

SCAR 2016
REPORT: GRAPE Expert Group side meeting
2016-08-21, Renaissance Hotel, Kuala Lumpur

MEETING AGENDA:

1. 14.00-14.15 GRAPE state of the art and future activities (Giorgiana De Franceschi)
2. 14.15-15.00 GRAPE-National projects/initiatives:
 - a. Emilia Correia (INPE- Brazil)
 - b. Lucilla Alfonsi (ING-Italy)
 - c. Wayan Suparta (ANGKASA-Malaysia)
 - d. Nicolas Bergeot (ROB-Belgium)
 - e. Adriana Gulisano (IAA- Argentina)
3. 15.00-15.15 The challenge on DATA sharing and management: the example of DemoGRAPE (Vincenzo Romano, Luca Pilosu, Olivier Terzo)
4. 15.15-15.30 ReSource- The proposal for a new SRP (Lucilla Alfonsi, GRAPE task force)
5. 15.30-16.00 Discussion and wrap up (All)

Participants:

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1. GRAPE 2014-2016 MAIN OUTCOMES AND FUTURE ACTIVITIES

- **New Projects submitted/approved at national levels (e.g. Italy, Argentina, Belgium)**
- **Northern Activities:** Canada (CHAIN : Reza Ghodousi_Fard & , Paul Prikryl), Europe (UK, It, Poland), USA
- **Southern Activities:** All the Countries supporting GRAPE in particular Brazil, South Africa, Italy, UK, Argentina, USA, Belgium
- **Databases:** eSWua (INGV), Madrigale (USA), CHAIN (Canada), SANDIMS(South Africa). **An integrated database is needed.**
- **GRAPE results:**
 - ✓ Contributions to SCAR webpages,
 - ✓ Outreaches to general public, (a dedicated poster at SCAR2016), national initiatives: Nicolas Bergeot (Cognac Rotary Club, France, 2016).
 - ✓ Publications (2012-2016): >30 papers including Conference Proceedings
 - ✓ SCAR Reports
 - ✓ Conferences, Meetings, Workshops focused on GRAPE: SCAR 2012- 2014-2016, URSI AT RASC 2015, Beacon Satellite Symposium 2016, SANAP 2016 Symposium (South Africa)
 - ✓ Task Force established in May 2015 (IT UK, USA, CA, BE, SA, BR) for coordinating efforts in drafting a new SRP: ReSource (Radio Sciences Research on Antarctic AtmospherE) aiming to
 1. Promote coordination of multi-instruments studies of the lower and upper atmosphere
 2. Support the definition of the best practice to protect the Intellectual Property Rights (IPR) on data and software sharing. Some best practices adopted within the GRAPE community such as the Cloud computing will be extended to all involved communities. This will be coordinated in close contact with SCADM.

Future activities:

- **Contribute** to one of 6 areas of SCAR Horizon Scan on ***Solar events impact on global communications and power systems-Space Weather***
- **Maintain** the GRAPE web
- **Maintain/improve** networks of special GNSS receivers, software for GNSS data analysis
- **Encourage** multi-instrument and multi-discipline data analysis and investigation
- **Continue** the efforts of the Task Force in close connection with Sun-Earth Relationships and Antarctica (SERAnt) Action Group and Astronomy & Astrophysics from Antarctica (AAA) Scientific Research Programme (SRP) to prepare the version of ReSource to be formulated by URSI General Assembly Aug 2017 in Montreal submitted to SCAR 2018 in Davos.

- **Encourage and Support** the development of ICT Infrastructures for data/tools managements and sharing. The CLOUD is proposed where the processors are moved to where the data is, rather than move the data. Benefits from the DemoGRAPE project demonstrator. To this scope the **presentation “The challenge on DATA sharing and management: the example of DemoGRAPE” by Luca Pilosu et al. is given and available on the GRAPE web as well.**
- **URSI-GASS 2017:** Commission G-F joint sessions on Radio Studies of Polar Aeronomy Montreal 19-26 August 2017. Paper submission deadline: January 30, 2017, www.gass2017.org. Conveners: G De Franceschi, V. Chandrasekar (Colorado State Univ), L. Bladini(CNR, IT).
- **Contribute to optical astronomy and radio-astronomy:** New models are required for ionospheric modelling for radio-astronomy imaging and synergies with UV observations in Antarctica (**Pierre Cilliers (SANSA, SA) as the contact for this action**).

Other actions:

- GRAPE:
 - New Candidates as officer – elections
- ReSouRCE:
 - Implementation plan is to be developed.
 - New candidates from GRAPE and SERANT (and AAA) required to be involved in the SRP process.

