellington Meteorological Watch Office (MWO).

Airways is responsible for the dissemination and direct communication of SIGMET to international aviation. While the CAA is the ATS Authority with regard to the Convention, Airways carries out all of the operational activities required.

Domestic Aviation

New Zealand domestic aviation clearly also has an interest in acquiring information on hazardous meteorological conditions for aviation. In this regard it has traditionally been given access to the standard SIGMET products.

Both MetService and Airways provide for this need within their respective operations and products.

2. The Changes

With effect from 14 November 2013, SIGMET from all States for all FIRs are required by the amended Annex 3 to the Convention on International Civil Aviation, to carry latitude and longitude coordinates of the weather phenomena exclusively. This replaces a previous allowance for the use of place names (refer Section 7.1 and associated appendices of Annex 3 Meteorological Services for international Civil Aviation).

The CAA recognises that the change is necessary for operator and airline machine readability for direct use within flight planning and operations. However, it is also recognised that the change would impose a level of interpretive difficulty for domestic general aviation pilots, and some third-level domestic operations here in New Zealand.

In this regard the CAA has worked with MetService and Airways Corporation to establish a system to dynamically translate latitude and longitude coordinates in the New Zealand FIR (Domestic) SIGMET back to place names for use by air traffic controllers and flight service personnel who engage domestic pilots by voice radio.

This approach will ensure that New Zealand's ICAO responsibilities in this matter are correctly delivered on the international stage, while the expectations of domestic aviation are catered for:

Important Notes:

- (a) All SIGMET for the Auckland Oceanic FIR (NZZO) will continue to use latitude and longitude coordinates to describe the location of observed and/or forecast of hazardous meteorological phenomena. There will be no translation of these coordinates to place names by air traffic controllers in radio contact with international aircrew.
- (b) When SIGMET for the New Zealand FIR (NZZC) are passed to the crews of international flights, latitude and longitude coordinates will be used exclusively.
- (c) Some SIGMETs for the New Zealand FIR (NZZC) may use latitude and longitude coordinates to describe the location of observed and forecast of hazardous meteorological phenomena when part of the affected area stretches out to sea but not all the way to the FIR boundary (see examples in Appendix 3).

Set Coordinates List

Aerodromes, navigational aids and major geographic features will be the only coordinates used in the location description of forecast areas in NZZC SIGMET messages. The list is shown in Appendix 1 sorted alphabetically, by longitude (west to east) and by latitude (north to south). This list will enable Airways to translate the latitude and longitude location description of SIGMET back to place-names, for use by air traffic controllers and flight service personnel who engage domestic pilots by voice radio.

Observed Phenomena

The location of observed phenomena will be shown in latitude and longitude coordinates only. Occasionally it is expected that such coordinates may coincide with one of the set coordinates. In such cases the name of the aerodromes, navigational aids or major geographic feature will be used by ATS in passing this element of the SIGMET to pilots by voice radio.

Aircraft Position and Reporting

Wherever possible all aircraft reports of hazardous meteorological conditions should endeavour to report the position element of their SPECIAL AIR REPORTs (AIREP SPECIAL) using latitude and longitude coordinates to the nearest minute.

While this accurate position reporting should be straight forward for crews with flight management systems or GPS it is recognised that some GA pilots will be able to provide only a general indication of their location. If unable to report position in exact latitudes and longitudes it is alternatively desirable for the report to be structured giving position relative to a known place. For example:

- a) *60NM S NP – 60 nautical miles south of New Plymouth aerodrome.* - The coordinates for a point 60 nautical miles south of New Plymouth aerodrome would be used as the reporting point in the observed portion of the SIGMET.

- b) *NZPM RADIAL 160 9NM*. - The coordinates at a point 9 nautical miles from NZPM on the 160 magnetic radial will be used as the reporting point in the observed portion of the SIGMET. Note that magnetic will always be assumed, unless the term T is used to indicate True.
- c) *Overhead NZPP, OHEAD NZPP, ABEAM NZPP, AREA NZPP, or NZPP AREA*. - The latitudes and longitudes for NZPP would be used as the reporting point in the observed portion of the SIGMET.
- d) *30NM – 60NM W OF NZCH*. - The coordinates for a point 45 nautical miles west of Christchurch aerodrome would be used as the reporting point in the observed portion of the SIGMET.
- e) *NZOU – NZTU*. - The coordinates of the mid-point between Oamaru and Timaru aerodromes will be used as the reporting point in the observed portion of the SIGMET.

AIREP should be passed to ATS when crews encounter or observe:

- (a) moderate or severe turbulence; or
- (b) moderate or severe icing; or
- (c) severe mountain wave; or
- (d) thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or
- (e) thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or
- (f) heavy duststorm or heavy sandstorm; or
- (g) volcanic ash cloud; or
- (h) pre-eruption volcanic activity or a volcanic eruption.

The points used when reporting AIREP SPECIAL should be based on ICAO locations, waypoints or named well known geographic features.

On receipt of an AIREP SPECIAL, should any details regarding location still be unclear, the Wellington (Kelburn) Meteorological Watch Office (MWO) will contact relevant ATS personnel. ATS will provide as much help as possible to the Wellington MWO to ensure that a consistent SIGMET message is issued to the aviation industry in a timely fashion.

SIGMET Worked Examples for NZCC

Some examples for the New Zealand FIR (NZCC), sometimes referred to as the Domestic FIR, are shown below (Note: points of latitude and longitude are shown in degrees and minutes). To assist in understanding the nature of the SIGMET, a graphic of the areas concerned is provided along with the coordinate's translation to place names. ATS personnel will use the translated place names when in voice radio communication with domestic aircraft operations.

Further examples of the depiction of SIGMET area definition and respective graphical depiction are given in Appendix 3.

While each of the examples displayed below contain an observed and forecast section, it is probable that separate observed and forecast SIGMETs for hazardous phenomena could be issued at times.

