

IHY Year 2007 National Activities In Turkey

- *COST 724 and IHY Related Capabilities and Case Studies*
- *March 29, 2006 Total Solar Eclipse*
- *Education Tools*
- *Some Dissemination and Outreach Activities (METU)*
- *Some IHY Activities (BU)*

Y.TULUNAY¹, E.TULUNAY², Z.KOCABAŞ¹, E.ALTUNTAŞ¹, T.YAPICI¹, E.T.ŞENALP²

and

A. ÖZGÜÇ³, T. ATAÇ³, R. PEKTAŞ³

¹ODTÜ/METU, Dept. of Aerospace Eng.

²ODTÜ/METU, Dept. of Electrical and Electronics Eng.

³BU, Kandilli Observatory and Earthquake Research Inst.



CAPABILITIES and CASE STUDIES

COST 724

Modeling

Signal Processing Applications

Solar X-Ray and Radio Data Forecast

Ionospheric and Geomagnetic Response to the IMF

Schumann Resonances (SR) Forecast

Total Electron Content Forecast

HF Experiment During Total Solar Eclipse



CAPABILITIES and CASE STUDIES

COST 724

Modeling

METU-NN and Cascade Model, METU-Neuro-Fuzzy Network Model, GETY-Genetic Programming Tool

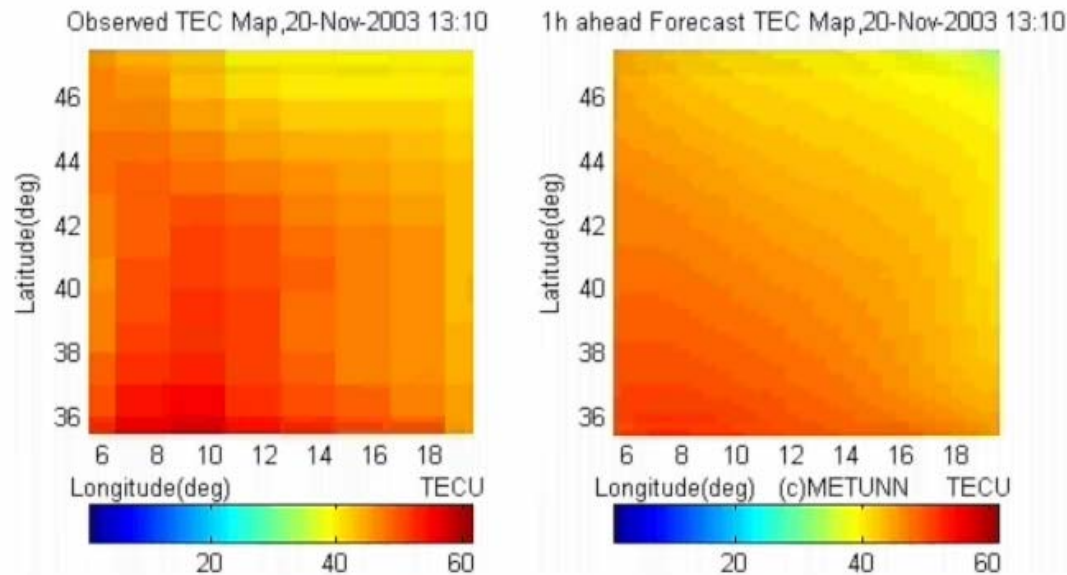


Figure 1. METUNN TEC Mapping



CAPABILITIES and CASE STUDIES

COST 724

Signal Processing Applications

Data organization and filtering; Fast Fourier Transform, Welch's Periodogram Analysis, signal modeling using Autoregressive and autocorrelation methods

