

Patrick Poitevin & Joanne Edmonds

present

International Solar Eclipse Conference
Antwerp, Belgium
14 -15 October, 2000



“A crossroad on physics and eclipses of the sun”

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Solar Eclipse Conference Belgium - October 14-15, 2000



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Welcome to EclipseChasers.net

Our “sol” purpose is to promote the upcoming

International Solar Eclipse Conference -

“A crossroad on physics and eclipses of the sun”

Please take a look at the [Background](#) of this project, the initial list of [Speakers](#), information on the chosen [Location](#), and some selected [Links](#). You may also [Register](#) online.

Organized by [Patrick Poitevin & Joanne Edmonds](#)

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Patrick Poitevin and Joanne Edmonds - Conference Organizers

Over the last years, there have been dramatic changes in solar eclipse traveling. Solar Eclipse specialists meet most of the time in the shadow of the Moon. Solar Eclipse meetings out of totality are rare, or are mainly focused on solar physics. The Solar Eclipse Mailing List and the Solar Eclipse Newsletter has been successful as a vehicle in bringing together solar eclipse enthusiast, professional and amateurs alike.

Because there is no central eclipse in 2000 we have been presented with a perfect opportunity for an

International Solar Eclipse Conference.

We have had this project in mind for some time, but mainly due to planning eclipse travels it has been put on hold. The aim of the conference is to bring together professionals and amateurs, addicts, enthusiasts, and chasers, as with the mailing list and the newsletter, sharing information, knowledge, and experience. *(Patrick Poitevin & Joanne Edmonds)*

Two days of lectures will be given in each of the disciplines: predictions, mathematics, solar physics, weather forecasting, eye safety, diameter measuring, edge and central, and ancient eclipse research. Of course the August 99 eclipse and the forthcoming Africa 2001 eclipse should be great topics of discussion, along with the once-in-a-blue-eclipse eclipse of July 2000, five years of SOHO and the Solar Maximum.

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Speakers



We have invited ten international guest speakers, to give a lecture on their own specialised subject. These ten professional lectures are expected to last approximately 45 minutes and the smaller presentations from others to last about 30 minutes. We have agreements to come from those guest speakers and we can ensure they are the ten masters in their discipline. ([Guest Speaker Abstracts](#))(see also [complete Bibliography](#))

Dr. Jay Anderson, Meteorologist with Environment Canada: The Meteorology of the Lunar Shadow.

Dr. B. Ralph Chou, Associate Professor, University of Waterloo School of Optometry, Canada: Solar eclipse eye safety

Dr. Fred Espenak, NASA Astronomer, Goddard Space Flight Center, USA: Predictions for the Total Solar Eclipse of 2001 (and beyond...)

Prof. Eijiro Hiei, Professor of Meisei University, Professor Emeritus of University of Tokyo, Japan: Physical Conditions of Coronal Structure obtained from Eclipse Observations

Dr. Ed C. Krupp, Director Griffith Observatory, USA: Devoured by Darkness-Eclipse Lore and Myth

Dr. Barrie W. Jones, Head of the Physics and Astronomy Department at The Open University, United Kingdom: Shadow bands, and other atmospheric effects of

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solar eclipses

Dr. Serge Koutchmy, Astrophysicist at the Institut d'Astrophysique de Paris-CNRS, France: Eclipse corona: some recent advances

Mr. Paul D. Maley, Expedition Coordinator for the NASA Johnson Space Center Astronomical Society (Ring of Fire Expeditions), Vice President of the International Occultation Timing Association, USA: Opportunities for Research: Observing Eclipses at the Limit Lines

Prof. Jay M. Pasachoff, Field Memorial Professor of Astronomy at Williams College, Williamstown, Massachusetts, USA; Chair, Working Group on Eclipses of the International Astronomical Union: Solar Eclipses: Teaching Us About the Sun

Prof. Francis Richard Stephenson, Department of Physics, University of Durham, United Kingdom: Historical eclipses and the changing length of day.

Some other speakers committed to give a lecture as well ([Lecture abstracts](#))(see also [complete Bibliography](#))

Berghmans David (Belgium), Brunier Serge (France), Casado Juan Carlos (Spain), Clette Frederic (Belgium), Fischer Daniel (Germany), Hopper John (USA), Lariviere Jean Marc (Canada), Lemaire Joseph (Belgium), Kalabwe Peter (Zambia), Makepiece David (Canada), Meiser Gernot

(Germany), Penaloza Marcos (Venezuela),
Podmore Francis (Zimbabwe), Tiedt Peter
(South Africa), Rusin Voyto (Slovakia),
Staiger Olivier (Switzerland), Steele John
(England) Verwichte Erwin (Belgium),
Verbelen Felix (Belgium)

**The organizations and institutes that will
participate are currently:**

Royal Observatory Belgium (ROB)
EIT Group Belgium
Public Observatory Urania Antwerp
It's all Good Companies

**Delegates from following countries are
registered:**

Australia, Belgium, Canada, Czech Republic,
Denmark, England, France, Germany, India,
Ireland, Italy, Japan, Netherlands, Norway,
Philippines, Romania, Russia, Scotland, South
Africa, Spain, Sweden, Switzerland, United
States, Venezuela, Zambia, Zimbabwe.

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Preliminary Program



Program Saturday 14 October 2000

08h30 08h55 Welcome and registrations

08h55 09h00 Opening Solar Eclipse Conference by
Patrick Poitevin

First Contact: Chairman David Berghmans (ROB â€™EIT)

09h00 09h30 ESA film â€™Black Sun Highlights: results
from ESA Eclipse 99 campaignâ€™ by Dr. Bernard H.
Foing (Netherlands)

09h30 10h15 Coronal Dynamics and Motions by Dr.
Serge Koutchmy (France)

10h15 10h45 The Solar Corona as seen by the Extreme
Ultraviolet Imaging Telescope by Erwin Verwichte
(Belgium)

10h45 11h00 Break

11h00 11h30 TECONET and the Belgian coronal
polarimetric campaigns by Dr. Frederic Clette (Belgium)

11h30 12h15 Shadow bands, and other atmospheric
effects of Solar Eclipses by Dr. Barrie Jones (England)

12h15 13h30 Break & Lunch

Second Contact: Chairman Erwin Verwichte (ROB â€™EIT)

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13h30 14h15 Observing an Eclipse away from the Centerline: a curse or an opportunity for research? by Paul Maley (USA)

14h15 14h45 Chasing Eclipses by Gernot Meiser (Germany)

14h45 15h30 The Meteorology of the Lunar Shadow by Dr. Jay Anderson (Canada)

15h30 15h45 Break

15h45 16h15 The 2001 Total Solar Eclipse Over Zambia: Local Plan of Action by Dr. Peter Kalebwe (Zambia)

16h15 16h45 Eclipse Photography and Eclipse Chasing by Juan Carlos Casado (Spain)

16h45 17h30 Physical Conditions of Coronal Structure obtained from Eclipse Observations by Prof. Eijiro Hiei (Japan)

17h30 18h00 Live WebCams by Olivier Staiger (Switzerland)

18h00 18h15 Break

Totality: Chairman Didier Van Hellemont (Urania)

18h15 19h15 Shadow Chasers; Eclipse Film by Jean Marc Lariviere (Canada)

19h15 19h30 Break

19h30 20h30 Hooked On the Shadow; Eclipse Film by David Makepeace (Canada)

21h00 23h00 Diner

Program Sunday 15 October 2000

Third Contact: Chairman Frederic Clette (ROB â€™EIT)

08h30 09h00 The Eclipse Corona: Present status and targets for the next research by Dr. Voyto Rusin (Slovakia)

09h00 09h30 Solar/Space weather activities in Belgium by Dr. David Berghmans (Belgium)

09h30 10h15 Solar Eclipse eye safety by Ralph Chou (Canada)

10h15 10h30 Break

10h30 11h00 Eclipse Flights by John Hopper (USA)

11h00 11h30 Eclipse Photography and Video with the least investment by Daniel Fischer (Germany)

11h30 12h15 Solar Eclipse Predictions for 2001 and beyond ... by Dr. Fred Espenak (USA)

12h15 13h30 Break & Lunch

Fourth Contact: Chairman Pierre Cugnon (ROB â€™EIT)

13h30 14h15 Solar Eclipses: Teaching us about the Sun by Prof. Jay Pasachoff (USA)

14h15 14h45 The Solar Eclipse of 2001 from Zimbabwe by Dr. Francis Podmore (Zimbabwe)

14h45 15h30 Devoured by Darkness, Eclipse Lore and Myth by Dr. Ed Krupp (USA)

15h30 15h45 Break

15h45 16h15 Eclipses in Ancient Mesopotamia by Dr.

John Steele (England)

16h15 16h45 Maya Codici and solar eclipses by Felix Verbelen (Belgium)

16h45 17h30 Historical eclipses and changes in the Earth's spin rate by Prof. Richard Stephenson (England)

17h30 18h00 Tourism Opportunities in Southern Africa, The Total Solar Eclipses of 2001 June 21 & 2002 December 04 by Peter Tiedt (South Africa)

18h00 18h05 Closing Solar Eclipse Conference by Joanne Edmonds

20h00 23h00 Diner

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Location



Background

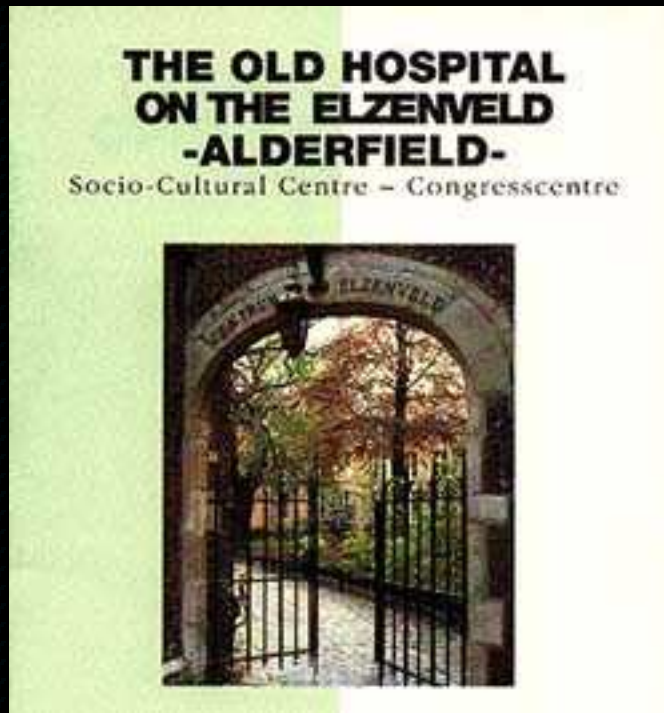
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Elzenveld, Antwerp - Belgium



The venue is the congress centre Elzenveld in Antwerp, Belgium. The institution has been associated with the site since 1238. Originally called the 'alnetum' (of Elst), the grounds later became known as the Elzenveld. The Elzenveld centre lies right in the heart of old town Antwerp. Elzenveld has all facilities a conference center requires: An auditorium with modern presentation techniques, restaurant, and rooms for postersessions and trade stands. The maximum capacity is 250 attendees.

There are rooms and apartments for about 70 people. The accommodation is very reasonably priced.

Traveling to Antwerp, Belgium

Accommodations

Specific information and history on Elzenveld:

Photos of Elzenveld

Though situated amid the roar of heavy traffic, the Elzenveld centre is a sanctum of tranquillity, whose surrounding historical buildings protect it from the pressures of city life.

The centre has several beautiful cloistered gardens. The main entrance overlooks the Mechelseplein, which, tended by the city council and adorned by trees, shrubs and benches, is home to some of Antwerp's oldest and dearest alehouses. To the other side lies the 'Leopoldplaats' with many an inn and sprawling terrace, ideal for soaking up the summer sun betwixt the speckled greenery. But the crowning glory is surely the exotic plants and trees of its unique botanical garden. This garden dates from 1804 and now contains no less than seventy-nine plant species and two thousand plants.

Most of Antwerp's museums, historical buildings and churches lie within 400 meter radius of the Elzenveld. Right next door, you can pay a visit to the Filips van 'Marnixhuis' and the 'Maagdenhuismuseum'. The museum houses a rich historical archive of paintings (dating from the 15th century), sculptures and ornamental works of art. In the same street, the 'Mayer van den Bergh museum' houses a unique collection of paintings including Pieter Breugel the Elder's 'de Dulle Griet'.

Slightly further afield you will find the 'Rubenshuis' (stylish interiors and a beautiful garden), the 'Rockoxhuis' (a magnificently redecorated 17th century burgomaster's house), the 'Plantin-Moretus museum' (a rich aristocratic mansion with a printing office of world renown: 1555-1876), the 'Volkskundemuseum', the 'Vleeshuis' (a building in the late Gothic style now housing a museum - of Antwerp archeology and applied arts), the 'Steen' and its 'Nationaal Scheepvaartmuseum', etc.

In this quarter of the city you will also find the Onze-Lieve-Vrouwe-kathedraal (one of the world's largest Gothic Churches) and other historical churches, such as the late Gothic St. Jacobskerk (15th-16th century), the St. Carolus Borromeuskerk (17th century Baroque), the St. Augustinuskerk (Renaissance, 17th century) and the St. Andrieskerk (late Gothic, 15th-16th century).

To the South you will find the Royal Museum of Fine Arts, with its extensive collection of antique and modern masters, the Museum of Contemporary Art and the Provincial Museum of Photography.

Antwerp's internationally famed Zoo is no more than walking distance from the Elzenveld, as is the Provincial Diamond Museum.

The Elzenveld borders on several major shopping streets, such as the St. Jorispoort, the Mechelsesteenweg, the Leopoldstraat, the Huidevettersstraat, the Meir and the pedestrian shopping area - 'de Wilde Zee'.

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Register



Please fill in the form:

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Please identify which of the following you would like to register for:

Lectures (select an option):

Accommodations:

All accommodations that we reserved are booked, please see the [Bed and Breakfasts](#), and

<http://www.hotels-belgium.com/antwerp/hotels.htm>

Meals:

MEALS NO LONGER AVAILABLE, PLEASE CHECK ON ARRIVAL


Payment Options:



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Elzenveld:

<http://hhipe.uia.ac.be/tvs/Confrncs/nano99/location.html>

Solar Eclipses:

<http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html>

Urania: <http://www.uranian.be/>

ROB: <http://www.oma.be/KSB-ORB/>

IAU Working Group on Eclipses:

www.williams.edu/astronomy/IAU_eclipses

EIT: will be added soon

SENL: Solar Eclipse Newsletter:

<http://www.MrEclipse.com/SENL/SENLinde.htm>

SEML: Solar Eclipse Mailing List: To subscribe send E-mail to listserv@Aula.com with in the body SUBSCRIBE SOLARECLIPSES name, country

The organizers would like to thank Mark Peebler and It's All Good Companies for providing their design and hosting services for this site. Please visit their main site www.itsallgood.com and their eclipse site www.TotalSolarEclipse.com .

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Bed and Breakfast Options



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Bed and Breakfast in Antwerp (and around)

Beside the name; the address is listed, telephone, and rates for a single, for a double and for a 3 person room, if any. Prices in Belgium Francs.