Icing example

The formal SIGMET:

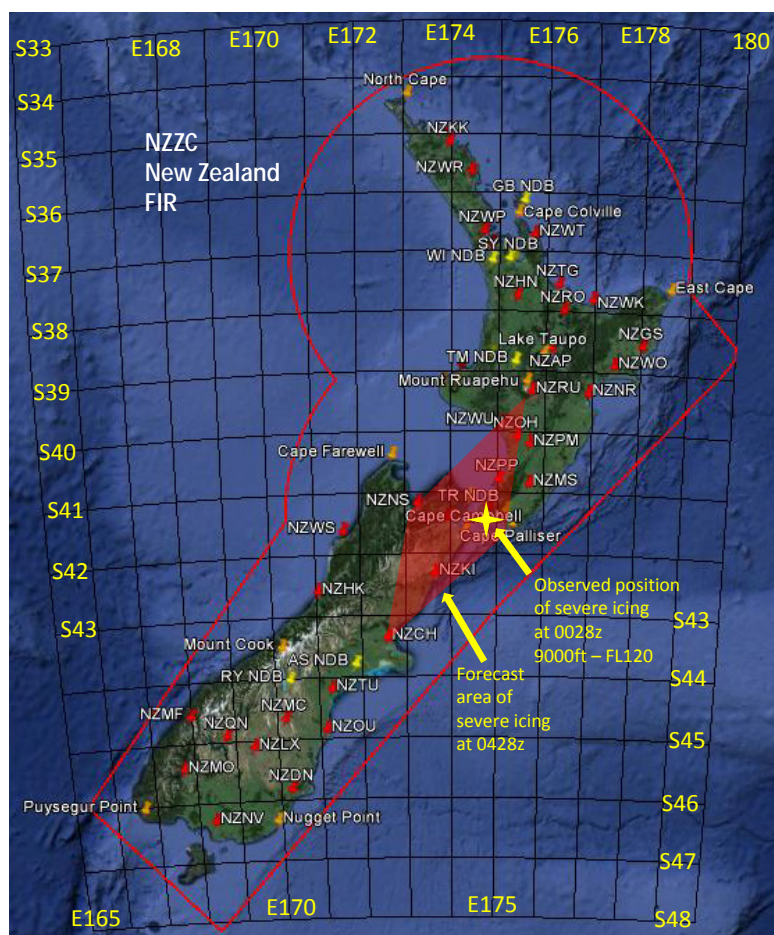
NZZC SIGMET 3 VALID 170028/170428 NZKL-
 NZZC NEW ZEALAND FIR SEV ICE OBS AT 0016Z S4120 E17448 9000FT/FL120 MOV E 15KT WKN FCST 0428Z
 SEV ICE WI S3927 E17540 - S4118 E17313 - S4329 E17232 - S4137 E17517 - S3927 E17540 7000FT/FL180=

Meaning:

The third SIGMET message issued for the New Zealand flight information region (identified by NZZC) by the Wellington meteorological watch office (NZKL) since 0001 UTC; the message is valid from 0028 UTC to 0428 UTC on the 17th of the month; severe ICE was observed at 0016 UTC at 41 degrees 20 minutes south and 174 degrees 48 minutes east by aircraft operating between 9000 ft and FL120. The area of severe ICE is moving eastward at 15 knots and is weakening.

The Forecast for this particular area containing severe ICE at 0428 UTC is that it will lie within the area bounded by 39 degrees 27 minutes south and 175 degrees 40 minutes east, 41 degrees 18 minutes south and 173 degrees 13 minutes east, 43 degrees 29 minutes south and 172 degrees 32 minutes east, and 39 degrees 27 minutes south and 175 degrees 40 minutes east between 7000 ft and FL180.

Graphically:



Note the coordinates;

S4120 E17448 = Wellington AD
 S3927 E17540 = Waiouru AD
 S4118 E17313 = Nelson AD
 S4329 E17232 = Christchurch AD
 S4137 E17517 = Cape Palliser

So an ATS voice transmission of the SIGMET to a pilot operating domestically would be similar to:

“NZZC SIGMET three valid 0028 to 0428UTC- severe icing observed over Wellington between 9000ft and 12000 ft. Moving east at 15 knots and weakening. At 0428UTC the icing is expected to lie in the area bounded by Waiouru, Nelson, Christchurch, Cape Palliser and back to Waiouru between 7000 ft and FL180 ”

Turbulence example:

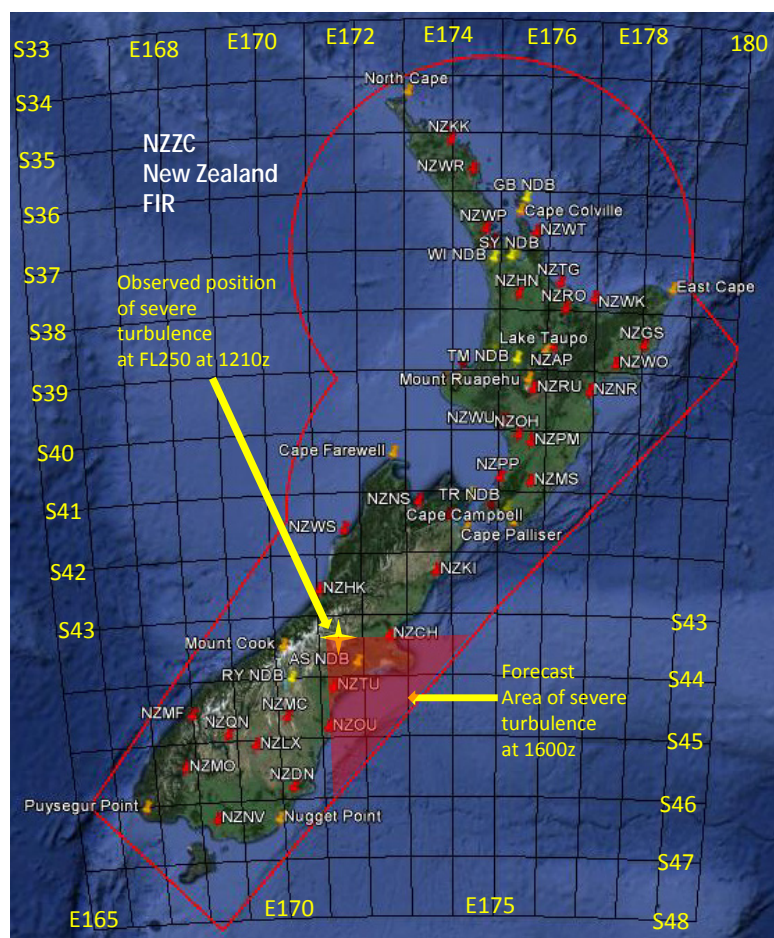
The formal SIGMET:

NZZC SIGMET 3 VALID 221215/221615 NZKL –
 NZZC NEW ZEALAND FIR SEV TURB OBS AT 1210Z S4321 E17135 FL250 MOV E 10KT WKN FCST 1615Z S OF
 S4329 E17232E AND E OF S4418 E17114=

Meaning:

The third SIGMET message issued for the New Zealand flight information region (identified by NZZC) by the Wellington meteorological watch office (NZKL) since 0001 UTC; the message is valid from 1215 UTC to 1615 UTC on the 22nd of the month; severe turbulence was observed at 1210 UTC at 43 degrees 21 minutes south and 171 degrees 35 minutes east at flight level 250; the turbulence is expected to move eastwards at 10 knots and to weaken in intensity; forecast position at 1615 UTC south of 43 degrees 29 minutes south, 172 degrees 32 minutes east, and east of 44 degrees 18 minutes south, 171 degrees 14 minutes east.

