

Looking up:

Some developments at Awarua SGS

Robin McNeill

BA, BE(Hons.)(Elect.), FIPENZ, SMIEEE, CPEng, PE(Int)

**Enterprise Project Manager
Venture Southland**

Awarua



46° 31' 43" S

168° 22' 52" E

South-west corner of
New Zealand

South-east corner
of Australia

11 km from
Invercargill airport

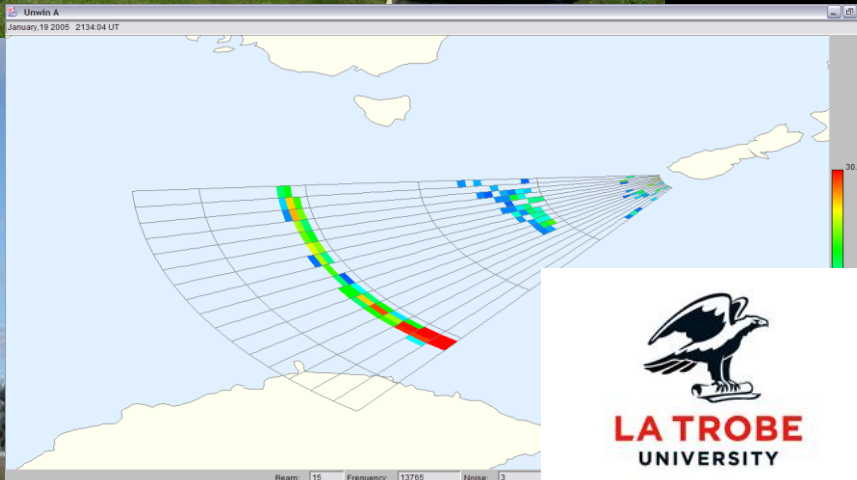