Aerts, Korte van Pelstraat 21, 2018 Antwerp, 0032 3 216 44 77, rates: 1200, 1500, none

Claessens, Leopold de Waelplaats 28, 2000, Antwerp 0032 3 216 42 44, rates: 2500, 2500, none

Cornelis, Van Trierstraat 27, 2016 Antwerp, 0032 3 216 20 24, rates: 1100, 1600, none

Horsmans Serge, Borzestraat 1, 2000 Antwerp, 0032 3 232 12 56, rates: 1500, 1800, none

Isabella, Isabella Brantsstraat 16, 2018 Antwerp, 0032 3 237 61 91, rates: 1400, 1800, 2400

Koeck, De Bruynlaan 7, 2610 Wilrijk, 0032 3 827 80 51, rates: 1300/1400, 1600/1800, none

Kuchenbecker, Tabaksvest 59, 2000 Antwerp, 0032 3 233 62 50, rates: 850, 1700, 2300

Lagae, Eglanfierlaan 116, 2610 Wilrijk, 0032 3 828 14 51, rates: 1600, 1500, 2250

Lenaerts-Moelans, Verschansingsstraat 55, 2000 Antwerp, 0032 3 248 09 13, rates: 1000, 1800, 2500

Mertens-Hofman, Wipstraat 41, 2018 Antwerp, 0032 3

226 14 21, rates: 1000, 2000, 3000

Moscol, Molenstraat 29, 2018 Antwerp, 0032 3 237 03
77, rates: 1500, 1750, 2250

Nadal, Mauroystraat 34, 2660 Hoboken, 0032 3 827 33
63, rates: 700, 1300, 1900

Peetermans, Leeuwenstraat 12, 2000 Antwerp, 0032 3
231 37 92, rates: 1300, 1800, 2000

Ribbens-Engelen, Justitiestraat 43, 2018 Antwerp,
0032 3 248 15 39, rates: 1250, 1700, 1800

Roggeman, Albert Grisarstraat 46, 2018 Antwerp, 0032
3 239 56 17, rates: 1400, 1800, 2100

Stevens, Molenstraat 35, 2018 Antwerp, 0032 3 237 85
66, rates: 1700, 2400, 2550

Stoop, Welvaartstraat 18, 2000 Antwerp, 0032 3 236
79 91, rates: 1500, 1650, 2550

Van Ballaer, Ketsstraat 76, 2140 Borgerhout, 0032 3
236 13 24, rates: 750, 1500, none

Vandepitte Marijke, Britselei 49, 2000 Antwerp, 0032
3 288 66 95, rates: 2200, 2200, none

Van Geertruyden, Drakenhoflei 194, 2100 Deurne,
0032 3 321 24 65, rates: 1450, 2100, none

Van Herp, Borzestraat 36, 2000 Antwerp, 0032 3 234
26 60, rates: 1400, 2000, none

Verdonck, Vlagstraat 25, 2060 Antwerp, 0032 3 236 99
28, rates: 400, 1200, none

Vermeire, Tolstraat 26, 2000 Antwerp, 0032 3 237 07
13, rates: 1550, 1850, none

More information about B&B in Antwerp can be obtained from Sonia Doms tel 0032 3 203 95 23 of the Toerist Centre in Antwerp.

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Elzenveld, Antwerp

How to reach?

By plane

Flight into Brussels Airport (Zaventem). Take train via Brussels to Antwerp and follow the directions below. Or take the Sabena shuttle to Antwerp. You will be dropped near the train station in Antwerp (De Keizerlei) en follow the directions below.

From the airport in Brussels you can take the Sabena coach to Antwerp. The coach stops at De Keyserlei in Antwerp, which is not that far from Elzenveld. Cost 250 Bfr.

Departure in Brussels Airport every hour from 7h00 until 23h00 (on the hour). Return from De Keyserlei to Brussels Airport at 5h30, 7h, 8h, 9h, 10h, 11h, 12h, 13h, 14h, 15h, 16h, 17h, 18h, 19h, 20h, 21h and 22h

For more info tel 0032 2 723 23 23

Flight into Antwerp Airport (Deurne). Take a taxi to Elzenveld.

By [Train](#) (click here for detailed train information from [Brussels South station to Antwerp Central](#))

Centraal Station Antwerp. You can walk via De Keizerlei, Leysstraat, Meir en Huidevettersstraat to Lange Gasthuisstraat (number 45).

Centraal Station Antwerp by Tram, line 2 or 15:
Linkeroever-Groenplaats, stop Meir, further walk via
Huidevettersstraat to Lange Gasthuisstraat (number 45).

By Car

Brussel - Mechelen, E19: Through Craeybeckxtunnel,
follow Antwerpen-Centrum via Generaal Lemanstraat,
Albertpark, Mechelsesteenweg,

Brussel - Boom, A12: Follow Antwerpen-Centrum via
viaduct, through tunnel, to Amerikalei and Britselei, at
Nationale Bank turn left,

Aken - Luik/Liege - Hasselt - Eindhoven, E34 - E313:
Follow ring direction Brussel-Gent, exit nbr 4
Mortsel-Berchem, turn right, follow Antwerpen-Centrum
via Grote Steenweg, Mechelsesteenweg,

See Also; [Accommodations](#)

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Trains



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Please find herewith trains from Brussels South station to Antwerp Central:

On Friday afternoon and night every hour

Brussels South departure	12h08	12h21	12h35	12h52, etc
Antwerp Central arrival	13h06	13h09	13h20	13h44, etc

On Sunday late afternoon and night every hour

Antwerp Central departure	14h04	14h41, etc
Brussels South arrival	14h53	15h26, etc

Monday morning every hour

Antwerp Central departure	4h24	4h54	5h16	5h51	6h16	6h40	6h51	6h54, etc
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Brussels South arrival	5h26	5h51	6h08	6h52	7h07	7h25	7h30	7h52, etc
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Photos of the Congress Centre Elzenveld in Antwerp



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[Click here for Bed and Breakfast options](#)

If you prefer to book an accommodation yourself, please find a list of hotels and pensions in Antwerp. Of course, booking is on your risk and the organisation of the conference is not responsible.

For hotel booking online see;

<http://www.hotels-belgium.com/antwerp/hotels.htm>

Hotels Antwerp

Agora Hotel

43 Koningin Astridplein

2018 Antwerpen

Tel : +32 (0)3/231 21 21

Fax : +32 (0)3/232 12 02

Alfa De Keyser

66-70 De Keyserlei

2018 Antwerpen

Tel : +32 (0)3/206 74 60

Fax : +32 (0)3/232 39 70

Alfa Theater Hotel (nearby)

30 Arenbergstraat

2000 Antwerpen

Tel : +32 (0)3/203 54 10

Fax : +32 (0)3/233 88 58

Alfa Empire Hotel

31 Appelmansstraat
2018 Antwerpen
Tel : +32 (0)3/203 54 00
Fax : +32 (0)3/233 40 60

Alfa Congres Hotel
136 Plantin & Moretuslei
2018 Antwerpen
Tel : +32 (0)3/270 02 10
Fax : +32 (0)3/235 52 31

Alliance Hotel Antwerpen
2 Copernicuslaan
2018 Antwerpen
Tel : +32 (0)3/223 40 40
Fax : +32 (0)3/223 40 41

Ambassador Hotel
8-10 Belgiëlei
2018 Antwerpen
Tel : +32 (0)3/281 41 61
Fax : +32 (0)3/239 55 16

Antigone Hotel (***)
11-12 Jordaenskaai
2000 Antwerpen
Tel : +32 (0)3/231 66 77
Fax : +32 (0)3/231 37 74

Antverpia Hotel HR
85 St Jacobsmarkt
2000 Antwerpen
Tel : +32 (0)3/231 80 80
Fax : +32 (0)3/232 43 43

Antwerp Tower Hotel

10 Van Ertbornstraat
2018 Antwerpen
Tel : +32 (0)3/213 62 00
Fax : +32 (0)3/213 62 49

Appelmans
14 Lange Herentalsestraat
2018 Antwerpen
Tel : +32 (0)3/289 44 49

Arass Apart Hotel nv (***)
111 Plantin en Moretuslei
2018 Antwerpen
Tel : +32 (0)3/206 71 00
Fax : +32 (0)3/206 72 21
<http://www.arasshotel.be>
e-mail : mail@arasshotel.be

Astoria (***)
5-13 Korte Herentalsestraat
2018 Antwerpen
Tel : +32 (0)3/227 31 30
Fax : +32 (0)3/227 31 34

Astrid Monico
34 Koningin Astridplein
2018 Antwerpen
Tel : +32 (0)3/225 00 93
Fax : +32 (0)3/226 95 47

Astrid Park Plaza Hotel (****)
7 Koningin Astridplein
2018 Antwerpen
Tel : +32 (0)3/203 12 34
Fax : +32 (0)3/203 12 51

Atlanta Hotel
14 Koningin Astridplein
2018 Antwerpen
Tel : +32 (0)3/203 09 19
Fax : +32 (0)3/226 37 37

Billard - Palace bvba
40 Koningin Astridplein
2018 Antwerpen
Tel : +32 (0)3/233 44 55
Fax : +32 (0)3/ 226 14 26
e-mail : billard@planetinternet.be

Colombus Hotel (*)**
4 Frankrijklei
2000 Antwerpen
Tel : +32 (0)3/233 03 90
Fax : +32 (0)3/226 09 46
e-mail : colombushotel@skynet.be
web site : colombushotel.com

Commerce (du)
25 Schilderstraat
2000 Antwerpen
Tel : +32 (0)3/238 02 39
Fax : +32 (0)3/248 57 07

Condessa
16a Lange Herentalsestraat
2018 Antwerpen
Tel : +32 (0)3/231 73 64

Dema Hotels International nv
20 Pelikaanstraat
2018 Antwerpen
Tel : +32 (0)3/227 38 29

Fax : +32 (0)3/231 67 07

Eden Antwerpen
25-27 Lange Herentalsestraat
2018 Antwerpen
Tel : +32 (0)3/233 06 08
Fax : +32 (0)3/233 12 28

Florida Hotel nv (***)
59 de Keyserlei
2018 Antwerpen
Tel : +32 (0)3/232 14 43
Fax : +32 (0)3/235 08 35

Granducale Hotel (also pension)
3 St Vincentiusstraat
2018 Antwerpen
Tel : +32 (0)3/239 37 24
Fax : +32 (0)3/239 37 24
e-mail : hotel.granducale@pandora.be

Hilton Antwerp
Groenplaats
2000 Antwerpen
Tel : +32 (0)3/204 12 12

Hotel De Witte Lelie nv
16 - 18 Keizerstraat
2000 Antwerpen
Tel : +32 (0)3/226 19 66
Fax : +32 (0)3/234 00 19
e-mail : hotel@dewittelolie.be

Hotel Euro (***)
91-93 St Jacobsmarkt
2000 Antwerpen

Tel : +32 (0)3/233 00 75
Fax : +32 (0)3/226 08 13

Hotel Rubens-Grote Markt (**)**

29 Oude Beurs

2000 Antwerpen

Tel : +32 (0)3/222 48 48, +32 (0)3/226 95 82

Fax : +32 (0)3/225 19 40

e-mail : hotel.rubens@glo.be

Hotel t Sandt

17 Zand

2000 Antwerpen

Tel : +32 (0)3/232 93 90

Fax : +32 (0)3/232 56 13

Hyllit Hotel (**)**

28-30 de Keyserlei

2018 Antwerpen

Tel : +32 (0)3/202 68 00

Fax : +32 (0)3/202 68 90

<http://www.hyllithotel.be>

Ibis

39 Meistraat

2000 Antwerpen

Tel : +32 (0)3/231 88 30

Fax : +32 (0)3/234 29 21

Industrie

52 E. Banningstraat

2000 Antwerpen

Tel : +32 (0)3/238 66 00

Mayama Furnished Flat bvba

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Tel : +32 (0)3/239 45 50, +32 (0)3/239 77 83

Fax : +32 (0)3/239 45 50

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Fax : +32 (0)3/281 09 33

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2000 Antwerpen

Tel : +32 (0)3/232 14 13

Fax : +32 (0)3/226 84 50

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2000 Antwerpen

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Solar Eclipse Conference 14 - 15 October 2000

Lecture fees:

Saturday lectures: 40 USD

Sunday lectures: 40 USD

Two days of lectures: 70 USD

Accommodation fees (see [Accommodations](#)):

Accommodation Elzenveld October 14 & 15, 2000:

single: 40 USD

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Guest Speaker Abstracts

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A crossroad on physics and eclipses of the sun

Invited lecture

Jay Anderson, Environment Canada,
Winnipeg, Manitoba

The Meteorology of the Lunar Shadow

Eclipses provide a unique opportunity to study the atmosphere's reaction when incident solar radiation is suddenly turned off and then on again. While the responses are similar to those that occur as night falls, the eclipse is more abrupt than the gradual decrease in solar energy as the evening sun approaches the horizon. The entire eclipse takes approximately three hours with the largest decline in solar energy confined to a 90-minute period; at most eclipse locations the shadow passage is followed by an equally abrupt return to daylight.

Responses to the eclipse can be detected from the sub-surface soil layers to the mesosphere. Most are relatively subtle though even casual observers will notice the decline in temperature and its subsequent recovery. Historically, atmospheric measurements were primarily concerned with surface temperature but recent advances in technology, data density, and numerical modelling have encouraged a much wider range of

measurement. Theoretical studies suggest that a "bow wave" is produced in the atmosphere in response to the supersonic passage of the lunar shadow but detection of the wave in barometric measurements has been inconclusive. Radar observations may have finally detected such waves, but at a scale that suggests that much more modelling remains to be done.

This presentation will travel through history from Babylonian to modern times to examine the record of meteorological observations under the lunar shadow.

Invited lecture

Dr. B. Ralph Chou, Associate Professor,
University of Waterloo School of
Optometry, Canada

Solar eclipse eye safety

Controversy over the safety of materials used in solar eclipse viewers continues to needlessly frighten and confuse the public. The properties of the ideal solar filter are compared with those of filters presently available to solar observers. The analysis of aluminized polyester solar filters with suspected coating defects is presented. Modifications to the technical specification for solar filters made in response to concerns over coating defects in aluminized polyester filters are reviewed.

B. Ralph Chou, MSc, OD Associate Professor, School of Optometry, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1, Tel: 519-888-4567x3741, Fax: 519-725-0784, e-mail:

bchou@sciborg.uwaterloo.ca

Invited lecture

**Dr. Fred Espenak, NASA Astronomer,
Goddard Space Flight Center, USA**

Solar Eclipse Predictions for 2001 and beyond...

On 2001 June 21, a total eclipse of the Sun will be visible from within a narrow corridor which traverses the Southern Hemisphere. The path of the Moon's umbral shadow begins in the South Atlantic, crosses southern Africa and Madagascar, and ends at sunset in the Indian Ocean. A partial eclipse will be seen within the much broader path of the Moon's penumbral shadow, which includes eastern South America and the southern two thirds of Africa.

Detailed predictions for this event have recently been published in NASA TP 1999-209484 (Espenak and Anderson, 1999). Topics covered include besselian elements, geographic coordinates of the path of totality, physical ephemeris of the umbra, topocentric limb profile corrections, local circumstances for approximately 350 cities, maps of the eclipse path, weather prospects, the lunar limb profile and the sky during totality.

