



# Update on where we are with bringing new sites into GRUAN.

Greg Bodeker

9th GRUAN Implementation and Coordination meeting,  
Helsinki, 14 June 2017

# Reminder

- Our approach needs to be coordinated - One GRUAN 'shepherd' per country.
- Use the wiki page to manage and update contacts to countries and developments:

<http://gruan.wikidot.com/newsite>

- We expect that to transfer to the new GRUAN web page soon.

# Antarctica - Halley

**GRUAN shepherds:** Greg Bodeker

**Institution contact:** Steve Colwell ([src@bas.ac.uk](mailto:src@bas.ac.uk))

**History:** Greg met Steve Colwell at the MMC meeting in Spain (September 2016). Followw-up email discussion → first steps is for Tim Oakley to check with the UK Met Office that they are OK with this. Tim has no objections and requests that the Met Office is kept informed of the necessary steps plus anything that is likely to impact on the operations of the station as a GUAN and if input is required from our upper-air experts.

**Next steps:** Ruud (Lead Centre) to communicate with Steve (cc to Tim) regarding requirements for GRUAN operations at any of the BAS stations.

# Antarctica - Syowa

GRUAN shepherds: Masatomo Fujiwara

Institution contact: Masami Iwabuchi

History: Heard about it this morning. Radiosonde flights since 1959. Belongs to BSRZN.

Next steps: After the Tateno certification is completed, Iwabuchi-san and Fujiwara-san will talk to the JMA headquarter, NIPR, and GSI.

# Minamitorishima (northwestern Pacific)

GRUAN shepherds: Masatomo Fujiwara

Institution contact: Masami Iwabuchi (JMA)

History: Heard about it this morning. Small hot island. Belongs to GAW and BSRN.

Next steps: After the Tateno certification is completed, Iwabuchi-san and Fujiwara-san will talk to the JMA headquarter, NIPR, and GSI.

# Azores

**GRUAN shepherds:** Doug Sisterson

**Institution contact:** Someone in Portugal?

**History:** There is an ARM mobile facility on Graciosa Island, Azores. The plan is to follow in ARM's footsteps and explore whether we can establish GRUAN sites at locations where the ARM mobile facilities have been.

**Next steps:** Doug, what can/should we do? Who might be a contact in Portugal we can follow up with?

# Canada

**GRUAN shepherds:** Greg Bodeker

**Institution contact:** Christine Best and Patti Edwards

**History:** Phone call in September last year with significant interest in them joining GRUAN. Greg sent them an email on 18 March asking for an update on where they were with their 'letter of interest' and inviting them to attend ICM-9 but no response received.

**Next steps:** I need to chase them up.

# Colombia

**GRUAN shepherds:** Greg Bodeker (sort of)

**Institution contact:** Thomas Lafon ([tlafon@entropika.org](mailto:tlafon@entropika.org))

**History:** They are interested in getting a GRUAN site up and running at Leticia. Thomas has strong links into the Colombian MetService in Leticia. While the Colombia MetService could provide the personnel to support GRUAN measurement programmes in Leticia, they would need funding to purchase the necessary hardware and consumables. Greg emailed Xavier (14 Sept 2016) to see if there is a chance that Spain could provide funding and scientific expertise to support Leticia

**Next steps:** Any developments Xavier?

# Cuba

**GRUAN shepherds:** Peter Thorne

**Institution contact:** Juan Carlos Antuña Marrero

**History:** Would fill a clear gap in the network i.e. a site in the Caribbean.

**Next steps:** Looking forward to Juan Carlos' presentation today.

# India

**GRUAN shepherds:** Ruud Dirksen

**Institution contact:** Dr. Krishnan (IITM) Executive director  
Centre for Climate Research. [krish@tropmet.res.in](mailto:krish@tropmet.res.in)

**History:** July-August 2016: StratoClim campaign took place in Nainital with involvement of LC. Telecon between Ruud and Krishnan on 3 November 2016 to discuss further steps: IITM is in the process of writing proposals to secure research budgets from ministry for the next 5 years. GRUAN letter of support would be helpful in this process. Intended activities in Pune: CFH 1/month, weekly RS92-RS41 intercomparisons to support GRUAN change management.

