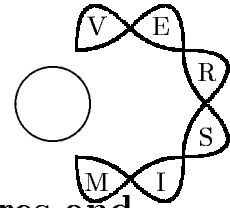


IAGA/URSI  
Joint Working Group on



## VLF/ELF Remote Sensing of Ionospheres and Magnetospheres

Editor: A J Smith

Newsletter

No. 13 — June 1999

Dear colleagues,

Because of the two-year and three-year cycles of IAGA and URSI General Assemblies, 1999 is a busy year with both taking place. This newsletter focuses mainly on these meetings, where it should be possible for VERSIM members to meet and engage in fruitful scientific discussions and pleasant social activities. This may be the last *VERSIM Newsletter* distributed on paper. As noted below, I am setting up an electronic mailing list to distribute news by email in future.

### URSI, Toronto, 1999

The 26th URSI General Assembly will be held in Toronto, Canada, 13–21 August 1999. Full details are on the web at: <http://www.nrc.ca/confserv/ursi99/>.

#### Pitch-angle scattering (and acceleration) of trapped particles by waves in magnetospheres

This VERSIM-sponsored session (Session H3) which is a follow-up to the successful “waves and the radiation belts” session at Lille, broadened to include waves other than whistler mode and radiation belts other than Earth’s, has been convened by **A.J. Smith**, **J. Lemaire** and **U.S. Inan**. The deadline for submissions is now past.

The session will take place 0830–1130, Friday 20 August 1999 (venue to be announced) and

the programme will be as follows:

- H3.1** *Precipitation of Radiation Belt Electrons by Oblique Whistlers*, U.S. Inan, M.P. Johnson and D.S. Lauben
- H3.2** *Wave Interactions with Geomagnetically Trapped Particles*, M. Walt
- H3.3** *Magnetospheric Line Radiation Observations at Halley, Antarctica*, C.J. Rodger, M.A. Clilverd, A.J. Smith and K.H. Yearby
- H3.4** *A Survey of Wave Data Sets Collected in the Magnetosphere*, F. Darrouzet, M. Walt, U.S. Inan, M. Parrot, M.K. Hudson, A.J. Smith, B. Tsurutani and J.F. Lemaire
- H3.5** *Coherent Cyclotron Resonance Effects in the Radiation Belts*, J.M. Albert
- H3.6** *A Quantitative Estimate of the Mean Annual Ducted Whistler Power Propagating within the Field of View of the VLF Receiver at Halley, Antarctica*, A.J. Smith, M.B. Grieve, M.A. Clilverd and C.J. Rodger
- H3.7** *Generation of Magnetospheric ‘Killer Electrons’ by Wave Particle Interactions*, D. Summers and C.-Y. Ma
- H3.8** *On Global Activity of Whistler Mode Waves in Geospace*, Y. Zhang, H. Matsumoto and H. Kojima

There will also be two papers in the Poster Session 16:30–19:00 on 19 August.

**H3.P.1** *Lifetime of the Ring Current Ions due to Collective and Pair Processes*, A.G. Demekhov, D.L. Pasmanik and V.Yu. Trakhtengerts

**H3.P.2** *Features of Localized Energetic Particle Precipitation in the Vicinity of the Plasmapause*, D.L. Pasmanik, V.Yu. Trakhtengerts and A.G. Demekhov

## The Plasmasphere rediscovered: a tribute to Donald Carpenter

This special workshop, convened by **J. Lemaire** and **L.R.O. Storey** will be held at the University of Toronto on Saturday 14 August 1999 in honour of Don Carpenter and his achievements is helping to discover and understand the plasmasphere and plasmapause using whistlers. Don was instrumental in founding the VERSIM group, originally known as the working group on *Passive Electromagnetic Probing of the Magnetosphere*. The scientific sessions both oral and poster, will be held 0830–1800 and will be followed by a banquet 1930–2400. For more details, please see the website: <http://www.magnet.oma.be/ws-h/index.html>.

## Other sessions at Toronto

Other sessions scheduled for URSI'99 which may be of particular interest to the VERSIM group include:

**E6: 21 August am** *Terrestrial Electromagnetic Environment* Conveners: D.L. Jones and M. Hayakawa

**GH1: 19 August pm, 20 August am** *Electromagnetic coupling including seismic activity between the ground and the upper ionosphere and magnetosphere* Conveners: S. Pulinet, M. Parrot and O. Molchanov.

**GH2: 20 August pm** *Lightning-Ionosphere interaction* Conveners: U.S. Inan and D. Nunn.

**H1: 21 August am** *Active experiments involving space plasmas* Convener: W.J. Raitt

**H2: 16 August am** *Wave-particle interactions: quantitative comparison between observations, theory, simulations and modelling* Conveners: R.R. Anderson, I. Nagano and D. Nunn

**HG1: 16 August pm** *Theory and simulation of nonlinear kinetic processes in space plasmas* Conveners: Y. Omura, M. Ashour-Abdalla and S. Ossakow

**HG3: 19 August am** *Wave propagation: observation and data analysis* Conveners: F. Lefeuvre, K. Hashimoto and K. Mahajan.

Poster papers for these symposia are included in the joint poster session 16:30–19:00 on 19 August. Details of all the papers may be found in the *Preliminary Scientific Programme* and on the URSI'99 website listed above.

