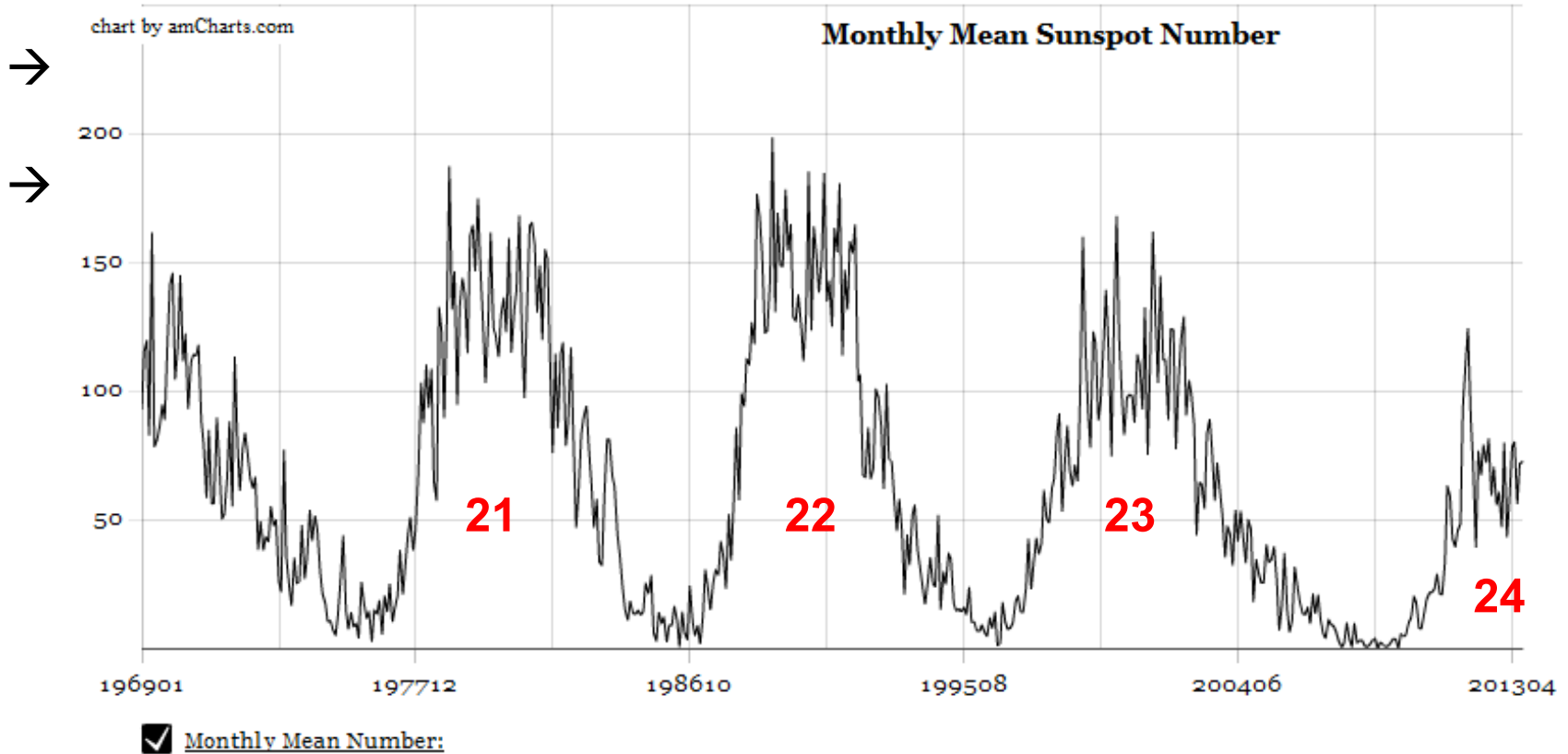


MiniMax24

a One-year SCOSTEP Campaign
on Solar-Terrestrial Connections

Scientific Committee on Solar Terrestrial Physics (SCOSTEP)
T. Rollett, M. Temmer, N. Gopalswamy

What is MiniMax24?



(data from Kanzelhöhe Observatory, UNI Graz)

- 35 observatories/institutes from 17 countries are currently in the campaign
- daily observations of the Sun and geospace

The goal of MiniMax24:

- understand processes that connect changes at the solar surface with...
 - *features in the geospace environment (space weather) and
 - *climate variability,
- includes solar eruptive events (flares, filaments, coronal mass ejections),
- and coronal holes.