The NASA eclipse bulletins are prepared in cooperation with the Working Group on Eclipses of the International Astronomical Union and are provided as a public service to both the professional and lay communities, including educators and the media. The bulletins are also available

on the Internet via the GSFC Solar Data Analysis Center home page (umbra.nascom.nasa.gov/eclipse/). Additional predictions, maps and data are posted at a special web site for the 2001 eclipse (sunearth.gsfc.nasa.gov/eclipse/TSE2001/TSE2001.html).

A brief overview of eclipses from 2001 through 2010 will also be presented and is available on-line at sunearth.gsfc.nasa.gov/eclipse/SEcat/SEbrief2.html. During the first decade of the Third Millennium, there are twenty eclipses of the Sun with the following statistical distribution: Partial = 4 = 20%, Annular = 8 = 40%, Total = 7 = 35%, Hybrid = 1 = 5%

Global maps show the geographic region of visibility for each eclipse. Some of the more significant events of the next decade will be discussed in greater detail.

Fred Espenak, Planetary Systems Branch, Code 693, NASA/Goddard Space Flight Center, Greenbelt, MD 20771, USA, e-mail: u32fe@lepvax.gsfc.nasa.gov, Voice: 301-286-5333, FAX: 301-286-0212

Invited lecture

Prof. Eijiro Hiei, Professor of Meisei University, Professor Emeritus of University of Tokyo, Japan

Physical Conditions of Coronal Structure obtained from Eclipse Observations

Collaborative observations of the corona during a total solar eclipse have been recently made from ground-based telescopes and from instruments on board satellites. The data measured in the collaboration are not only of visible region but also of EUV and X-rays, which are valuable in understanding the physical conditions of the solar corona. In the 1994 eclipse in South America, we observed the polar plumes at the north and south polar region from the ground in Paraguay and almost simultaneously from the Soft X-ray Telescope (SXT) on board the Yohkoh satellite. The polar plumes are clearly seen on the photographs taken in Paraguay, but almost unseen on the SXT images, which suggests that the temperature of the polar plumes are not as high as 2 million K, the temperature that corresponds to the SXT observations.

At the time of the 1997 eclipse, the Extreme-ultraviolet Imaging Telescope (EIT) of the Solar and Heliospheric Observatory (SOHO satellite) observed the corona. The polar plumes are clearly seen on EIT images, especially on Fe IX/X images rather than on Fe XV images. Since the temperature typical of Fe XV (14 times-ionized iron) is higher than that of the Fe IX and Fe X (eight and nine times ionized iron), the results suggest that the temperature of the polar plumes is about 1 million K. I shall talk on the analysis of the eclipse data by using the ground-based observations with the satellite observations.

Invited lecture

Dr. Barrie W. Jones, Head of the Physics and Astronomy Department at The Open

University, United Kingdom

Shadow bands, and other atmospheric effects of solar eclipses

Shadow bands are an intriguing phenomenon often seen when the Sun has been reduced to a thin crescent. Flickering faint bands of light and shade move across the landscape. The observed characteristics of shadow bands will be described, and will be compared to a theory of the bands. The sort of further measurements that are needed will be outlined.

The temperature drop during a solar eclipse is a familiar phenomenon. Less familiar are the predicted and observed effect on atmospheric pressure, and the prediction of infrasonic waves in the lower atmosphere. Have any such waves really been observed?

Invited lecture

Dr. Serge Koutchmy, Astrophysicist at the Institut d'â€™Astrophysique de Paris-CNRS, France

Coronal dynamics and motions

Both high resolution imaging and spectroscopy can be used at eclipses to analyze dynamical phenomena inside the corona. Different spatio-temporal scales should be considered. We first remind some past results concerning:

1/ The measurements of proper motions using different

imaging techniques;

2/ Doppler shifts and line widths measurements to deduce the turbulent and the bulk velocities.

We then consider what are the best diagnostics to be specifically designed at eclipses, in order to efficiently bring some insights into the fundamental problems of coronal heating and of coronal mass loss.

The building up of a coronal region showing high loops and cavities was observed at the last Aug. 11, 1999 total eclipse, well before the onset of a large CME observed later in space, with the SoHO instruments Lasco and EIT.

We consider the white-light eclipse images which permit to point out this slowly evolving CME precursor and we discuss its possible interpretation, noting the absence of a helmet streamer above.

Further, we discuss the preliminary results of a specially designed spectroscopic experiment to look at the radial behavior of coronal waves; the experiment was run during the rather short totality and over a clear sky of a site in Iran (near Chadagan). The variations of the corrected full widths of the coronal green line of Fe XIV at 530.3 nm will be shown all around the corona and a first conclusion will be extracted regarding the importance of waves in the intermediate corona.

Finally, some recommendations will be proposed to improve this diagnostics in the future based on the use of a slit spectrograph and fast detectors.

Serge Koutchmy, Institut d'Astrophysique de Paris-CNRS, 98 Bis Bd Arago, F-75014 Paris (France),
e/mail: koutchmy@iap.fr

Invited lecture

Dr. Ed C. Krupp, Director Griffith Observatory, USA

Devoured by Darkness, Eclipse Lore and Myth

To our ancient ancestors, an eclipse challenged the stability and integrity of heaven and so threatened order and life on earth. Because the moon's silhouette made it look as if some unseen celestial powerhouse was taking a bite out of the sun, civilizations as distant from each other as the Vikings, the Chinese, the Maya, and the Hindus all saw eclipses as unsettling combats between a heavenly god and a devouring monster. This program will survey ancient eclipse lore, solar and lunar, from around the world, to spotlight the underlying meaning eclipses once had for us. In time, the ancients learned to predict eclipses, and of course, their success gradually transformed the eclipse experience. People used to do all they could to avoid an eclipse. Now we seek them out. Total eclipses have been domesticated into great recreational events. More people than ever now follow the eclipse path, and today's cultural responses to eclipses encourage continued eclipse anthropology.

Dr. E.C. Krupp, Director Griffith Observatory, 2800 East Observatory Road, Los Angeles, California 90027, USA, eckrupp@earthlink.net, phone: (323) 664-1181, fax: (323) 663-4323

Invited lecture

**Mr. Paul D. Maley, Expedition
Coordinator for the NASA Johnson Space
Center Astronomical Society (Ring of Fire
Expeditions), Vice President of the
International Occultation Timing
Association, USA**

Observing an eclipse away from the centerline: a curse or an opportunity for research?

The historical paradigm for most eclipse goers is to monitor the eclipse where you can see the maximum amount of totality. It is heretical to think that you can see more features from an eclipse if you approach the boundary between 100% totality and 99%. Yet this is true. The corona, planets, shadow approach, effects on the environment, diamond rings, chromosphere, prominences are all observed here. There is not a single feature of a total solar eclipse that cannot be observed from just within the limit lines at both the north and south edges. The major feature that is not readily observed by centerline people is the Baily's Beads. The tangential intersection between lunar and solar limbs prolong this effect drastically at the limits. Additional positive aspects of being at the edge include: a) lack of observers competing for valuable ground space, b) psychic challenge of reaching the limit line which often may be in an obscure location, c) ability to see the detailed formation and dissipation of individual Baily's Beads both before 2nd contact, during totality, and after 3rd contact, d) potential contribution to solar diameter research efforts, e) less traffic problems going and

coming from the site, f) a completely different perspective of viewing the eclipse (and reaching the site) compared to centerline goers, g) no hords of local onlookers. There are penalties to be sure: a) vastly reduced totality time, b) requirement for a precision navigating aid to be sure you do not overshoot or undershoot the site, c) less flexibility in locating the proper site, d) incredulous looks from your centerline-going colleagues.

Yet an ongoing program by the International Occultation Timing Association attempts to collect data that is to be used in advancing the understanding of changes in the solar radius between eclipses. Informally, this effort began as long ago as 1973. The NASA JSC Astronomical Society views this as a public outreach program is available to anyone with an interest in contributing to the science. Instrumentation required in 2001 include commonly available telescopes like the Celestron 5, inexpensive black and white TV cameras such as Supercircuits PC-23C and Sony camcorders. This program does not require a level of prior experience, nor does it reject participants because they do not have appropriate scientific background. We describe the methods used to observe at the edge, benefits of pre-eclipse simulations, accounts of prior eclipses observed, and the byproducts of those eclipses. A compounding factor is a large amount of data accumulated to date, by varied equipment, and the rather difficult problem in reducing this data. Much of the information lies on the shelf awaiting funding and improvements in workstation data processing, while additional data from successive eclipses continues to be added to the backlog. Early papers have been published, but conclusive results have not yet been forthcoming. Future plans are described for achieving data reduction and similar applications for lunar eclipses.

Paul D. Maley, NASA Johnson Space Center
Astronomical Society & International Occultation
Timing Association, Houston, Texas USA

Invited lecture

Prof. Jay M. Pasachoff, Field Memorial
Professor of Astronomy at Williams
College, Williamstown, Massachusetts,
USA; Chair, Working Group on Eclipses
of the International Astronomical Union:

Solar Eclipses: Teaching Us About the Sun

Total eclipses are a unique opportunity for those of us on Earth to observe the solar corona. In recent years, new instruments and new theoretical ideas have given us a different set of scientific projects to investigate than the eclipse projects of years past. Further, the liaison of eclipse observations with near-simultaneous observations from satellites taken from outside the eclipse path on eclipse day allow improved calibrations of the routine satellite observations as well as deeper understanding of the structure of the outer layers of the Sun as they are displayed by all the instruments together. How do temperature and polarization vary in the solar corona? Why is the coronal gas millions of degrees hot? Can we trace back coronal structure to its footpoints on the solar surface? All these and others can be explored during eclipses for a fraction the cost of space observations. I describe how some of the 29 solar eclipses I have seen bring us closer to our goal of

understanding the sun.

Invited lecture

F. Richard Stephenson, University of Durham, England.

Historical eclipses and changes in the Earth's spin rate

Ancient and medieval observations of solar and lunar eclipses yield surprisingly accurate information on long-term trends in the Earth's rate of rotation. Analysis of these data demonstrates that although tides are mainly responsible for long-term changes in the length of the day, other mechanisms have significant effects.

Early eclipse records mainly originate from four major cultures: ancient Babylon, ancient and medieval China, ancient and medieval Europe, and the medieval Arab world. The very earliest reliable records date from around 700 BC. Because approximately one million days - each a fraction of a second shorter than at present - have elapsed since this early epoch, the cumulative clock error arising from changes in the Earth's rate of spin can amount to several hours. This is readily measurable using even primitive observations.

The bulk of the useful observations are in the form of timings of both solar and lunar eclipses. However, as has long been recognised, untimed total solar eclipses have an important role to play. In addition, observations in which the Sun or Moon rose or set whilst eclipsed occasionally prove of value. Analysis of these various data sets indicates that in opposition to the tidal rate of

increase in the length of day of 2.3 milliseconds per century (ms/cy) there is a non-tidal decrease at a mean rate of 0.5 m/cy. This increase is variable on the millennial time-scale and may be due to such diverse effects as post-glacial uplift, core-mantle coupling and changes in global sea-level.

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International Solar Eclipse Conference

A crossroad on physics and eclipses of the sun

Welcome



from

Joanne Edmonds & Patrick Poitevin, England

Please find herewith the bibliographies of all invited speakers and speakers of papers in alphabetical order (see also [posters](#)). The format is .pdf and may be seen with Adobe Acrobat Reader ([free from Adobe](#)).

Click below



Bibliography

Posters

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Bibliography
Abstracts
Other Abstracts
Posters

International Solar Eclipse Conference

A crossroad on physics and eclipses of the sun

Poster

Ralph B. Chou, Associate Professor, University of
Waterloo School of Optometry, Canada

The Technical Specification for Solar Filter Materials

A technical specification for solar filters was prepared in advance of the total solar eclipse of 11 August 1999 and was used by several European agencies to determine the acceptability of solar eclipse viewers sold in several European nations. In response to concerns over the possibility of defective coatings in aluminized polyester filter materials, the technical specification was revised in 2000. The revised document and transmittance data for various solar filter materials are presented.

Poster

Nick Quin, England

Automatic Eclipse Photography

This paper describes a computerised photographic system used to automatically image the Total Solar Eclipse of 1999. The system used Canon T-70 cameras, with simple modifications to allow a Psion 3a 'Palmtop computer' to control both the speed and firing of the shutters. Details of the camera modifications, interface, and software, together with resultant images of the eclipse are presented.

Poster

Alfonso Lopez Borgonoz, Spain

SCIENCE AT THE VISIGOTHIC COURT. KING SISEBUTE AND HIS LITTLE TREATISE ABOUT ECLIPSES

Isidore of Seville was also keen on writing about nature and its phenomenons and thus he wrote a treatise in prose titled *De rerum natura* (‘About Nature’), in Latin, at the beginning of the VII century, on request of King Sisebute, who reigned in the visigothic Hispania between the years 612 and 621 A.D. But what we are interested in today is not so much the study of the astronomical concepts of Isidore, but the epistle/treatise (the *Epistula metrica ad Isidorum de libro rotarum*-Sams³, 1992: 27 y 28-*o Epistula Sisebuti*) that, in verse and also in Latin, the very king Sisebute answered to Saint Isidore, after he received the book of which he had asked the editing. In this letter the monarch tried to give a

rational and precise explanation, without giving in to superstition or to histories of witches, of lunar eclipses, in the first place, and of solar eclipses. Since then, the book of Isidore and the letter of Sisebute were known as a whole.

Poster

Allan Ridgeley, Roseland Community Observatory,
9 Healey Close, Abingdon, Oxon OX14 5RL, England

Anomalous Time Variation of Infrared Flux During The 1999 Solar Eclipse

A Ridgeley(j), B Sheen(j), G Barnardb, C
Corrigan(#), G E Derbyshire(^), R Jones(#), P
Moir-Riches(#), C Purchase(j), P D Read(^) and T
Richards(j).

j Roseland Community Observatory, St Austell
College, Cornwall

b Nicolet Instruments Ltd, Nicolet House, Budbrooke
Road, Warwick, CV34 5XH

Daresbury Laboratory, Cheshire, WA4 4AD

^ Rutherford Appleton Laboratory, Chilton, Didcot,
Oxon, OX11 0QX

An experiment was performed at the Roseland Community Observatory, Cornwall during the 11 August 1999 total solar eclipse. The main purpose of the experiment was to search for strong infrared coronal lines with a view to identifying candidates for subsequent magnetic field measurements. The experiment did not succeed in this aim due to the

cloudy conditions pertaining at the time of the eclipse.

An incidental product of the experiment was the measurement of infrared flux as a function of time during the eclipse. These measurements produced the totally unexpected result that the infrared flux fell precipitously 6.5 minutes before second contact and rose just as suddenly 6.5 minutes after third contact. There were intensity plateaux immediately before the sudden intensity fall and immediately after the subsequent sudden intensity rise.

Poster

Magda Stavinchi, Romania

THE LAST ECLIPSE OF THE MILLENIUM HAD ITS MAXIMUM IN ROMANIA

On 11 August 2000 a year was elapsed since the last total solar eclipse of this century, maybe the most mediatized one until now.

Its maximum was in Romania. Here were:

- the maximum duration: 2 min 23 s (at Ramnicu Valcea),
- the maximum height of the Sun (590),
- the maximum coverage (103 %),
- the greatest width of the totality band (112 km),
- the highest mountains on which the eclipse was observed (Parang and Retezat).

Bucharest was the only European Capital situated exactly on the central line of the totality band. Moreover, the only professional astronomical observatory lying on this line was the Bucharest Observatory of the Astronomical Institute of the Romanian Academy.