Awarua

AERIAL VIEW OF SOUTHLAND FROM SOUTH-EAST OF BLUFF LOOKING NORTH-WEST

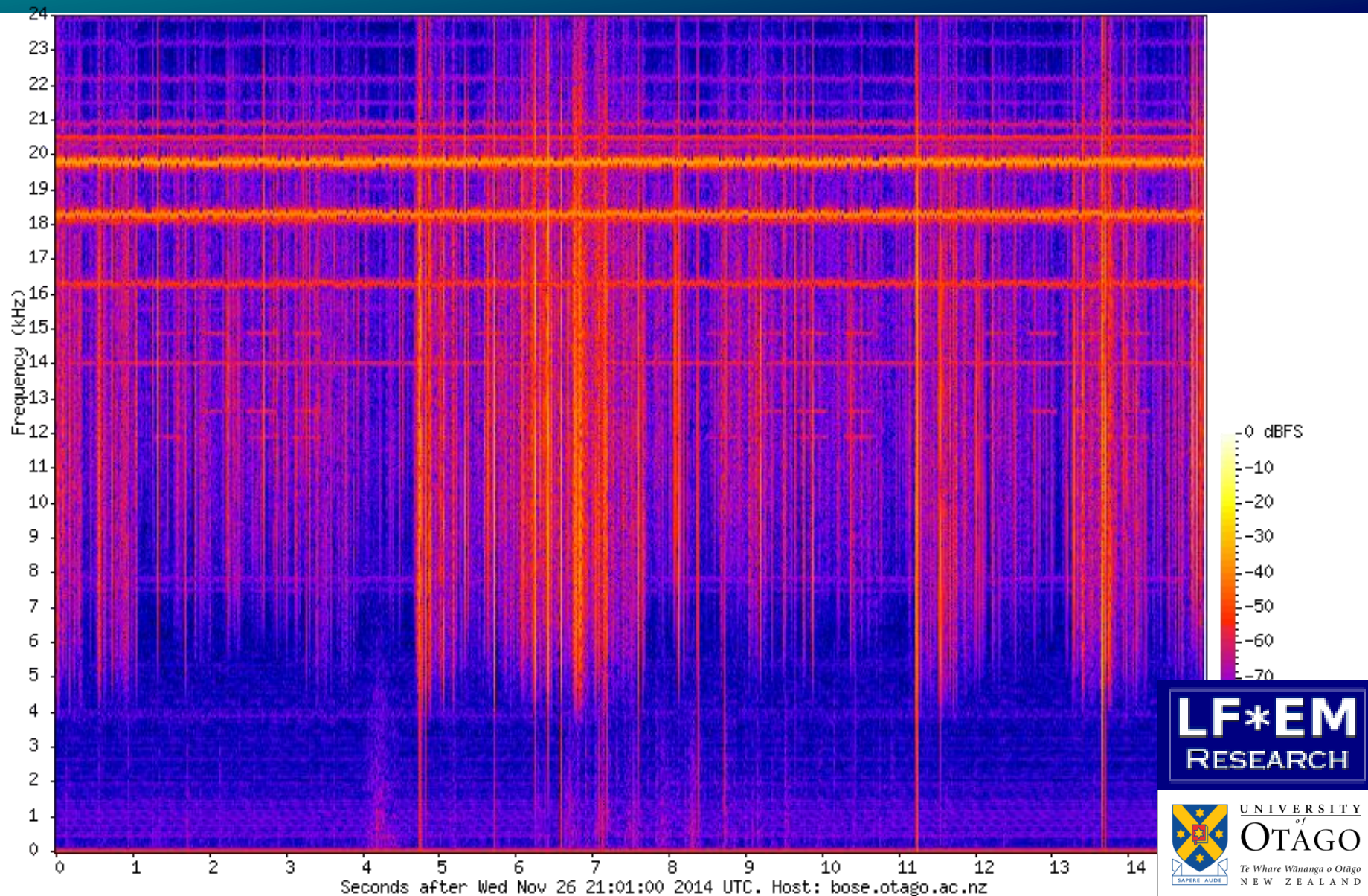


- Low population to north, no population in most directions
- Low radio noise floor
- Less than 2° horizon elevation in all directions
- Gbps fibre-optic and DMR Internet access
- KAREN access