**Next steps:** IITM can only participate in pilot projects (3 years max). Routine activities are the domain of Indiamet, that should take over the CFH program after these 3 years. Indiamet performs daily radiosoundings at Pune airport. Air traffic control needs to give permission for CFH soundings.

# Peru

GRUAN shepherds: Greg Bodeker

Institution contact: Luis Suarez-Salas ([luisuarez@igp.gob.pe](mailto:luisuarez@igp.gob.pe))

## History:

- Email to Greg from Luis on 26 April.
- Followup email on 2 June 2016 → Dr. Yamina confirmed their institution has an interest in interacting with GRUAN to find possible points of cooperation to implement a monitoring site at the Observatory of Huancayo.
- Email on 29 December 2017 → Luis's research group on atmospheric physics has additional funding.
- 13 March 2017 - Luis sent email to Ruud, asking for further information around GRUAN requirements.

Next steps: They were intending to come to ICM-9.

# Spain (Tenerife)

GRUAN shepherds: Ruud Dirksen

Institution contact: Xavier Calbet and Emilio Cuevas

History: This site was suggested since it is already a GAW site.

Next steps: Any news Xavier?

# Suriname

**GRUAN shepherds:** Arnoud Apituley

**History:** Arnoud visited the Paramaribo Station in early March 2017 with Ankie Piters (KNMI), Anne Thompson and Ryan Stauffer (NASA) to discuss current status and future possibilities for Paramaribo station. A white paper was drafted to describe the uniqueness and importance of the station with the aim to have all material ready if funding possibilities occur. The MDS (Meteorological Service of Surinam) people are certainly willing to collaborate, but the initiative should come from an international consortium. Various parties have been contacted (IUP Bremen, Anton de Kom University, others) and will be asked to update the draft. The Paramaribo station will be presented with a poster at the GAW Symposium (April 2017).

**Next steps:** Any news Arnoud?

# Senegal

**GRUAN shepherds:** Belay Demoz

**Institution contact:** Seydi Ababacar Ndiaye, Ph.D., Professor at Ecole Supérieure Polytechnique (Dakar) UCAD.

**History:** The site would be at Dakar → a very attractive site in West Africa. Seydi wrote an email to Greg (July 2016) to ask about how to start the application process for Dakar to become part of the GRUAN network. Greg replied that a letter of expression of interest needs to be sent from the host country representative to the GCOS Secretariat or the GRUAN lead centre or co-chairs.

**Next steps:** Seydi sent a draft letter to Greg, April 2017. Greg encouraged Seydi to proceed with getting this signed by the Minister in charge of the local meteo service (ANACIM) and to forward this to the GRUAN Lead Centre.

# **Abu Dhabi**

**GRUAN shepherds:** Fabio Madonna

**Institution contact:** Masdar Institute

**History:** None yet.

**Next steps:** Fabio to make contact and to see what he can do.

# Antarctica - Marambio

**GRUAN shepherds:** Richard Querel

**Institution contact:** Ricardo Sanchez, SMNA (Servicio Meteorológico Nacional, Buenos Aires, Argentina)

**History:** Emails between Richard and Ricardo Sanchez and Rigel Kivi discussing the possibility of certifying the Marambio Base site in Antarctica as a GRUAN site. Ricardo is interested in what would be required and thinks it would be good to try to get certified. Marambio Base is a well instrumented site with a long ozonesonde record (since 1989, in agreement with FMI, they have had about 65 ozonesondes per year).

**Next steps:** Email from Ricardo (April 2015) - I hope we can take part into GRUAN network with Marambio Antarctic Station, we are waiting for response on this regard. What is he waiting for?