Graphically:



Note the coordinates;

S4329 E17232E = Christchurch AD
 S4418 E17114E = Timaru AD

Note that the fan of affected airspace extends to the boundary of the NZZC FIR

So an ATS voice transmission of the SIGMET to a pilot operating domestically would be similar to:

“NZZC SIGMET three valid 1215 to 1615UTC - severe turbulence observed at 1210z at S4321 E17135 FL250 (or north-east of Mt Cook) moving east at 10 kts weakening. Forecast position at 1615z is South of Christchurch and east of Timaru”

Volcanic ash example

The formal SIGMET:

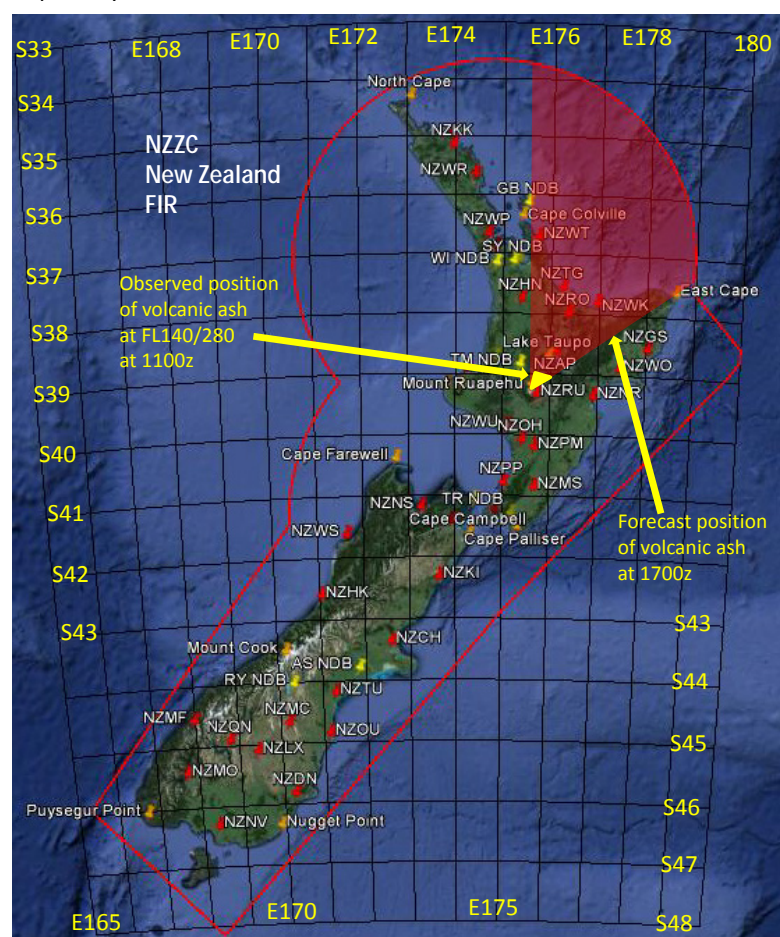
NZZC SIGMET 2 VALID 211100/211700 NZKL –
 NZZC NEW ZEALAND FIR VA ERUPTION MT RUAPEHU PSN S3917 E17534 VA CLD OBS AT 1100Z APRX
 20KM BY 30KM S3917 E17534 - S3850 E17600 FL140/280 MOV NE 20KTS FCST 1700Z VA CLD APRX E OF LINE
 S3917 E17534 - S3650 E17541 AND N OF LINE S3917 E17534 - S3742 E17833=

Meaning:

The second SIGMET message issued for the New Zealand flight information region (identified by NZZC) by the Wellington meteorological watch office (NZKL) since 0001 UTC; the message is valid from 1100 UTC to 1700 UTC on the 21st of the month; volcanic ash eruption of Mount Ruapehu located at 39 degrees 17 minutes south and 175 degrees 34 minutes east; volcanic ash cloud observed at 1100 UTC in an approximate area of 20 km by 30 km between 39 degrees 17 minutes south and 175 degrees 34 minutes east, and 38 degrees 50 minutes south and 176 degrees east; between flight levels 140 and 280, and the volcanic ash cloud is expected to move north-eastwards at 20 knots.

At 1700 UTC the volcanic ash cloud is forecast to be located approximately in an area east of a line 39 degrees 17 minutes south and 175 degrees 34 minutes east - 36 degrees 50 minutes south and 175 degrees 41 minutes east and north of a line 39 degrees 17 minutes south and 175 degrees 34 minutes east - 37 degrees 42 minutes south and 178 degrees 33 minutes east.

Graphically:



Note the coordinates:

S3917 E17534 = Mt Ruapehu
 S3650 E17541 = Whitianga AD
 S3742 E17833 = East Cape

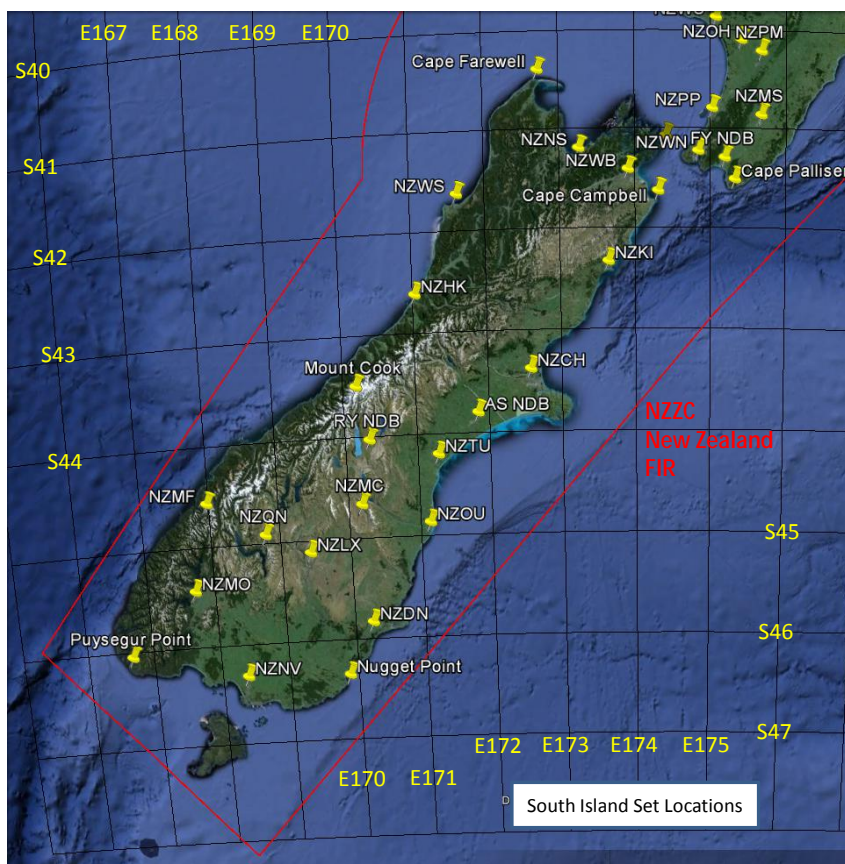
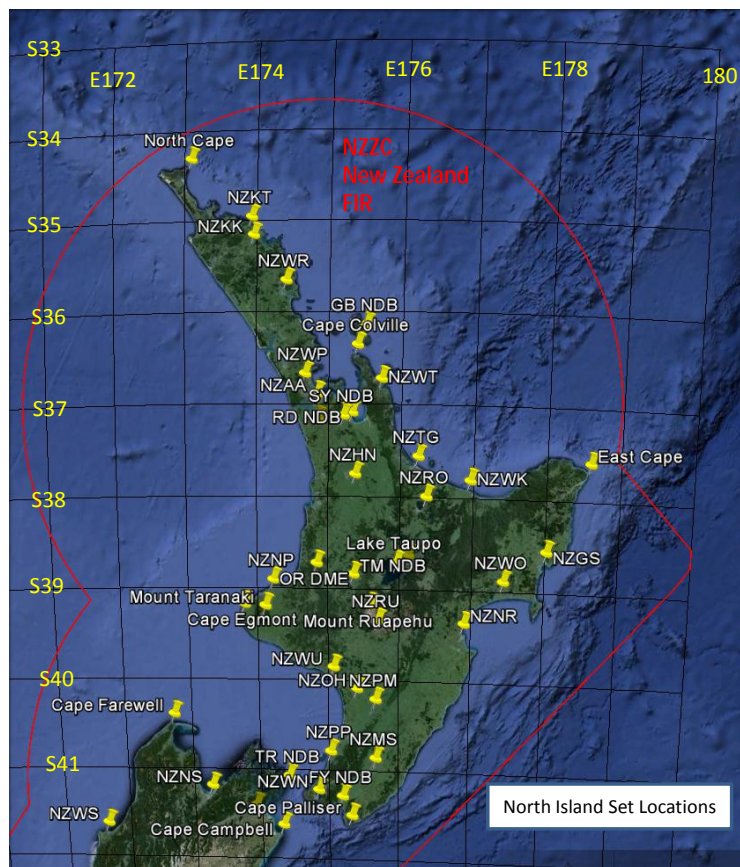
Note that the fan of affected airspace extends to the boundary of the NZZC FIR