Unwin Super-DARN TIGER Radar, 2005



VLF sferic and lightning detection, 2009

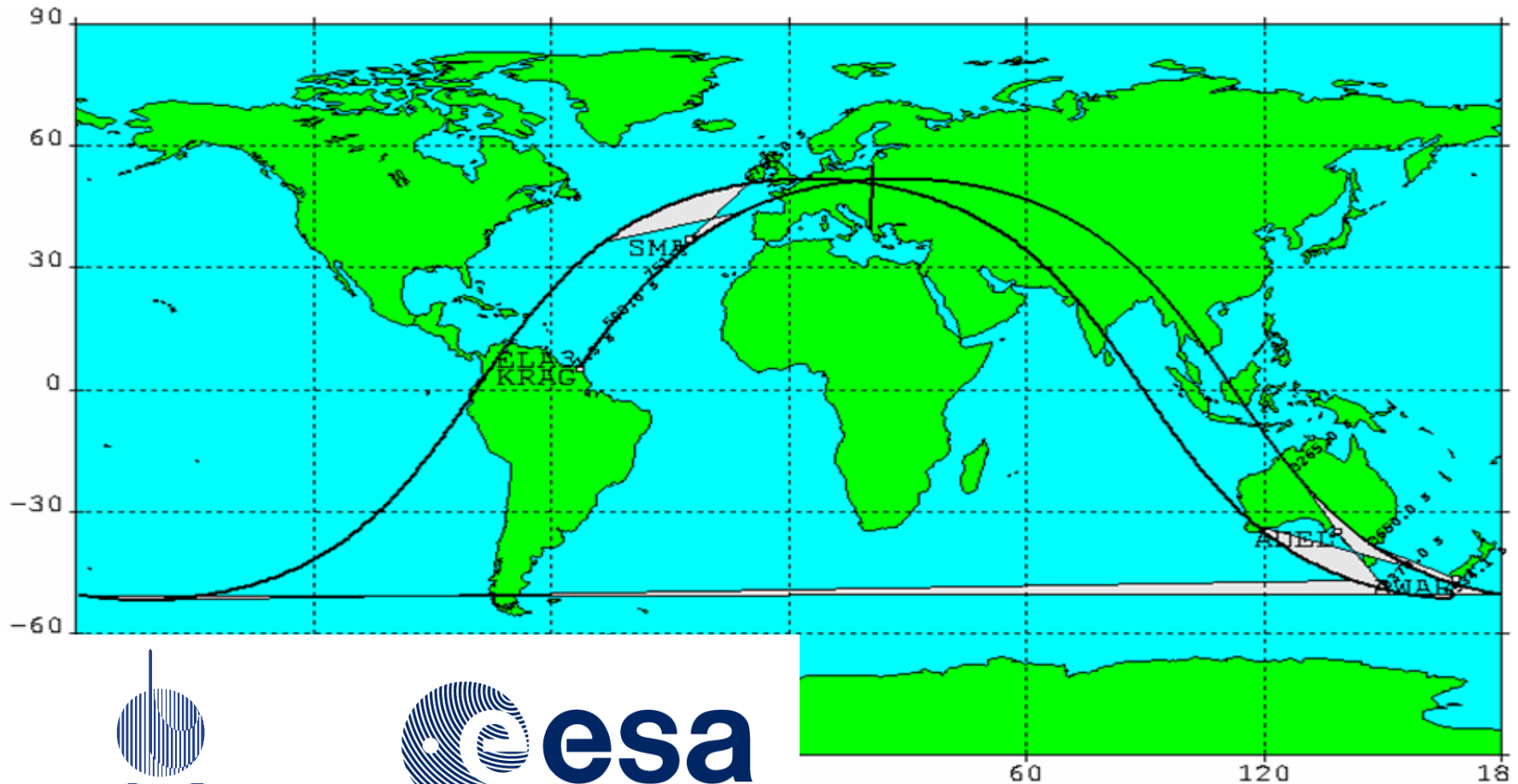


Ariane 5 ATV LEOPs, 2008





ATV LEOPs, 2008 – 2014



CENTRE NATIONAL D'ETUDES SPATIALES



European Space Agency

Awarua SGS, 2007



European Space Agency



CENTRE NATIONAL D'ETUDES SPATIALES

ATV LEOPs



European Space Agency



CENTRE NATIONAL D'ETUDES SPATIALES



ESA – New Zealand Arrangement

“The Government of New Zealand will inform the Agency of activities likely to be of interest to it. Representatives of the Government of New Zealand and the Agency **will consult from time to time with a view to identifying and pursuing projects of common interest and in particular promoting educational opportunities for students from the Southland region...** This may include the provision by the Agency of scholarships or the organisation of lectures involving European experts or of special events covering space activities”.



