DEEPWAVE Flight Tracks

March 26-28, 2014

Boulder, Colorado

Number of flights

- 180 flight hours
- With 6 hour flights, N=30
- With 9 hour flights, N=20
- Targets
  - South Island NZ (primary) and Tasmania waves
  - Open ocean waves including Macquarie and Auckland Islands
  - Predictability regions

Leg design issues

- GV flies at night above clouds; usually near 13km
- Legs usually 300km or longer to survey waves with long wavelengths
- Maintain constant altitude on legs
- Legs approximately aligned with winds when possible (e.g. 270 or 300T)
- Drop sondes at approved points
- Reverse course using 90-270 turns (combine with remote wind profiling, e.g. 90-630 turns)
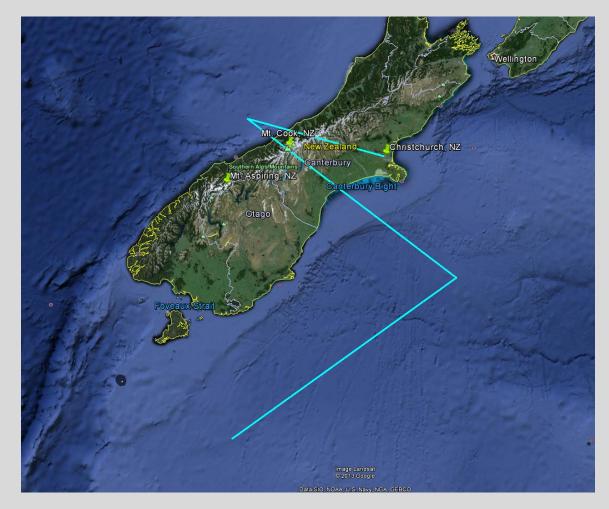
Repeat Leg Strategy

- From previous mountain wave projects, we know the value of repeat legs; during flights and between flights. (both track and altitude)

- Repeat legs during flights allow wave time variation to be detected

- Repeat legs between flights allow the wave dependence on environmental parameters to be detected.

- Accurate repeat legs within 2km
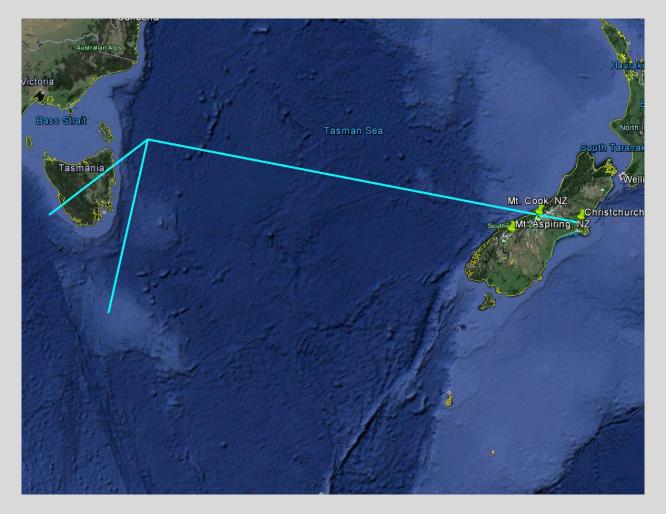
Flight Tracks for the Gulfstream V

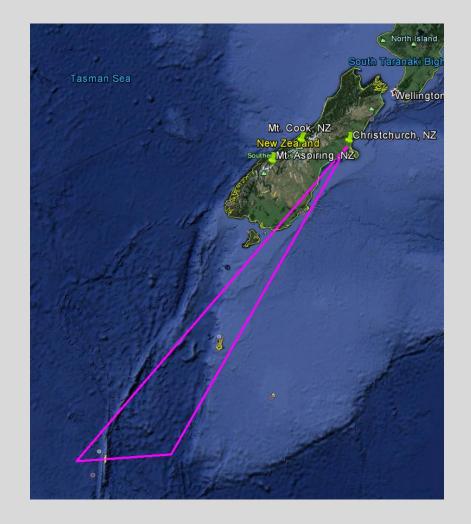| Index	Location	Style	Transect Direction	Purpose	Estimated number	DWS
1a	Mt. Cook	V	270	Mt. Wave/Trailing	2	20
1b	Mt Cook	V	300	Mt. Wave/Trailing	3	20
2a	Mt Aspiring	V	270	Mt. Wave/Trailing	2	20
2b	Mt Aspiring	V	300	Mt. Wave/Trailing	3	20
3a	Tasmania	V	240	Mt. Wave/Trailing	1	10
3b	Tasmania	V	270	Mt. Wave/Trailing	1	10
4	Auckland Island	Ferry / Transect	270	Mt. Wave/Non-Oro	1	10
5	Macquarie Island	Ferry/ Transect	270	Mt. Wave/Non-Oro	1	10
6	Tasman Sea	Ferry/ Transect	generic	predictability	5	20
7	Southern Ocean/Tasman Sea	Ferry/ Transect	generic	Non-Oro.	4	20

Track 1b
(see also Tracks 1a, 2a, 2b)

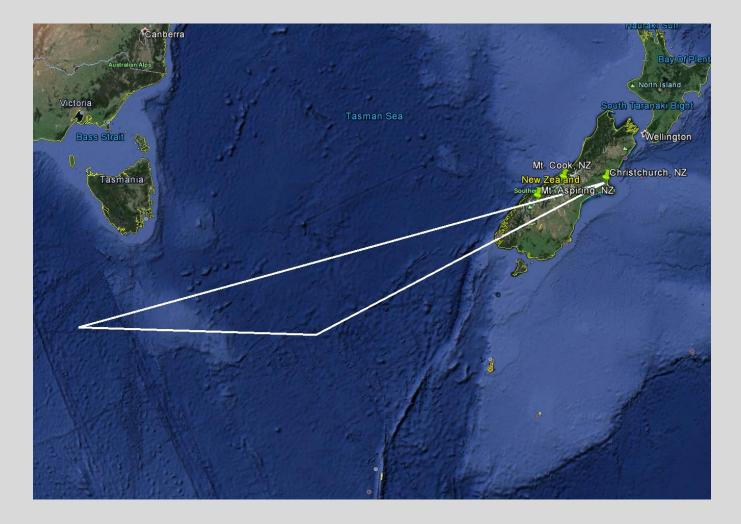Note V strategy

Track 3a
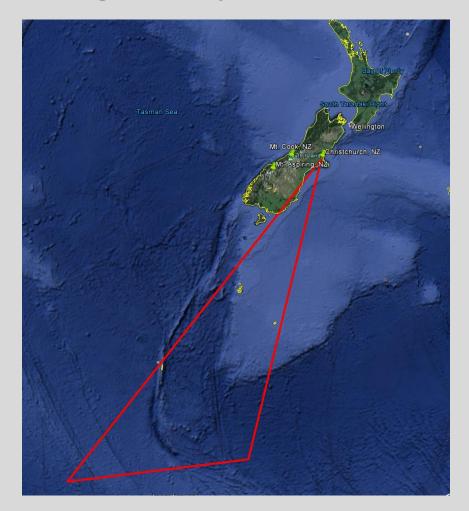# (see also Track 3b)

Note V strategy

Example of a Track 5 over Macquarie Island (see also Track 4 over Auckland Island)

Track 6 Predictability Flight

Track 7: Oceanic Non-orographic gravity waves

Falcon Box Pattern

Using a KML file