So an ATS voice transmission of the SIGMET to a pilot operating domestically would be similar to:

“NZZC SIGMET two valid 1100 to 1700UTC – volcanic ash from Mt Ruapehu observed at 1100Z within an area of about 20 km by 30 km between Mt Ruapehu and 38 degrees 50 minutes south and 176 degrees east between flight levels 140 and 280. Expected to move Northeast at 20 kts. At 1700UTC the volcanic ash cloud is forecast to be located approximately in an area east of a line Mt Ruapehu to Whitianga and north of a line Mt Ruapehu to East Cape”.

Appendix 1 - New Zealand FIR and Locations Maps

The charts below show all of the set locations that will be used in NZCC SIGMET.



Appendix 2 – New Zealand FIR (NZZC) Set Coordinates Lists and Locations

Alphabetical

	Place Name	Identifier	Rounded Coordinates WGS-84	Type
1.	Alexandra	NZLX	S4513 E16922	Aerodrome
2.	Auckland	NZAA	S3700 E17448	Aerodrome
3.	Christchurch	NZCH	S4329 E17232	Aerodrome
4.	Dunedin	NZDN	S4556 E17012	Aerodrome
5.	Gisborne	NZGS	S3840 E17759	Aerodrome
6.	Hamilton	NZHN	S3752 E17520	Aerodrome
7.	Hokitika	NZHK	S4243 E17059	Aerodrome
8.	Invercargill	NZNV	S4625 E16819	Aerodrome
9.	Kaikoura	NZKI	S4245 E17336	Aerodrome
10.	Kaitia	NZKT	S3504 E17317	Aerodrome
11.	Kerikeri	NZKK	S3516 E17355	Aerodrome
12.	Masterton	NZMS	S4058 E17538	Aerodrome
13.	Milford Sound	NZMF	S4440 E16755	Aerodrome
14.	Mount Cook	NZMC	S4346 E17008	Aerodrome
15.	Napier	NZNR	S3928 E17652	Aerodrome
16.	Nelson	NZNS	S4118 E17313	Aerodrome
17.	New Plymouth	NZNP	S3901 E17411	Aerodrome
18.	Oamaru	NZOU	S4458 E17105	Aerodrome
19.	Ohakea	NZOH	S4012 E17523	Aerodrome
20.	Palmerston North	NZPM	S4019 E17537	Aerodrome
21.	Paraparaumu	NZPP	S4054 E17459	Aerodrome
22.	Queenstown	NZQN	S4501 E16844	Aerodrome
23.	Rotorua	NZRO	S3807 E17619	Aerodrome
24.	Taupo	NZAP	S3844 E17605	Aerodrome
25.	Tauranga	NZTG	S3740 E17612	Aerodrome
26.	Te Anau/Manapouri	NZMO	S4532 E16739	Aerodrome
27.	Timaru	NZTU	S4418 E17114	Aerodrome
28.	Waiouru	NZRU	S3927 E17540	Aerodrome
29.	Wairoa	NZWO	S3900 E17724	Aerodrome
30.	Wanganui	NZWU	S3958 E17502	Aerodrome
31.	Wellington	NZWN	S4120 E17448	Aerodrome
32.	Westport	NZWS	S4144 E17135	Aerodrome
33.	Whakatane	NZWK	S3755 E17655	Aerodrome
34.	Whangarei	NZWR	S3546 E17422	Aerodrome
35.	Whenuapai	NZWP	S3647 E17438	Aerodrome
36.	Whitianga	NZWT	S3650 E17541	Aerodrome
37.	Woodbourne	NZWB	S4131 E17352	Aerodrome
38.	Ashburton	AS NDB	S4354 E17148	Navigation aid
39.	Ferry	FY NDB	S4124 E17509	Navigation aid
40.	Great Barrier	GB NDB	S3615 E17528	Navigation aid
41.	Miranda	RD NDB	S3712 E17518	Navigation aid
42.	Mount Mary	RY DME	S4408 E17017	Navigation aid
43.	Ohura	OR DME	S3850 E17448	Navigation aid
44.	Surrey	SY NDB	S3714 E17510	Navigation aid
45.	Taumarunui	TM NDB	S3856 E17518	Navigation aid
46.	Tory	TR DME	S4111 E17422	Navigation aid
47.	Waiuku	WI NDB	S3716 E17449	Navigation aid
48.	Mount Ruapehu	Mount Ruapehu	S3917 E17534	Major geographical feature
49.	Mount Taranaki	Mount Taranaki	S3918 E17404	Major geographical feature
50.	Lake Taupo	Lake Taupo	S3846 E17553	Major geographical feature
51.	North Cape	North Cape	S3425 E17303	Major geographical feature
52.	Cape Colville	Cape Colville	S3628 E17520	Major geographical feature
53.	Cape Egmont	Cape Egmont	S3917 E17346	Major geographical feature
54.	East Cape	East Cape	S3741 E17833	Major geographical feature
55.	Cape Palliser	Cape Palliser	S4137 E17516	Major geographical feature
56.	Cape Farewell	Cape Farewell	S4030 E17242	Major geographical feature
57.	Cape Campbell	Cape Campbell	S4144 E17417	Major geographical feature
58.	Nugget Point	Nugget Point	S4627 E16949	Major geographical feature
59.	Puysegur Point	Puysegur Point	S4609 E16636	Major geographical feature