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Lecture Abstracts

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Lecture

**Frederic Clette, Royal Observatory
Belgium**

TECONET and the Belgian coronal polarimetric campaigns

The Trans-European Coronal Observing Network (TECONet) successfully acquired polarimetric images of the corona during the August 11, 1999 total solar eclipse, on many different sites distributed along the totality band, from France to Iran. 15 stations (out of a total of 28), run by a mix of amateur and professional astronomers, collected photographic or CCD images using a common observing technique, over a duration of about 1h 30min. We present here a summary of this unique international eclipse campaign, which relied on the heritage of many earlier Belgian eclipse expeditions. The huge data processing work already lead to the determination of global electron density distributions up to 2.5 solar radii. Some unique features of this active-type corona will be emphasized, and we will also introduce the ongoing cross-analysis work with space-based data from the EIT and LASCO imagers on the SoHO mission.

Lecture

John Hopper, JohnLX200@aol.com,

<http://www.mapug.com>, USA

Eclipses From the Air

Airborne eclipse viewing has yet to gain such mainstream acceptance as from land or sea. However, it has been used with success several times by various individuals and groups, and is poised to become a mainstream alternative, particularly for eclipses with poor accessibility from population centers.

A brief history of eclipse flights will be presented.

Eclipse flight planning will be discussed, with emphasis on the differences from land or sea expeditions. This will include eclipse selection, location selection, flight strategies, aircraft selection, photography, communications, and general tips for organizing a successful flight.

Upcoming eclipses will be briefly examined as to their suitability for airborne viewing. While all total solar eclipses have good aerial viewing geometry at sunrise and sunset, often including options to extend totality, not all eclipses have geometry suitable for a mid-day chase to extend totality the maximum amount without sacrificing viewing angle.

Results and lessons from the author's sunrise "USA Eclipse Flight 1999" will be presented, including digital photos which were posted online before the eclipse reached land...or more precisely, clouds over land.

Outline of presentation:

Land, Sea or Air?

- Comparison of experiences, costs, probabilities of

success

- Sunrise, Sunset, or "Chase" near maximum?
- Effect on geometry, viewing angles, flight planning
- Airplane window limitations
- Flight Path Planning
- Viewing angle
- Aircraft selection
- Cost
- Performance, range, weather avoidance, etc.
- Speed: good or bad?
- Navigation and timing
- Eclipse Flight 1999
- Plan vs. reality
- Results, photos, video clips
- Future possibilities for 2001 and beyond

Lecture

Peter C Kalebwe, Physics Department,
University of Zambia, P O Box 32379,
Lusaka, Zambia. E-
mail: pkalebwe@natsci.unza.zm, Fax:
260-1-253952

The 2001 Total Solar Eclipse Over

Zambia: Local Plan of Action

Total solar Eclipse expeditions for both scientific and touristic reasons have gained ground in recent years. This is largely due to the fact that solar eclipses

still offer unique opportunities for exploring the solar corona because of the suppressed background photospheric emission(1). However, an increasing number of people chase the shadow just for the fun of it and for new experiences. This group of people finds the total eclipse of the Sun highly exciting and profoundly moving(2).

The first total solar eclipse of the Third Millenium takes place on the afternoon of Thursday the 21st day of June, 2001. It begins in the South Atlantic about 400 kilometers southeast of Uruguay(3). Over the African continental landmass, the Moon's shadow passes over Angola, Zambia, Zimbabwe, Mozambique and Madagascar. Of the five countries lying under totality, Zambia is bound to attract more visitors since it is the only country to have its capital city, Lusaka, lying under totality. Another factor qualifying Zambia as the primary destination is the relative peace that the nation has enjoyed since independence in 1964(4).

This paper discusses the plans that are being effected to attract as many visitors as possible to view the eclipse on Zambian soil on one hand and to ensure that the event is a success on the other. In addition, the paper discusses the scientific links and collaboration that the Physics department of the University of Zambia is likely to enter into before, during and after the eclipse. The Eclipse Coordination Committee's proposal to take advantage of the excitement generated by the eclipse to solicit for training in astronomical sciences is also discussed.

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* Website <http://www.solipse.com>

Lecture

**Francis Podmore, Senior Lecturer,
Department of Physics, University of
Zimbabwe, PO Box MP 167, Mount
Pleasant, Harare, Zimbabwe**

Zimbabwe – A Great Place for Astronomy and the Next Two Total Solar Eclipses

With clear skies most of the year, low levels of light and industrial pollution and location (being near the equator nights are long and twilight short most of the year, and we can see 96% of the celestial sphere) Zimbabwe is an excellent place for astronomy. For nearly 100 years a small but dedicated and talented band of amateur astronomers have been making hundreds of observations of occultations and variable stars, and contributed 10% of the global total reports to the International Halley

Watch. The Astronomical Society of Southern Africa (Harare Center) is 25+ years old and the largest telescopes (mostly "home-made" in the country) are owned by members. Active preparations for the next two total solar eclipses include site selection, coordination of safaris and the free distribution of information packs and over 100 000 eclipse viewers to about 6000 schools. If the economy doesn't collapse, good government and respect for law and order return, the planes keep flying and fuel shortages end, we look forward to welcoming hundreds of eclipse watchers to a dramatic 3 minute spectacle on 21 June 2001 and about half that on 4 December 2002. If the weather cooperates!

Lecture

Dr. Voyto Rusin, Astronomical Institute,
Slovak Academy of Sciences, Tatranska
Lomnica, Slovakia

The Eclipse Corona: Present status and targets for the next research

Solar eclipses provide a unique opportunity to observe the solar corona and to solve many open questions in the solar coronal physics, e.g., heating of the corona, small-scale structures, dust particles, formation and distribution of coronal structures around the solar surface with respect to the photospheric activity centers, polarization, dust vaporization near the Sun, formation and spatial orientation of coronal streamers and their connection with solar wind streams, etc. The forthcoming 2001 eclipse will pass across some

countries in the Southern Africa. This event will provide a good opportunity to perform observations of the corona with 'bigger and modern' equipments to obtain high-quality results.

We propose to focus scientific experiments for the following targets:

The white-light and emission corona: } the exact photometry and small-scale structure of the corona with the focal length of telescopes of 1 - 3 m or more; in detail, photometry around the poles and/or above active regions with the minimum focal length of 5 m; photoelectric detection of oscillations; co-ordinated observations with 'smaller' telescopes, of 1 m focal length, along the umbral path (dynamics and large-scale structure), polarization in the emission coronal lines, etc.

Spectral observations: } detection of short-term oscillations shorter than 0.1 s) in individual spectral emission coronal lines or in the white-light corona; polarization in emission coronal lines (the Hanle effect - direction of coronal magnetic fieldlines); spectral observations with the high-scale resolution: colour of the solar corona, large-scale resolution: profiles of emission lines; the depth of absorption lines (F-corona), etc.

Moreover, the high precision of timing can help us to obtain more accurate parameters of the Moon's orbit around the Earth, to measure a diameter of the Sun. Comets, if any, should be studied in the close vicinity at the Sun.

We are of the opinion that the most important problems in the solar corona research during the 2001 eclipse will be supported by co-ordinated both the ground-based and satellite observations.

Lecture

**Olivier Staiger, Olivier "Klipsi" Staiger,
HIGH MOON <http://eclipse.span.ch>,
Switzerland**

Live WebCams

I will tell how I do a live webcast, with laptop PC , what softwares, video camera, frame grabber and phone line / cellphone for web access dial-in. And I will show the results of several eclipses I've webcasted.

Lecture

**John Steele, Department of Physics,
University of Durham, England**

Eclipses in Ancient Mesopotamia

Eclipses were viewed as important celestial events in Mesopotamia. From at least the Old Babylonian period (c. 1500 BC), omens based upon the occurrence of an eclipse were formulated. In later periods, these omens became more detailed, and in addition mythical explanations of eclipses were composed. Rituals, including the infamous substitute king ritual, were performed during eclipses to negate their evil effects.

Beginning in around 750 BC, records of observations of eclipses began to be kept by the astronomers in Babylon and Nineveh. Those from Nineveh are contained in the correspondence between the king and the scholars he employed to interpret omens. However, the Babylonian

records are found in texts that contain predominantly astronomical material, such as the so-called Astronomical Diaries. Around the same time, the first attempts we made to predict eclipses, with some considerable degree of success.

In this paper, I shall outline the sources for our knowledge of Mesopotamian eclipse records, their contents, and the cultural background in which they must be viewed.

Lecture

**Peter Tiedt, Enterprise 2000 Project
Team Natal Portland Cement (Pty) Ltd,
South Africa**

**Tourism Opportunities in Southern Africa,
The Total Solar Eclipses of 2001 June 21
& 2002 December 04**

The presentation covers tourism opportunities in the countries traversed by the eclipses, detailing major cities and regions of these countries. The main tourist activities in these regions are described, listing the popular destinations usually visited by tourists. Accommodation & transport facilities by air, rail and road are examined, presenting the best alternatives for visitors. National & private parks are covered in detail, as well as natural wonders & other destinations of interest. Health and Safety Precautions are also mentioned and lastly web references are provided for those who require more detailed information.

Traverses: The eclipses traverses Angola, Zambia, Zimbabwe, Mozambique and Madagascar in 2001 and Angola, the Caprivi Strip region of Namibia (and the extreme SW tip of Zambia), and Botswana, Zimbabwe and South Africa in 2002.

Major Cities & Regions: South Africa - Johannesburg, Pretoria, Cape Town, Durban, Port Elizabeth, Nelspruit; Zimbabwe - Harare, Bulawayo, Kariba, Victoria Falls; Zambia - Lusaka, Kitwe, Livingstone; Namibia - Windhoek, Swakopmund, Tsumeb; Botswana - Gaborone, Francistown, Maun; Mozambique - Maputo, Beira

The "Big 5" and others: The "Big 5" are usually on a tourists' list - a rough guide to these animals, plus some others usually sought are: Lion - common; Elephant - abundant; Rhinoceros - common in certain regions; Leopard - scarce and mainly nocturnal; Buffalo - abundant; Crocodile - common in rivers; Cheetah - scarce, diurnal; Wild Dog - scarce; Hippopotamus - common in rivers

Main Tourist Activities: Game lodges and game parks will be found in South Africa, Zimbabwe, Zambia, Mozambique, Botswana, Namibia, Malawi, Tanzania and Kenya. Beaches & Mountains are best visited in South Africa, Mozambique, Namibia. Historic & Anthropologic Sites of great interest will be found in South Africa and Zimbabwe. Natural Wonders are plentiful in South Africa, Zambia, Zimbabwe, Botswana and Namibia

Transport: Air transport is reliable and regular, with all major airlines represented. Excursion fares are usually available. Rail is not recommended except for tourist specific operations e.g Rovos and Blue Train. This method of getting around is slow. Road travel by car is good. Excellent roads in the south with many multilane highways. Care is needed in the North, with 4WD required in some areas – ask locally. Drive on left, cars all RHD. Bus travel by Luxury national operators (intercity lines) is OK, but care is needed with smaller operators. Avoid minibus taxis unless absolutely necessary.

Accommodation: In the cities international brand hotels are available, many other good hotels, caution in some areas – usually class of hotel is comparable to area. In rural areas standards vary greatly from adequate to superior – price is a good indicator (US\$20 is low end). Lodges usually offer superior accommodation, some very upmarket (e.g. Sabi Sabi) charge in US\$ - very tourist oriented. B&B establishments are very good, inexpensive and a growing segment. Most towns throughout the region will have at least one B&B, usually several. Camping & Caravanning is recommended in recognized camping areas ONLY e.g. game parks, municipal parks, nature reserves. Do not camp next to the road. Do not sleep on beaches or in city parks.

Private & Safari Parks & Lodges: Zambia: Kafue, North Luangwa, South Luangwa; Kubu Cabins; Angola: None known; South Africa:

Londolozi, Sabi Sabi, Mala Mala, Timbavati; Zimbabwe: Malilangwe Group “ excellent value, Mana Pools and Hwange areas; Mozambique: Marlin Lodge; Many fishing and diving lodges; Botswana: Chobe, Moremi, Chief’s Island; Namibia: Etosha Area, Windhoek area

National Parks: South Africa - Kruger National Park, Cape of Good Hope Nature Reserve, Royal Natal National Park, St Lucia Wetlands; Zimbabwe -Hwange National Park, Mana Pools National Park; Zambia - Kafue Game Reserve, North & South Luangwa National Park; Namibia - Etosha Game Reserve, Fish River Canyon Hiking Trail (5 days), Sossusvlei; Botswana - Moremi, Okavango Delta, Chobe Game Reserve.

Natural Wonders & Other Destinations : South Africa - Table Mountain, Blyde River Canyon & God’s Window, Garden Route, Drakensberg Mountains; Zimbabwe - Great Zimbabwe, Victoria Falls, Eastern Highlands; Zambia - Victoria Falls; Botswana - Okavango Delta, Kalahari Desert; Namibia - Hoba Meteorite, World’s Highest Sand Dunes

Health Precautions: Diseases: Malaria: See your Medical Practitioner “ some mosquito strains are immune to some prophylactics. Use repellent lotions, electric fume generators and mosquito coils at night. HIV / AIDS & Hepatitis B: One phrase! “ DON’T TAKE ANY CHANCES! Tropical Diseases (Yellow Fever etc.): See your medical practitioner “ entry requirements for countries north of South Africa are specific and well detailed. Medical Care: A very high standard of care is available

in "non government" hospitals. Expect long waits at government hospitals. Insurance advisable, even though medical costs lower than in US and Europe.

Safety Precautions: Muggings etc: Take the same precautions that you would in any big city. Conceal valuables. Walk in groups. Avoid seedy areas and dubious pubs/clubs.

Motoring: Keep car doors locked. Be wary of offering roadside assistance. No visible valuables, lock in boot/trunk. Be especially aware at traffic lights and minor rear end "collisions".

ATM & Credit Cards: Check your card before and after transaction. Be wary of machine jamming scams. Never provide your PIN to anyone, ever! Never use alone at night in inner city areas.

A major word of thanks from the African delegation to SEML members and especially "Klipsi"!!

[\[Background\]](#) [\[Speakers\]](#) [\[Program\]](#) [\[Location\]](#) [\[Register\]](#) [\[Links\]](#)

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International Solar Eclipse Conference

A crossroad on physics and eclipses of the sun

Welcome



from

Joanne Edmonds & Patrick Poitevin, England

Please find herewith the bibliographies of all invited speakers and speakers of papers and posters in alphabetical order.

