

## **IAGA/URSI Joint Working Group on VERSIM (VLF/ELF Remote Sensing of the Ionosphere and Magnetosphere)**

Business meeting – Wednesday 5 September 2012 from 13:00

There was a meeting of the VERSIM working group during the 5th VERSIM workshop, held in São Paulo, Brazil, at 13:00 on Wednesday 5 September 2012.

Present: Craig J. Rodger (New Zealand) the IAGA co-chair and János Lichtenberger (Hungary) the URSI co-chair. Steve Cummer (USA), Emilia Correia (Brazil), Hernan Rivero G. (Brazil), Peter Steinbach (Hungary), Etienne Koen (South Africa), Brett Delport (South Africa), Alberto Akel (Brazil), Michael Rycroft (United Kingdom), Ivana Kolmasova (Czech Republic), Ondrej Santolik (Czech Republic), Aaron Hendry (New Zealand), Ernst D. Schmitter (Germany), David Shklyar (Russia), Andrew Collier (South Africa), Andrei Demekhov (Russia), Alejandro Lara (Mexico), Andrea Borgazzi (Mexico), Jyrki Manninen (Finland), Daniel Hamar (Hungary), Fernando Bertoni (Brazil)

### Chairman's Report

Craig Rodger (the IAGA co-chairman), welcomed the participants to the VERSIM business meeting held as part of the 5th VERSIM workshop. He noted the importance of short, regular business meetings so we can demonstrate to our parent bodies (URSI and IAGA) that our community is alive and active. Both IAGA and URSI suffer from a number of "zombie" working groups, and it is important that we are not viewed as one of these. Craig also commented on the importance of our yearly VERSIM newsletter to share information and also to demonstrate the vibrancy of our community to the wider URSI and IAGA community. Of course our business meetings are also an important part of planning our activities!

Craig outlined the description and main scientific goals of the VERSIM working group, noting that the main scientific working areas were fairly broad and had not been updated for some time. However, as we have two parent bodies, both of which need to be advised of changes in our "formal description", we have chosen not to update the description of the working group, and operate in a "friendly and open" manner.

### VERSIM-relevant sessions at next IAGA meeting (Merida, Mexico in August 2013)

The next VERSIM working group business meeting will be held during the IAGA General Assembly in Merida, Mexico currently scheduled for 26-31 August 2013. IAGA last met during the IUGG Assembly in Melbourne, Australia (2011), and VERSIM put forward a number of possible scientific sessions for the Merida IAGA meeting. Other parts of IAGA also put forward sessions, and as one might expect there are a large number of VERSIM-relevant sessions planned for the Merida meeting. A draft timetable has been distributed, and so we know both the sessions and the approximate time period available for VERSIM-relevant oral presentations. For many of the sessions we appear to have done very well, with good numbers of oral presentations available (assuming the researchers come forward and submit abstracts). Craig summarised the possible VERSIM relevant sessions planned for IAGA in Merida:

- Wave and particle dynamics in the radiation belts and ring current (~1.5 days of talks)

- Energetic particle precipitation into the atmosphere: sources and consequences (~1.5 days worth of talks)
- The Earth's Plasmasphere: Modelling and Remote Sensing (~1 day worth)
- Extreme Space Weather: Solar wind-magnetosphere-ionosphere-upper atmosphere coupling (~1 day worth)
- History of Research on the Radiation Belts (~1 day worth)
- Multi-spectral studies of solar flares (~1.5 days worth)
- Electrodynamics and energetics of the middle atmosphere and lower thermosphere: the local and global picture (~0.5 days worth)

VERSIM-relevant sessions at next URSI meeting (Beijing in August 2014)

Our other parent body, URSI, will next met for a General Assembly and Scientific Symposium in Beijing (China) with planned dates 16-23 August 2014. Again, there are a large number of VERSIM-relevant sessions, which were summarised by Craig. Ondrej Santolik (Czech Republic), the current Commission H chair, reported that if anyone wanted to put forward additional sessions this was still possible, at least for a short period. In this case people with suggestions should contact Ondrej directly.