Austria (coordination)
Belgium
Brazil
China
Croatia
Denmark
France
Finland
India
Ireland
Italy
Japan
Kazakhstan
Slovakia
Turkey
UK
USA (coordination)

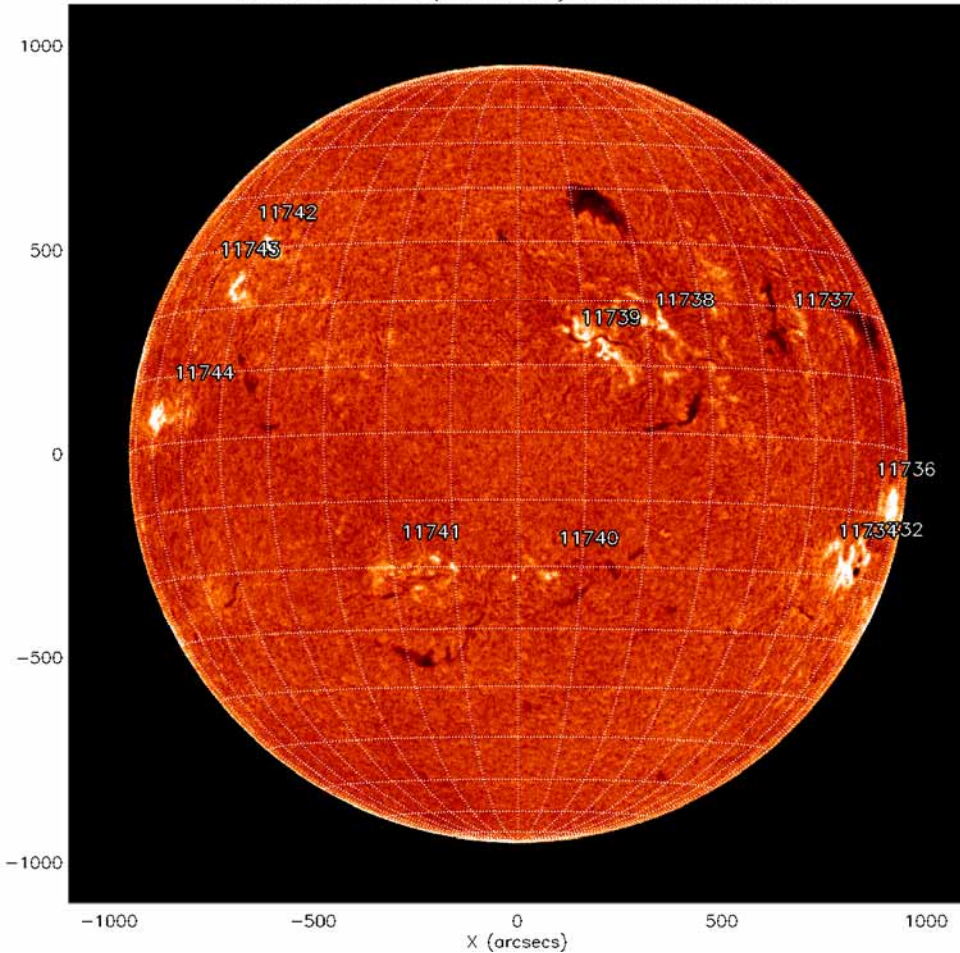
1. **solar flare target: selected by the Max Millennium observers**
 - goal: understand particle acceleration and explosive energy release in solar flares
 - daily reports (via email) of active regions and flare activity

(http://solar.physics.montana.edu/max_millennium/)

2. **non-flare target: selected by the MiniMax24 campaign team (OTD)**
 - daily reports (via email) of **filaments** and **coronal holes**
 - joint event studies to use the full potential of campaign team

non-flare target: filaments

Kanzelhöhe H-alpha 10-May-2013 07:09:37.000



Potentially geoeffective coronal hole close to the central meridian.
None

<http://www.uni-graz.at/igam-sophy/comesep/solarwind/>

Filament target within ± 30 degrees of the central meridian.

The major filaments have moved to (at 07:09 UT on May 10 2013).