Bibliography

Jay Anderson, Environment Canada, Winnipeg, Manitoba



* presently a meteorologist with the Prairie Storm Prediction Centre of Environment Canada

* twenty-seven years experience as a forecaster, researcher, and educator

* has published climatological studies for eclipse expeditions since 1979, first with the US Naval Observatory in Washington and currently with Fred Espenak and NASA

* B.Sc. in Physics and Astronomy, University of British Columbia, 1973

* Master of Natural Resource Management, University of Manitoba, 1997

* professional publications in severe weather forecasting and climatology, marine meteorology, and satellite meteorology

* veteran of a dozen eclipses

Bibliography

David Berghmans, Royal Observatory Brussels, Belgium, e-mail:

David.Berghmans@oma.be, tel: ++ 32 2 373 0 559

Born in Antwerp (Belgium), 08/03/1971, Married since 07/02/1994 and father of 1 child (Myrddin Berghmans, 18/08/1999). Present employer: Royal Observatory of

Belgium, Ringlaan 3, B-1180 Brussel, Belgium. Since Februari, 1997: PhD student, supported by the Flemish Fund for Scientific Research (FWO-Vlaanderen). Since June, 1997: assistant researcher, on ESA/PRODEX EIT-budget. Since June,



1998: assistant researcher, in a permanent position of civil servant. Diplomas: PhD in Sciences, option Physics (May, 23, 1997), title thesis: "Heating of coronal loops by MHD waves driven by photospheric motions", Promotor: Prof. Dr. M. Goossens, K.U.Leuven Center for Plasma Astrophysics, Celestijnenlaan 200B, B-3001 Leuven (Heverlee), Belgium. License in Physics, year 1: high distinction (1989-90, U.A., Antwerpen), year 2: high distinction (1990-91, U.A., Antwerpen), year 3: high distinction (1991-92, K.U. Leuven), year 4: highest distinction (1992-93, K.U. Leuven).

Present scientific activities: My scientific activities can be split in three themes: Analysis of multi-wavelength

datasets of solar images at high cadences in order to extract small scale coronal dynamics. This has lead to the discovery of "EUV brightenings" in the quiet Sun and to the EUV equivalents of ARTBs (active region transient brightenings). The systematic analysis of the Belgian EIT archive. Since the launch of SOHO (end of 1995), the EIT instrument has collected more than 180 000 solar images. This unique dataset ranges already from solar minimum to solar maximum and has a high potential for advanced studies of the solar cycle. In this context, I participate in a project that started recently. The extension of the world data center SIDC (Sunspot Index Data Center) to a complete spaceweather institute. Recently, the SIDC has become a 'Regional Warning Center' of the International Space Environment Services. In this context, I participate in the daily spaceweather predictions and provide scientific support. is research is performed in collaborations both inside and outside Belgium. On a Belgian level, I have excellent contacts with the Center for Plasma Astrophysics (CPA) at the Catholic University of Leuven (K.U.Leuven). As a result of this, several students of K.U.Leuven do their graduate and PhD research under my supervision. Moreover, joint projects in the context of Space Weather have been set up with CPA. On an international level, I have -among others- very interesting contacts with the Naval Research Laboratory (NRL) and Goddard Space Flight Center (GSFC), both in Washington D.C. Together with D. Moses (NRL), I work on a project (NASA SOHO-Guest Investigator Program FY99) called 'Intermittent Coronal & Transition Region Brightenings'. In GSFC, I have good contacts with J. Gurman en J. Newmark. I also work on the participation of the Royal Observatory of Belgium in the NASA MIDEX mission 'STEREO'. Finally, I regularly organise visits of international guests to the Royal Observatory and I participated recently in the organisation of a small conference (Belgian EIT Reunion).

I take care of the "system administration" of an HP workstation en do the maintenance of the <http://sidc.oma.be> website.

Publications in international, refereed journals:

'Coronal loop oscillations driven by footpoint motions', Berghmans, D. and De Bruyne, P. *Astrophys. J.* (1995), 453, 495

'The footpoint driven coronal sausage wave', Berghmans, D., De Bruyne, P., and Goossens, M. *Astrophys. J.* (1996), 398, 411

'Direct excitation of torsional Alfvén waves by footpoint motions', Ruderman, M., Berghmans, D., Goossens, M. and Poedts, S. *Astron. Astroph.* (1997), 320, 305

'Temporal evolution of resonant absorption in coronal loops', Tirry, W., Berghmans, D. and Goossens, M. *Astron. Astroph.* (1997), 322, 329

`Wave heating of coronal loops driven by azimuthally polarised footpoint motions: I. Stationary behaviour in dissipative MHD', Berghmans, D. and Tirry, W.J. *Astron. Astroph.* (1997), 325, 318

`Wave heating of coronal loops driven by azimuthally polarised footpoint motions: II. The time-dependent behaviour in ideal MHD', Tirry, W.J. and Berghmans, D. *Astron. Astroph.* (1997), 325, 329

`EIT observations of the extreme ultraviolet Sun', Moses, D., Clette, F., Delaboudinière, J.-P., Artzner, G.E., Brunaud, J., Carabetian, C., Gabriel, A.H., Hochedez, J.F., Millier, F., Song, X.Y., Au, B., Dere, K.P., Howard, R.A., Kreplin, R., Michels, D.J., Defise, J.M., Jamar, C., Rochus, P., Chauvineau, J.P., Marioge, J.P., Catura, R.C., Lemen, J.R., Shing, L., Stern, R.A., Gurman, J.B., Neupert, W.M., Newmark, J., Thompson, B., Maucherat, A., Portier-Fozzani, F., Berghmans, D., Cugnon P., Van Dessel, E.L. and Gabryl, J.R., *Sol. Phys.* (1997), 175 (2), 571

`Quiet Sun EUV transient brightenings and turbulence. A panoramic view by EIT on board SOHO', Berghmans, D., Clette, F. and Moses, D. *Astron. Astroph.*, v.336, p.1039-1055 (1998)

`Active region EUV transient brightenings - First Results by EIT of SOHO JOP80', Berghmans, D. and Clette, F. *Sol. Phys.*, v. 186, Issue 1/2, p. 207-229 (1999).

`Active region transient brightenings: EIT versus SXT' Berghmans, D., Mckenzie, D. and Clette, F., *Astron. Astrophys.*, In preparation

`Slow magnetoacoustic waves in coronal loops: Multi-instrument observations by EIT, TRACE and SXT' Robbrecht, E., Verwichte, E., Berghmans, D., Poedts, S. and Nakariakov, V., *Astron. Astrophys.*, In preparation

More data available on his WebPages of the ROB.

Bibliography

Juan Carlos Casado, Spain

He has published pictures and articles in *El Diario Vasco*, *Hora Nova* and *News 4 San Antonio* (U.S.A) newspapers and *Elhuyar*, *Lecturas*, *Conocer*, *Algo 2000*, *Foto-Video*, *Natura*, *Astro-Ciel*, *Ciel et Espace*, *Astrum* and *Fifty Plus* (USA) magazines as well in numerous Internet webs, as www.space.com



Collaborator of the magazines "Tribuna de Astronomía y Universo" and "Ciel et Espace". He contributes with images for the publication of the book "The Beginner's Guide to the Universe", published in Great Britain.

Photography for the Astronomy multimedia CD-Rom "Red-Shift 3", Maris Multimedia.

Eclipses pictures for the books "Eclips!" and "Soleil Noir" and "ABC Van de Zonsverduistering". Cover of the book "Curso de Astronomía. Teoría y Práctica".

Scientific adviser for the edition of a videotapes series of scientific popularization for the "Orbis, S.A." editorial .

Their images have been used as models for the simulation software "Genesis VFX", Positron Publishing, Inc.

He has collaborated in diverse occasions with Pamplona Planetarium (Spain) and Copenhagen Planetarium (Denmark).

Member of the international team "Eclipse'98" dedicated to transmit via Internet the February 26, 1998 total solar eclipse.

The National Geographic Society uses an image to promote its book "Other Worlds".

Pictures used by the National Academy of Sciences (USA).

Their images have been used by the BBC for TV programs and website.

Their pictures have been used in Astronomy classes by the University of North Dakota (USA) and by several high schools.

Eclipse'99 pictures for the Barcelona University
Solar eclipse pictures presented in the International Congress Eclipse'99
organized by Institut d'Astrophysique de Paris.
Thirteen of their images have been selected APOD (Astronomy Picture of the Day)
by NASA.

Bibliography

Ralph Chou, Canada



Dr. B. Ralph Chou is an Associate Professor of Optometry at the School of Optometry, University of Waterloo in Waterloo, Ontario. Dr. Chou's research is in the area of industrial and environmental eye protection, with special interest in analysis of, and protection from optical radiation and impact hazards. He has been a consultant to industry and the Canadian government on eye protection against ultraviolet radiation, and published many articles on sunglasses and sun protection. He currently serves as Vice-Chairman of the Technical Committee on Industrial Eye and Face Protection of the Canadian Standards Association, and as a member of the Eclipse Information Committee of International Astronomical Union Commission 46 (Teaching of Astronomy). An amateur astronomer for over 30 years, Dr. Chou has observed 13 total and 2 annular solar eclipses and led 8 eclipse expeditions.

Bibliography

Frederic Clette, Observatoire Royal de Belgique, Departement de Physique Solaire, Avenue Circulaire, 3, B-1180 Bruxelles, Belgique/Belgium tel: ..32/(0)2/373.02.33, fax: ..32/(0)2/373.02.24, e-mail: fred@oma.be, fclette@solar.stanford.edu



Work Leader (Chef de Travaux) in the Solar physics Department of the Royal Observatory of Belgium, during daytime, while still an amateur astronomer during some nights (it all started in 1975, when 14 years old). After a PhD thesis on the observation of solar acoustic oscillations from the Pic-du-Midi Observatory (helioseismology, 1990), I was involved in the preparation of the EIT experiment (Extreme-ultraviolet Imaging Telescope) on the SoHO mission, and since SoHO was launched in december 1995, I worked several months as EIT science planner at the SOHO operations facilities (NASA Goddard Space Flight Center). Currently, among other research topics, I am working on EIT observations of the smallest flare-like transients detectable on the Sun. In that framework, I have initiated a multi-instrument space observing campaign in 1998. The issue is to find out if those previously undetected events are indeed the main contributors to the extreme temperature of the corona. Beside pure solar physics, I am still monitoring the slow degradation of EIT in flight. In the meantime, I took part in and organized several Belgian eclipse expeditions: 1991 in Baja California, 1994 in Chile, 1998 on Curacao Island and 1999 in Alsace and central Romania. My "best" eclipses were 1991 and 1994. The 1999 eclipse was the most exhausting, as it brought a lot of work during more than 12 months: public education, the media and the organisation of TECONet.

Bibliography

Fred Espenak, Planetary Systems Branch, Code 693, NASA/Goddard Space Flight Center, USA

Fred Espenak is an astrophysicist at NASA's Goddard Space Flight Center in Greenbelt, Maryland, where he uses state-of-the-art infrared spectrometers to probe the atmospheres of the planets. This work frequently takes him to the world's highest observatories atop the Hawaiian volcano Mauna Kea. In 1991, he was a co-investigator of an atmospheric experiment flow on Space Shuttle Discovery. He is currently participating in a number of research projects including the monitoring of ozone in Mars' atmosphere, the detection of winds on Venus, Mars and Titan, and the measurement of hydrocarbons in the stratospheres of Jupiter, Saturn, Uranus and Neptune.



Espenak is perhaps best known for his work on eclipses. His two books, *Fifty Year Canon of Solar Eclipses: 1986 - 2035* and *Fifty Year Canon of Lunar Eclipses: 1986 - 2035* have become popular references on the subject. Espenak also publishes special NASA bulletins which provide detailed solar eclipse predictions and maps. He recently co-authored *Totality Eclipses of the Sun* with Mark Littmann and Ken Willcox. Espenak's interest in eclipses was first sparked after witnessing the total solar eclipse of March 1970. Since then, he has participated in nearly twenty eclipse expeditions around the world and has made predictions on thousands of eclipses. His astronomical photographs have appeared in both national and international publications, and he has lectured extensively to the general public on science, eclipses and photography. He is also the webmaster of NASA's official eclipse web site (sunearth.gsfc.nasa.gov/eclipse/) as well as his own personal web site on eclipse photography (www.mreclipse.com).

Fred Espenak, Planetary Systems Branch, Code 693, NASA/Goddard Space Flight Center, Greenbelt, MD 20771, USA. e-mail: u32fe@lepvax.gsfc.nasa.gov Voice: 301-286-5333 FAX: 301-286-0212 Home Page - <http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html> Eclipses in 2000 - <http://sunearth.gsfc.nasa.gov/eclipse/OH/OH2000.html>, 2001 Total Eclipse - <http://sunearth.gsfc.nasa.gov/eclipse/TSE2001/TSE2001.html>

Bibliography

Daniel Fischer, Germany

Daniel Fischer is a space science writer based in Germany who has published seven books and numerous articles in popular and scientific magazines since 1982; he also publishes his own printed and online newsletters (*Skyweek*, *The Cosmic Mirror* and *SuW News*, respectively). Daniel Fischer has also participated in (and sometimes organized) 12 expeditions to central solar eclipses (9 total, 3 annular) and 3 meteor shower expeditions, including one that witnessed a meteor storm. Having been clouded out only one time during these 15 expeditions, Daniel Fischer hopes to hold that success ratio in the next decades. You can visit his homepage with numerous travel reports at www.astro.uni-bonn.de/~dfischer oder www.geocities.com/skyweek .



Bibliography

Bernard H. Foing, Staff scientist, ESA Space Science Department (see <http://solarsystem.estec.esa.nl>)



SMART-1 Project Scientist (<http://sci.esa.int/smart-1/>), ILEWG president 1998-2000 (<http://www.estec.esa.nl/ilewg/>) Solar Research Unit Coordinator, Leader ESA eclipse campaigns 1994, 1995, 1998, 1999 Member European Geophysical Society (Solar Physics Secretary, 1996-1999), COSPAR, IAU, AAS, Intl Academy Astronautics, 85 refereed publications (see http://adsabs.harvard.edu/abstract_service.html) Author/editor of 12 books, organiser of 20 international symposia

Bibliography

Eijiro Hiei, Japan

Date of birth: April 19 1931, Place of birth: Tokyo, Japan, Nationality: Japanese. Present Address(home): 2-56-40, Miyoshi, Fuchu, Tokyo 183-0045, Japan (University): 2-1-1, Hodokubo, Hino, Tokyo 191-8506, Japan; email address:



hiei@corona.mtk.nao.ac.jp; fax(home):+81-423-68-0919; fax(Univ.):+81-425-93-0191. Education: 1949-1953, University of Tokyo; 1953-1955, Graduate course of Univ. of Tokyo; Degree: 1963, Ph.D., University of Tokyo; Professional career: 1955-64, Research Associate, Tokyo Astronomical Observatory, Univ. of Tokyo; 1963-64, Visiting Fellow of JILA, Univ. of Colorado; 1964-65, Research Fellow, High Altitude Observatory. 1965-79, Associate Professor, Univ. of Tokyo. 1979-88, Professor, Univ. of Tokyo. 1982-92, Director, Norikura Corona Observatory. 1985-94, Chairman, Eclipse Committee of Japanese Science Council. 1988-91, Chairman, Eclipse Working Group of Commission 10, IAU. 1988-92, Professor, National Astronomical Observatory. 1992-present, Professor

Emeritus, Univ. of Tokyo and National Astronomical Observatory. 1992-present, Professor, Meisei University. 1998-present, President, Meisei University

Bibliography

John Hopper, JohnLX200@aol.com, <http://www.mapug.com>



John Hopper is an amateur astronomer living near Boston, Massachusetts, USA. He received a BSME from MIT in 1981, and currently works in the software consulting industry.

He runs the Meade Advanced Products User Group (MAPUG) mailing list, an online community of 1300 amateur astronomers.

He has succeeded in all 4 attempted expeditions to central solar eclipses. The annular eclipse in 1994 was seen from Mt. Chocorua, New Hampshire. The total eclipse expeditions were on the SS Canberra cruise from New York to Africa in 1973, a MAPUG land expedition in Aruba in 1998, and a Falcon 900 jet which he chartered to intercept totality over the Atlantic Ocean in 1999.