**DRAFT LIST (this list from 13 Aug 2012)**

- H1: Wave-particle Interactions and Their Effects on Planetary Radiation Belts (J. Bortnik, C. J. Rodger, R. Horne)
- H4 : Remote sensing of the Plasmasphere (J. Lichtenberger, A. Collier)

**Commission H-lead joint sessions**

- HGE: Ionospheric, magnetospheric and high energy effects of lightning (M. Fullekrug, V. Pasko, N. Liu)
- HG1: Drivers, detection, and ionospheric impacts of precipitation from the radiation belts (C. Rodger, M. Clilverd)

**Other joint sessions with participation of Commission H**

- EGH: Seismoelectromagnetics (Y. Hobara, J. Y. Liu)

**Proposed Commission H Tutorial –**

Yoshiharu Omura: “Theory and simulations of nonlinear wave-particle interactions in the planetary radiation belts”

Comments on 5th VERSIM workshop

The 5th VERSIM workshop is the first VERSIM workshop held outside of Europe, and we are very pleased to come meet our colleagues in South America! Researchers from 5 continents have come together as this workshop, reporting back on the many areas of common VERSIM science. One of the most impressive things has been the amount of funding support our Brazilian colleagues have been able to secure from many sources. A large number of the community had very significant support, including flights and accommodation. Our community really enjoyed the discussions at the 5th workshop and the efforts of the LOC. A vote of thanks was proposed by the participants to the

Local Organising Committee of the 5th VERSIM workshop, and in particular the chairman of the LOC, Fernando Bertoni. Applause greeted this vote of thanks!

Craig Rodger noted that his personal memory of his first visit to Brazil would be the quality of the food we have encountered here!

#### Chairs of the working group

Craig Rodger (the IAGA co-chairman), noted that he became the IAGA co-chair in 2003, following on from Andy Smith (UK), while János Lichtenberger (the URSI co-chair) took up this position in 2005 following on from Michel Parot (France). Craig noted that his intention is to step down from the IAGA co-chair role at the 2013 Merida meeting as he will be chair for a decade at that point. He suggested that someone younger, smaller, and "less grumpy" should take over from him, as it is getting time to pass the baton. He called on the community to consider nominating someone at the IAGA meeting in Merida!

#### Future VERSIM workshop?

Craig noted that one possible suggestion for a future VERSIM workshop had been put forward, and asked if anyone else had suggestions. There were none, and so Craig summarised the suggestion that he host the next VERSIM workshop in Dunedin, New Zealand. He noted that he said he would host a VERSIM workshop for some years now, once the workshop is well established. Now we are holding workshops outside of Europe, that time seems to have come!! Thus Craig offered to host the 6th VERSIM workshop in Dunedin (New Zealand) in late January 2014. This suggested timing comes from the timing of the IAGA and URSI meetings (so we are well away from both meetings), and also because it is good timing for Otago University in New Zealand.

Craig outlined some details on the proposed meeting. The current suggestion is 20-23 January 2014 (Mon- Thurs). We can use the Seminar Room in the Physics Department, University of Otago for oral sessions, with posters in the common room (which is on the same floor as the seminar room) – hopefully we can put the posters up throughout the entire meeting. Morning and Afternoon tea will be included (use the common room). As it has become traditional to include lunch as part of the VERSIM registration fee, we hope to include this, using the buffet at the Otago Staff Club (~5min walk from the Physics Department). The plan is also to include an excursion on Wednesday afternoon, hopefully involving a harbour cruise to view birds, seals, and the views, followed by penguin spotting and a conference dinner. More information on the harbour cruise can be found at <http://www.wildlife.co.nz/>.

