

# Connecting NZ's height network to the world:

*A national absolute gravity network*

Matt Amos



# New Zealand's gravity network

- ~20,000 points
- Collected since 1960s
- Adjusted internally
- Potsdam datum
- Accepted offset to IGSN71



# Airborne gravity coverage

- 500,000 line-km
- Collected 2014-15



# Airborne gravity coverage

- 500,000 line-km
- Collected 2014-15
- 4 base points
- Tied to national network



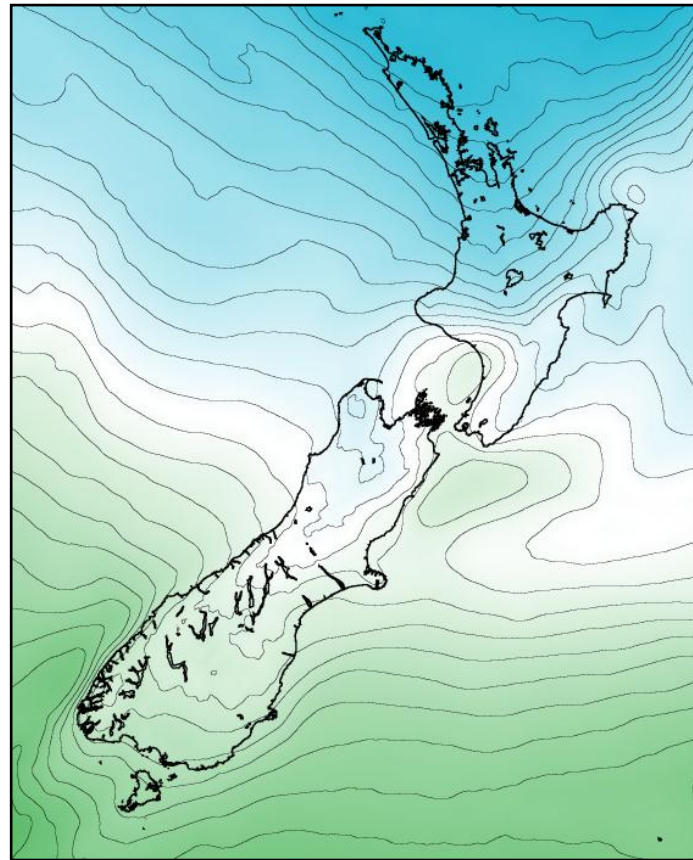
# Absolute gravity network

- Irregular observations
- Often “opportunity” campaigns at Godley Head and Mt John
- 2000 Southern Alps network to be reobserved in December 2014



# New Zealand Vertical Datum 2009

- Based on EGM2008
- Includes NZ gravity observations (IGSN71)
- Within 0.5 m of local MSL



# What's the problem?

- Not well connected to international datum
- No primary stations for relative surveys
- NZ vertical datum not well connected to international frame

# 2015 absolute campaign

- GNS/LINZ/GA campaign to occur in late January 2015
- First national absolute gravity campaign
- 6 stations to be measured in January/February 2015
- Network readjustment to follow





# Measurement sites

- Warkworth
- Wellington A
- Callaghan Innovation
- Godley Head
- Mt John
- Dunedin



# Warkworth

- Radio telescopes
- PositionNZ GNSS
- Absolute gravity
- Major geodetic observatory



# Summary

- Gravity networks not well integrated
- Ad hoc absolute measurements
- National absolute gravity campaign in 2015
- Enable national adjustment
- Absolute gravity at Warkworth would be major contribution to international geodesy

'The  
power  
of  
where'  
DRIVES NEW ZEALAND'S SUCCESS



Questions?

