

2006 Total Solar Eclipse Observational Plans of Professionals

from **H. Kurokawa, Japan**

(A)

(1) **Nobuyuki TANAKA**

(2) Institution: Solar Observatory,

National Astronomical Observatory of Japan

(3) Observing site: Adrasan, near Antalya, Turkey

(4) List of scientific observations planned:

Observation of the temperature and the velocity field
in the corona Spectroscopic observation from 1 to 3 solar radii.

Observing wavelengths: 3500-4720 Angstrom

(5) Telescopes: Schmidt-Cassegrain telescope equipped
with a spectrograph

(6) Collaborating observers: **Moriya SAITO, Toshihiko KOBIKI,
Takayuki YAMASAKI**

(B)

(1) Name: **Eijiro HIEI**

(2) Institution: NAOJ

(3) Observing site: Aderasan near Antalya, Turkey

(4) List of scientific observations planned:

(5) Telescopes: high vision video in order to send the eclipse senery
and corona to Japanese Science Museums

(6) Collaborating observers: **H. Agata, M. Ohe, Y. Iizuka**

(7) Collaborating students: probabaly Turkish students

(C)

(1) Name: **Noritsugu TAKAHASHI**

(2) Institution: Meisei University, Japan

(3) Observing site: Adrasan near Antalya, Turkey

(4) List of scientific observations planned:

Observation of Linear Polarization of
the chromospheric He D₃ and H-beta emission lines.

Photometry of K-corona

(5) Telescopes:

Telescope is equipped with four telescopes.

The aperture of three telescopes is 52mm with
transmission grating for each,

and another telescopes is 10cm-aperture for photometry.

(6) Collaborating observers

Tadashi HIRAYAMA, Yoshie SATO, Tetsuro, Shimoda,

Kazuko Takahashi, Makoto Yoshikawa, Hatsuko HIRAYAMA.

(7) Collaborating students

Maki UCHIDA, Akiko TAKAHASHI

(D)

(1) Name: **Masami Okyudo**

(2) Institution and country: Wakayama University, Japan

(3) Observing site: Saloum, Egypt

(4) List of scientific observations planned:

(a) Broadcasting of solar image using the Internet

(b) Real time projection of all sky image on a dome screen of a remote planetarium

(5) Telescopes: Tele-converter + Video camera

(6) Collaborating observers: Chiaki Yoshizumi

(7) Collaborating students: none

(8) Any relevant websites: <http://www.live-eclipse.org/>

(E)

(1) Name: Naoya Matsumoto

(2) Institution and country: Nagasaki Astronomical Club and
Saga Astronomical Club, Japan

(3) Observing site: Eclipse City Jalu South, Libya (N 28.2° E21.5°)
Libya

(4) Observations planned: Photographs and movie of corona, prominence, atmospheric temperature changes at the observing site

(5) Telescopes: 7.6cm refractor with video camera and others

(6) Collaborating observers: **Takanori Kusano, Tsutomu Soejima**

(F)

(1) Name: Hiroshi Kishimoto

(2) Institution and country: Hyogo Prefectural
Sumahigashi Senior High School

(3) Observing site: Side, Turkey

(4) Observations planned: movie of umbral cone of shadow band

(5) Telescopes: Nikon 8x30WF with Sony DCR PC5 and
Canon EOS Kiss Digital

Jagdev Singh, jsingh@iiap.res.in

Indian Institute for Astrophysics, Bangalore, Indi

Site: Manavgat, Turkey

Scientific experiments Coronal intensity oscillations in the range of 0.02 to 0.2 Hz in the red and green emission lines. Images of the solar corona will be obtained with a cadence of 1.7 second with a pixel resolution of 4 arc sec using CCD cameras.

Telescopes: two 14-inch Meades

Collaborating observers **S. S. Hasan, R. Srinivasan, S. P. Bagare and F. Gabriel**

Collaborating student **A. Srivastava**

Jan Stenflo, stenflo@astro.phys.ethz.ch

Institute of Astronomy, ETH Zurich, 8092 Zurich, Switzerland

Site: Waw an Namos, Libya

Scientific experiment:

Slitless spectrograph with polarizing beam splitter, holographic grating and high-speed CCD camera to record the polarization of the flash spectrum over the whole visible range (390 - 870 nm).

