JOSO Working Group 7

Preparation of the August 1999 Solar Eclipse

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Abstract. As an European association of professional solar observers, JOSO (Joint Organisation for Solar Observations) has organised a working group (WG7) in order to contribute to the preparation of scientists for this 'European' eclipse event. We present here the main projects of this small group : diffusion of practical information to scientific teams (planning support, contact addresses in welcoming countries, with an emphasis on Eastern Europe), promotion of collaborations, coordination of a basic experiment by amateurs and professionals along the totality band, and diffusion of an educational reference publication to help local non-specialised scientists and authorities across the continent to provide reliable information to the public.

Key words: The Sun – eclipses – organisations

1. JOSO WG7 objectives

In October 1995, The Joint Organisation for Solar Observations (JOSO) initiated a new working group dedicated to the **Preparation of the 1999 total solar eclipse** (Clette, 1997). The general objectives now pursued by this group are :

– the collection and dissemination of practical information about observing teams and about the local institutions in countries located along the eclipse track. All collected information will be made available through the Web, on the JOSO Internet site.

– the collection of recent data about the local climatological context and local facilities in the various countries crossed by the eclipse.

– the promotion of international collaborations by providing a central 'hub' for address searches among professional astronomers. In this respect, a key objective is to improve the visibility of more isolated countries in Eastern Europe.

Moreover, last year, two specific action items were proposed :

- the edition of a educational 'Solar Eclipse 1999' booklet, intended for scientists and institutions in any country who need a reliable reference to inform the general public at the local level.
- the coordination of a coronal observing network, involving professional and amateur teams distributed along the totality track.

These two projects will be presented in more detail below.

2. Address lists

Over the two previous years, only a few sparse climatological data were collected. A survey of active scientists and amateur astronomers in the field of eclipse observation and research was carried out with more success, as well as a systematic search for World Wide Web (WWW) sites related to eclipses and astronomy education.

Thanks to this survey, the following information can currently be obtained from the chairman of Working Group 7:

- climatological data for Romania, Bulgaria and Turkey.
- an extensive address list (primarily e-mail addresses) of professional and amateur eclipse observers in the following countries : Austria, Belgium, Bulgaria, Canada, China, Czech Republic, Denmark, France, Germany, Georgia, Hungary, India, Italy, Japan, Netherlands, Romania, Russia, Slovakia, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, USA and Yugoslavia. This e-mail address list is not publicly available (protection against unrequested commercial e-mail broadcasts), but specific requests can simply be addressed to the WG7 chairman.
- an almost complete inventory of existing WWW pages focused on three main topics (see appendix A) :
  - reference pages and solar data bases related to eclipses in general
  - "Eclipse 99" specific pages, mostly providing local information
  - astronomy education, in particular about the Sun.

In the next few months, the accumulated information will continue to grow and will be updated.

3. Complementary information sources

Anyone interested in the preparation of next year's eclipse should be aware that, beside the service provided by JOSO's Eclipse working group, other sources of useful information are available, like the IAU Eclipse Commission (Chair:

J. M. Pasachoff), with its own WWW site :
http://www.williams.edu/Astronomy/IAU_eclipses/index.www.html.

Moreover, The Eclipse Mailing List, which is maintained by Belgian amateur Patrick Poitevin and is officially recognized by the IAU Commission, offers the possibility to broadcast messages of general interest and to receive messages about a wide range of topics related to eclipses. This includes practical information for eclipse planners and some late-breaking news. Anyone can subscribe by simply sending an e-mail to *'listserv@Aula.com'* with *'SUBSCRIBE SOLARECLIPSES name,country'* in the body of the message.

In order to avoid unnecessary overlap with those existing resources, which are now well established and widely known, JOSO's working group intends to maintain a complementarity in its information mission. Although the volume of processed information remained small during the previous years, we expect to see a rapid increase in the exchanges and requests as the eclipse date gets closer.

4. Public education project

This project is based on the following idea: the edition and free distribution of a reference booklet providing a comprehensive information about eclipse phenomena, the 1999 total solar eclipse and safety advices for observing. Written for the general public, it would be made available to professional astronomers and science writers in European countries, in order to help them answering the local demand from the public, the authorities or the news media, through the publication of educational articles, bulletins or press releases.

At the present early stage, various material has been collected. Before developing the publication itself, a survey of equivalent educational projects and an assessment of the interest of potential users has been completed. This revealed several issues. Indeed, it turns out that many reference books already exist or are currently in press. Many eclipse projects, essentially lead by amateur groups, rely on these existing publications, and overall, the quality of the relayed information is rather good. Simultaneously, several educational projects are under development, even at the international level (e.g. under the coordination of the European Association for Astronomy Education).