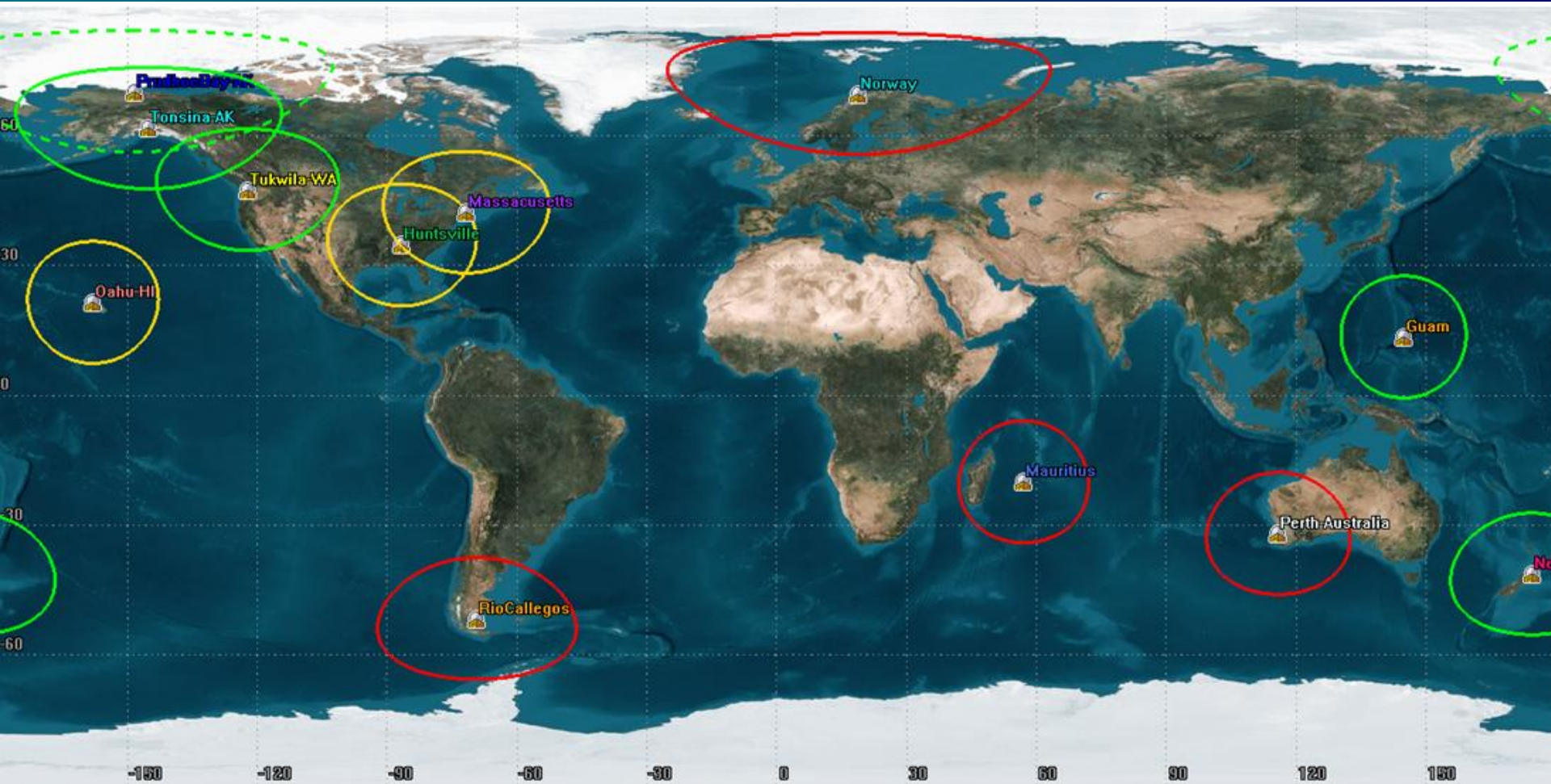
European Space Agency