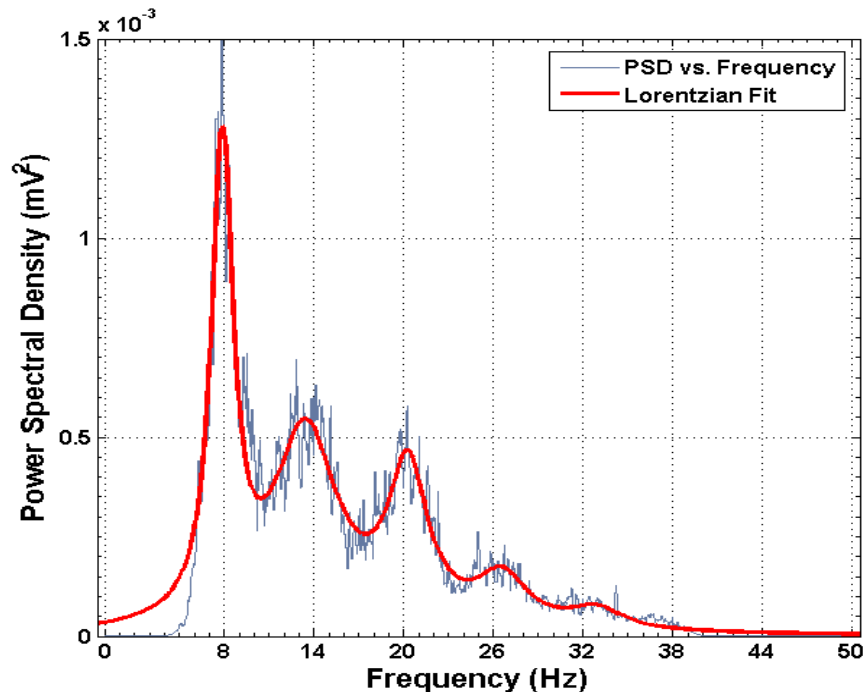
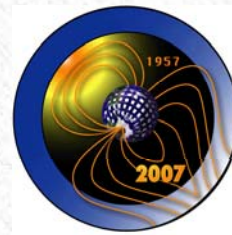


Figure 2. Power spectral density of Schumann Resonances versus frequency. Superimposed is the Lorentzian approximation (bold curve)



CAPABILITIES and CASE STUDIES

COST 724

Solar X-Ray and Radio Data Forecast

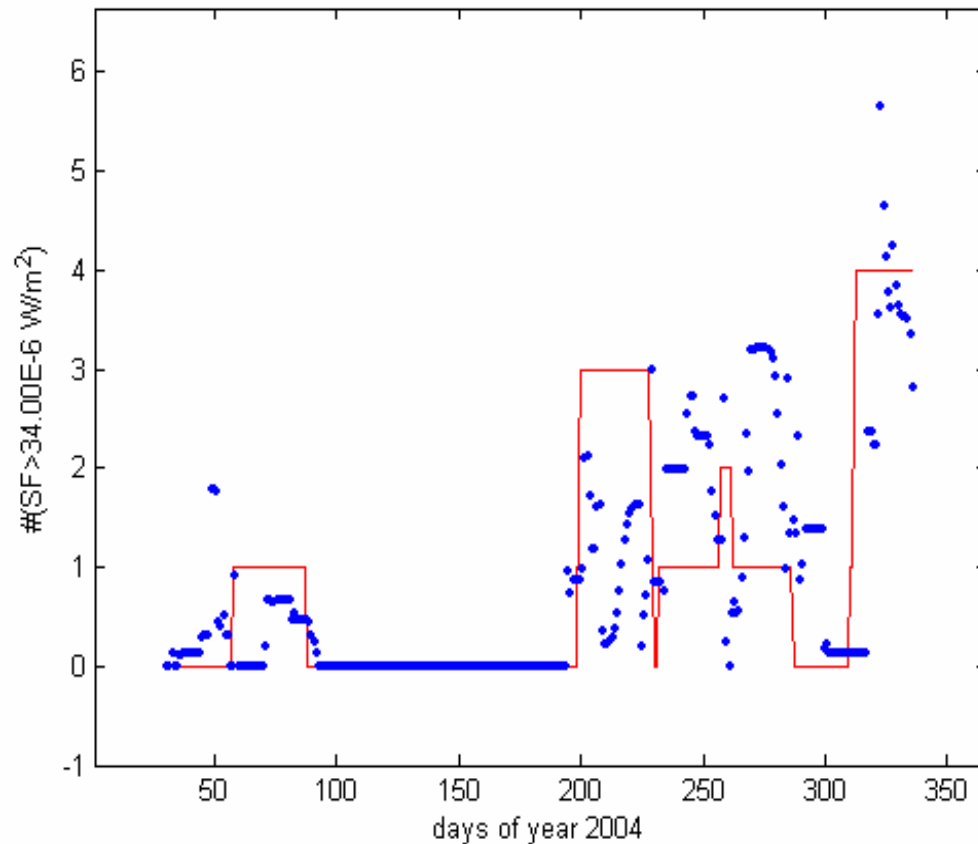
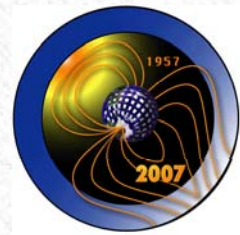