# Antarctica - South Pole

**GRUAN shepherds:** Greg Bodeker

**Institution contact:** Peter Milne (NSF; [pmilne@nsf.gov](mailto:pmilne@nsf.gov)) and/or Bryan Johnson and Jim Butler ([Bryan.Johnson@noaa.gov](mailto:Bryan.Johnson@noaa.gov) , [James.H.Butler@noaa.gov](mailto:James.H.Butler@noaa.gov))

**History:** This site was suggested since it is already a GAW site.

**Next steps:** Greg has phoned Peter but needs to follow up.

# Antarctica (Meumayer)

GRUAN shepherds: Greg Bodeker

Institution contact: Gert König-Langlo ([gert.koenig-langlo@awi.de](mailto:gert.koenig-langlo@awi.de))

History: None yet. This site was suggested since it is already a GAW site.

Next steps: Greg to contact Gert. But I think that Gert is now retired?

# Argentina

**GRUAN shepherds:** Richard Querel

**Institution contact:** Elian Wolfram (PI of the Rio Gallegos site in Southern Argentina,  $51.6^{\circ}\text{S}$ ).

**History:** Elian is interested, but says that they do not have routine balloon launches at their site, or even nearby (closest is above mentioned Punta Arenas in Chile, 200 km west). Their site has DIAL ozone profiles, mm-wave radiometer, SAOZ for O<sub>3</sub> and NO<sub>2</sub> columns, and a set of broadband radiometers (UVA, UVB and Vis). The other stations with aerosol lidars and radiometers are: Bariloche, Comodoro Rivadavia, Neuquen and Buenos Aires. The only stations that have regular radiosondes (one per day) are Buenos Aires ( $34.5^{\circ}\text{S}$ ) and Comodoro Rivadavia ( $45^{\circ}\text{S}$ )

**Next steps:** Richard will discuss further with Elian about other sites in Argentina.

# Argentina (Ushuaia)

**GRUAN shepherds:** Greg Bodeker

**Institution contact:** Ricardo Sanchez and Manuel Cupeiro  
([ozono@smn.gov.ar](mailto:ozono@smn.gov.ar), [mcupeiro@smn.gov.ar](mailto:mcupeiro@smn.gov.ar),  
[mcupeiro@gmail.com](mailto:mcupeiro@gmail.com)). The GAW contact for Argentina is  
Monica Marino ([marino@smn.gov.ar](mailto:marino@smn.gov.ar)).

**History:** This site was suggested since it is already a GAW site.

**Next steps:** Greg to contact Ricardo and Manuel.

# Bolivia - La Paz

**GRUAN shepherds:** Greg Bodeker and David Whiteman

**Institution contact:** Marcos Andrade and Ricardo Forno

**History:** La Paz is a high altitude site in Bolivia (3420 m).  
Access to measurement station at Chaltaya (5240 m).

**Next steps:** Things continue to limp forward. We communicate regularly with the people at the La Paz site → skype telecons every 6 months or so. Communication with SENAMHI is ongoing. My feeling is that it is unlikely that we will be successful in establishing a GRUAN site at La Paz. FMI has some contact to La Paz (Edith Rodriguez [edith.rodriguez@fmi.fi](mailto:edith.rodriguez@fmi.fi))?

# Chile

**GRUAN shepherds:** Richard Querel

**Institution contact:** Roberto Rondanelli (Geophysics U.Chile), and Raul Cordero (Dept. Physics, U. Santiago de Chile). Raul is a PI of the Chilean Antarctica Science Research at the Escudero Station (62°S).

**History:** Interested in working towards having a GRUAN site. Two of their UV spectrometers soon joining NDACC (one in Santiago in 2014, one at Escudero in 2015). There are several instruments in Santiago that could be put together to make a site - but no radiosonde launches. Chilean weather service (DMC) operates five sites that submit twice daily launches. No routine launches from either Santiago or Escudero themselves. Closest to Santiago is Santo Domingo (90 km west of Santiago). Roberto and Raul are going to meet to discuss options.

**Next steps:** Richard to stay in contact and see how things are going. (Last email 20 October 2014)

# China

**GRUAN shepherds:** June Wang, Greg Bodeker

**Institution contact:** Yang Rongkang and Zhao Peitao

**History:** Learned more about Xilinhot this morning please to see the 2020 target for planned GRUAN certification of Xilinhot.