Telescope: 25 cm aperture Cassegrainian type

Collaborators: Jan Stenflo, Alex Feller, Daniel Gisler, Renzo Ramelli,
Osama Shalabiea, Abdul Hafiz El-Bussify

Prof. J. O. Stenflo

Phone: +41-44-632-3804 (direct)

Institute of Astronomy

+41-44-632-3813 (secretariat)

ETH Zurich, SEC

Fax: +41-44-632-1205

8092 Zurich, Switzerland

E-mail: stenflo@astro.phys.ethz.ch

Institute web page: <http://www.astro.phys.ethz.ch>

Atila Ozguc, ozguc@boun.edu.tr

Kandilli Observatory, Istanbul, Turkey

Site : Manavgat, Turkey

Scientific experiments:

1) Polarimetric imaging of the electro corona.

Telescope: Refractor, f=100 cm, d=10 cm, with a 52 mm glass rotating polarizer,
Celestron

Collaborating observers: **Tamer Atac, Riza Pektas**

2) Photometry and structure of the inner white-light corona

Telescope: Refractor, f=200 cm, d=12 cm, Unitron

Collaborating observer: **Atila Ozguc, Adem Okul**

3) Flash spectrum of the solar chromospheric emission lines with a slitless
student grating (4000 LPI)

Telescope: Refractor, f=200 cm, d=12 cm, Unitron

Collaborating observers : **Atila Ozguc, Adem Okul**

4) Fine structures in helmety streamers and polar plums.

Telescope : reflector, d= 11.4 cm, f=100 cm, Meade DS 2114ATS

Collaborating observer : **Engin Sozen, Hasan Tahmaz**

Names: **Yurdanur Tulunay, Ersin Tulunay, Ozgur Sari** ytulunay@ae.metu.edu.tr

Institution and country Middle East technical University, TUBITAK MRC

Observing site Manavgat/Antalya, Turkey

List of scientific experiments: Effect of Eclipse on Signal-to-Noise Ratio

Collaborating observers University of Leicester, Prof. Dr. **Mike Warrington**

Collaborating students **Turker Senalp, Olcay Buyukpapuscu**

relevant websites www.ae.metu.edu.tr, www.eee.metu.edu.tr

Ersin Tulunay^{1,2}

(1) Middle East Technical University, Department of Electrical and Electronics Eng., Ankara, Turkey

(2) TUBITAK, Marmara Research Center, Information Technologies Institute, Gebze, Kocaeli, Turkey

Observing site: Antalya, Turkey

The Scientific Observations Planned: Propagation Related Measurements During The Total Solar Eclipse in Turkey on 29 March 2006

During the total solar eclipse on 29 March 2006, HF signals are going to be transmitted from Leicester (52.6°N, 1.1°W), United Kingdom, and received in Antalya (36.9°N, 30.7°E), Turkey. It is expected that signal to noise ratios of HF signals will be obtained.

Collaborators:

Ersin Tulunay^{1,2}, **Mike Warrington**³, **Yurdanur Tulunay**⁴, **M.Ozgun Sari**¹, **S.Olcay Buyukpabuscu**¹, **Reha Caputcu**², **Erdem Turker Senalp**¹

(1) Middle East Technical University, Department of Electrical and Electronics Eng., Ankara, Turkey

(2) TUBITAK, Marmara Research Center, Information Technologies Institute, Gebze, Kocaeli, Turkey

(3) University of Leicester, Department of Engineering, Radio Systems Research Gr., Leicester, United Kingdom

(4) Middle East Technical University, Department of Aerospace Eng., Ankara, Turkey

Experiments to be carried out at, or supported by, the TUBITAK National Observatory, Antalya, Turkey

Dr. **Tuncay Ozisik**, tuncay@tug.tug.tubitak.gov.tr

TUBITAK National Observatory, Antalya/TURKIYE

Site1: TUBITAK National Observatory, Antalya/TURKIYE

Site2: Ilica, Manavgat/TURKIYE

Scientific Experiments:

1) High resolution imaging of the coronal polar plumes in white light

Telescope: f12.5 40 cm telescope

Detector: SBIG ST8 CCD camera

Collaborators: **Tansel Ak, Can Bugra Girgin**

2) Testing the 1st and 4th contact times.