Figure 3. The number of events: observed (red), and forecast (blue) one month in advance between 31 Jan. - 1 Dec. 2004



CAPABILITIES and CASE STUDIES

COST 724

Ionospheric and Geomagnetic Response to the IMF

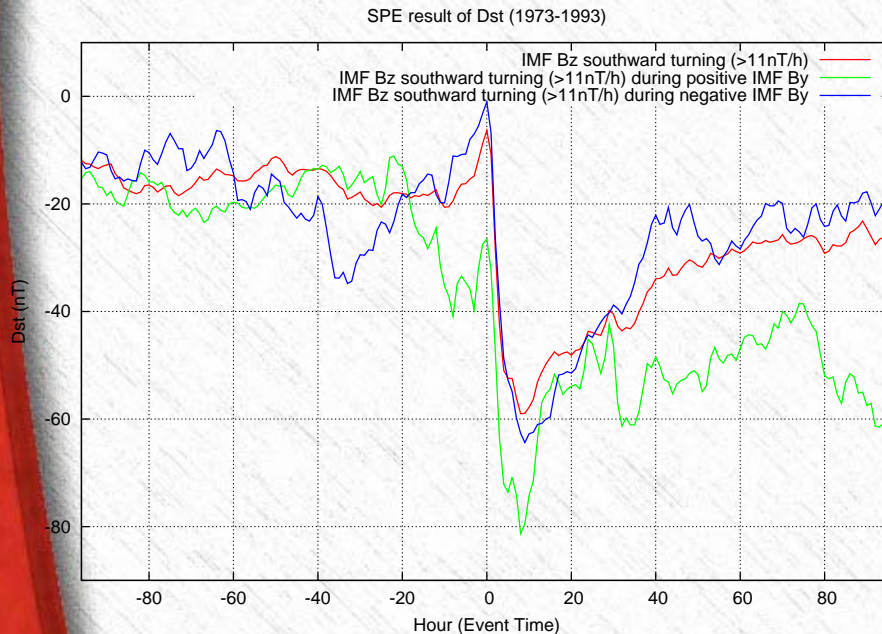


Figure 4. SPE Results of Dst index (1973-1993)

