European Physical Society

Solar Physics Section

Newsletter Nr. 3, March 1991

Debrecen Meeting

The Dynamic Sun

The Sixth European Solar Physics Meeting of our section was held last May in Debrecen, Hungary. A report has been published by former secretary Arnold Benz in Europhysics News **22**, 19 (1991). From it I quote:

"Somewhat appropriately, the sixth triennial meeting in Debrecen, Hungary last May of the Solar Physics Section of EPS just about corresponded with a maximum in a cycle of solar activity. It was also the first time the conference was held in an East European Country, where flawless organization by the local organizers (L. Deszö and coworkers) in the face of a more difficult economic situation than on previous occasions was greatly admired and appreciated. Equally remarkable was the appearance by October of the proceedings as a Publication (Vol. 7) of the Debrecen Heliophysical Observatory, Hungary.

The label *The Dynamic Sun* was chosen to cater for a large fraction of the solar community and its broad range of interests covering the structure and dynamics of the solar atmosphere."

The proceedings contain 7 invited reviews:

- H. Wöhl: *Large-Scale Motions in the Solar Atmosphere*
- I. Tuominen: *Solar Differential Rotation and its Variations*
- C. Zwaan: *Patterns of Activity*
- C. Chiuderi: *Solar Activity*
- J. Sylwester: *X-ray Spectroscopy of the Upper Solar Atmosphere*
- H.E. Mason: *UV and EUV Spectroscopy of the Upper Solar Atmosphere*
- F. Kneer: *Waves in Active Regions*

In addition, there are 70 contributed papers.

Rob Rutten

Solar Physics Prizes

During the Debrecen Meeting, the Solar Physics prize was awarded for the first time. This prize, courtesy of Kluwer, consists of a free three-year subscription to *Solar Physics* and is awarded to outstanding young solar physicists, either graduate students or recent PhD's. The prizewinners:

Lidia van Driel-Gesztelyi (from Debrecen, PhD Ondrejov, now at Utrecht)

Peter J.I. de Bruyne (PhD Leuven, now at St. Andrews)

Bernhard Fleck (PhD Würzburg)

Solar Physics Section

New Board

The Board of the Solar Physics Section has a new constitution. In particular, Arnold Benz left the board after five years of service as Secretary/Treasurer in which he played a major role, not only in running section business but also in the organization of the Debrecen meeting and CESRA Workshops. His place has been taken by Brigitte Schmieder. The Board now consists of:

P. Ambroz (Ondrejov)

G. Godoli (Firenze)

P. Hoyng (Utrecht)

A. Righini (Firenze)

J. Staude (Potsdam)

L. Vlahos (Thessaloniki)

G. Simnett (Birmingham)

D.O. Gough (Cambridge)

W. Mattig (Freiburg, Chairman)

B. Schmieder (Meudon, Secretary/Treasurer)

G. Trottet (Meudon)

Yu.D. Zhugzhda (Troitsk)

European Astronomical Society

On October 10, 1990 the European Astronomical Society (EAS) was founded. A major motivation for its erection has been that the Astronomy and Astrophysics Division of the EPS, to which our section formally belongs, has never functioned properly—in fact, our section has been the only working Europe-wide organization in astronomy so far, a reminder of the days in which a successful international solar physics organization preceded the IAU.

The EAS now has about a thousand members. It will take over, from the IAU, the organization of regional European Astronomy Meetings. Other activities are being discussed. Obviously, the relation between the EAS and our section requires deliberation. It is on the agenda for the next SPS Board meeting, March 22 at Arcetri.

On-line Solar Images

It is now possible to obtain fresh images of the sun via the computer networks. Coronal scans are available from Sacramento Peak, He 10830 images and magnetograms from Kitt Peak, white-light, Hα and Ca II K images as well as videomagnetograms and Dopplergrams from Big Bear. Details are given in the February 1991 issue of SolarNews (see 'Other Newsletters' below).

Institute Profile

Potsdam Astrophysical Observatory

In East Germany solar research is concentrated in the institution "Astrophysikalisches Observatorium Potsdam" which nowadays is a part of the Central Institute for Astrophysics. The Astrophysical Observatory at Potsdam was founded in 1874 and was one of the first institutes in the world to emphasize the physical aspects of astronomy in general and of solar physics in particular. At present the main field of research concerns cosmic magnetic fields and solar and stellar activity. There are both theoretical and experimental departments.

Theoretical groups

Theoretical solar research is carried out by the MHD and plasma physics groups. The MHD group has been investigating hydro- and magnetohydrodynamical processes of global solar phenomena, especially in the convective zone. This work is based on the mean-field viewpoint and concerns problems as differential rotation and dynamo action, including nonlinear aspects. The group consists of six scientists (D. Elstner, F. Krause, K.-H. Rädler, R. Meinel, G. Rüdiger, N. Seehafer).