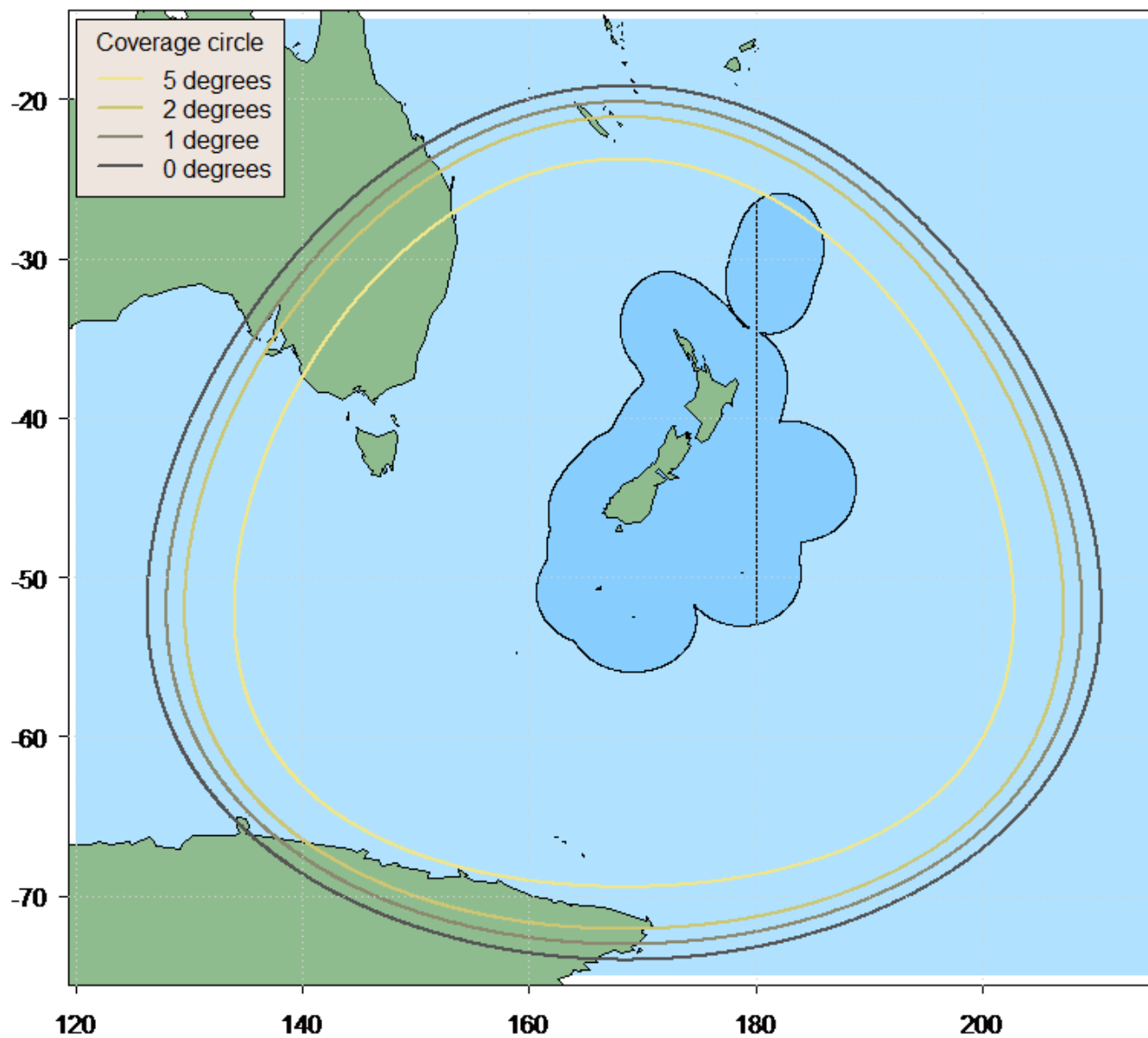
Satellite Services



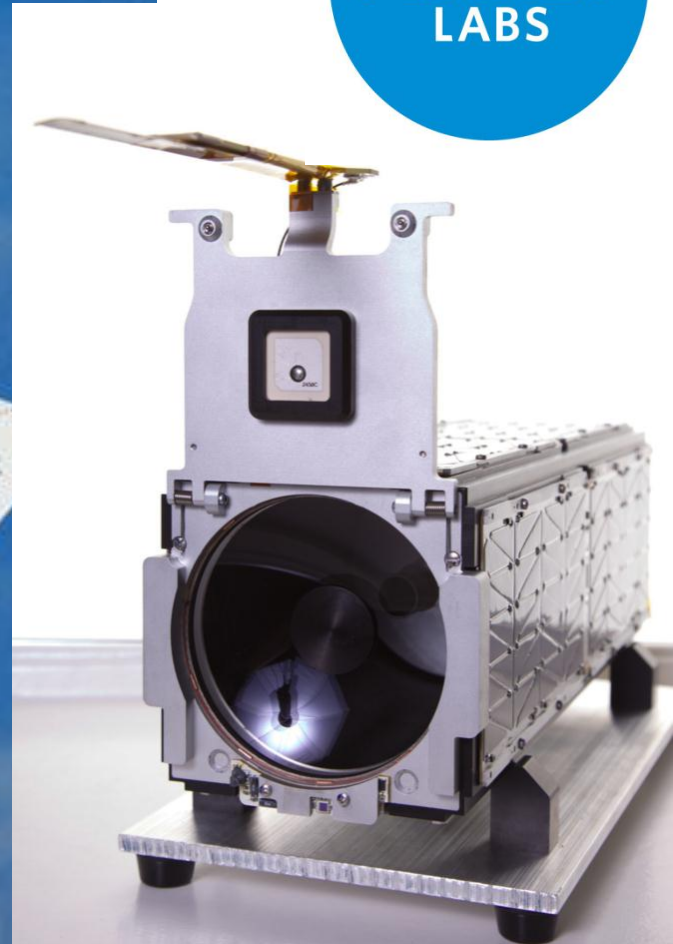