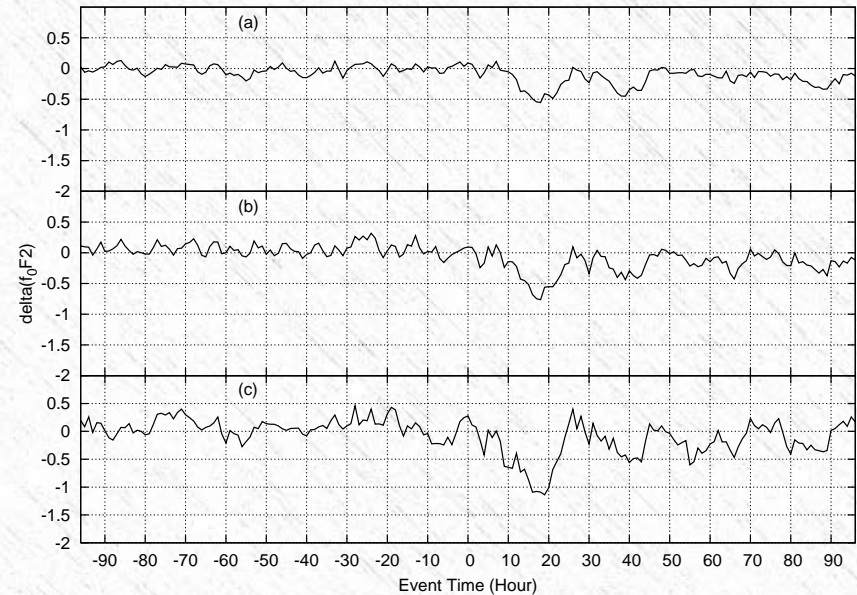
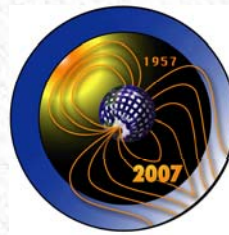


Figure 5. SPE Results of foF2 values Arkhangelsk (1973-1993)



CAPABILITIES and CASE STUDIES

COST 724

Schumann Resonances (SR) Forecast

8, 14, 20, 26, 32 Hz SR Characteristics Diurnal Variations

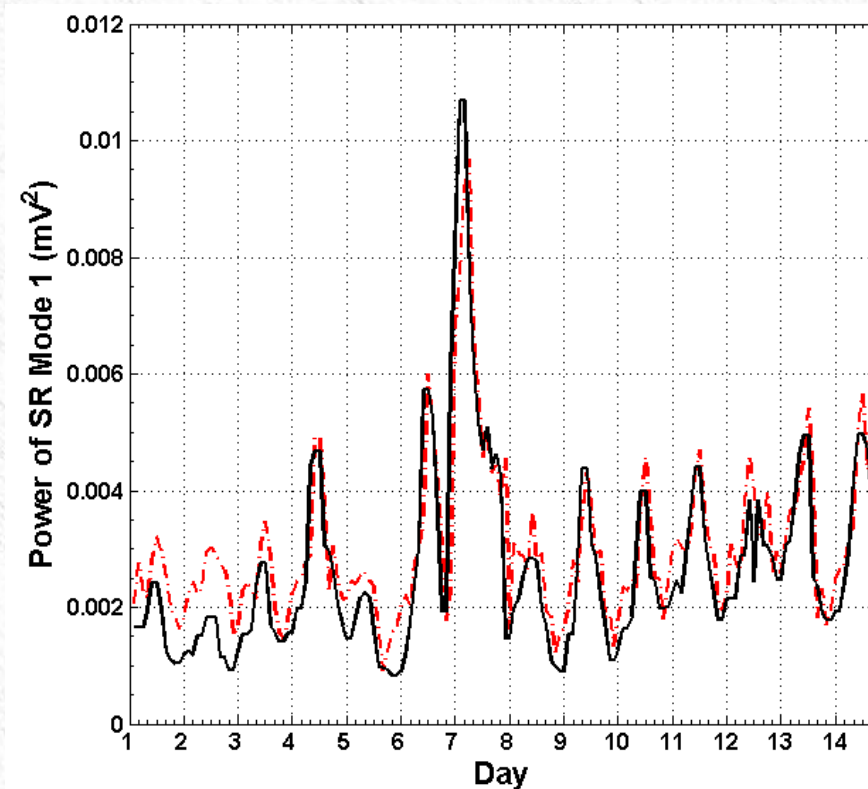


Figure 6. Observed (dashed) and forecast (solid) SR values in November, December 2004