Seven scientists are working in the plasma physics group (J. Büchner, J. Hildebrandt, T. Kirchner, B. Kliem, N. Nitukowski, C.-V. Meister, A. Krüger). The emphasis of this group is on coronal processes such as magnetic reconnection, instabilities and radio emission. Both groups are also active in other, non-solar astrophysical topics.

Einsteinturm

The "Sonnenobservatorium Einsteinturm" (SOE) has been in operation since 1924. It was the first solar tower telescope in Europe and, after Mt. Wilson, the second observatory in the world to measure solar magnetic fields. The current staff consists of six scientists (G. Bachmann, A. Hofmann, J. Linke, K. Pflug, J. Rendtel, J. Staude) and six technicians. Their interest remains focused on magnetic fields of active regions and of sunspots in particular.

Measurements are performed with a photoelectric vector magnetograph and the Einsteinturm tower telescope (coelostat $d = 60$ cm, objective $d = 60$ cm, $f = 14$ m). The magnetograph is double. It consists of two horizontal grating spectrometers using autocollimation which share one entrance slit and polarization modulator. The electro-optical modulator enables quantitative measurement of all four Stokes parameters for three bandwidths within a spectral line; the two spectrometers permit simultaneous analysis of two freely-chosen lines. Additional channels measure Doppler velocities, continuum intensity and Hα line-center intensity, the latter for co-alignment with Hα filtergrams. The magnetic field vector is derived from the measured Stokes profiles through careful calibration, including measurement of the polarization response of the instrument (Mueller matrix).

The resulting field maps are used to derive current densities, Lorentz forces, force-free extrapolations of field structure and microwave emission models. Further theoretical efforts include solving the transfer equations for the Stokes parameters in magnetized atmospheres, especially for sunspots, and predicting seismological phenomena in sunspots. For more details see Staude *et al.* (1990) and Staude (1991).

Radio astronomy at Tremsdorf

The Observatory for Solar Radio Astronomy (OSRA) was founded in 1954 by Herbert Daene. It is located near Tremsdorf, 15 km south-east of Potsdam and was one of the first German stations for solar radio astronomy (cf. Daene *et al.* 1970). At present there are seven scientists (H. Auraß, A. Böhme, H. Detlefs, J. Kurths, C. Mann, J. Paschke, W. Voigt). Their interests extend to solar radio phenomenology, receiver and data processing techniques, time series analysis and plasma physics.

There are ten single-frequency receivers covering the range 30–9500 MHz. Solar radio burst intensity and circular polarization are measured with 0.0625 s time resolution and digitally recorded on magnetic tape. A radio spectrograph, installed in 1980, has a sweep rate of 10 Hz in four frequency bands: 40–90, 100–170, 200–400 and 400–800 MHz. The spectra are displayed in real time on a color TV and recorded continuously on black-and-white film. Survey data are published in the *OSRA Solar Radio Data* series and contribute to *NOAA Solar Geophysical Data* and *Solnechye Dannye*, while information about outstanding events (tenflares) is promptly provided to the Meudon World Data Center.

These measurements are employed in event analyses including optical, X-ray and UV data. Other research topics are the cycle dependence of phenomena as the S-

component, noise storms and type IV bursts, with emphasis on the fine structure in decimeter and meter wave bursts. These structures are the radio signature of coronal plasma processes and are of general physical interest. Time-series and nonlinear system analysis are employed in conjunction with theoretical plasma physics modeling to derive diagnostics of coronal plasma processes. Nonlinear dynamics and nonlinear waves are studied independently as well.

Jürgen Staude
Potsdam

Daene, H., Voigt, W. and Scholz, D.: 1970, *The polarization of solar bursts at the frequencies 23.5, 29.3 and 39.6 MHz during the period 1964–1968*, H. Hertz Inst. Suppl. Series Solar Data, II, No. 1 & 2
Staude, J., Hofmann, A., Bachmann, G.: 1990, in *Solar Polarimetry*, Ed. L. November, Sacramento Peak Workshop, in press
Staude, J.: 1991, Rev. Modern Astron. **4**, in press

Future Meetings

1991 April 17–19, GONG Annual Meeting, Tucson, USA. Contact: J.W. Leibacher, NSO, P.O. Box 26732, Tucson AZ 85726-6732, USA

1991 April 22–26, General Assembly EGS, Wiesbaden, Germany. Solar symposia: *Cowling Memorial Symposium on Solar System Plasmas; The Sun as a Source of Energy and Disturbance; Solar Activity; Solar Radio Emissions; Waves, Turbulence and Transport in the Chromosphere and Corona.*