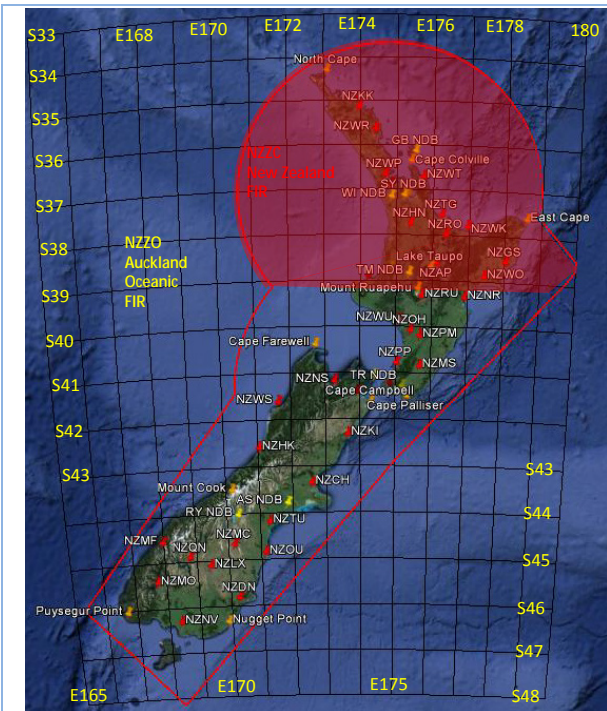
Sorted from west to east (Longitude)

Place Name	Identifier	Type	Rounded Coordinates WGS-84	
Puysegur Point	Puysegur Point	Major geographical feature	S4609	E16636
Te Anau/Manapouri	NZMO	Aerodrome	S4532	E16739
Milford Sound	NZMF	Aerodrome	S4440	E16755
Invercargill	NZNV	Aerodrome	S4625	E16819
Queenstown	NZQN	Aerodrome	S4501	E16844
Alexandra	NZLX	Aerodrome	S4513	E16922
Nugget Point	Nugget Point	Major geographical feature	S4627	E16949
Mount Cook	NZMC	Aerodrome	S4346	E17008
Dunedin	NZDN	Aerodrome	S4556	E17012
Mount Mary	RY DME	Navigation aid	S4408	E17017
Hokitika	NZHK	Aerodrome	S4243	E17059
Oamaru	NZOU	Aerodrome	S4458	E17105
Timaru	NZTU	Aerodrome	S4418	E17114
Westport	NZWS	Aerodrome	S4144	E17135
Ashburton	AS NDB	Navigation aid	S4354	E17148
Christchurch	NZCH	Aerodrome	S4329	E17232
Cape Farewell	Cape Farewell	Major geographical feature	S4030	E17242
North Cape	North Cape	Major geographical feature	S3425	E17303
Nelson	NZNS	Aerodrome	S4118	E17313
Kaitiaki	NZKT	Aerodrome	S3504	E17317
Kaikoura	NZKI	Aerodrome	S4245	E17336
Cape Egmont	Cape Egmont	Major geographical feature	S3917	E17346
Woodbourne	NZWB	Aerodrome	S4131	E17352
Kerikeri	NZKK	Aerodrome	S3516	E17355
Mount Taranaki	Mount Taranaki	Major geographical feature	S3918	E17404
New Plymouth	NZNP	Aerodrome	S3901	E17411
Cape Campbell	Cape Campbell	Major geographical feature	S4144	E17417
Whangarei	NZWR	Aerodrome	S3546	E17422
Tory	TR DME	Navigation aid	S4111	E17422
Whenuapai	NZWP	Aerodrome	S3647	E17438
Auckland	NZAA	Aerodrome	S3700	E17448
Wellington	NZWN	Aerodrome	S4120	E17448
Ohura	OR DME	Navigation aid	S3850	E17448
Waiuku	WI NDB	Navigation aid	S3716	E17449
Paraparaumu	NZPP	Aerodrome	S4054	E17459
Wanganui	NZWU	Aerodrome	S3958	E17502
Ferry	FY NDB	Navigation aid	S4124	E17509
Surrey	SY NDB	Navigation aid	S3714	E17510
Cape Palliser	Cape Palliser	Major geographical feature	S4137	E17516
Miranda	RD NDB	Navigation aid	S3712	E17518
Taumarunui	TM NDB	Navigation aid	S3856	E17518
Hamilton	NZHN	Aerodrome	S3752	E17520
Cape Colville	Cape Colville	Major geographical feature	S3628	E17520
Ohakea	NZOH	Aerodrome	S4012	E17523
Great Barrier	GB NDB	Navigation aid	S3615	E17528
Mount Ruapehu	Mount Ruapehu	Major geographical feature	S3917	E17534
Palmerston North	NZPM	Aerodrome	S4019	E17537
Masterton	NZMS	Aerodrome	S4058	E17538
Waiouru	NZRU	Aerodrome	S3927	E17540
Whitianga	NZWT	Aerodrome	S3650	E17541
Lake Taupo	Lake Taupo	Major geographical feature	S3846	E17553
Taupo	NZAP	Aerodrome	S3844	E17605
Tauranga	NZTG	Aerodrome	S3740	E17612
Rotorua	NZRO	Aerodrome	S3807	E17619
Napier	NZNR	Aerodrome	S3928	E17652
Whakatane	NZWK	Aerodrome	S3755	E17655
Wairoa	NZWO	Aerodrome	S3900	E17724
Gisborne	NZGS	Aerodrome	S3840	E17759
East Cape	East Cape	Major geographical feature	S3741	E17833

Sorted from North to South (Latitude)