Telescope: f/12.5 40 cm telescope

Detector: Astrovid StellaCam EX Video CCD Camera.

Collaborators: **Tansel Ak, Can Bugra Girgin**

3) White Light coronal imaging with high temporal and spatial resolution.

Telescope: 12" f/10 Meade LX200 Telescope

Detector: Astrovid StellaCam EX Video CCD Camera.

Collaborators: **Tolga Guver, Funda Bostanci**

4) Digital composite imaging of the solar corona.

Detector: Canon EOS20Da DSLR Camera, 300 mm zoom lens.

Collaborators: Cahit Yesilyaprak, Hulya Cetin

5) Recording of Flash Spectrum and full eclipse

TUG's Grism No. 9 (335 nm - 940 nm)

Detector: Canon XL2 MiniDV Video Camera

Collaborators: Murat Parmaksizoglu, Kadir Uluc

Ifan Bikmaev Ifan.Bikmaev@ksu.ru

Kazan State University, Russia

TUBITAK National Observatory, Turkey

Einstein's Experiment: Bending of starlight.

Telescope: 1.5 m f/7.7 RTT150 telescope

Detector: Andor CCD, 2kx2k

Collaborators: **Irek Khamitov, Zeki Aslan**

Orhan Golbasi orhang@akdeniz.edu.tr

Akdeniz University, Physics Depart., Antalya

Measuring Solar Diameter.

Telescope: 14", f10 Meade LX200GPS

Detector: Astrovid StellaCam EX Video CCD Camera.

Collaborators: Huseyin Kilic, Ali Kilcik

Türker Özkan, ozkant@istanbul.edu.tr

Istanbul University Observatory Research and Application Center, Istanbul University

Site: Ilıca/Antalya, Turkey

Scientific experiments:

1) investigation of the whole coronal structure

observers: **Asuman Gültekin, Nilda Oklay** (University of Istanbul, Faculty of Science, Department of Astronomy and Space Sciences);

instruments: Portable telescope (D =10 cm, f= 100 cm), Canon EOS 500 camera

support: Research Fund of the University of Istanbul, Project No. 470/27122005

- 2) investigation of the polarization of the outer corona
collaborators: **Zeki Aslan, Tuncay Özısık** (TUG, National Observatory of Turkey)
observers: Mevlana Bařal, Zahide Funda Bostancı (University of Istanbul, Faculty of Science, Department of Astronomy and Space Sciences);
instruments: Portable telescope (D=13 cm, f=150 cm), Polarizer, Kiev 60 camera
support: Research Fund of the University of Istanbul, Project No. 470/27122005
- 3) investigation of the polarization of the inner corona
observers: **Adnan Ökten, NuroI Al Erdogan** (Istanbul University Observatory Research and Application Center, Istanbul University);
instruments: 8" Meade LX200 telescope, Polarizer, Rolleiflex camera
support: Research Fund of the University of Istanbul, Project No. 470/27122005
- 4) investigation of the coronal plumes
collaborators: **Zeki Aslan, Tuncay Özısık** (TUG, National Observatory of Turkey)
observers: **Türker Özkan** (Istanbul University Observatory Research and Application Center, Istanbul University), **Tolga Güver** (University of Istanbul, Faculty of Science, Department of Astronomy and Space Sciences);
instruments: 12" Meade LX200 telescope, CCD Camera
support: Research Fund of the University of Istanbul, Project No. 470/27122005

and our official relevant website
<http://www.istanbul.edu.tr/fen/astronomy/eclipse/>

Jay Pasachoff, jay.m.pasachoff@williams.edu
Williams College, Williamstown, Massachusetts, USA
Site: Kastelorizo, Greece
Scientific experiments:

- 1) coronal oscillations in 1-10 Hz range, recording CCD data in the red and green lines at 10 Hz
collaborators: **Jay Pasachoff, Bryce Babcock, Steven Souza**; students: **Paul Hess, Shelby Kimmel, Amy Steele** (all Williams College), **John Seiradakis** (U. Thessaloniki);
support: NASA, National Geographic
- 2) coronal velocities with a Fabry-Perot 1/8-Å filter in the coronal red line
collaborators: **Jay Pasachoff, Bryce Babcock, Steven Souza** (Williams College), **David Rust, Matthew Noble** (Johns Hopkins U Applied Physics Lab); students: **Rob Wittenmyer, Megan Bruck, Anna Tsykalova**
- 3) SOHO EIT & LASCO gap filling, special telescope to match LASCO C1;
collaborators: **Jay Pasachoff, Bryce Babcock, Steven Souza**; student: **Jesse Levitt**
Telescopes: 14" Meade, two 10" Meades, SOHO C1 analog

support: U.S. National Science Foundation with additional support from the Committee for Research and Exploration of the National Geographic Society, NASA for the CCD cameras, Sigma Xi, the Massachusetts Space Grant (NASA), and Williams College

Barrie W. Jones, Open University, UK
shadow-band observations
deep in the Sahara at Waw al Namus

Jeffrey Kuhn, Shaddia Habbal, Institute for Astronomy, University of Hawaii
observing site: Eclipse village, Libya
experiment: infrared spectra of the solar corona

Serge Koutchmy, Institut d'Astrophysique, Paris
observing site: Egypt
[no information about the experiments is available]

Name: **Vojtech Rusin**, vrusin@ta3.sk
Astronomical Institute, Slovak Academy of Sciences,
059 60 Tatranska Lomnica, The Slovak Republic
Observing site: The 'Eclipse camp' near Bilma, Niger
Scientific experiments:
1) Fine structures in the white-light solar corona. Record with digital cameras
CANON EOS20d and classical CANON 7E.
2) Fast changes in the white-light corona (with a group located in Turkey)
Telescopes: 1 - a 10/100 cm Zeiss lens
2 - 8/50 cm telelens Practica
Collaborating observer (in Niger): **Peter Zimmermann**
Collaborators (in Turkey):
1) **Roman Piffel, Ivan Majchrovic** (the eclipse group in Turkey)
2) H-alpha and emission spectral line (530.3 and 637.4 nm) observations at Lomnický
stít coronal station - **Milan Minarovejch**

From **Iraida Kim**, kim@sai.msu.ru
“CORONA-2006”: researches of ion, electron and dust components of the solar
corona.

Multi-wave spectral, filter, polarimetric observations in optics and radio are planned. Specific attention will be given to observations of the electron component within the polar regions in the range <2 solar radii.

Leading institute:

Pulkovo observatory (**Dr. Stepanov A.V.**).

Leading observational site in Russia:

Kislovodsk coronal station of Pulkovo observatory (**Dr. A.G. Tlatov**).

Observational sites:

St-Petersburg (Pulkovo observatory RAN, radio observations), Terskol, Northern Caucasus, Russia (ISZF RAN, INASAN RAN, Moscow university), Kislovodsk Coronal station, Northern Caucasus, Russia (Pulkovo observatory, IZMIRAN, Moscow university, IFA RAN, amateurs, others), RATAN-600 (radio observations, **Bogod V.V.** et al.), Radioastronomical observatory of NIRFI (radio observations, **Snegirev S.D.**), Turkey (IZMIRAN, Moscow university), Egypt (IZMIRAN, FIAN), Libya (Moscow university).

Students:

a group of 10 students of Moscow university is going to come Astrakhan', Russia; several students are included in teams of scientific group.

From Serge Koutchmy- Paris (France):

Experiments prepared in collaboration with several teams and the Egyptian solar astronomers from the NRIAG (Elwan) and the Cairo University.

Observing site: Salum-Egypt (coord: Lat $31^{\circ} 34'$ and long $25^{\circ} 9' E$; totality at 10:40 UT)

A- W-L imaging, polarimetry and colorimetry.

Several cameras of different technologies and methods will be used: large-format B&W cooled CCD with filters; reflex commercial color digital CCD and CMOS cameras; fine grain color negative films; neutral-density radial filtering; fast imaging and rotating polarisation analysers.