We are still interested in possibility of additional GRUAN sites in China e.g. Nagqu (4500m above sea-level on the Tibetan Plateau), Kunming and Mt. Waliguan.

**Next steps:** Not sure.

# Hohenpeissenberg (Germany)

**GRUAN shepherds:** Greg Bodeker (anyone else?)

**Institution contact:** Christian Plass-Dülmer, (christian.plass-duelmer@dwd.de)

**History:** None yet. This site was suggested since it is already a GAW site and they are doing 3 ozonesonde flights a week.

**Next steps:** Greg to contact Christian.

# Nepal (Pyramid)

**GRUAN shepherds:** Greg Bodeker

**Institution contact:** On 28 April 2016 Fabio told Greg that Sandro Fuzzi has retired and that he should rather try to contact Cristina Facchini ([mc.facchini@isac.cnr.it](mailto:mc.facchini@isac.cnr.it)) and Paolo Bonasoni ([P.Bonasoni@isac.cnr.it](mailto:P.Bonasoni@isac.cnr.it)). For Italy the GAW country contact is Lt. Col. Patrizio Emiliani, Director of Air Force Mountain Centre CAMM - Monte Cimone Via delle Ville, 40 41029 Sestola Italy phone+39 0536 62512 fax+39 0536 62446 ([patrizio.emiliani@aeronautica.difesa.it](mailto:patrizio.emiliani@aeronautica.difesa.it)).

**History:** This site was suggested since it is already a GAW site. It would be a very good high altitude site.

**Next steps:** Greg to contact Sandro.

# Qatar

**GRUAN shepherds:** Greg Bodeker

**Institution contact:** Mohammed Ayoub

**History:** From Dale: I was just chatting with Mike Newchurch (Univ. of Alabama, Huntsville) and he reminded me that one of his ex-students has established an atmospheric monitoring program in Qatar. He apparently has surface instruments and is now launching balloon-borne sondes, predominantly for air quality monitoring. As I recall, when I met him I got the feeling he has no shortage of funding from the Qatar government to purchase these instruments and perform this work. Anyway, this might be worth exploring since we are always trying to fill in the holes on the GRUAN map.

**Next steps:** Greg to contact Mohammed or maybe Dale (Greg doesn't like hot climates).

# South Africa

**GRUAN shepherds:** Belay Demoz

**Institution contact:** Interest from a university (UP, Hannes Rautenbach) and a branch of the South African Weather Service (SAWS; Mark Majodina). His partner for this GRUAN work is Prof Hannes Rautenbach.

**History:** Would be the first GRUAN site on the African continent and a valuable addition as a southern hemisphere site. Anne Thompson was in South Africa in early February 2015 and spoke with SAWS and Hannes about potential support for GRUAN. Retirement of Gerrie Coetzee is a problem. Retaining capacity is a problem for SAWS.

**Next steps:** Need to meet with more senior managers at SAWS. Who can and will do this?

# Vietnam

**GRUAN shepherds:** Masatomo Fujiwara

**Institution contact:** Mr. Hoang Gia Hiep (director of the AMO),  
Mr. Dinh Duc Tu (vice chief of the AMO's research  
department)

**History:** At ICM-6 presentation and discussion were made for Hanoi station: The Aero-Meteorological Observatory (AMO), National Hydro-Meteorological Service (NHMS) currently has 6 upper air stations (2 will be added in 2014; 11 in total in the near future). On 3 April 2014, Masatomo sent an email to Mr. Hoang Gia Hiep and Mr. Dinh Duc Tu, introducing GRUAN and asking whether AMO is interested in GRUAN. 7 May 2015: It was found that Sami Kiesiläinen at FMI is working with AMO/NHMS on a weather radar related project in Vietnam. It seems their goals are better weather forecasts with cloud, lightning, and surface weather (AWS) measurements.

**Next steps:** Not clear.

# Who else?