In terms of getting to New Zealand, there are direct daily flights from Hong Kong, Singapore, SFO, LAX, Shanghai, Santiago, and Tokyo (oh, and Australia) and regular flights from Vancouver, Seoul, Kuala Lumpur, Bangkok, Dubai, Guangzhou, (and places like Bali, South Pacific, etc). Craig reminded the community that New Zealand is a long long way away from the rest of the world, and when he comes to visit the community he is often very tired when he arrives. Some people may wish to break the trip in Asia or North America. The cost of flights is rather high too, given the distance, and as such people should start planning soon. Craig also warned that he would not be able to provide much financial support (at all) for this meeting from local support (beyond "in kind support" like room hire, secretarial support, etc).

There was general acceptance of this invitation, and we therefore expect the next workshop to be in New Zealand. Craig noted that our Japanese colleagues, who could not attend the 5th VERSIM workshop, was strongly in support of the proposal, and supportive words has been received by M. Clilverd (UK), S. Kumar (Fiji) and V. Zigman (Slovenia), while P. Bessalov (Russia) "abstained". However, as only a subset of the VERSIM community could attend the business meeting, Craig is proposing to email the wider VERSIM list to see if anyone has strong concerns – and maybe a counter offer! This has been done, and so far we appear to be OK for running the meeting in Dunedin.

As a final point, Andrew Collier (South Africa) noted that he would be interested in hosting the 7th VERSIM meeting in South Africa.

#### Any Other Business

At this point Fernando Bertoni arrived at the meeting, and a second vote of thanks was proposed, with applause!

Jyrki Manninen (Finland) reminded us we should remember to submit reports to the annual VERSIM newsletter. The 2012 newsletter contained 22 reports from 20 different countries, reflecting our strong and vibrant community! Craig indicated he would send out a reminder in November, with the goal that people had ~1 month to prepare a brief report. Our annual newsletters are sent to the VERSIM email list, placed on the web site, and emailed to the appropriate heads/chairs of IAGA and URSI.

Finally, Craig Rodger reminded the community that the final day of the VERSIM workshop was a special day devoted to Geophysical and Radio techniques to assess Natural Disasters and Space Weather Impacts on the Earth. This is part of a ICSU funded URSI/SCOSTEP-supported programme for South America. Craig encouraged the VERSIM community to attend and learn more about this science.

[as an addition to the report – after the VERSIM business meeting the IAGA Young Researcher Award was announced]

#### IAGA Young Researcher Award

There were 8 candidates for the IAGA Young Researcher Award, provided by IAGA to the LOC as part of their support for the VERSIM Workshop. The IAGA award consists of support to participate in the next Assembly (in Merida, Mexico, in 2013): in previous years this has consisted of a low-cost air ticket, waiving of the registration fee, and a small quantity of financial support. The Award is for a young scientist (not more than 30 years old in 2012) who contributes the best paper to the meeting. The young scientist nominated shall have made a major contribution to the study reported and have been the first author of the paper presented, besides having given a very good presentation at the meeting.

Craig Rodger announced that the 5<sup>th</sup> VERSIM workshop Scientific Committee will recommend to the IAGA Executive Committee that Ilya Kuzichev (Russia) should receive this award, on the basis of his presentation "Whistler-mode wave scattering from density irregularities and the wave exit to

the ground". Ilya Kuzichev gave a sole-author presentation describing his theoretical calculations to understand how whistler-mode electromagnetic waves penetrate the ionosphere and reach the ground. He specifically focused on the penetration of waves through the polar ionosphere, which is particularly relevant to many members of our community who make wideband ELF-VLF observations on the ground at high latitudes. This high-quality work was published as a sole author paper in the American Geophysical Union journal, the Journal of Geophysical Research-Space Physics.

The Scientific Committee also wished to give special mention to Brett Delpont (South Africa) for an excellent presentation entitled " Correlating fractional hop whistlers detected on DEMETER with WWLLN lightning" – if we could present two prizes, Brett Delpont would certainly have received the second one for his clear presentation and high quality work. Finally, the last day of the VERSIM workshop was a special URSI/SCOSTEP-supported session on Geophysical and Radio techniques to asses Natural Disasters and Space Weather Impacts on the Earth. The committee made a special commendation to Marlos Rockenbach (Brazil) whose presentation during this special session was entitled "Early detection of CMEs using cosmic rays".