1991 May 20–25, Regional Consultation on Solar Physics, Wroclaw, Poland. Contact: J. Jakimiec, Astronomical Institute, Kopernika 11, 51-622 Wroclaw, Poland

1991 May 27–31 (?), *Electromechanical Coupling of the Solar Atmosphere*, OSL Workshop, Capri, Italy. Contact: D.S. Spicer, Code 930.1, NASA/GSFC, Greenbelt, MD 20771, USA. Fax: 301-286-5152

1991 May 28–June 1, *Solar Flares and Magnetospheric Substorms*, session during meeting American Geophysical Union, Baltimore, USA. Contact: J. Klimchuk, Center for Space Science and Astrophysics, Stanford University ERL 300, Stanford CA 94305, USA

1991 June 3–7, 1991 *Fragmentation of Energy Release and Radio Emission from Solar, Stellar and Magnetospheric Plasmas*, CESRA Workshop, Thessaloniki, Greece. Contact: L. Vlahos, Dept. Physics, University of Thessaloniki, G-54006 Thessaloniki, Greece.

1991 June 16–29, *The Sun: a Laboratory for Astrophysics*, NATO Advanced Study Institute, Crieff, Scotland. Contact: J.C. Brown, Dept. Physics & Astronomy, Glasgow University, Glasgow G12 8QW, UK

1991 July 23–August 1, General Assembly IAU, Buenos Aires, Argentina. For sessions *Eclipses, Prominences, Plasma Astrophysics, New Projects* contact E. Priest, St. Andrews. For session *High Resolution Observations and Theory of Solar Magnetism and Convection* contact J.-O. Stenflo, Zürich. For Joint meeting *Solar and Stellar Coronae* contact R. Pallavicini, Florence.

1991 August 2–6, *Eruptive Solar Flares*, IAU Colloquium 133, Iguazú, Argentina. Contact: B.V. Jackson, CASS-0111, UCSD, 9500 Gilman Drive, La Jolla CA 92093-0111, USA

1991 August 12–24, *Historical Data and the Variability of Solar and Geomagnetic Activity*, Session of 20th General Assembly IUGG, Vienna, Austria. Contact: W. Schröder, Geophys. Station, Hechelstrasse 8, D-2820 Bremen-Roennebeck, Germany

1991 September 16–20, *Summer School on Solar Plasma Physics*, Göttingen, Germany. Contact: W. Deinzer, Universitätssternwarte, Geismarlandstrasse 11, D-3400 Göttingen, Germany

1991 September 16–21, *Solar Wind Seven*, Goslar, FR Germany. Contact: R. Schwenn, MPI für Aeronomie, Postfach 20, D-3411 Katlenburg-Lindau, Germany

1991 September 22–27, *Theory of Sunspots*, Cambridge, UK. Contact: N.O. Weiss, Univ. Cambridge, DAMPT, Silver Street, Cambridge CB3 9EW, UK

1991 September 30–October 5, *First SOLTIP Symposium*, Liblice, Chechoslovakia. Contact: M. Dryer, Space Environment Lab. NOAA, 325 Broadway, Boulder CO 80303, USA

1991 October 9–12, *7th Cambridge Workshop on Cool Stars, Stellar Systems and the Sun*, Tucson, USA. Contact: M.S. Giampapa, NSO, P.O. Box 26732, Tucson AZ 85726-6732, USA

1991 October 15–18, *4th Solar Cycle Workshop*, 13th Sacramento Peak Summer Workshop, Sunspot, USA. Contact: K.L. Harvey, NSO, P.O. Box 26732, Tucson AZ 85726-6732, USA

1992 February 3–6, *Infrared Solar Physics*, IAU Symposium 154, Tucson, USA. Contact: D. Rabin, NSO, P.O. Box 26732, Tucson AZ 85726-6732, USA

Recent Books

The Sun, an Introduction, M. Stix, Springer 1989

Neutrino Astrophysics, J.N. Bahcall, Cambridge University Press 1989

Differential Rotation and Stellar Convection, Sun and Solar-type Stars, G. Rüdiger, Akademie-Verlag Berlin and Gordon & Breach 1989

Space Plasma Physics 1: Stationary Processes, A. Hasegawa and T. Sato, Physics and Chemistry in Space **16**, Springer 1989

The Restless Sun, D.G. Wentzel, Smithsonian Institution Press 1989

The Fraunhofer Spectrum and the System of Solar Oscillator Strengths, E.A. Gurtovenko and R.I. Kostik, Naukova Dumka, Kiev 1989 (in Russian)