CAPABILITIES and CASE STUDIES

COST 724

Total Electron Content Forecast

Forecast of TEC values up to 24 hours in advance with METU-NN

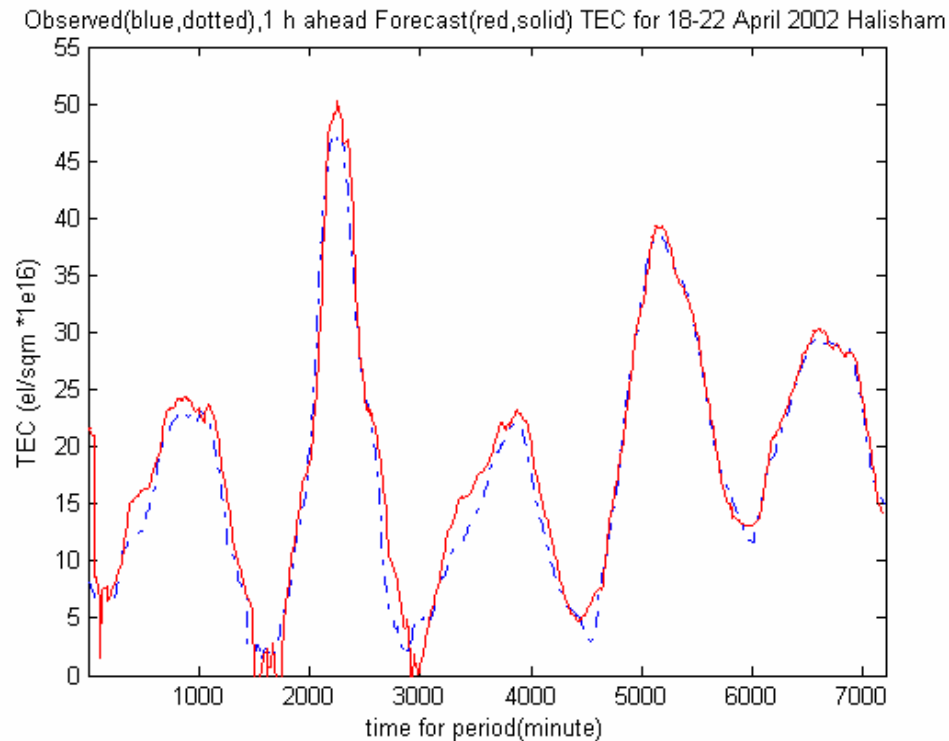


Figure 7. Observed GPS TEC values (blue, dotted) and 1-hour ahead Forecast TEC values (red, solid) for 29-31 October 2003 for Hailsham