He also chases transits and meteor storms, and succeeded in viewing and videotaping both the grazing Mercury transit in Australia and the Leonid meteor storm in Spain last November.

Bibliography

Barrie W Jones, Head, Department of Physics and Astronomy, The Open University, UK

Research interests: My present research is in three areas of astronomy



- 1 orbital integrations of planetary bodies
- 2 radiative cooling of infrared telescopes
- 3 atmospheric phenomena related to solar eclipses.

Solar eclipse research

I have traveled to six total solar eclipses, and had clear skies for all but the most recent, on 11 August 1999. For my eclipse research, I have developed and used an array of microbarometers to record atmospheric waves with periods in the range 10-100 minutes. Such waves can, in principle, be generated by solar eclipses, though it has proved difficult to identify them. Current work is being carried out in collaboration with Dr Clive Wilson of the UK Met Office. I have also developed and used an array of photometers to record and analyse shadow bands.

Recent eclipse publications

Barrie W Jones, Shadow bands during the total solar eclipse of 26 February 1998, Journal of Atmospheric and Solar-Terrestrial Physics, volume 61, pages 965-974 (1999)

Barrie W Jones, A search for atmospheric pressure waves from the total solar eclipse of 9 March 1997, Journal of Atmospheric and Solar Terrestrial Physics, volume 61, pages 1017-1024 (1999)

Bibliography

Peter Chishala Kalebwe, Zambia

DATE OF BIRTH: 6 December, 1959, NATIONALITY: Zambian, MARITAL STATUS: Married with three children, FULL ADDRESS: The University of Zambia, Physics Department, P.O. Box 32379, LUSAKA, ZAMBIA, Telephone: +260-1- 293343, Telefax: +260+1-253952, Telex: ZA44370, E-mail: pkalebwe@natsci.unza.zm



SUBJECT OF SPECIALISATION: Physics, EDUCATIONAL QUALIFICATIONS:

a) 1973-1974: Kenneth Kaunda Secondary School and obtained Junior Secondary Certificate in Mathematics, English, Civics, History, General Science, Religious Knowledge, Geography.

1975-1977: Kenneth Kaunda Secondary School and obtained Senior Secondary Certificate - GCE 'O' Level in

Mathematics, English, Bemba Language, Physical Science; Agricultural Science; History and Commerce

(b) PROFESSIONAL QUALIFICATIONS

1979-1982: University of Zambia and obtained B.Sc. Degree (Credit) in Physics and Mathematics.

1985-1986: University of Birmingham (U.K.) and obtained M.Sc. Degree in Applied Radiation Physics

WORK EXPERIENCE

(a) 1988 to date: Actively involved in teaching at the University of Zambia in the following courses:

(i) P110 - Introductory Physics

(ii) P260 - Electricity and Magnetism including Atomic Physics

(iii) P340 - Electronics and Electrical Measurements
(iv) P495 - Supervision of student project on "Lead Content in Glazed Pottery".
(b) 1990: International Atomic Energy Agency: Training in the field of Nuclear Safeguards covering Radiation Physics, Nuclear Electronics and Reactor Physics. Extensive study tour of nuclear installations in Germany.
(c) 1982-1988: National Council For Scientific Research (NCSR) Worked in the field of X-ray Fluorescence Analysis; extensive analysis of uranium ore samples; intercomparison exercises. Installation of equipment such as the X-ray tube; the Germanium detector in the Nuclear Analytical Laboratory.

INTERNAL REPORTS AT NCSR

* Basitcho, P. Kalebwe, D. Sikabbuba: Sensitivity Calibration Curve for Multielement Analysis in Uranium Ore. RIRU-AR 82*.

* Kalebwe, D. Sikabbuba: Determination of Gold and Cerium in Geochemical Samples by Standard Addition Method. RIRU-AR 83.

* J. Bastcho, P. Kalebwe, Mr. Maswabi: Analysis of Calcium in Hair for a Zambian Population Sample. RIRU-AR84 (RIRU -stands for Radioisotope Isotope Research Unit)

* Kalebwe, P. Hayumbu, D. Sikabbuba: Comparative Study of Uranium Determination by high resolution gamma spectroscopy and X-ray spectrometry. RIRU-AR 85.

* Kalebwe, D. Sikabbuba, M. Maswabi: Standardisation and Characterisation of Local Clay. RIRU-AR 87

WORKSHOP, SEMINARS AND SPECIALISED COURSES ATTENDED

(i) 1984- May-June: IAEA training on research and application of energy dispersive X-ray Fluorescence Analysis held at the National University of Singapore (Singapore).

(ii) 1984 - Oct-Nov. LUSAKA: IAEA training course on the use of minicomputers and micro processors in scientific research held at National Council for Scientific Research.

(iii) 1987- May: USSR- IAEA training course on Neutron Physics and Nuclear Data Measurement with accelerators and reactors.

(vi) 1989 Oct- Nov.: Leeds: Leeds University-University of Zambia link- six week course on illustrating digital electronics with the VELA.

(v) 1993: Curriculum writing workshop for radiography - held at River Motel in Kafue from 15th to 21st February.

(vi) 1993: Study visit to the Centre for Nuclear Science Techniques, Nairobi, 15th to 22nd March.

(vii) 1995 Nov.: Participant. Zambia Basic Sciences Seminar to review curriculum for first year Natural Science Students held at Rainbow Lodge, Livingstone, 18th to 21st November.

(viii) 1995 Nov. Resource person: Curriculum Review Workshop for Paramedical Department Evelyn Hone College held at Curriculum Development Centre, Lusaka from 24 - 26 of November.

(ix) 1996 June: Participant and member of the organising committee of the national workshop on the Physics and Modern Application of Lasers held at the University of Zambia from 27th to 28th of June.

(x) 1996 July: Participant, short course on using the internet for research held at the University of Zambia.

(xi) 1996 Aug: Participant: Seminar on Quality Assurance in Radiology held at hotel intercontinental in Lusaka from 1st to 3rd August.

(xii) 1996 Nov. Speaker: Physics Seminar on Medical Application of Radioisotopes held on 13th November in Physics Seminar Room.

(xiii) 1997 Jan.: Zambia Basic Sciences Seminar : Over-view of First Year Science Courses at UNZA-Siavonga, 27-31 January.

(xiv) 1997 Dec. Participant and member of organising committee: Second National Workshop on the Physics and Modern Applications of Lasers. University of Zambia from 3rd to 4th December

(xv) 1998 Dec. Participant ; third curriculum review workshop for first year students held in Siavonga, 15 - 19 December
(xvi) 1999 Mar. Participant and presenter: Eighth United Nations/European Agency Workshop on Basic Space Science: Explo-ration from Space held in Malfrag,Jordan 13 - 17 March
(xvii) 1999 July Participant and presenter: Third African Workshop Regional on Communication 25 - 30 July 1999 at the Taj - Pamodzi Hotel, Lusaka, Zambia. Host: Department of Electrical and Electronic Engineering University of Zambia.
(xviii) 1999 Aug. Participant and presenter: The African Regional Seminar on Safety and Security of Radiation Materials and Radiation Sources, August 11 - 13, 1999, Pamodzi Hotel, Lusaka, Zambia.
(xix) 2000 Jan. Participant : Summer School in Astronomy organised by the South African Astronomical Observatory from 4th to 28th of January

COMPUTER LITERACY:

(i) Programming in Basic, Fortran
(ii) Use of computer packages - Word Perfect 5.1, Chiwrite , Amipro, Microsoft Word 6.0, Lotus spread sheet, INTERNET: - Information search using search engines. Electronic mail: EUDORA PEGASUS

ECLIPSE COORDINATION PROGRAMME: Chairman of the Safety and Scientific Sub-Committee of the above program.

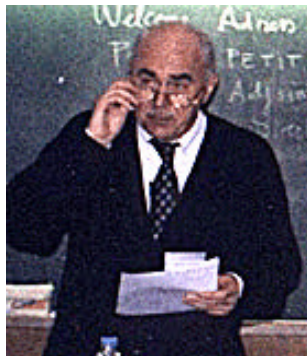
INTERESTS AND HOBBIES:

(i) Reading - books and articles on astronomy, Lasers,medical physics, biology, electronics and automotive mechanics.
(ii) Listening to music.
(iii) Cycling
(iv) Treasurer and member of local church community.

Bibliography

Serge Koutchmy, Astrophysicist at the Institute d'Astrophysique de Paris-CNRS, France

Currently at: Institut d'Astrophysique de Paris (CNRS) 8 Bis Bd Arago; F-75014 Paris (France) phone: 33144328056; Fax: 33144328001; e/mail: koutchmy@iap.fr



born: june 26, 1940 in Le Creusot (Saone et Loire-71-France)

married since 1960 to Olga Koutchmy, 2 children

Education:

1952-58 Ecole Speciale Schneider; Le Creusot-France

1959-63 State University Moscow-Russia

1963-1967 Orsay (France) University, Master degree in Physics

1972 PhD Paris University on Coronal Streamers Physics

Positions:

1967 Assistant Paris Observatory

1968 Research fellowship Centre National de la Recherche

Scientifique

1978 Permanent position at CNRS (tenure)

1992- now: Directeur de Recherche (DR) at CNRS(France)

1976-78 Fellowship at AFGL/Sacramento Peak Observatory-NM(USA)

1986-88 Senior Research Associate at NSO/SacPeak Observatory

Selected Activities:

*Observed 14 Total Solar Eclipses at ground, over seas, using aircrafts (including the Supersonic Concorde 001) and in space; models of F-corona and coronal structures;

*Developped several solar IR experiments at Pic du Midi Observatory 1st absolute measurements of solar intensities at 18 to 24 microns- 1968; 1st sunspot photometry at 3.75 microns;

*Developped IR photometry at the Sacramento-Peak Obs. VTT (1977);

*Developped a prominence magnetograph on the largest coronagraph of Word-53 cm aperture- of the Kislovodsk High Altitude Observatory (1980-82);

*P.I. of the spaceborne experiment 'Night Sky Imaging' for the flight of the 1st french Spationaute on Saliout 7 (1982); co-I of the 2d Astron.Exp-t PIRAMIG on Saliout 7;

*Developped the 1st mirror coronagraph at NSO/SP (1987); 1st optical coronal image ever made with a mirror coronagraph;

*Co-I of the C2/Lasco coronagraph of SoHO (1988); design of the SWATH spaceborne mirror coronagraph;

*P.I. of the CFHT eclipse coronal experiment on Mauna-Kea to point the largest optical telescope ever used toward the Sun; best resolution ever acheived of an image of the W-L corona; movie of a coronal plasmoid;

*Performed 1st observations of SXR polar flashes on Yohkoh at ISAS-Japan;

*Performed 1st measurements of the solar prolateness at NSO/Sacramento-Peak Observatory (1997-98) using coronagraphs and the VTT (DST);

*co-I on the Solar Probe coronal exp-t (2000);

Publications: more than 400 scientific papers published from 1967 to now; the list of the latest can be found on the URL: www.iap.fr/BaseDeDonnees/

Books: "Total Eclipses", 1998, Masson Ed. 300p (in French); re-edited and translated in English at Springer-Praxis Series in Astron. (1999), etc.

Participation as invited contributor and/or chairman in the writing of 6 books, starting with the Illust. Solar Glossary (1978).

5 Selected papers over 30 years:

"Morphological Particularities of the Solar Corona" (1969), Astrophys. Letters, 3, 215-220

"Study of the June 30, 1973 trans-polar coronal hole" (1975) Solar Phys. 51, 399-410

"Short Periods coronal oscillations: observations and interpretation" (1983), Astr. Astrophys. 120, 185-191

"Space-borne Coronagraphy" (1988) Space Science Review, 47, 95-143

"Coronal Streamers" (2000), in "The Encycl. of Astron. Astrophys." Institute of Physics Pub. England (May 2000)

Bibliography

Ed Krupp, Griffith Observatory, USA

Dr. E.C. Krupp is an astronomer and Director of Griffith Observatory in Los Angeles. A graduate of Pomona College in Claremont, California, he earned his



M.A. and Ph.D. in the Department of Astronomy at U.C.L.A., where he studied the properties of rich clusters of galaxies under the guidance of the late Dr. George O. Abell. Now recognized internationally as an expert on ancient, prehistoric, and traditional astronomy, Dr. Krupp has visited more than 1600 sites throughout the world and regularly leads field study tours to exotic locations that have astronomical and archaeological interest. He is the author of several books on the celestial component of belief

systems, including In Search of Ancient Astronomies, Archaeoastronomy and the Roots of Science, and Echoes of the Ancient Skies. He also writes astronomy

books for children illustrated by his wife, Robin Rector Krupp, including *The Comet and You*, *The Big Dipper and You*, and *The Moon and You*. Their most recent science book for children, *The Rainbow and You*, was published in April, 2000. Two of Dr. Krupp's books have won national prizes from the American Institute of Physics.

Dr. Krupp's fourth book on ancient astronomy, *Beyond the Blue Horizon-Myths and Legends of the Sun, Moon, Stars, and Planets* was published in 1991 and is a worldwide comparative study of celestial mythology. His newest book for adults, *Skywatchers, Shamans, & Kings-Astronomy and the Archaeology of Power*, was published by John Wiley & Sons, Inc., in 1997.

Dr. Krupp is a contributing editor for *Sky & Telescope* and writes a monthly column, "Rambling Through the Skies," for this nationally distributed magazine. It emphasizes the cultural component of astronomy. In 1989, he received a national prize from the Astronomical Society of the Pacific-the Klumpke-Roberts Award for outstanding contributions to public understanding and appreciation of astronomy, and in 1996 he received the G. Bruce Blair Medal for substantive contributions to amateur and public astronomy from the Western Amateur Astronomers. On 14 February 1999, he was profiled in *Los Angeles Times Magazine* and featured on the cover.

E.C. Krupp lectures frequently on archaeoastronomical subjects as well as on other astronomical topics, including fads, myths, and pseudoscience. In spring, 1983, he delivered a lecture in the prestigious annual L.S.B. Leakey Society lecture series. He has presented the invited Mossman Lecture at McGill University and the BBV Foundation Lecture at the Instituto de Astrofísica de Canarias. He was the on-camera host of the "Project: Universe" telecourse, which has been broadcast throughout the country and internationally and repeated on numerous occasions. He appears often on Los Angeles television and radio, and he appeared with Johnny Carson on the "Tonight Show." Other national appearances include "Nightline," "America," "The MacNeil/Lehrer Report," "The Late, Late Show" (Tom Snyder), CNN News, and "The Human Quest." He was featured in a videotape for home use, "Halley's Comet, a Viewer's Guide" (Four Point Entertainment). E.C. Krupp is a past member of the Board of the Astronomical Society of the Pacific, past Chairman of the Historical Astronomy Division of the American Astronomical Society, an advisor for the American Rock Art Research Association, a Fellow of the Committee for Scientific Investigation of Claims of the Paranormal, a member of the American Astronomical Society and the International Astronomical Union, listed in *Who's Who in America* and similar compilations, and is a Fellow of the Explorer's Club.