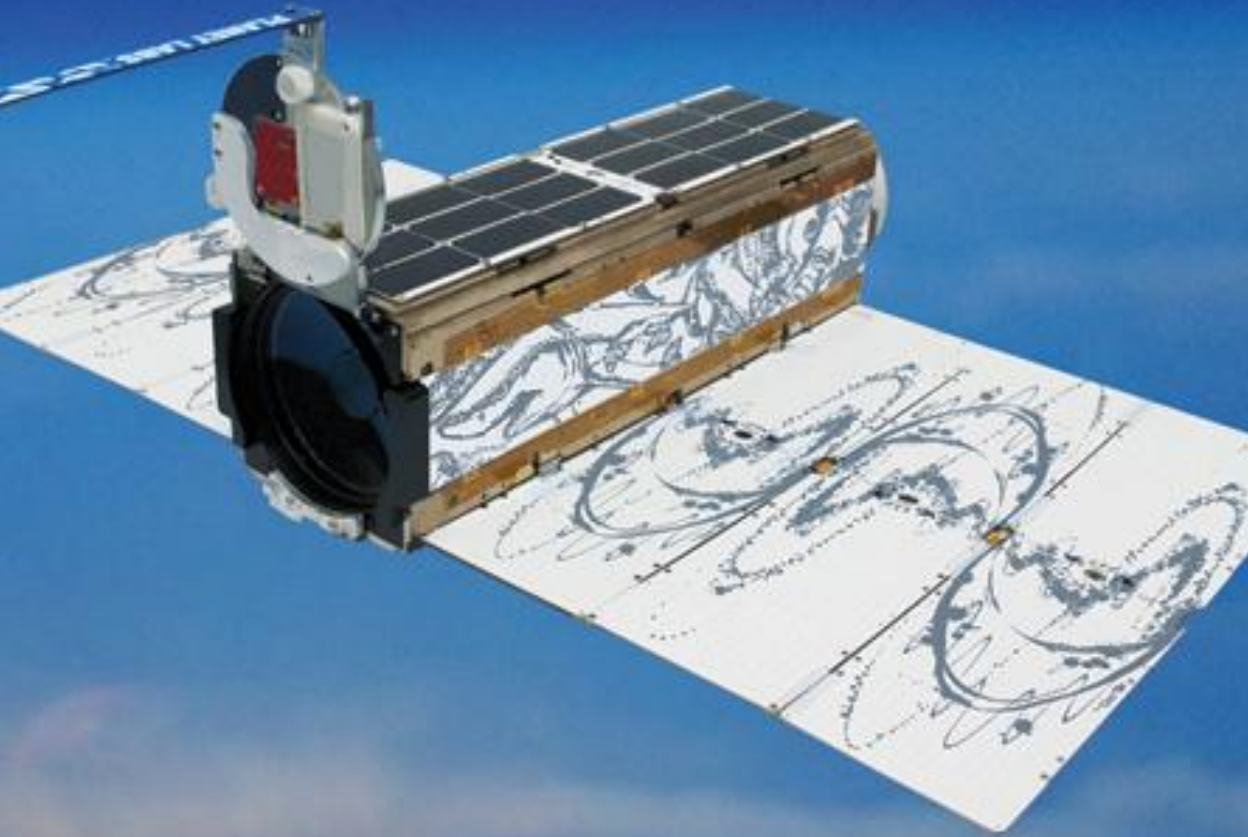
Satellite Services