Objectives:

- Analyse K-coronal structure to compare with computed extrapolated magnetic fields and flow lines;
- Analyse the global linear polarisation of the F-corona, near the equator, and the linear polarisation of single K-corona structures to determine geometric factors and provide a 3D view of the main features;
- Measure the color index (departure from W-L color) of single K-corona structures to test and/or diagnose the inverse Compton effect of possible SEP linear beams.

B- Spectroscopic experiments.

1 scanning spectrograph of 0.6 nm/mm dispersion with cooled fast CCD camera and a slit-jaw camera over $\pm 3 R$ (R =solar radius);

2 small scanning low dispersion objective spectrographs with a fast color 1.5 Mpx video CCD and a CMOS camera working over the range 400 to 700 nm.

Objectives:

- Analyse the radial variations of the turbulent coronal velocities up to 3 R in equatorial regions;
- Understand the origin of the Fe XIV emissions at $r > 2R$;
- Get a deep coronal spectrum over the polar coronal holes regions;
- High speed analysis of the simultaneous behaviour of the He I, He II, H-beta, Mg I emission lines of the transition region (flash spectrum)
- Get low resolution monochromatic images in Fe XIV, Fe X, Ni XIII, etc. coronal lines.

C- Monochromatic deep narrow passband coronal imaging at low spatial resolution.

- Fe XIII 1074.7 nm imaging with a cooled ISIS-43 CCD camera;
- Fe XIV 530.3 nm imaging with a DSI pro CCD camera.

Objectives: support experiments A and B.

Images will be simultaneously collected from space with the EIT (SoHO) and synoptic high resolution images with TRACE and white-light images with LASCO (SoHO) will be recorded almost simultaneously to have a full coverage of coronal phenomena at the time of this quasi-minimum corona eclipse.

Note:

High resolution 1:250,000 Turkish maps online:

http://www.hgk.mil.tr/haritalar_projeler/tematik_har/fiziki.htm

CNN weather forecasts for Rhodes

<http://weather.cnn.com/weather/forecast.jsp?locCode=LGRD>

image of the current weather in Turkey:

<http://www.dfd.dlr.de/ftp/put/wetterbilder/Near-East/image1.jpg>

Date: Mon, 6 Mar 2006 01:25:14 -0600

From: jander@cc.umanitoba.ca

Subject: Re: Re: Chasing holes on eclipse day

his Website:

<http://home.cc.umanitoba.ca/~jander/>

I cannot emphasize enough that the time for using climatological data is now long past. The material that I put into the NASA circulars is for long range planning. If you are still trying to decide between Egypt, Libya and Turkey, then that material and the stuff on my web page will give you some useful advice. However, if you've already bought your ticket, then climate data will do almost nothing for you. You have made your choice already. Alan is exactly right.

Ten days before the eclipse, computer model predictions of cloud cover will become available. Sites to get those data are linked on my web page and a number have been mentioned here in earlier discussions. While you may want to

plan on the basis of a 10-day forecast, I would advise you to just use them for general information - a possibility if you will. Do not even begin to make serious plans until about 7 days out and gradually refine them as you get closer and closer. By about 3-4 days out, you can begin to consider moving or making other contingency plans. By 2 days out you can get the car loaded. Once you hit 24 hours, the models are pretty accurate - certainly with respect to major weather systems, the edges of high and mid level clouds, the direction and strength of winds and the temperature.

However, all models have difficulty with low level cloud - stuff below 1200 meters or about 5000 feet. Fog forecasts are a disaster. If it's raining, expect low cloud (not that it matters much). Downhill winds will help disperse the low cloudiness. Stay away from hills with upslope winds. Monitor satellite images for holes and try to time where they will be. Unless you have some expertise in interpreting infrared images, you will have to await daylight and the visible light images to best find the holes in the cloud. Remember that infrared images make high thin cloud look much worse than it really is.

Anyway, there are things that I can do with computer forecasts that most of you cannot - I have 33 years experience at it. If you have a meteorologist friend, phone them and get an opinion. It may be wrong, but it's another piece of information that can help. Phone other people in other locations on the night before and ask them what is happening. And be mentally prepared for bad weather and make the most of it if you should be unlucky. Some of us in favourable areas will be clouded out and some in unfavourable areas will see a beautiful eclipse. C'est la vie..

Good luck to you all.

Jay Anderson