

New French GRUAN RS in South Pacific Ocean

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GCOS Reference Upper-Air Network



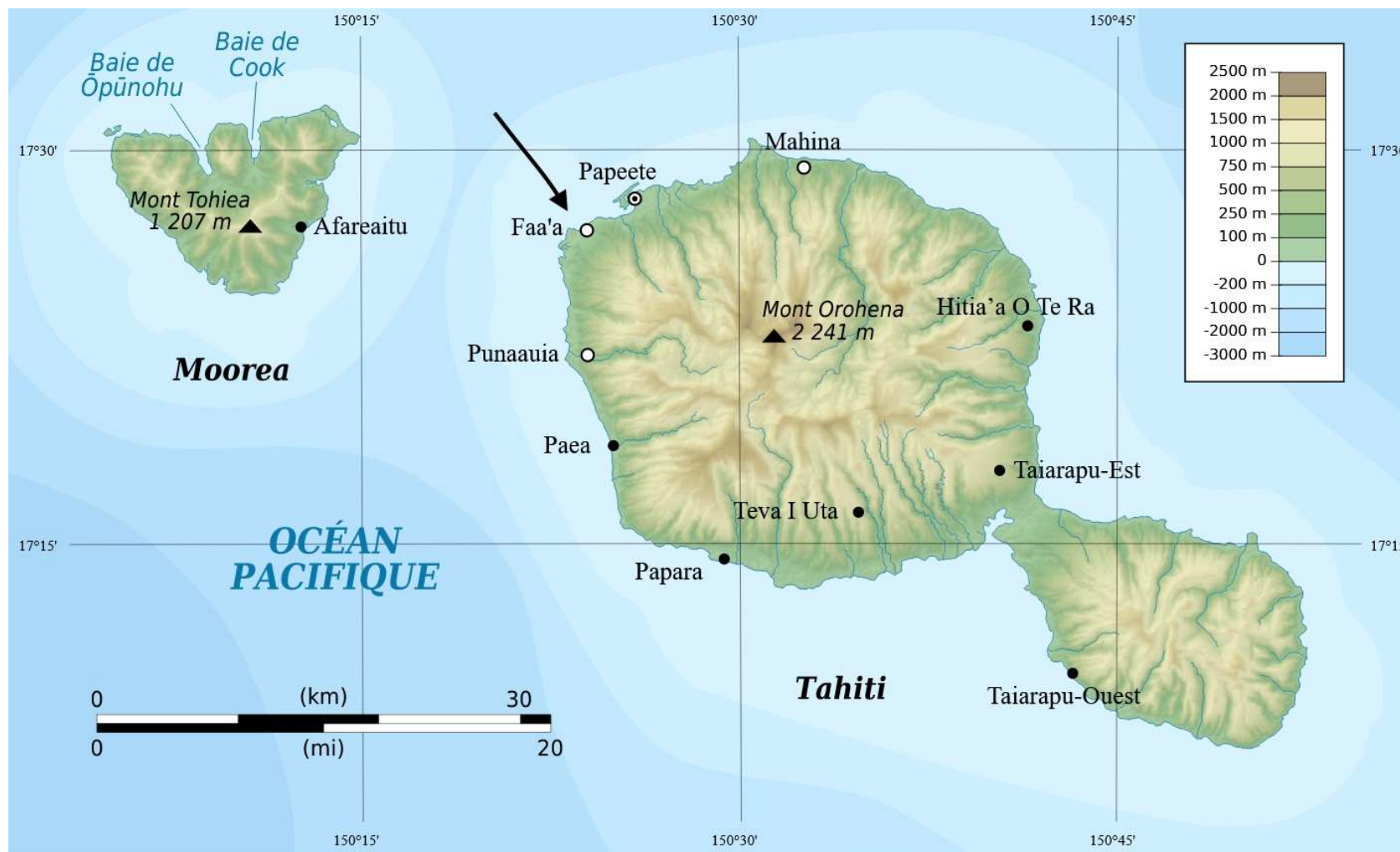
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117 islands. Faa'a is the international airport on Tahiti island



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- Airport environment but very close to the sea
- Humid tropical climate
- Located in a ‘GRUAN desert’
- RS at 00 UTC and 12 UTC all year round
- With M20 radiosonde
- Hourly ZTD data with GNSS récepteur at RS station
- GRUAN procédures installed at Faa’a station since end of October 2022

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- Faa'a - Tahiti Island (French Polynesian in South Pacific Ocean) : Automated RS station since october 2018 (manual RS since 1957)



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At Météo France : Two different procedures for the ground setting (control of the sonde)

====> The first procedure:

Conditioning an M20 radiosonde in a ventilated shelter.