Dr. Krupp has led 30 field study tours for U.C.L.A. Extension and other organizations: to Mexico-8 times, to Egypt-4 times, to Central America and Peru, to the Mediterranean, to China-4 times (including Inner Mongolia, Tibet, and Mongolia and the 9 March 1997 total solar eclipse), to Peru, to South America (for more ancient sites and Halley's Comet), to Chile and Easter Island-2 times (including the 3 November 1994 total solar eclipse), to Mexico/Belize/Guatemala, to Guatemala, to Guatemala and El Salvador, to Greece, to Turkey-two times, to the 11 July 1991 total solar eclipse in the Sea of Cortez, to Israel, Jordan, and Sinai, and most recently (June, 2000) to Iran. He has participated in two other eclipse land expeditions (Mexico and Indonesia), and as a lecturer and eclipse viewing coordinator, he has accompanied cruises to the 12 October 1977 total solar eclipse in the northern Pacific, to the Mediterranean, Mesoamerica (four times), southeast Asia (including the 24 October 1995 total solar eclipse), the Caribbean (including the 26 February 1998 total solar eclipse), and the Black Sea (including the 11 August 1999 total solar eclipse). Allied in May, 1998, with Dr. Zahi Hawass, Director General of the Giza Plateau, he presented the case against speculative and erroneous "Orion Mystery" claims about the astronomy connected with the Giza pyramids and the Sphinx on a cruise through Alaska's Inside Passage.

Dr. Krupp's primary responsibility at this time is the complete renovation and expansion of Griffith Observatory, a \$58-million project now in design. Construction is scheduled to begin in January, 2002. This means he now performs two jobs for the price of one on behalf of Griffith Observatory in a workweek that violates the law of conservation of energy and the speed of light.

Bibliography

Jean Marc Lariviere, Canada

Born in Hawkesbury, in Eastern Ontario, Jean Marc Larivière moved to Toronto in 1976 to study physics and mathematics. After successfully directing a number of plays for the university theatre company he became a translator and conference interpreter all the while pursuing his interests in writing, music and film. In 1982, he wrote and directed his first film *Revolutions*, at last, forever and ever which garnered critical acclaim at the Toronto International Film Festival, the Paris Cinematheque and the British Film Institute.

In 1986, he produced and directed *DIVINE SOLITUDE*, a documentary on the spellbinding work of dancer/choreographer Nana Gleason, which was selected as a finalist at the American Film and Video Festival and won the Silver Plaque at the Dance On Camera, in New York.

In 1996, in collaboration with Marie Cadieux he wrote and directed *The Last of the Franco-Ontarians* a moving look at the critical role of minority cultures in the age of globalization which was nominated for a G  meau for best cinematography and won an honorable mention at the Hot Docs Festival in Toronto. With *SHADOW CHASERS* his latest film produced over a two and half year period and shot on four continents he offers once again a very personal work in the form of a poetic meditation on how humans make sense of the world via their senses.

Bibliography

Alfonso Lopez Borgonoiz, Spain



Alfonso L  pez Borgonoiz, archeologist and historian of science, has more than twenty papers published in scientific meetings or magazines about roman funerary world, archeoastronomy or history of astronomy. Work actually in the City-hall of Castelldefels (Spain) and was the director for three years of "Universo, astronom  a y astron  utica", and in this moment is member of the team of redaction of "El Esc  ptico" and "Tribuna de astronom  a y Universo", magazines for the divulgation of Science and Astronomy.

Bibliography

David P. Makepeace, Canada

David is currently directing 18 episodes of *ELVIRA KURT'S ADVENTURES IN COMEDY* for The Comedy Network and Armstrong Entertainment.

"HOOKED ON THE SHADOW", his documentary about solar eclipse chasers for *SPACE/BRAVO!* that was shot in Aruba in 1998 and south-eastern Turkey in 1999, WON THE BRONZE AWARD, SCIENCE & RESEARCH, at *WORLDVEST HOUSTON* in April 2000, and is distributed internationally by *Mundovision* in Montreal.



Makepeace's 1998 calling-card short film entitled "*CLEVELAND IN MY DREAMS*", from the *LAWRENCE BLOCK* short story starring *DONALD BURDA* and *SAUL RUBINEK*, has screened at multiple festivals in North America, and WON THE GOLD AWARD FOR SHORT COMEDY ADAPTATION at *WORLDVEST*

HOUSTON in April 1999, and THREE FILMMAKING AWARDS including BEST CANADIAN ENTRY at the CANADIAN INTERNATIONAL ANNUAL FILM AND VIDEO FESTIVAL in British Columbia, also in 1999.

His first feature-length film entitled "SIDE FLASH" starring MICHAEL RILEY, about the spiritual awakening of a low-life Atlanta hustler who gets hit by lightning, has recently received development financing, with a preliminary draft to be tabled in the winter of 2000.

Honing his skills to direct his first feature, Makepeace has observed directors PAUL LYNCH (F/X: The Series), SAUL RUBINEK (Jerry & Tom), JOE MANTEGNA (Lake Boat), and DAVID WU (Power Play).

Originally from Montreal, the Makepeace family moved to Toronto in the late 1960's where David was introduced to music and the performing arts at a young age, along with his two brothers Tony and Chris. Then a producer with CBC Radio, David's mother encouraged a full exploration of the arts, and today, each of the brothers enjoy distinct and successful careers in visual media.

As a youngster David attended numerous summer workshops in DRAMA, FILMMAKING, ART & PHOTOGRAPHY at TRINITY COLLEGE in Toronto, and by age 12 had demonstrated a flair for experimental filmmaking in multiple formats and with varied media and techniques. At 14, while on tour as a soprano with the CANADIAN OPERA COMPANY, Makepeace began plotting a career in film.

During his school years, Makepeace started DIRECTING AMATEUR FILMS and ACTING IN TELEVISION COMMERCIALS AND DRAMAS. His talent as a young filmmaker won him TORONTO FESTIFILM AWARDS in 1978, 1979 and 1983, and a CBC TELEFEST AWARD in 1984.

David graduated from JARVIS COLLEGIATE INSTITUTE (1982) with a credit in FILM RESEARCH and went on to RYERSON POLYTECHNIC UNIVERSITY'S RADIO AND TELEVISION ARTS DEGREE PROGRAM (1985). At Ryerson, David was awarded with a SCHOLARSHIP FOR ACHIEVEMENTS IN RADIO ANNOUNCING, and still maintains membership in ACTRA PERFORMERS GUILD.

With the revolution in new video technology by 1986, Makepeace began accepting contract work and started a small production company. By age 30, he had developed a substantial and loyal clientele of individuals and production companies alike, employing him in the key creative aspects of production.

As VIDEO DIRECTOR & PRODUCER David has completed countless shows - from corporates and promotionals for GM, FORD, UNITED WAY, CENTERSTAGE (Baltimore) and TRAFALGAR CASTLE, to annual travel programs for the world's biggest brokerage firm, MERRILL LYNCH.

His assignments as CAMERAMAN number equally in the hundreds - SHOOTING SOLAR ECLIPSES IN ARUBA AND TURKEY, and fulfilling contracts in THE GREEK ISLANDS, THE CARIBBEAN, HAWAII, MONTE CARLO, PARIS, THE FLORIDA EVERGLADES, ARIZONA, CALIFORNIA, and the ROCKY MOUNTAINS.

As VIDEO EDITOR, Makepeace has cut over 500 DEMO REELS, and maintains a personal client base of film directors and artists, including some of Canada's best-known film and television actors.

Bibliography

Paul Maley, USA

Paul's life-long interest in observing astronomical phenomena has been largely focused on planning and executing expeditions to observe eclipses of the sun. Inspired by the late Aline B. Carter, former poet laureate of Texas who taught astronomy at the Witte Museum in San Antonio, Texas, his observational interests have expanded to include comets, asteroids, meteor showers, occultations of stars by the moon and of stars by minor planets, eclipses of the moon, and artificial earth satellites. His travels have taken him to 162 countries so far.

Paul D. Maley has worked at the NASA Johnson Space Center as a government contractor since 1969. He is currently employed by a prime contractor as Manager of International Spaceflight Operations overseeing a group of flight controllers at Mission Control Center-Moscow and Mission Control Center-Houston in support of the International Space Station. His academic credentials include a B.S. (University of Texas, Pan American Campus), M.S., and M.B.A (University of Houston - Clear Lake).

Paul developed Ring of Fire Expeditions (ROFE) to serve as a public outreach by the NASA Johnson Space Center Astronomical Society. Through this, valuable international cooperation has been achieved in the planning and execution of



of many challenging expeditions, including 23 ROFE expeditions since 1970 to view a total or annual eclipse of the sun.

As an amateur astronomer Paul D. Maley's most significant accomplishments include:

1) The first reported observation of a possible satellite of an asteroid in 1977. Co-authoring the report with D.W. Dunham in 1978, it set off a concerted effort by amateur astronomers and professionals to monitor asteroid occultations. Though this specific discovery was unconfirmed, it was in 1994 that the Galileo spacecraft beamed back the first image of a natural satellite of the asteroid Ida, thus proving the existence of a hitherto unknown population of solar system objects (see *Asteroids*, edited by T. Gehrels, p. 443).

2) The finding that inactive earth satellites could have an impact on professional astronomical discoveries. Paul determined that the cause of the infamous Aries (Perseus) flasher, an object that caused a stir in the

astronomical world in 1985 was caused by sunlight glinting off a piece of Russian space debris (see *Astrophysical Journal*, vol. 317, 1987, L39-44). Sometime later, Greek astronomers published a paper and photograph propoing to show a bright meteor impact on the dark side of the moon. Paul clearly determined that this event was caused by an inactive American satellite passing directly in the field of view at the time (see *Icarus*, vol. 90, April 2, 1991, pp. 376-377). These two events alerted the community to consider the importance of the ever increasing population of earth orbiting man-made objects.

3) An initiative adopted by the United Nations Committee on the Peaceful Uses of Outer Space to promote observation of the Space Shuttle and Mir station by planetariums around the world during the 1992 International Space Year. Paul computed visibility predictions of these bright space objects which were faxed by the UN to planetaria in 34 countries.

4) Only photo ever taken of a complete grazing occultation process of a star by the moon. See *Sky & Telescope*, April 1982, p 426.

5) First photo of a group of 7 geostationary communication satellites in one frame. See *Aviation Week & Space Technology*, March 3, 1986, p 73.

6) First photo of reentry of space shuttle orbiter. See *Aviation Week & Space Technology*, February 27, 1984, p 40.

7) First photo of reentry of space shuttle external tank. See *Aviation Week & Space Technology*, April 26, 1984, p 21.

8) Organizer of most productive expedition to map the shape of an asteroid. See *Astronomy*, February 1984, p 51.

9) First photo of an occultation of a star by an asteroid. See *Sky & Telescope*, March 1980, p 261.

A great portion of Paul's life has been in earth satellite observation. This includes having documented the reentry of Cosmos 166 rocket in 1966, several re-entries of the Space Shuttle's External Tank, about 12 re-entries of the Space Shuttle itself enroute to landing in Florida, and continual observation projects involving space debris. He was the youngest person ever to have an independent observing site under the Smithsonian Astrophysical Observatory's Moonwatch Program in 1960 (in San Antonio, Texas). In 1975 he was elected a member of the Royal Astronomical Society. In recent years Paul has presented papers at the International Astronautical Federation congresses on his observations of Iridium spacecraft, Ariane IV rocket bodies, and other visual satellite photometry applications. In June 2000, he was invited to present a paper before the 18th Interagency Debris Committee describing his studies of Russian Proton 4th stage ullage motors which are one source of space debris in geostationary transfer orbits.

Paul has utilized Global Positioning System receivers to initially survey a volcanic area in conjunction with the Institute of Geology and Geochemistry in Petropavlovsk-Kamchatsky in the Russian far east in 1991. Then through agreement with Trimble Navigation he began to use Trimble GPS receivers to establish eclipse sites in the Amazon, Africa, Australia and Asia as well as for sites of 19th century eclipses in the USA. Other noteworthy activities have included observation of a 1 meter size ullage motor #20698 at an altitude of only 92 miles with the unaided eye; the Russian Mir station from the middle of Seoul, Korea; from a cruise ship docked in Port Said, Egypt; and from a moving train between Bulgaria and Romania; Iridium satellite in broad daylight from Scotland and Australia; night time Iridium flares from Iran, Crete, Turkey, France and Russia; observed 3 total lunar eclipses in one calendar year (1982); photo of two Russian space stations in one frame as published in NATIONAL GEOGRAPHIC MAGAZINE; consultant to the Pakistan Upper Atmosphere and Space Administration (1988); interviewed on television stations in Gabon, Zambia, and China in connection with safe eclipse observation procedures prior to solar eclipses; invited speaker on United Nations Day at the University of Miami (1993); sighted noctilucent clouds in Finland.

Paul has also led expeditions to Venezuela, Mexico and Sudan to attempt to improve the lunar polar diameter; led expeditions to Guyana, Australia and France to observe occultations of stars by asteroids; observations of 4 consecutive orbits of the Space Shuttle from the tip of South America in one night; instructed Shuttle crew members of the ill-fated Challenger on how to observe Halley's Comet in 1985; sighted a simultaneous aurora and naked eye comet from a commercial flight over the Pacific Ocean in 1997; payload integration engineer for the Midcourse Space Experiment satellite MSX, whose Delta rocket tank reentered and pieces of which were recovered in central Texas; organized and led expeditions to observe grazing occultations of stars by the moon and solar eclipses where Shuttle astronauts have also been observers; published popular articles on how to successfully observe occultations, earth satellites and eclipses in journals in the USA, China, France and Italy; presented lectures on astronomical topics in Singapore, Spain, Poland, Denmark, Peru, Mexico, Belgium, Jordan, South Africa, Australia, France, England, Canada, and Japan. One of his most prized possessions is a letter from the late astronomer Carl Sagan requesting a copy of one of Paul's technical papers.

Funding has been provided to Paul for only a few projects from the Federation of American Scientists, National Geographic Society and NASA, but the majority of his expeditions have been conducted on his own. One of his more exotic assignments was to await the launch of a rocket with an expendable tether system while staying at a Club Med hotel. Another was the 1995 Shuttle mission of the Italian Tethered Satellite System where he obtained low light video of the free flying tether (from Cairns, Australia) which was unexpectedly severed from the Shuttle soon after its deployment.

Paul's unique videos of satellites and meteors have been used to demonstrate educational aspects of observation and have been shown on the Discovery Channel, Chinese television, The Learning Channel, ABC and CBS News, in England, Belgium and Germany, as well as having been appended to post-Shuttle mission flight footage by NASA. He has had a long interest in meteor shower observation, having witnessed a dramatic return of the 1966 Leonid Meteor Storm and then a brief outburst from the Draconid Shower in 1972 when he first used an electronic image intensifier. He was also a real-time eyewitness to the explosion of Apollo 13 while it was on its way to the moon.

On the personal side, Paul enjoys climbing and photographing active volcanoes (so far Hawaii, Aeolian Islands, Costa Rica, Russia, Indonesia, Papua New Guinea, New Zealand, Mexico, USA) and has raised basset hounds and participated in automobile rallies. He currently jointly occupies the same living space with two cats and with his wife Lynn Palmer whom he married in Suva, Fiji in 1996. All reside in Clear Lake City, Texas, a suburb of Houston. While many of Paul's endeavors have born fruit, he continues a so-far frustrating and unproductive comet hunting project begun in 1973 and enhanced with the purchase of 25x150 binoculars in Japan in 1980. It is one life-long goal to discover a comet. In the meantime, he is a continual contributor to STARSCAN, the publication of the NASA Johnson Space Center Astronomical Society to which he has belonged since beginning work at the Center two months before the first moon landing. He has jogged in Kuwait, Chile, Oman, Barbados, Sri Lanka, and Macao and hopes one day to be able to afford to retire to a dark sky location somewhere in the southwestern USA where he can continue his observations unimpeded by light pollution.