1. Filament in quiet region at N35E25 (May 7)
 - > N35E10 (May 8)
 - > N35W5 (May 9)
 - > N37W15 (May 10)
2. A filament formed in AR 11739 at N13E2. (May 9)
 - > N15W13 (May 10)
3. Another filament is at S34E26, in the south of AR 11741 (May 9)
 - > N35 E15, there are also filaments inside the AR (May 10)
4. A fourth filament is at S20W2, in the east of AR 11740 (May 9)
 - > S20W15 (May 10)
5. A fifth filament at N3W25, south of AR 11738 (May 10)

For flare target see:

http://solar.physics.montana.edu/max_millennium/mmmotd_latest/index.html

MiniMax24 Wiki:

Please contribute data and other information under Community Portal.

https://igam02ws.uni-graz.at/mediawiki/index.php?title=Main_Page

Yang

Yang Su

Kanzelhöhe Observatory/IGAM

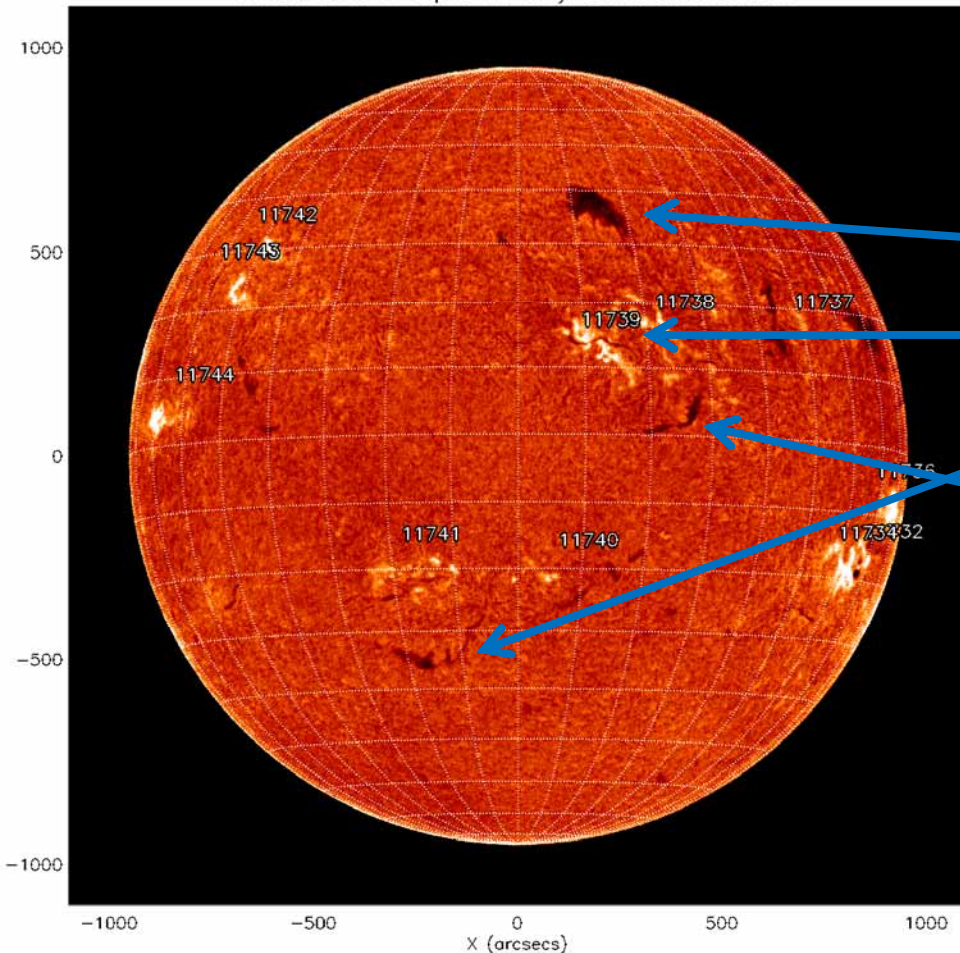
University of Graz

office tel: +43 316 380 8613

yang.su@uni-graz.at

non-flare target: filaments

Kanzelhöhe H-alpha 10-May-2013 07:09:37.000



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Kanzelhöhe Observatory/IGAM

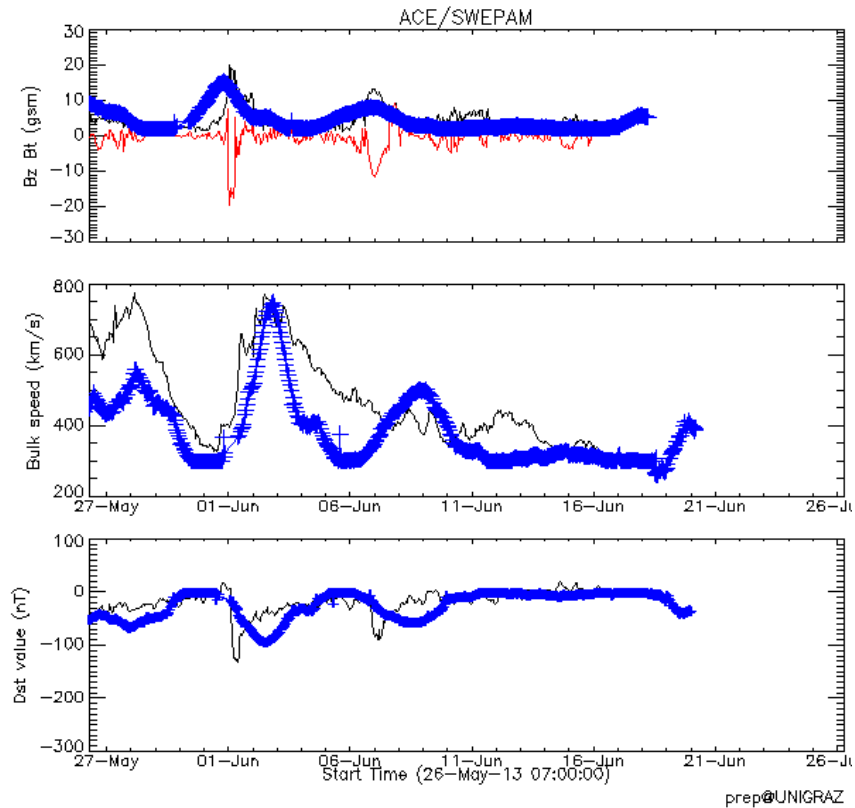
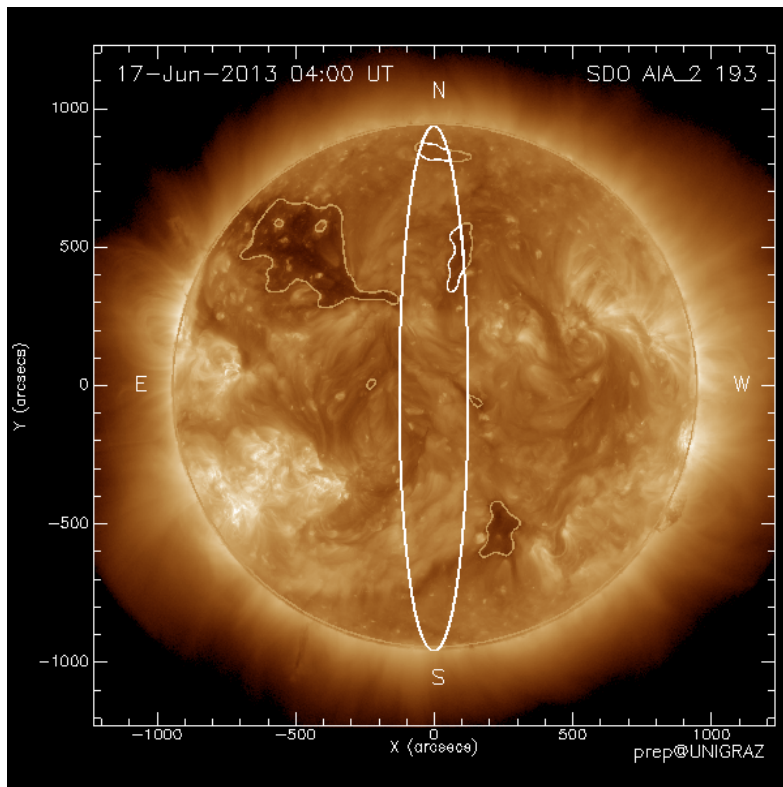
University of Graz

office tel: +43 316 380 8613

yang.su@uni-graz.at

solar wind parameter forecast (hourly updated) from University of Graz

<http://www.uni-graz.at/igam-sophy/comesep/solarwind/>



non-flare target: coronal holes



solar wind p

Graz

Potentially geoeffective coronal hole close to the central meridian.