Solar Astrophysics, P. Foukal, Wiley & Sons 1990

Recent Proceedings

Solar and Stellar Flares, Eds. B.M. Haisch and M. Rodono, Proc. IAU Coll. 104, Kluwer 1989

Solar and Stellar Flares Poster Papers, Eds. B.M. Haisch and M. Rodono, Poster papers IAU Coll. 104, Catania Astrophysical Observatory Special Publication 1989

Solar and Stellar Granulation, Eds. R.J. Rutten and G. Severino, Proc. IAC-NATO Adv. Res. Workshop, Kluwer 1989

High Spatial Resolution Solar Observations, Ed. O. von der Lühe, Proc. 10th Sacramento Peak Summer Workshop, NSO 1989

Dynamics of Quiescent Prominences Eds. V, Ružđjak and E. Tandberg-Hanssen, Proc. IAU Coll. 117, Hvar Observatory Bulletin **13**, No. 1, 1989; Lecture Notes in Physics **363**, Springer 1990

Progress of Seismology of the Sun and Stars, Eds. Y. Osaki and H. Shibahashi, Proc. Oji Int. Seminar, Lecture Notes in Physics **367**, Springer 1990

The Solar Photosphere: Structure, Convection and Magnetic Fields, Ed. J.-O. Stenflo, Proc. IAU Symp. 138, Kluwer 1990

Cool Stars, Stellar Systems and the Sun, Ed. G. Wallerstein, Proc. Sixth Cambridge Workshop, Astron. Soc. Pac. Conf. Series **9**, 1990

Basic Plasma Processes on the Sun, Eds. E.R. Priest and V. Krishan, Proc. IAU Symp. 142, Kluwer 1991

Neutrino Telescopes, Ed. M. Baldo Ceolin, Proc. 2nd Int. Workshop, Dipart. di fisica Galileo Galilei, Università Padova 1990

Problems in the Numerical Modeling of Plasmas, Eds. M. Goossens and W. Kerner, Proc. 4th European Workshop, Computer Physics Reports **12**, 1990

The Dynamic Sun, Ed. L. Deszö, Proc. EPS 6th European Meeting on Solar Physics, Publ. Debrecen Heliophysical Observatory **7**, 1990

Solar Cycle Workshop, Ed. P.R. Wilson, Proc. 3rd Meeting, Solar Phys. **125**, 159–207, 1990

Sun in Time Conference, Eds. M.S. Giampapa and Ch.P. Sonett, Solar Phys. **127**, 295–412, 1990

Inside the Sun, Eds. G. Berthomieu and M. Cribier, Proc. IAU Coll. 121, Kluwer 1990

Inside the Sun Poster Papers, Eds. G. Berthomieu and M. Cribier, Poster papers IAU Coll. 121, Solar Phys. **128**, 1990

Atomic Spectra and Oscillator Strengths for Astrophysics and Fusion Research, Ed. J.E. Hansen, Proc. 3rd Int. Coll., KNAW Verh. Eerste Reeks **33**, North-Holland, Amsterdam 1990

Other Newsletters

SolarNews. Electronic mail newsletter, distributed monthly via the Stanford SolarMail service.
Subscription: postman@solar.stanford.edu (Internet), solar::postman (SPAN), postman@solar (Bitnet), noao!solar!postman (UUCP)

Newsletter IAU Commission 10 on Solar Activity.
Editor: E. Priest, The University, Math. Sci. Dept., St. Andrews, Fife KY16 9SS, Scotland

Solar System News. Newsletter of the Planetary and Space Science Division and Solar and Heliospheric Science Division of ESA.
Editor: K. Wenzel, Space Science Department, ESTEC, Postbus 299, NL-2200 AG Noordwijk, The Netherlands

SUMER Newsletter. Solar Ultraviolet Measurements of Emitted Radiation on SOHO.
Editor: K. Wilhelm, MPI für Aeronomie, Postfach 20, D-3411 Katlenburg-Lindau, Germany

Newsletter on Analysis of Astronomical Spectra. An Informal Newsletter issued biannually by Collaborative Computational Project No. 7. Editor: S. Jeffrey, The University, Dept. Phys. & Astron., St. Andrews, Fife KY16 9SS, Scotland

Editorial

The European Solar Physics Newsletter is intended for all European solar physicists and is distributed free of charge by Kluwer Academic Publishers. It appears irregularly, once or twice a year.

Any material of interest to solar physicists in Europe may be submitted for inclusion. Especially welcome are items for the *Future Meetings* list, for the *Recent Books* and *Recent Proceedings* lists, and *Institute Profiles* with information on visitor programs. Please submit material to:

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