- Comparison of temperature and humidity between radiosonde and the 2 sondes in the shelter



====> The second procedure :

Conditioning the radiosonde in a humidity chamber

- Comparison of the humidity at 100 % and the sonde



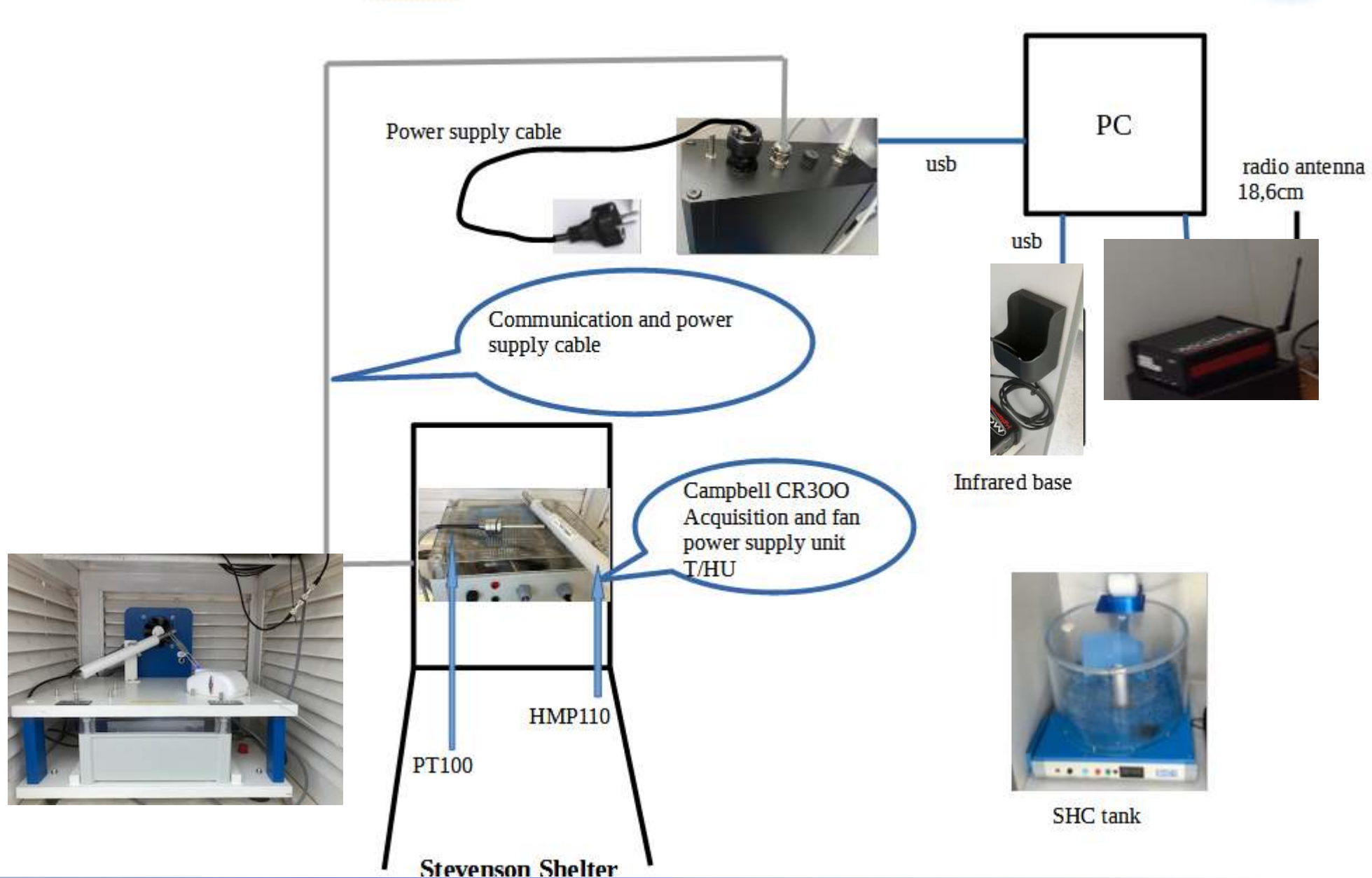
T and U measuring system in Stevenson shelter