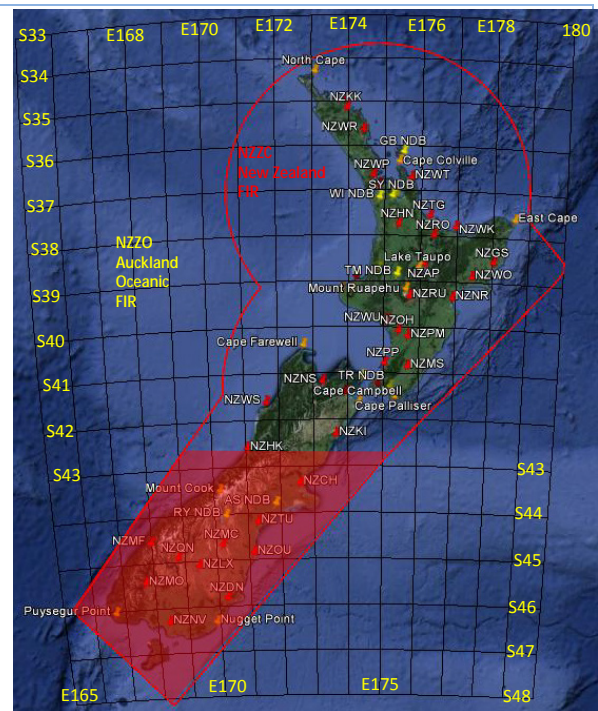
Place Name	Identifier	Type	Rounded Coordinates WGS-84	
North Cape	North Cape	Major geographical feature	S3425	E17303
Kaitaia	NZKT	Aerodrome	S3504	E17317
Kerikeri	NZKK	Aerodrome	S3516	E17355
Whangarei	NZWR	Aerodrome	S3546	E17422
Great Barrier	GB NDB	Navigation aid	S3615	E17528
Cape Colville	Cape Colville	Major geographical feature	S3628	E17520
Whenuapai	NZWP	Aerodrome	S3647	E17438
Whitianga	NZWT	Aerodrome	S3650	E17541
Auckland	NZAA	Aerodrome	S3700	E17448
Miranda	RD NDB	Navigation aid	S3712	E17518
Surrey	SY NDB	Navigation aid	S3714	E17510
Waiuku	WI NDB	Navigation aid	S3716	E17449
Tauranga	NZTG	Aerodrome	S3740	E17612
East Cape	East Cape	Major geographical feature	S3741	E17833
Hamilton	NZHN	Aerodrome	S3752	E17520
Whakatane	NZWK	Aerodrome	S3755	E17655
Rotorua	NZRO	Aerodrome	S3807	E17619
Gisborne	NZGS	Aerodrome	S3840	E17759
Taupo	NZAP	Aerodrome	S3844	E17605
Lake Taupo	Lake Taupo	Major geographical feature	S3846	E17553
Ohura	OR DME	Navigation aid	S3850	E17448
Taumarunui	TM NDB	Navigation aid	S3856	E17518
Wairoa	NZWO	Aerodrome	S3900	E17724
New Plymouth	NZNP	Aerodrome	S3901	E17411
Cape Egmont	Cape Egmont	Major geographical feature	S3917	E17346
Mount Ruapehu	Mount Ruapehu	Major geographical feature	S3917	E17534
Mount Taranaki	Mount Taranaki	Major geographical feature	S3918	E17404
Waiouru	NZRU	Aerodrome	S3927	E17540
Napier	NZNR	Aerodrome	S3928	E17652
Wanganui	NZWU	Aerodrome	S3958	E17502
Ohakea	NZOH	Aerodrome	S4012	E17523
Palmerston North	NZPM	Aerodrome	S4019	E17537
Cape Farewell	Cape Farewell	Major geographical feature	S4030	E17242
Paraparaumu	NZPP	Aerodrome	S4054	E17459
Masterton	NZMS	Aerodrome	S4058	E17538
Tory	TR DME	Navigation aid	S4111	E17422
Nelson	NZNS	Aerodrome	S4118	E17313
Wellington	NZWN	Aerodrome	S4120	E17448
Ferry	FY NDB	Navigation aid	S4124	E17509
Woodbourne	NZWB	Aerodrome	S4131	E17352
Cape Palliser	Cape Palliser	Major geographical feature	S4137	E17516
Westport	NZWS	Aerodrome	S4144	E17135
Cape Campbell	Cape Campbell	Major geographical feature	S4144	E17417
Hokitika	NZHK	Aerodrome	S4243	E17059
Kaikoura	NZKI	Aerodrome	S4245	E17336
Christchurch	NZCH	Aerodrome	S4329	E17232
Mount Cook	NZMC	Aerodrome	S4346	E17008
Ashburton	AS NDB	Navigation aid	S4354	E17148
Mount Mary	RY DME	Navigation aid	S4408	E17017
Timaru	NZTU	Aerodrome	S4418	E17114
Milford Sound	NZMF	Aerodrome	S4440	E16755
Oamaru	NZOU	Aerodrome	S4458	E17105
Queenstown	NZQN	Aerodrome	S4501	E16844
Alexandra	NZLX	Aerodrome	S4513	E16922
Te Anau/Manapouri	NZMO	Aerodrome	S4532	E16739
Dunedin	NZDN	Aerodrome	S4556	E17012
Puysegur Point	Puysegur Point	Major geographical feature	S4609	E16636
Invercargill	NZNV	Aerodrome	S4625	E16819
Nugget Point	Nugget Point	Major geographical feature	S4627	E16949