Observing time: 2013-06-19T07:00:06.840
Observed CH ratio area: 0.22
Forecast time: 2013-06-23T06:00:06.840
Predicted SW speed at forecast time: 570.8 [km/s]
Alert: YES

Filament target within ± 30 degrees from central meridian:

Central position S23 E00, spanning about 10 degree in E-W and 05 degree in N-S
(Kanzelhoehe H-alpha, June 18 2013 0630UT)

For flare target see:

http://solar.physics.montana.edu/max_millennium/mmmotd_latest/index.html

MiniMax24 Wiki:

Please contribute data and other information under Community Portal.

https://igam02ws.uni-graz.at/mediawiki/index.php?title=Main_Page

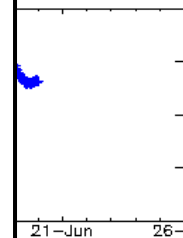
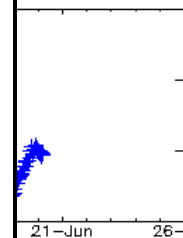
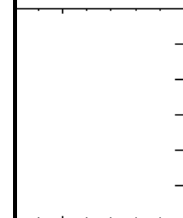
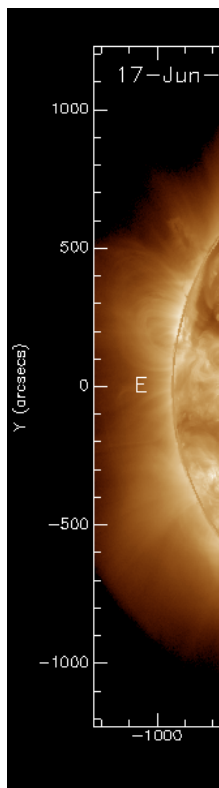
Werner

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fax: +43 4248 2717 15
mail: werner.poetzi@uni-graz.at
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prep@UNIGRAZ

MiniMax24: campaign data

- **A wiki page has been established:**
<https://igam02ws.uni-graz.at/mediawiki/>
- **Community portal to record and analyze interesting events**
- **Any observer can register on this page, participate in the campaign, and edit the community portal page**
- **Data shared instantly**

MiniMax24: joint event studies

ISEST / MiniMax List:

Oct. 5-9, 2012*
Feb. 6, 2013
March 12, 2013
March 13, 2013
March 15-17, 2013*
April 11-14, 2013
June 1, 2013 (Dst= -125)

Main Page: Event Studies

Contents [hide]

- 1 Joint Event Studies
 - 1.1 April 11, 2013 (M6.5/3B)
 - 1.2 March 15, 2013 (M1.1)
 - 1.3 Feb 6, 2013 (C8.7)

Joint Event Studies

If you would like to do a joint event study - put information here and announce it via minimax24@gam.uni-graz.at

April 11, 2013 (M6.5/3B)

Peter Gallagher: Type II was picked up by our radio spectrometer at Birr Castle in Ireland (www.rosesobservatory.ie). Probably the strongest we've seen in ~2 years.

Davied Neudegg: Not a very clean Type II as some Type IV (?) overlain. There appear to be filaments very close or embedded in AR1719, so I hope the Type IV doesn't indicate as that might put a lot of mass in the CME. There was what might be a sympathetic smaller flare soon after from AR1721.

At least AR1719 is east of central meridian so geoeffectiveness won't be as high as if it were west, although the CME source for the mid March event was in a similar position as biggest regional Dst and GICs so far in cycle 24.

Sam Freeland: AR 1719 M6 eruption/dimming/wave/+100 MeV protons... http://www.lmsal.com/solarsoft/latest_events/ (scroll right-ret...) => http://sdowww.lmsal.com/sdo/m/sww/sww_client/data/sww_service_130411_015943_87927/www/

radio burst data can be found under: <http://e-callisto.org/>

ROB-SIDC (Ingolf Dammasch):

<http://solwww.oma.be/users/dammasch/flares/flare20130411.html>

http://solwww.oma.be/users/dammasch/flares/flare20130411_5330.png

<http://solwww.oma.be/users/dammasch/GoesLyra20130411.png>

H-alpha data from Kanzelhöhe Observatory:

http://cesar.kso.ac.at/halpha3/2013/20130411/movie/20130411/movie/20130411_11719_0645_big.gif

Yuming Wang:

More details see: <http://space.usfc.edu.cn/dreams/events/20130411.01/>

- CME in corona

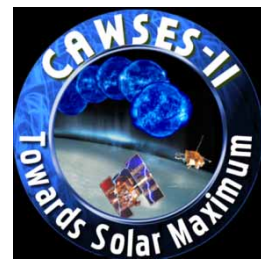
speed: 746 km/s
Propagation direction: W16E14
Angular width: 140 deg

- CME at 1 AU (forecasting)

To fully use the potential of the community, joint event studies were initiated that put together the expertise of different communities as well as data.