Please also note the H Tutorial by L.R.O. Storey on *The Measurement of Wave Distribution Functions*

## VERSIM Business meeting

There will be a meeting of the VERSIM working group during the Toronto Assembly, at **1800 on Tuesday 17 August 1999** in Room 4171, Medical Sciences Building University of Toronto. The draft agenda is: 1. Chairman's Report; 2. Future of the working group; 3. Reports from VERSIM research groups; 4. Symposia at future IAGA and URSI Assemblies; 5. Any other business. If you have any specific issues you would like to discuss, please let one of the co-chairmen know (see below for addresses, etc.). **All are welcome!**

## IUGG, Birmingham, 1999

The 22nd General Assembly of the International Union of Geodesy and Geophysics, which encompasses IAGA, will be held at the University of Birmingham, UK, 19–30 July 1999. The scientific programme and information on how to register for the assembly may be found on the Web site: <http://www.bham.ac.uk/IUGG99/>, or contact the organising committee at email: [IUGG99@bham.ac.uk](mailto:IUGG99@bham.ac.uk) or fax: +44 121 414 4942.

There are no sessions devoted specifically to VERSIM at the Assembly. At the VERSIM meeting held during the last IAGA Assembly in Uppsala (1997) it was decided not to propose a VERSIM session for Birmingham because of the proximity of URSI'99, but to consider possible topics for the 2001 IAGA in Vietnam which could be proposed at Birmingham. If anyone has suggestions for this, please let one of the co-chairman know, or come to the Business Meeting with your proposal.

## VERSIM Business meeting

There will be a meeting of the VERSIM working group during the Birmingham Assembly, on the evening of **Tuesday 20 July 1999** (venue to be announced). The draft agenda is the same as for the Toronto meeting given above. **All are welcome!**

## IAGA, 2001

The 9th Scientific Assembly of IAGA will be held in Hanoi, Vietnam, 18-30 August 2001. Some details about the venue were given in *IAGA News*, No. 38 (October 1998)

## DEMETER Workshop

There will be a DEMETER workshop in Orléans, France, 15-16 July 1999 (just before the IUGG meeting in Birmingham). More information is on the website: [http://web.cnrs-orleans.fr/~web/pce/semin\\_stages/colloques/demeter/demeter2\\_E.html](http://web.cnrs-orleans.fr/~web/pce/semin_stages/colloques/demeter/demeter2_E.html).

The micro-satellite DEMETER (Detection of Electro-Magnetic Emissions Transmitted from Earthquake Regions) is a low-altitude satellite (< 800 km) with a nearly polar orbit. It will be the first scientific micro-satellite launched by CNES, the French National Space Agency. The expected launch date is mid-2001.

The main scientific objectives of this project are related to the investigation of ionospheric perturbations due to seismic activity, and to the global study of the Earth's electromagnetic environment. The payload of DEMETER is composed of several sensors associ-

ated with a data processing unit and a large memory in order to record the information all around the Earth independently of a telemetry station. DEMETER will measure electromagnetic waves from DC up to 4 MHz, and plasma parameters. There are two modes:

- a survey mode to record low bit rate data all around the Earth,
- a burst mode to record high bit rate data above seismic regions.

The duration of the mission is two years.

## Workshop purposes

The workshop will focus on points related to the scientific objectives of DEMETER:

- First the workshop will provide a forum to describe new results in theory and ground or satellite observations of excitation of the ionosphere by seismic or tectonic processes, either before or after quakes and volcanic eruptions.
- Second, the workshop will discuss methods concerning statistical analysis of data recorded by a satellite or by another experiment, and which are correlated to specific events.
- Third, this workshop will bring together various groups of experimenters who will perform ground-based measurements close to seismic regions at the same time as DEMETER will be operating. These measurements may concern DC fields, electromagnetic noise in various frequency bands, ionospheric parameters, optical parameters, . . . Contributions concerning Total Electron Content measurements with satellites are also especially encouraged.
- Fourth, the workshop will concern topics associated with the global electromagnetic environment of the Earth. This includes space weather, radio-communications, and particularly ionospheric perturbations due to man-made activities.

The workshop programme may be found at: [http://web.cnrs-orleans.fr/~weblpce/semin\\_stages/colloques/demeter/programme.html](http://web.cnrs-orleans.fr/~weblpce/semin_stages/colloques/demeter/programme.html)

Please send any information of interest to other members of the working group, for publication in the next newsletter, to the editor, **A J Smith**, at the address given below; electronic mail preferred, otherwise mail or fax or use the electronic mailing list (see above) once it is set up.

## **VERSIM Electronic Mailing List**

In the near future I am intending to set up a VERSIM electronic mailing list, for distribution of future Newsletters and other announcements relevant to VERSIM. I will email details of this to all those currently listed in the VERSIM email directory <http://www.nerc-bas.ac.uk/public/uasd/versim/vrsmemai.html> and will place details on the VERSIM web site of how to mail to the list, and how to subscribe and unsubscribe.

## **The role of the VERSIM Working Group**

The working group serves as a forum for workers studying the behaviour of the magnetosphere and ionosphere by means of ELF and VLF radio waves, both naturally and artificially generated. Originally the emphasis was on probing of the magnetosphere by whistlers, but later the scope became somewhat broader. The group aims to promote research in this field by facilitating the exchange of ideas, information and experience between active research workers and other interested scientists. This is done through regular meetings at IAGA and URSI Assemblies, and via the circulation of a newsletter. The group has also been active in sponsoring scientific symposia at IAGA and URSI Assemblies, in areas relevant to its field of interest, and in coordinating observational campaigns. There are currently ~100 scientists from 22 different countries (Australia, Austria, Belgium, Brazil, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, India, Japan, New Zealand, Norway, Russia, South Africa, Sweden, Ukraine, UK, USA, and Yugoslavia) on the VERSIM mailing list.

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**VERSIM World Wide Web page:**

<http://www.nerc-bas.ac.uk/public/uasd/versim.html>