



# NIWA's Contribution to GRUAN

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# PRESENT STATE OF FLIGHTS

RS92 + 1Z ozonesondes: 1 flight per week.

(includes once a month “piggyback” on a water vapour sonde)

In Jan/Feb 2013 we have made 7 soundings, including to date **1 water vapour sounding for 2013.**



# Soundings in 2012



52  
FLIGHTS  
FOR THE  
YEAR





# RECENT PROGRAMME HIGHLIGHTS

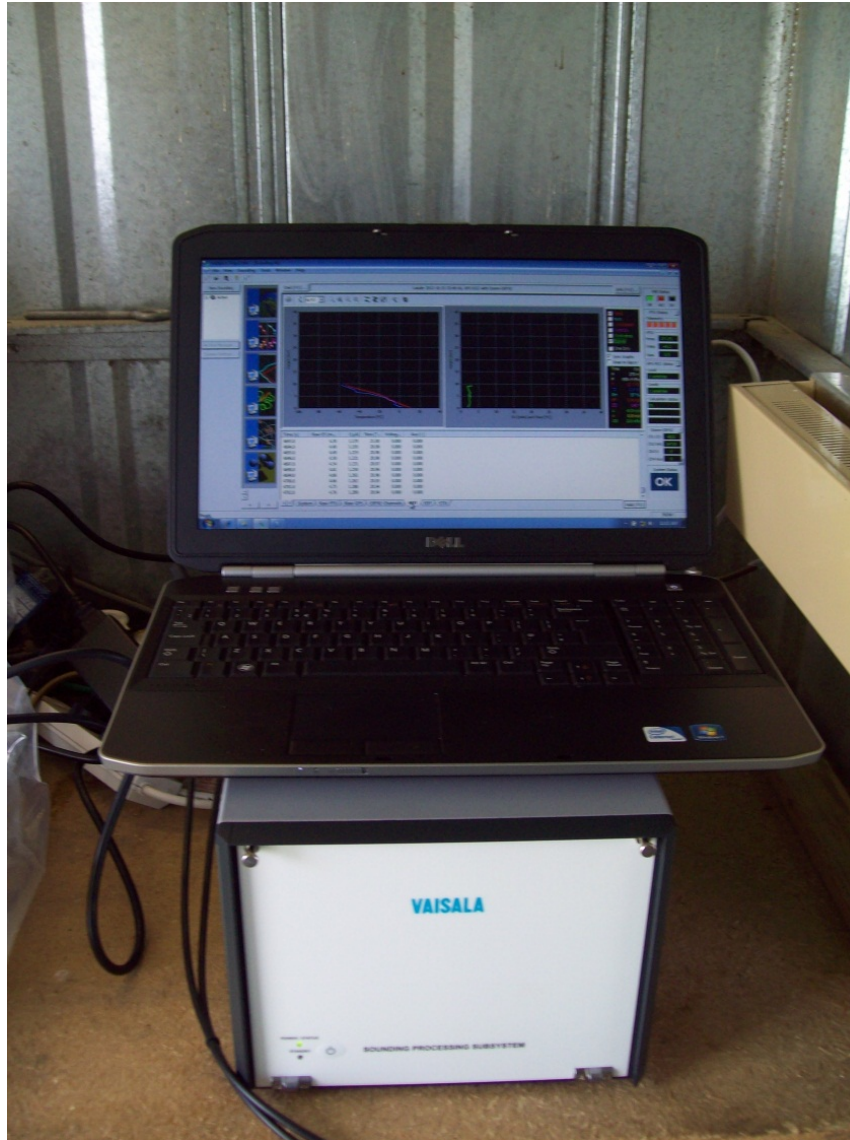
- Late in 2012 the **Digicora 3** system arrived at Lauder.
- Initially has been set up with a portable antenna and run **side by side** with the older **Marwin** receiving system
- Staff have been **comparing** data from each system (Digicora and Marwin).
- Differences in data processing (“**in house**” developed routine vs. “**off-the-shelf**”)



# WATER VAPOUR SONDES

- Continuing with **12 flights per year** under contract to NOAA.
- Added a **new GPS water vapour instrument** at Lauder to complement our measurements.

# CURRENT GRUAN SET-UP



**DIGICORA**  
receiving  
station



# CURRENT OPERATION OF DIGICORA 3

- We can now upload data from flights to GRUAN Centre.
- We are eager to obtain RS launch client software from GRUAN (consulting with Holger Vömel et al.)
- Shortly we will modify our SOP for launching to comply with GRUAN specifications.



# Lauder GPS instrument

- **Trimble NetR9/zephyr2 GPS** operational since May 2012
- Data submitted to **GRUAN** and NZ **GEONET**
- Comparisons planned with **FTIR** and **FPH** water vapour measurements
- **Yoshinori Shoji** (MRI-JMA) has processed several months of data (including PWV). **June Wang** (NOAA) is performing a preliminary evaluation.
- We have applied to obtain processing software (**OASIS-GIPSY**) from NASA JPL.



# The GPS instrument



(top) Lauder GPS and Dobson

(right) GPS instrument on concrete pedestal with cabling



# EXPECTED MILESTONES FOR 2013

- We are applying for NIWA funding to acquire Standard Humidity Chamber.
- This will allow us to test radiosondes at 100% relative humidity prior to launch, as recommended by GRUAN.
- We are applying to purchase a newer version standard Barocel, to allow for a quicker recording of ground pressure. (Model PTB330)



# 2013 AND BEYOND

- We are keen to get involved in the use of the Vaisala “Reference Radiosonde” for better measurement of PTU parameters.
- External (WMO?) funding (for time and materials) would be necessary for that.
- Lauder staff should be tutored in GRUAN procedures, using VC or a visit to Lindenberg (expensive).
- In-house processing of GPS data