CAPABILITIES and CASE STUDIES

COST 724

HF Experiment during Total Solar Eclipse

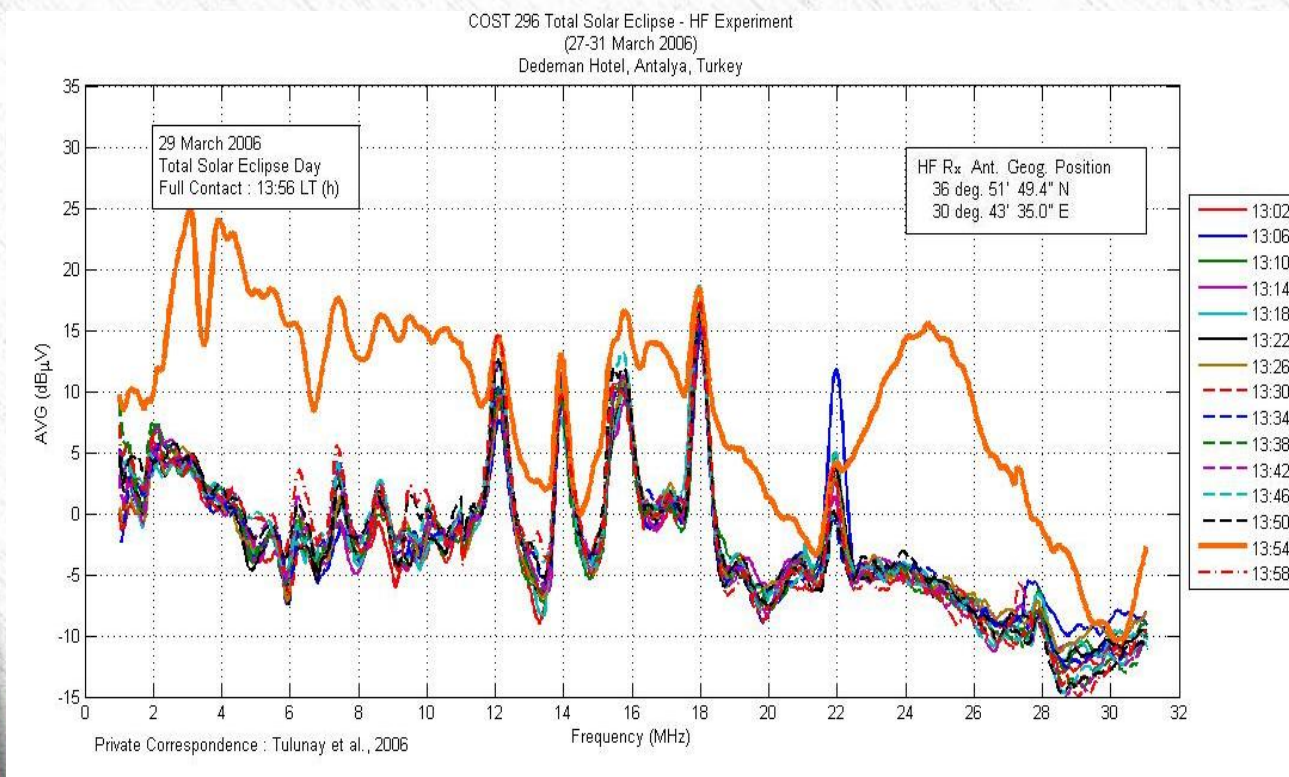


Figure 8: The atmospheric noise level on the time of the total eclipse



SOME RELEVANT NEAR-EARTH SPACE COURSES at METU

Department of Aerospace
Eng.

(<http://www.ae.metu.edu.tr/>)

- AE453 Introduction to Atmospheric Physics I
- AE454 Introduction to Atmospheric Physics II
- AE551 Introduction to Space Sciences
- AE552 Selected Topics on Space Applications: Microgravity
- AE554 Applied Orbital Mechanics

Dept. of Electrical and
Electronics Eng.

(<http://www.eee.metu.edu.tr/>)

- EE 503 Signal Analysis and Processing
- EE 543 Neurocomputers
- EE 553 Optimization
- EE 557 Estimation Theory



SOME DISSEMINATION AND OUTREACH ACTIVITIES

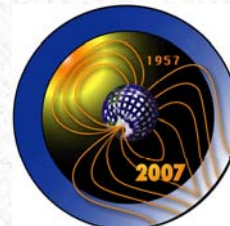


**Cansu Sezgin, Age 11;
50. Yil İzzet Baysal İ.O., 5th Year; in Bolu,
Turkey**



MARCH 29, 2006 TOTAL SOLAR ECLIPSE

More than one million Sun glasses were distributed along the totality path.





Twenty five scientists from six foreign countries (Azerbaijan, India, Bulgaria, Slovakia, Japan, Ukrain and Turkey) made experiments during the eclipse. And many scientists from six Turkish universities joined to the experiments.

- For commemorative coins please visit

<http://www.darphane.gov.tr/dizayn-ehatirapara.htm>

- For commemoration stamps please visit

<http://www.ptt.gov.tr/tr/pul/show/html/06-3.html>



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