See more details on his WebPages

Bibliography

Jay Pasachoff, Willams College, USA

Jay Pasachoff, a veteran of 30 solar eclipses, is Chair of the Working Group on Eclipses of the International Astronomical Union. He is Field Memorial Professor of Astronomy and Director of the Hopkins Observatory at Williams College, Williamstown, Massachusetts, USA. He is the author of observing guides, especially the Peterson Field Guide to the Stars and Planets (Houghton Mifflin, 2000), and coauthor of the Cambridge Eclipse Photography Guide (Cambridge University Press, 1993). Prof. Pasachoff's scientific research has largely been concentrated on the solar chromosphere and corona, including recent studies of the heating of the solar corona and of the liaisons between eclipse and space observations of the corona.



Bibliography

Francis Podmore, Zimbabwe

Born and brought up near Chester, England, and obtained my first degree from Downing College, University of Cambridge in 1963. I have been a lecturer in the Physics Department of the University of Zimbabwe for over 35 years - teaching a wide variety of courses, including astronomy and geophysics. My PhD (awarded in 1985 by the University of London) was for gravity study of the Graet Dyke, Zimbabwe. Other geophysical research includes magnetic surveys, earth tide

observations and heat flow measurements in boreholes. Coming to the lovely dark skies of Africa, I joined the local Astronomy Society and have learned much from the meetings. Recently I attended a month-long astronomy Summer School in Cape Town and recorded the starlight from the variable XX Pyxis. I have given many talks on astronomy and space to schools and other groups, but have yet to see a total solar eclipse - I was under thick cloud in Cornwall last August!! But while England I started an appeal for unused and unwanted eclipse viewers for 'our' eclipses, and have been overwhelmed by the response.



Bibliography

Nick Quin, England

I saw my first total solar eclipse in Java in 1983. After a gap of several years I went to Finland in 1990 but was clouded out. Since then I have successfully viewed the eclipses of 1991 (Mexico), 1994 (Annular, Morocco and Total, Chile), 1995 (India), 1998 (Venezuela) and 1999 (France). I am interested in Astronomy in general, and built a 'Cookbook' CCD camera to use with my Meade LX200 telescope. After being secretary of my local astronomical society for a number of years, I currently sit on the council of the UK's Federation of Astronomical Societies with responsibility for the Web pages. I have been able to combine my other interests in electronics, computing and photography to develop an automatic system for photographing solar eclipses.



I pay for my eclipse expeditions by working as a software developer for Andersen Consulting, close to my home in West Sussex in the United Kingdom.

Bibliography

Allan Ridgeley, B.Sc, M.Inst.P., C.Phys., England

Graduated: Liverpool University (1958). Current Position: consultant to Roseland Community Observatory, Cornwall Allan Ridgeley's main areas of expertise are in spectroscopy and instrumentation. He has worked for 41 years in Government research laboratories, namely AERE Harwell, Culham Laboratory and Rutherford Appleton Laboratory.



His main activity at AERE Harwell was in the spectroscopy of actinide elements. At Culham Laboratory he worked on solar physics and atomic physics research. His work here included participation in a rocket-borne experiment launched during the 1973 solar eclipse over Mauritania. At Rutherford Appleton Laboratory his areas of work included space research, plasma physics research and project management. This work included involvement in the GIOTTO mission to Halley's comet and

participation in Prof. Jay Pasachoff's expedition to Romania during the 1999 solar eclipse. He has 47 publications in solar physics, atomic physics, instrumentation and calibration techniques.

Bibliography

Vojtech Rusin, Slovakia



Birth Date: January 7, 1942, Birth Place: Spisske Hanusovce, Slovakia. Marital Status: Married to Anna Rusinova. Children: Vojtech, Jan
Office Adress: Astronomical Institute, Slovak Academy of Sciences, 059 60 Tatranska Lomnica, Slovakia, Phone: +421-969-4467 866, Fax: +421-969-4467 656, Email:vrusin@auriga.ta3.sk
Home Adress: 059 60 Tatranska Lomnica 135, Slovakia, Phone: +421-969 4467 609
Education: 1948-1956: Primary school at Spisske

Hanusovce. 1956-1959: High School (Gymnasium) at Kezmarok. 1964-1970: Comenius University, Bratislava. 1975: RNDR. , Charles University at Prague. 1978: PhD. Slovak Academy of Sciences, Bratislava. 1992: DrSc., Slovak Academy of Sciences at Bratislava

Present Position: Senior astronomer, solar physicist at Astronomical Institute, where I am working for all time (since 1959). Member of the Presidium of the Slovak Academy of sciences (for 2 terms: 1995-1998, 1998-2001)

Field of research: solar prominences and solar corona. Mainly, dynamics, time-latitudinal development and distribution, short-term oscillation in the solar corona, coronal index of solar activity, solar eclipses: physical properties , structural and morphological studies of the white-light corona (I participated in 11 eclipses since 1973), member of several scientific meetings (domestic and international), 4 PhD students.

Publication activity: of about 180 papers (author and co-author), 70 talks in domestic and international meetings, 2 books, SCI citations: more than 200, a lot of papers and lectures for public, co-editor of 2 Proceedings (1994 and 1999)

Membership: International Astronomical Union, American Geophysical Union, European Astronomical Society, Czech Astronomical Society, Slovak Astronomical Society (Chairman for 2 terms, in 1992-1995 and 1995-1999), Slovak Physical Society.

Hobby: Photography

Bibliography

Olivier Staiger, Switzerland

Eclipse chaser, born: 24 January 1959, living: in Geneva Switzerland, job: employed at Prestige Rent-a-Car, limo driver and deluxe car rentals, www.prc.ch, hobby solar eclipse chasing: since 1994 (5 total, 4 annular, 4 partial. Plus several lunar eclipses and a rare double occultation).



Bibliography

John Steele, Department of Physics, University of Durham, England

Book: J. M. Steele, *Observations and Predictions of Eclipse Times by Early Astronomers* (Kluwer Academic Publishers, Dordrecht, 2000), 336 pp., ISBN 0-7923-6298-5.



Papers in Learned Journals:

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J. M. Steele, F. R. Stephenson and L. V. Morrison, "The Accuracy of Eclipse Times Measured by the Babylonians," *Journal for the History of Astronomy*, 28 (1997), 337-345.

J. M. Steele and F. R. Stephenson, "Astronomical Evidence for the Accuracy of Clocks in Pre-Jesuit China," *Journal for the History of Astronomy*, 29 (1998), 35-48.

J. M. Steele, "Predictions of Eclipse Times Recorded in Chinese history," *Journal for the History of Astronomy*, 29 (1998), 278-285.

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J. M. Steele and F. R. Stephenson, "Canon of Solar and Lunar Eclipses for Babylon: 750 B.C. - A.D. 1," *Archiv für Orientforschung*, 44-45 (1997-1998), 195-209.

J. M. Steele, "Eclipse Prediction in Mesopotamia," *Archive for History of Exact Sciences*, 54 (2000), 421-454.

J. M. Steele, "A Re-analysis of the Eclipse Observations in Ptolemy's *Almagest*," *Centaurus*, 42 (2000), 89-108.

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Bibliography

Peter Tiedt, Enterprise 2000 Project Team Natal Portland Cement (Pty) Ltd, South Africa



Mr Peter Tiedt MIMM, age 54, currently IT Project Team Leader for Natal Portland Cement Company, based in Durban South Africa. Has had a life long interest in space, astronomy, and especially celestial phenomena such as eclipses. Peter has been waiting all his life for a solar eclipse to come to his sub-continent. A member of MENSA since 1972, and active in hobbies of birding, wildlife and computing. Peter maintains the website www.eclipse.za.net which is devoted to the total solar eclipses of 2001 and 2002.

Divorced with three children, son of 23, son of 13 and daughter of 11. Lives in Westville, near Durban, South Africa with Sheelagh Hayes.

MIMM = Member of the Institute of Marketing Management, South Africa

Peter Tiedt Enterprise 2000 Project Team Natal Portland Cement (Pty) Ltd, Phone: +27 (0)31 450 4441, Fax: +27 (0)31 465 3972, Cell: +27 (0)83 409 5956, Business e-mail: peter.tiedt@npc-eagle.co.za, Home e-mail: petert@itikzn.co.za

Bibliography

Ovidiu Vaduvescu, Canada

Present - PhD Student in Astrophysics with York, University, Toronto, Canada;



1997-2000 - Computer programmer, Mississauga, Canada; 1998-1999 - Co-organiser of EuRo Eclipse 99 with Romanian Society for Meteors and Astronomy (SARM); 1994-1997 - PhD in Astronomy, Babes-Bolyai University of Cluj-Napoca, Romania; 1991-1997 - Research Assistant with the Astronomical Institute of Romanian Academy, Bucharest, Romania; 1996-1997 - High-school teacher of Computer Sciences and Astronomy, Bucharest, Romania; 1986-1991 - MSc in Mathematics and Computer Sciences, Craiova, Romania; Interests in Astronomy: Asteroids & Comets, Occultations & Appulses, CCD Observations, Astronomical Software, Celestial Maps, Astronomical Catalogues, Database Archival, Astrometry, Image Processing, Solar Eclipses, Public Outreach;

Interests in Astrophysics: Extragalactic Astronomy, Local Group, Infrared Observations;

Skills in Computers: Software Development (Pascal/Delphi, C/C++, FORTRAN, Windows, UNIX/Linux, VMS), Internet (Perl/CGI/HTML);

Resume: <http://www.geocities.com/ovidiu/cv.htm>

Bibliography

Felix Verbelen, Belgium

Born 1944. Jackie Verhoeven's husband for over 30 years and father of Tanja and Walter. Working as Risk Control Engineer for a major British Insurance Company since 1969. Involved in astronomy for more than 40 years and particularly in

Mesoamerican astronomy during the last 15 years. At present chairman of MIRA Observatory, the oldest of public observatories in Belgium.



Bibliography

Erwin Verwichte, Departement Zonnestraling, Koninklijke Sterrenwacht van België, Ringlaan 3, B-1180 BRUSSEL, BELGIE. tel: +32(0)2 3730220, fax: +32(0)2 3730224, email: Erwin.VERWICHTE@oma.be



My name is Erwin Verwichte. I am 27 years old, born and raised in Genk in Belgian Limburg, where I made my first astronomical footsteps with the youth astronomy club Descartes. I completed my BSc degree in Physics at the Limburgs Universitaire Centrum and the Katholieke Universiteit Leuven. In Leuven I presented by honours thesis which dealt with flow instabilities at the heliopause. I then went to the Solar Theory group in St Andrews, Scotland to obtain my PhD degree. My thesis topic was nonlinear MHD wave dynamics with relevance to the solar corona. After 4 years I started a post-doctoral

fellowship at the Royal Observatory of Belgium where I work on data from the EIT and TRACE instrument, with interest in the long-term global evolution of the solar corona and coronal wave observations and interpretations.



International Solar Eclipse Conference

A crossroad on physics and eclipses of the sun

Poster

Ralph B. Chou, Associate Professor, University of Waterloo School of Optometry, Canada

The Technical Specification for Solar Filter Materials

A technical specification for solar filters was prepared in advance of the total solar eclipse of 11 August 1999 and was used by several European agencies to determine the acceptability of solar eclipse viewers sold in several European nations. In response to concerns over the possibility of defective coatings in aluminized polyester filter materials, the technical specification was revised in 2000. The revised document and transmittance data for various solar filter materials are presented.

Poster

Nick Quin, England

Automatic Eclipse Photography

This paper describes a computerised photographic system used to automatically image the Total Solar Eclipse of 1999. The system used Canon T-70 cameras, with simple modifications to allow a Psion 3a 'Palmtop computer' to control both the speed and firing of the shutters. Details of the camera modifications, interface, and software, together with resultant images of the eclipse are presented.

Poster

Alfonso Lopez Borgonoz, Spain

SCIENCE AT THE VISIGOTHIC COURT. KING SISEBUTE AND HIS LITTLE TREATISE ABOUT ECLIPSES

Isidore of Seville was also keen on writing about nature and its phenomenons and thus he wrote a treatise in prose titled *De rerum natura* ("About Nature"), in Latin, at the beginning of the VII century, on request of King Sisebute, who reigned in the visigothic Hispania between the years 612 and 621 A.D. But what we are interested in today is not so much the study of the astronomical concepts of Isidore, but the epistle/treatise (the *Epistula metrica ad Isidorum de libro rotarum* -Samsó, 1992: 27 y 28- o *Epistula Sisebuti*) that, in verse and also in Latin, the very king Sisebute answered to Saint Isidore, after he received the book of which he had asked the editing. In this letter the monarch tried to give a rational and precise explanation, without giving in to superstition or to histories of witches, of lunar eclipses, in the first place, and of solar eclipses. Since then, the book of Isidore and the letter of Sisebute were known as a whole.

Poster

Allan Ridgeley, Roseland Community Observatory, 9 Healey Close, Abingdon, Oxon OX14 5RL, England

Anomalous Time Variation of Infrared Flux During The 1999 Solar Eclipse

A Ridgeley(φ), B Sheen(φ), G Barnardβ, C Corrigan(#), G E Derbyshire(⊥), R Jones(#), P Moir-Riches(#), C Purchase(φ), P D Read(⊥) and T Richards(φ).

φ Roseland Community Observatory, St Austell College, Cornwall

β Nicolet Instruments Ltd, Nicolet House, Budbrooke Road, Warwick, CV34 5XH

Daresbury Laboratory, Cheshire, WA4 4AD

⊥ Rutherford Appleton Laboratory, Chilton, Didcot, Oxon, OX11 0QX

An experiment was performed at the Roseland Community Observatory, Cornwall during the 11 August 1999 total solar eclipse. The main purpose of the experiment was to search for strong infrared coronal lines with a view to identifying candidates for subsequent magnetic field measurements. The experiment did not succeed in this aim due to the cloudy conditions pertaining at the time of the eclipse.

An incidental product of the experiment was the measurement of infrared flux as a function of time during the eclipse. These measurements produced the totally unexpected result that the infrared flux fell precipitously 6.5 minutes before second contact and rose just as suddenly 6.5 minutes after third contact. There were intensity plateaux immediately before the sudden intensity fall and immediately after the subsequent sudden intensity rise.

Poster

Magda Stavinci, Romania

THE LAST ECLIPSE OF THE MILLENIUM HAD ITS MAXIMUM IN ROMANIA

On 11 August 2000 a year was elapsed since the last total solar eclipse of this century, maybe the most mediatized one until now.

Its maximum was in Romania. Here were:

- the maximum duration: 2 min 23 s (at Ramnicu Valcea),
 - the maximum height of the Sun (590),
 - the maximum coverage (103 %),
 - the greatest width of the totality band (112 km),
 - the highest mountains on which the eclipse was observed (Parang and Retezat).
- Bucharest was the only European Capital situated exactly on the central line of the totality band. Moreover, the only professional astronomical observatory lying on this line was the Bucharest Observatory of the Astronomical Institute of the Romanian Academy.