2. NATIONAL PROJECTS AND INITIATIVES

- Ongoing and new projects (Brazil, Italy, Malaysia, Belgium, Argentina) have been presented as in the agenda. Presentations as ppt/pdf are available on the GRAPE web. Highlights:
 - E. Correia presented the work in progress to re-built the Brazilian Station
 - Malaysia is a new Country expressing their interest in joining GRAPE- **Welcome!** Contact person is Wayan Suparta at www.ukm.my/angkasa. The group has been involved in solar-terrestrial relationships since 2002 and a new project has been proposed 2014-2017.
 - Belgium submitted a new project on GNSS and Space Weather in East Antarctica around the Princess Elisabeth Belgian Base – contact Nicolas Bergeot (ROB Belgium): ANTION
 - Argentina, Dr. Adriana Gulisano presented a new initiatives LAGO (Latin America Giant Observatory). Details at www.dna.gov.ar

3. ReSource- STATE OF THE ART

A. Alan Weatherwax (as SERANT) proposes to continue the side meeting jointly with GRAPE to discuss and work on the future actions necessary focused on the new SRP.

B. Lucilla Alfonsi presents the state of the art of the **ReSource SRP** on behalf of the GRAPE task force:

➤ **SCAR Horizon Scan links:**

71: Interhemispheric Conjugacy and differences in the lower, middle and upper atmosphere

72: Space Weather effects on Polar atmosphere and global atmosphere

73: Investigate the link between atmospheric waves and atmospheric processes in the Antarctica and Southern Oceans.

➤ **Expected duration of the programme: 8 years**

➤ **Expected funds: US\$20 000/year = total US\$160 000**

➤ **Sponsoring SSGs: Geosciences, Physical Sciences.**

➤ **Goals:**

- Monitor and investigate the Polar Atmosphere
- Support the radio science needs to remove or mitigate the effects of atmospheric disturbances on several applications.

➤ **Instruments:** Ionosondes, SuperDARN, Riometers, GNSS receivers, GNSS & TEC monitors, VLF, Geomagnetic observatories, etc...

➤ **Other groups that may be interested:** Radio Astronomy, Optical Astronomy SCAR AAA (Astronomy and Astrophysics from Antarctica), URSI Radio Sciences Commissions F-G-J.

➤ **Expected outcomes:**

1. Joint publications.
2. Best practice reports for stakeholders.
3. Outreach and education of pupils and the public.
4. Submission of collaborative projects to look for additional funds.
5. Didactic labs and theses.

6. Invitation of young scientists to attend ReSource meetings.

7. Collaboration with young scientists (18-25 years) to create and manage, under the ReSource steering committee supervision, the link to the most popular social networks and manage social activities during meetings.

4. DISCUSSION AND WRAP UP

GENERAL REMARKS AND ADOPTIONS

- ✓ **Participants** are asked to be in **contact with their national representative** within **SCADM** to support GRAPE and the vision proposed on the federate infrastructures under CLOUD environment to share data and tools.
- ✓ **Participants** are asked to **spread GRAPE and future activities** within their own mailing list. They are also solicited to present GRAPE in the frame of workshops and meetings they may attend. The last GRAPE poster and ppt is available (asap on the grape web) for their own updating/modification etc...depending on the audience.
- ✓ **Pierre Cilliers (SANSA, SA)** as the GRAPE representative to be in **contact with AAA and radio-astronomy community.**
- ✓ **Malaysia joins the GRAPE expert group.**

ReSource SRP:

1. Lucilla Alfonsi and the task force to be in close contact with Mark Clilverd, Al Weatherwax, Adriana Gulisano, that join the task force and will support the SRP process
2. Proposed (and agreed) schedule: KO meeting and last version of the ReSource SRP to be approved at the URSI General Assembly 2017 in Montreal Canada. From now to August 2017 Lucilla Alfonsi to coordinate the task force actions via email and skype telco.

GRAPE LEADERSHIP:

The participants expressed their sincere appreciation for the leadership of the GRAPE Group by Giorgiana De Franceschi. The group recommended that **Giorgiana continue the leadership of the GRAPE Group**, and carry the **ReSource** proposal forward and **submit it during the next SCAR meeting in Davos**. In order to provide continuity on the leadership after Davos, when Giorgiana will step down, and pass on the leadership to another country than Italy, the GRAPE group proposed that **Nicolas Bergeot of the Royal Observatory of Belgium be appointed as co-leader of the group with immediate effect.**

The GRAPE-SERANT side meeting closed at 18:00 Kuala Lumpur LT.