The risk of duplication of existing projects is thus real. We might thus rightfully wonder whether this 'eclipse booklet' concept fulfils a real need. In particular, scientists from countries of Eastern Europe are invited to express their need and their interest for this kind of initiatives, as they face different problems when trying to access scientific information. Finally, the current manpower available for this project is limited to no more than one person, compared to the comparatively large membership of amateur organisations. So, additional support is needed (text sections, illustrations) in order to complete this project on time for the event.

5. Coordination of an observing network

A new concept, currently under development, consists in a joint polarimetric campaign that would involve as many observing stations as possible, distributed along the eclipse track across Europe. Relying on its international status, JOSO would help coordinating all coronal polarimetry experiments which satisfy some prerequisites :

- photography (black & white) or CCD imaging in polarized white-light
- spatial coverage : 1 to 2.5 - 4.0 solar radii
- spatial resolution : 10 arcsec or better

These constraints would contribute to a better homogeneity of the various data sets, and would only require fairly simple and inexpensive equipment, accessible to professionals with limited funding and to skilled amateur astronomers. High-definition total intensity images could also be taken into consideration, as complementary data.

As such a coordinated campaign only makes sense if it delivers scientific results, JOSO WG7 would also help in the collation and the cross-analysis of the data sets, thus constituting a *Trans-European Coronal Observing Network* (TECONet). Among the science goals, let us just mention the 3-D reconstruction by rotational parallax or a study of coronal dynamics, in particular if a transient (CME) occurs at the time of eclipse.

At the occasion of this meeting and soon by e-mail, we want to issue a call for participation to all observing teams, as JOSO's working group is too small to take charge of the subsequent analysis work, which brings the justification to the whole concept. Volunteers who are willing to participate to the analysis effort and acquire new experience in the context of an international research are encouraged to join this group. Support is specially needed for two critical steps :

- digitisation of photographic material (scanning microdensitometer)
- merging data sets of variable characteristics

6. Conclusion

JOSO Working Group 7 holds many promises for relaying practical information, as an European-based support to scientific collaborations around the August 99 total solar eclipse, and also for coordinating public education projects and an international coronal observing campaign.

Given the small size of this group, the eventual success of those endeavours depends heavily on the interest expressed by the scientific community for the

Working Group's projects. Even more important is the amount of external support offered by volunteers, who should grab this rather unique chance to take part in a joint science project mixing all nationalities from Eastern and Western Europe and beyond. So, give us your opinion and comments and/or join us for this unique 'eclipse' opportunity!

7. Contact address

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References

F. Clette: 1997, in *'Advances in the Physics of Sunspots' Euroconference*, eds.: B. Schmieder , J.C. del Toro Iniesta and M. Vázquez, ASP Conf. Series **118**, 402,

A. Inventory of WWW sites

A.1. EPHEMERIS and REFERENCE

http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html
USA (Engl), F. Espenak (NASA), professional, ephemeris, images
http://www.williams.edu/Astronomy/IAU_eclipses/index.www.html
USA (Engl), J. Pasachoff (IAU), professional, journal.
http://umbra.nascom.nasa.gov/eclipse/
USA (Engl), J. Gurman (NASA), professional, NASA eclipse bulletins.

A.2. ECLIPSE 1999

– UK :
http://www.eclipse.org.uk/
UK (Engl), UK Eclipse Group, amateur/professional, education
http://www.ast.cam.ac.uk/eclipse99/
UK (Engl), Royal Greewich Obs., HM Nautical Almanac, education (book)
http://www.star.ucl.ac.uk/~hwm/mpm.htm
UK (Engl), British Astron. Assoc., amateur, short local info

http://www.users.dircon.co.uk/~seaview/eclipseframe.htm
UK (Engl), short local info
http://www.hermit.org/Eclipse1999/
UK (Engl), commercial, local info
http://www.clocktower.demon.co.uk/eclipse99/
UK (Engl), commercial (book)
http://dialspace.dial.pipex.com/town/estate/vs76/
http://ds.dial.pipex.com/eclipse99page/bail.htm
UK (Engl), Eclipse 99 Ltd., Guernsey, commercial

– Belgium:
http://www.oma.be/KSB-ORB/INFO/11_8_1999.html
Belgium (Engl, Fr., dutch), Royal Obs., professional, short local info

– France:
http://www.iap.fr/eclipse99/eclipse_1999.htm
France (Fr), Société Astronomique de France, amateur, education, local info
http://newb6.u-strasbg.fr/Obs/PLANETARIUM/Eclipse/eclipse99.html
France (Fr), Planetarium Strasbourg, education
http://www.pep-esp.fr/osiris/ets99/index.html
France (Fr), Science et Culture Champagne Ardennes, Obs. du Saros, amateur