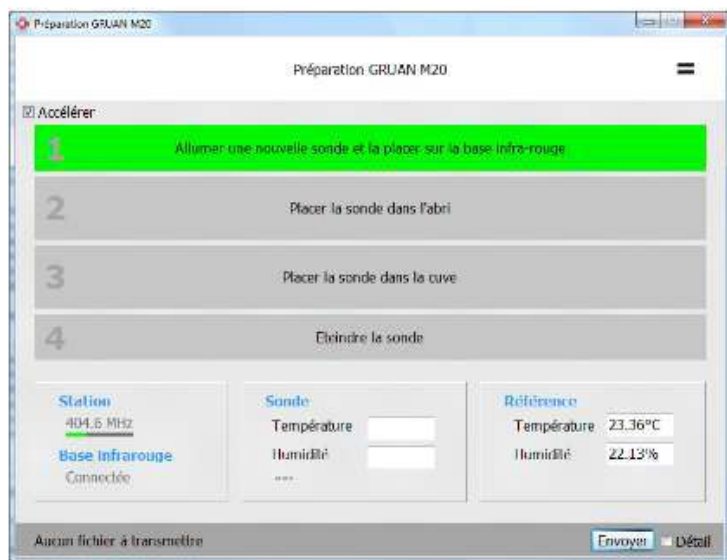


DESIGNATION

- 1 : Power supply / communication box with the PC and the CR300 box
- 2 : USB cable to be connected to the Gruan PC
- 3 : CR300 T/HU acquisition and fan power supply unit
- 4 : 12VDC communication and power supply cable
- 5 : System power supply cable
- 6 : Fan 12 V / 0,2A
- 7 : Sonde PT100
- 8 : Sonde HMP110

Installation diagram measurement system





Ecran affiché après l'initialisation

For the beginning, a radio frequency is assigned for communication between the sensor and the SR10 station via the infrared base connected to the dedicated PC



Infrared base



SR10 Station

T and U measuring system in Stevenson shelter



Measurement in the outside shelter :

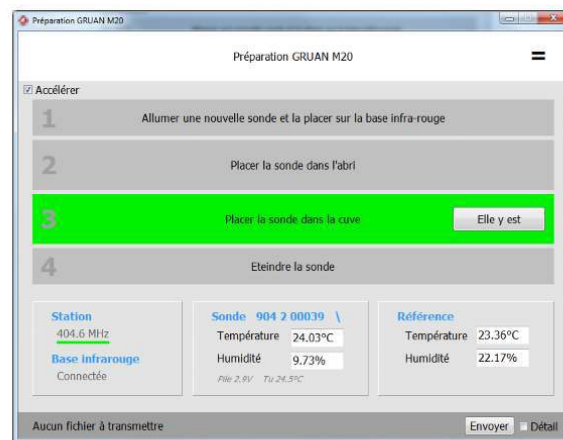
1 : The operator places the M20 in the outside shelter near the 2 sondes (HMP110 for U and PT100 for T), switches on the shelter ventilation (once at the beginning of the procedure)

Measurement time 5 min

Measurements in the SHC1 TANK



- Preparing the SHC tank (20 minutes for the first sonde, 5 minutes for the following
- Placing the M20 sonde on the adapter
- Click on « elle y est » in the software section
- Measuring time is 5 minutes



Fin de l'enregistrement dans l'abri, la mettre dans la cuve



Enregistrement en cours de la sonde dans la cuve

The two procedures are managed by the software « Préparation GRUAN M20 » on a dedicated PC.

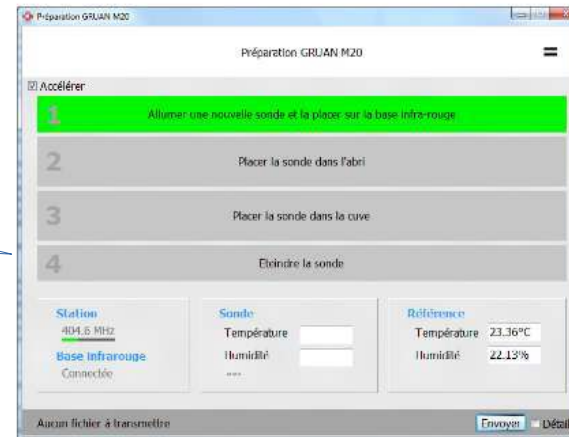
This software allows the acquisition of the datas for calibration of the sonde and creates the 2 following files :

XXXXXXXXXXXX_abri.tsv

XXXXXXXXXXXX_cuve.tsv

Where XXXXXXXX is the sonde number.

Home page for the
software



Ecran affiché après l'initialisation

Transmission of gruan data



At the end of measurements :Transmission of data to the IPSL server with copy to the Meteo-France server

XXXXXXXXXXXX_abri.tsv

XXXXXXXXXXXX_cuve.tsv

Automatic release of a RS GRUAN is planned in the robotsonde

Additional files are transmitted as part of GRUAN to the IPSL server. There are four files

- XXXXXXXXXXXX_YYYYYYMMDDHHmmss_V4.ref
- XXXXXXXXXXXX_YYYYYYMMDDHHmmss_V4.cor
- XXXXXXXXXXXX_YYYYYYMMDDHHmmss_V4.gsd
- XXXXXXXXXXXX_YYYYYYMMDDHHmmss_V4.gps

where XXXXXXXXXXXX corresponds to the serial number of the sonde used by the RS.



New Photometer installed by MF on the Faa'a site in April 2022

==> Independent measurement of GNSS and RS

==> Intercomparison and control
complement to the climatic reference site (GRUAN
network) in Faa'a



Thank you for your attention