Appendix 3 – More Area Examples



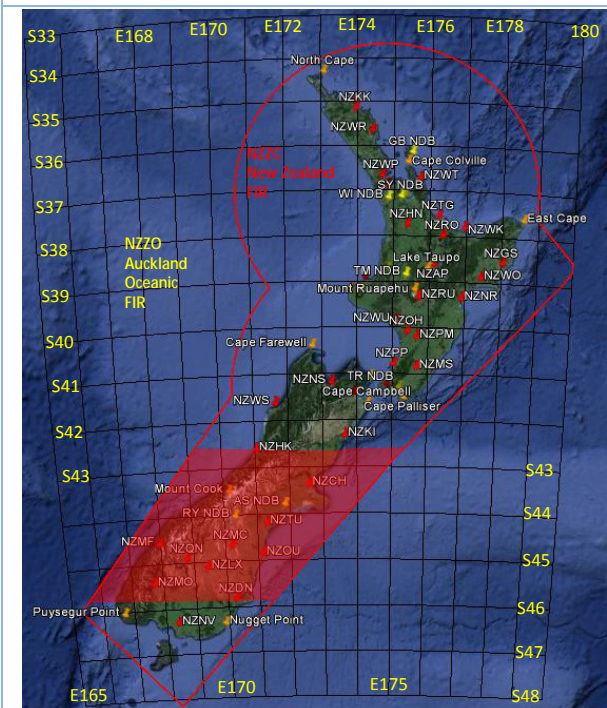
SIGMET Notation: N OF S3917 E17534

Translation: Area extending to all of the NZZC FIR north of Mount Ruapehu



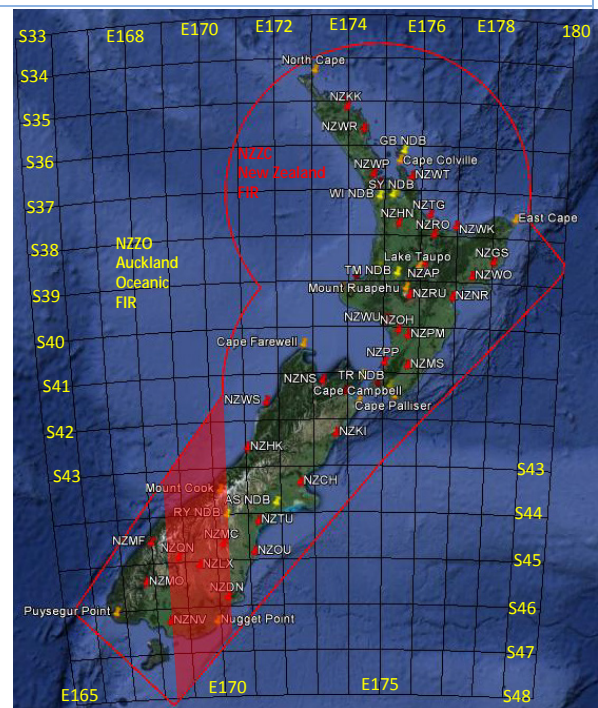
SIGMET Notation: S OF S4243 E17059

Translation: Area extending to all of the NZZC FIR south of Hokitika (NZHK)



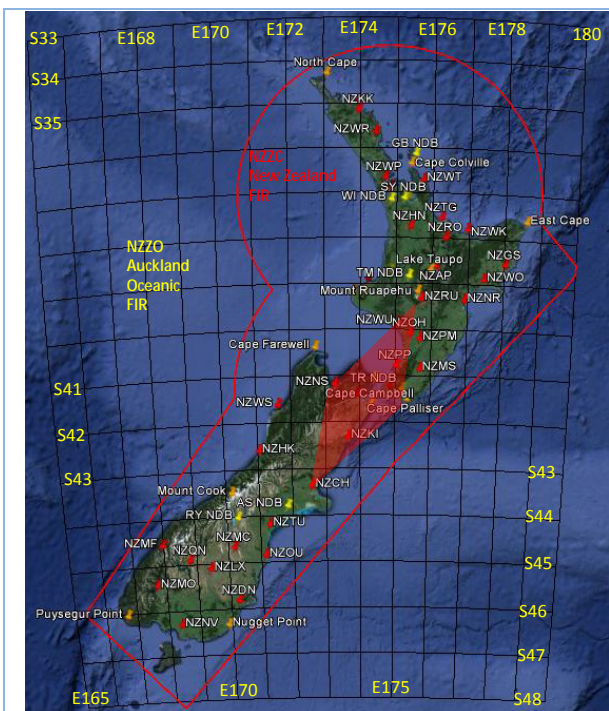
SIGMET Notation: S OF S4243 E17059 AND N OF S4556 E17012

Translation: A band south of Hokitika (NZHK) and North of Dunedin (NZDN) with east/west dimensions extending to the boundary of the NZZC FIR.



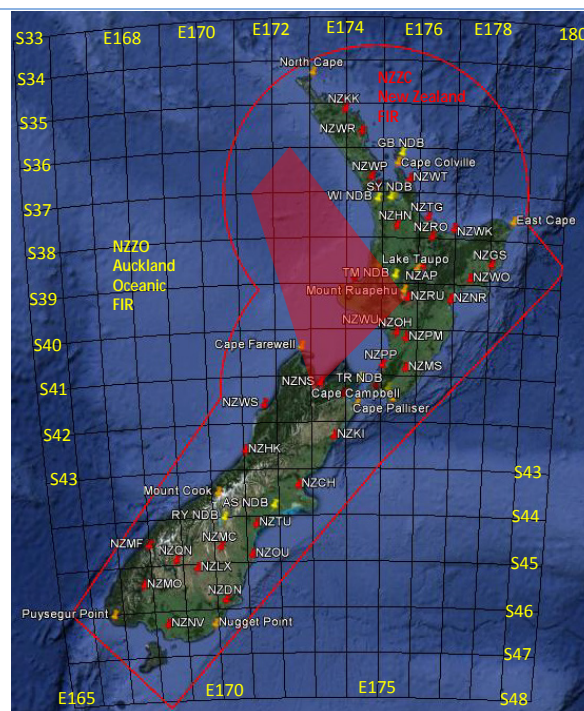
SIGMET Notation: W OF S4556 E17012 AND E OF S4625 E16819

Translation: A band west of Dunedin (NZDN) and east of Invercargill (NZNV) with north/south dimensions extending to the boundary of the NZZC FIR.



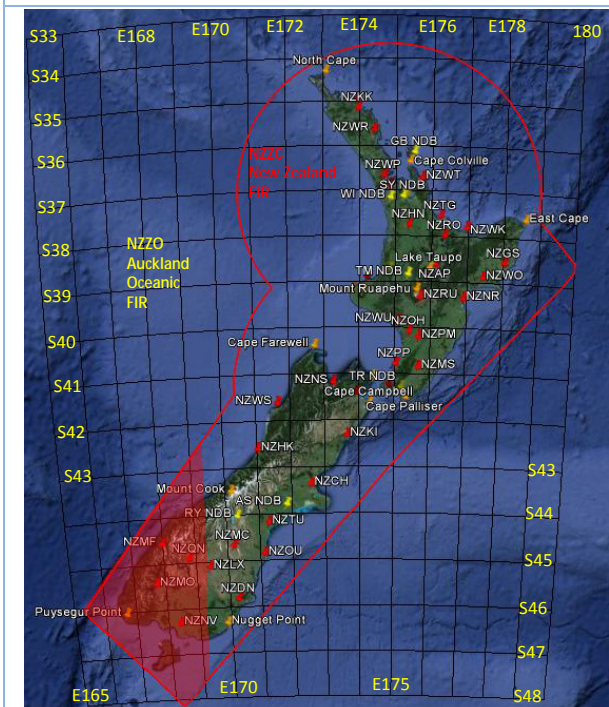
SIGMET Notation: WI S3927 E17540 - S4118 E17313 - S4329 E17232 - S4137 E17517 - S3927 E17540

Translation: Area bounded by Waiouru (NZRU) to Nelson (NZNS) to Christchurch (NZCH) to Cape Palliser and back to Waiouru.