– Switzerland:
http://www.astro.unibas.ch/News/SoFi.html
Switzerland (German), Univ. of Basel, education, short local info
http://www.astroinfo.ch/eclipse/
Switzerland (German),Astroinfo (R. Brodbeck),amateur, nice images, ephemeris
http://eclipse.span.ch/total.htm
Switzerland (Engl), O. Steiger (High Moon), amateur, commercial
http://www.astronomy.ch/
Switzerland (Engl), PC software (eclipse simulator)

– Germany:
http://iphcip1.physik.uni-mainz.de/Astro/eclipse99/
Germany (Ger, Engl), SONNE Magazine/VDS, amateur, education, local info
http://www.schwaebische-sternwarte.de/sofi-99/
Germany (Ger), Schwaebish Obs. Stuttgart, amateur, local info
http://www.augsburg.baynet.de/homepages/ba601003/
Germany (D), Planetarium Augsburg,(D. Mayer), education, local info

– Austria:
http://www.planet.co.at/lag/sofi99/eclips99.html
Austria (Engl, Ger), Linzer Astron. Ges (H. Raab), amateur, local info

– Hungary:
http://innin.elte.hu/eclipse.html
Hungaria, local info

– Romania:
http://roastro.astro.ro/~eclipsa/

Romania (Engl, Rom), Obs. of Bucarest, professional, Eclipsa 99 fundation
http://roastro.astro.ro/eclipsa.html
Romania (Engl), Obs. of Bucarest (C. Dumitrache), professional, local info
http://www.ccctm.ro/astro/eclipse.htm
Romania (Engl), Obs. Timisoara, short local info
http://www.ipgnet.com/~ovidiu/eclipsa.htm
Romania (Engl), O. Vaduvescu, short local info
http://apolo.cs.pub.ro/eclipsa99/
Romania (Engl, Rom.), F. Radulescu, local info
http://www.kappa.ro/eclipsa/eclipsa.html
Romania (Rom), short local info
http://lancomp.starnets.ro/eclipse-travel/eclipsa/eclipsa.htm
Romania (Engl), I. Rotariu, general, local info

– Turkey:

http://www.boun.edu.tr/~koeri/eclipse_99/
Turkey (Engl, Turkish), A. Özgüç, L. Altas (Kandilli National Obs.), professional, education, local info
http://astroa.physics.metu.edu.tr/~tuncay/IUOTSE.HTM
Turkey (Engl), Istanbul Univ(A. Ökten), professionnal, short local info

– USA:

http://members.aol.com/raycash/si0000a.htm
USA (Engl), Sidewalk Astronomers, Euroeclipse '99 project, amateur, short info
http://www.skypub.com/eclipses/eclipses.shtml
USA (Engl), Sky & Tel Magazine, amateur,
http://www.geocities.com/CapeCanaveral/7137/ez.htm
USA (Engl), Geocities, general
http://www.eclipsechaser.com
USA (Eng), Journal (J.Charles, Versacorp intruments), amateur, images
http://www.drdale.com/eclipses/
USA (Engl.), D. Ireland, amateur info, images
http://www.staigerland.com/eclipse98/archive/home.html
USA (Engl), entertainment
http://www.earthview.com/
USA (Engl), B. Brewer (Earthview eclipse network), education (book), mailing list
http://www.wendycarlos.com/eclipse/eclipse.html
USA (Engl), W. Carlos, amateur

A.3. ASTRONOMY EDUCATION

http://www.amtsgym-sdbg.dk/as/eclinks.htm
http://www.algonet.se/~sirius/eaae.htm
European Association for Astronomy Education (EAAE), professional, education, school projects

http://www.eso.org/outreach/spec-prog/aol/
Astronomy on-line (ESO), public outreach
http://www.exploratorium.edu/eclipse/
USA (Engl), public education (NASA)
http://www.star.ucl.ac.uk/~aae/aaehomep.htm
UK (Engl), Assoc. Astron. Education, professional, education
http://solar-center.stanford.edu/eclipse/eclipse. html
USA (Engl), Stanford Univ. (Solar Center), very good educational site on the Sun.
http://www.stellarimages.com/kidseclipse/
USA (Engl), Kidseclipse, for young children
http://www.education.unesco.org/
(Engl), general, extensive list of educational projects on any subject

Note:
This list is certainly incomplete, and it will be updated as new sites are created or their contents is significantly modified. Also, many sites of lower importance (individual amateurs, eclipse image galleries, information of limited interest) were not included. If any useful address was overlooked in the current survey, readers are invited to report it to the authors. In this version, the various sites were not sorted according to any criterion. Consequently, the most informative sites are not necessarily mentioned first. Sites noted as 'commercial' may contain some valuable information (public information, travel). 'Aggressive' sites (mostly travel agents) without scientific contents were avoided, but can be easily found in several link lists.

Discussion

Question (J.- C. Vial): *Do you not encourage spectroscopic observations?*
Answer (P. Cugnon): There is no reference to spectroscopic observation in the observing network project. I think that the idea was to concentrate on a well defined and specific kind of experiment.