Nominal LEO range



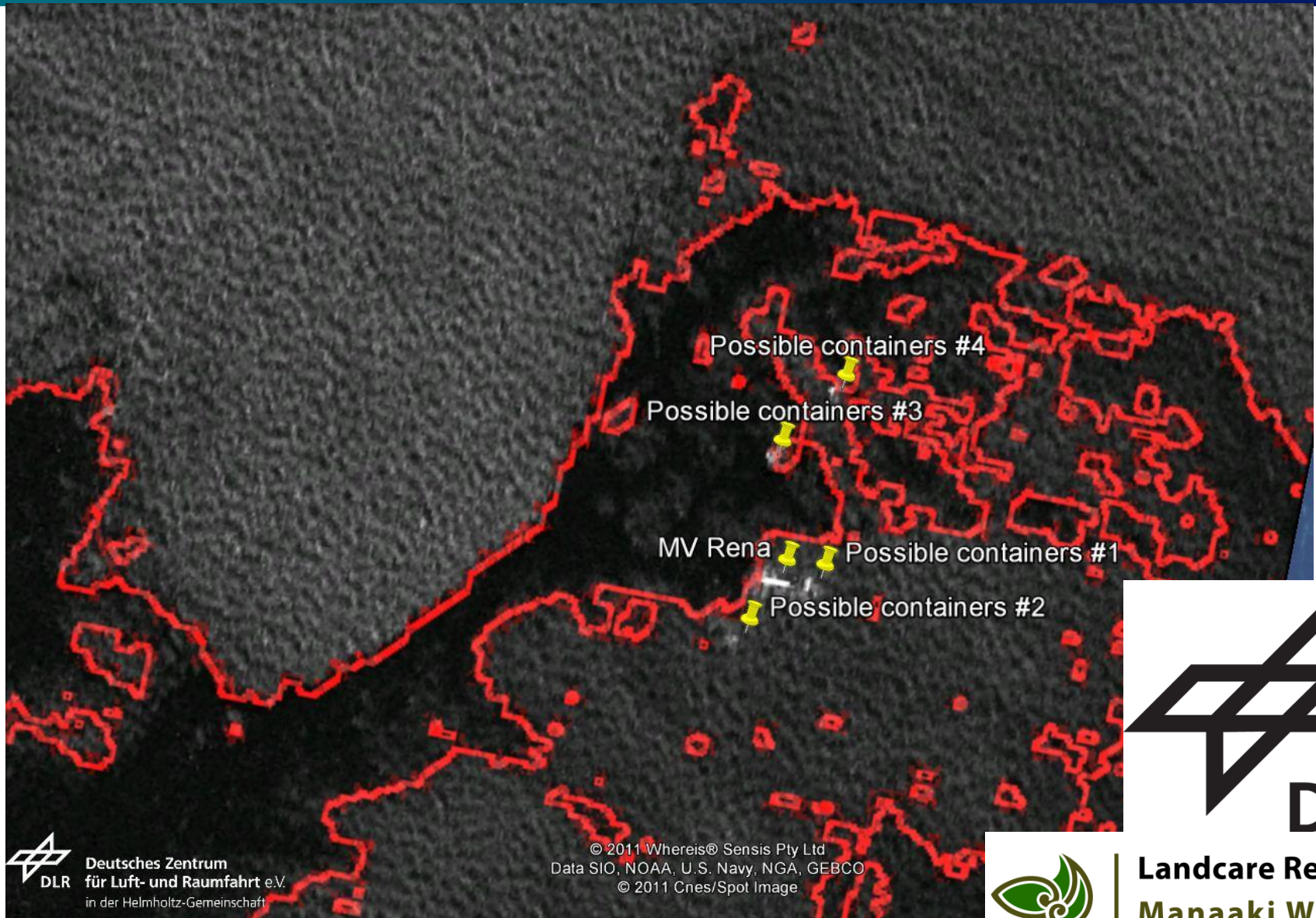
Planet Labs' Flock constellation



Satellite Operations – Planet Labs, 2013



Satellite earth observation



GNSS Station for ESOC Navigation Facility, 2014



Radio Astronomy

Ex-Telecom New Zealand 11m Rangiora Dish

In pieces at Awarua

Awarua is a long way from Warkworth



... which is very good for eVLBI





1,230 km

... and GGOS



Let's do it!



1,230 km

robin@venturesouthland.co.nz