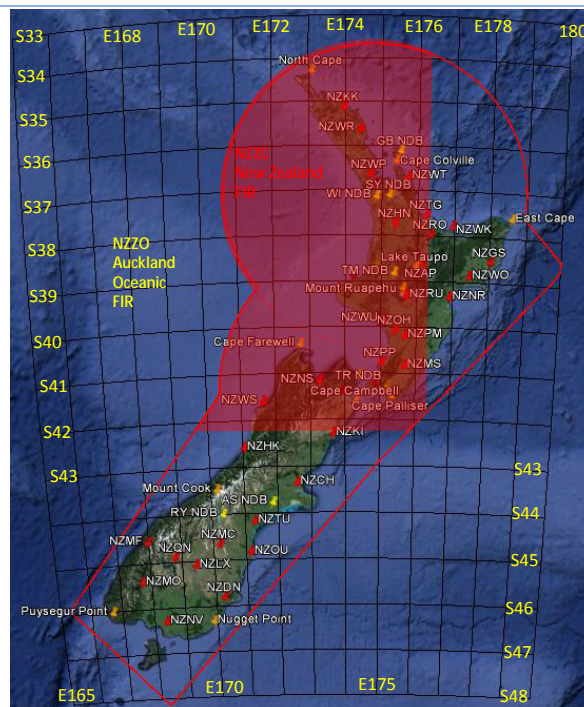
SIGMET Notation: WI S3600 E17230 - S3927 E17540 - S4118 E17313 - S3700 E17130 - S3600 E17230

Translation: Area bounded by S3600 E17230 to Waiouru (NZRU) to Nelson (NZNS) to S3700 E17130 and back to S3600 E17230.



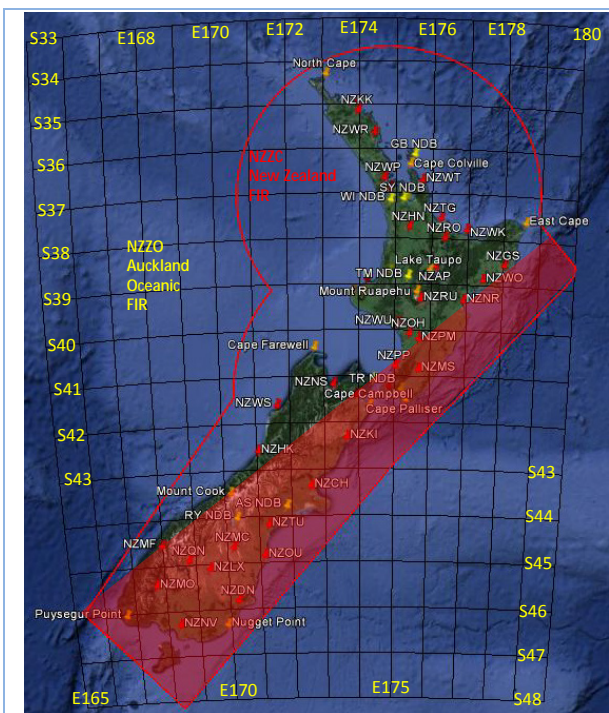
SIGMET Notation: W OF S4513 E16922

Translation: Area extending to all of the NZCC FIR west of Alexandra (NZLX).



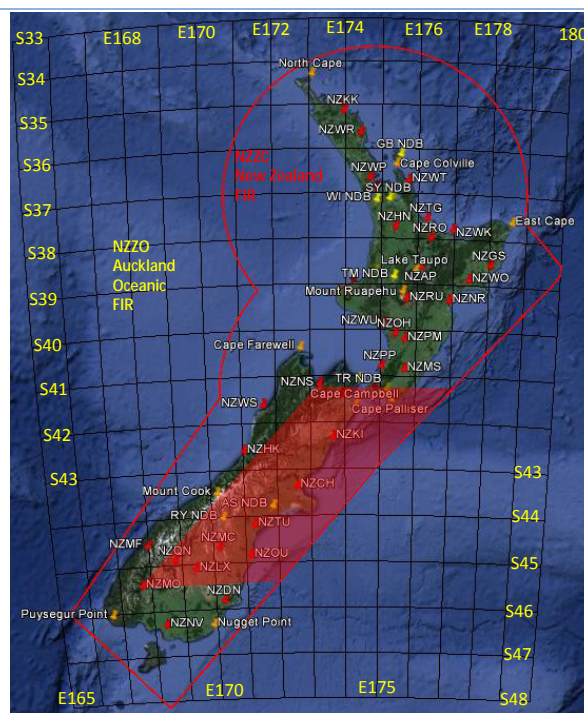
SIGMET Notation: N OF S4226 E17336 AND W OF S3806 E17619

Translation: Area extending to all of the NZCC FIR north of Kaikoura (NZKI) and W of Rotorua (NZRO).



SIGMET Notation: SE OF LINE S4019 E17538 - S440 E16755

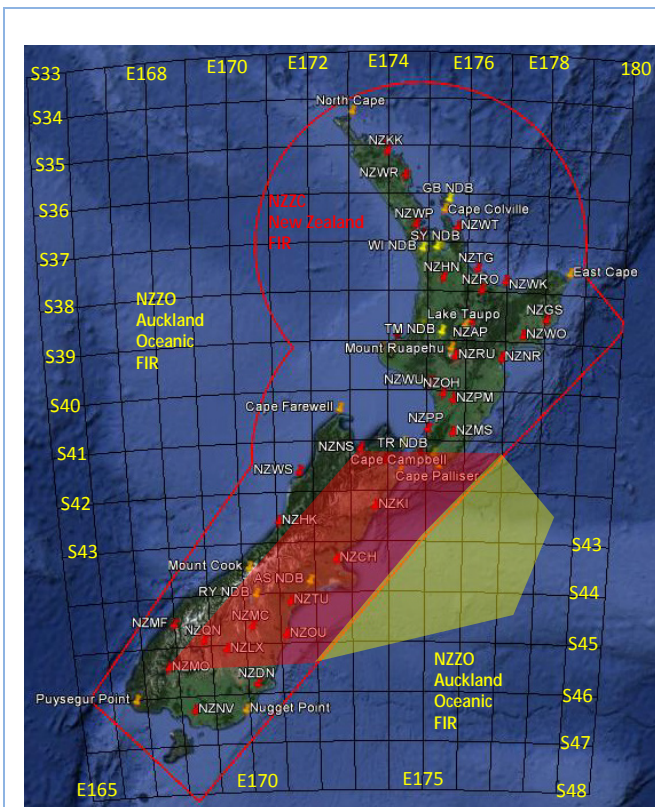
Translation: All that area south-east of a line through Palmerston North (NZPM) to Milford (NZMF) and extending to NZCC FIR boundary



SIGMET Notation: E OF LINE S4118 E17313 - S4532 E16739 AND S OF S4118 E17313 AND N OF S4532 E16739

Translation: Area bounded by a line extending between NZNS and NZMO, south of a line extending to the FIR boundary from NZNS and north of a line extending to the FIR boundary from NZMO.

Example of phenomena stretching across FIRs



New Zealand FIR (NZCC) SIGMET

Notation: E OF LINE S4118 E17313 - S4532 E16739 AND S OF S4118 E17313 AND N OF S4532 E16739

Translation: Area bounded by a line extending between NZNS and NZMO, south of a line extending to the FIR boundary from NZNS and north of a line extending to the FIR boundary from NZMO.

Auckland Oceanic FIR (NZZO) SIGMET

Notation: WI S4118 E17700 - S4230 E17830 - S4430 E17730 - S4532 E17200 - S4118 E17700

Translation: no translation provided.