Campaign Team

- UNIGRAZ - Manuela Temmer (Campaign Coordinator), Tanja Rollett, Christian Möstl (data analysis)
- GSFC - Nat Gopalswamy (Campaign Co-Coordinator), Teresa Nieves-Chinchilla (data analysis)
- NRL - Chin-Chun Wu (CME simulations)
- Hvar Observatory - Bojan Vrsnak, Tomislav Zic, Jasa Calogovic, Giuliana Verbanac (H-alpha, white light, FoV; data analysis)
- ROB - Dan Seaton (Proba2), Luciano Rodriguez, Marilena Mierla (data analysis)
- Udaipur Solar Observatory - Nandita Srivastava (H-alpha, LOS magnetograms-GONG)
- David Webb (on behalf of ISEST)
- Kanzelhöhe Observatory - Werner Pötzi (H-alpha, CaIIK, white light, full disk)
- KULeuven - Kimberley Steed (data analysis)
- USET - Frederic Clette (USET imager, data analysis)
- TIFR, Ooty Radio Telescope - P.K. Manoharan (IPS at 327 MHz: tracking CMEs in IP space, solar wind distribution)
- Aryabhata Research Institute, Manora Peak, Nainital - Wahab Uddin (H-alpha, FOV)
- TCD solar group - Shaun Bloomfield, Peter Gallagher (SolarMonitor.org, radio spectra at 10-400 MHz/ionospheric data/geomagnetic field measurements; [data access](#))
- RAL - Richard Harrison, Jackie Davies (STEREO HI, data analysis)
- Harvard Smithsonian Center for Astrophysics - Kamen Kozarev (data analysis)
- JPL - Paulett Liewer (sinlat-long Carrington maps; [data access](#))
- Stanford University - Alexander Kosovichev (helioseismology flow maps, magnetic field maps from SDO/HMI)
- INAF – Catania Astrophysical Observatory, Paolo Romano (H-alpha, center and wing, full disk; [INAF-OACt data access](#))
- Lomnický Peak Observatory - Jan Rybak (CoMP-S coronagraphic spectropolarimetry of VIS/near-IR coronal and prominence emission lines www.astro.sk/LSO/COMP-S/)
- MSSL - David Long (data analysis, Hinode Observing Plans -> EIS for spectroscopic signatures of the target region)
- USTC - Chenglong Shen, Yuming Wang (CME data analysis; web catalogue of 3D parameters of CMEs during STEREO era)
- DTU Space - Susanne Vennerstroem (data analysis - geomagnetic activity, in situ solar wind, comparison with previous cycles)
- Atmospheric Physics Lab. - Anasuya Aruliah (Fabry-Perot Interferometer - thermospheric parameters of neutral temperature, neutral winds, co-located with EISCAT; CMAT2)
- Erciyes University - Pinar Uzunyayla (data analysis, radio)
- Institute of Astrophysics, Bangalore - R. Ramesh (radio for frequency range 35-85 MHz over time interval 3-9 UT)
- Nobeyama Solar Radio Observatory - Kiyoto Shibasaki (NoRH solar radio images and NoRP total radio fluxes; [\[1\]](#))
- Jean-Pierre Raulin (SAVNET)
- NSO - Dick Altrock (daily observations of low corona above limb in Fe X, Fe XIV and Ca XV; data access: [\[2\]](#) [\[3\]](#))
- Slovak Central Observatory in Hurbanovo - Ivan Dorotovic (prominence/flare patrol, SID monitor, CALLISTO radio spectrometer, data analysis)
- UOulu - Kalevi Mursula
- Institute of Ionosphere, Almaty, Kazakhstan - Galina Gordienko (radio spectra/flux, cosmic ray data/ionospheric data ...)
- Kwasan and Hida Observatories, Kyoto University - Shibata Kazunari, Ayumi Asai, Kiyoshi Ichimoto
- Helsinki University - Emilia Kilpua (data analysis, ICMEs, geomagnetic effects)
- SWRC - M. Leila Mays, Yihua Zheng, Antti Pulkkinen, Sandro Taktakishvili (near real-time 3D CME analysis, ENLIL CME simulations, in-situ solar wind, geomagnetic activity analysis)
- George Mason University - Jie Zhang, Phil Hess, Nishu Karna (SEEDS CME catalog, solar synoptic maps, ICME-CME events)
- Aberystwyth University, - Mario M. Bisi (UCSD 3-D tomography, IPS observations)
- Solar Radio Laboratory (LaRS) of IZMIRAN - Valery Fomichev, Roman Gorgutsa (radio spectra/flux, <http://www.izmiran.ru/stp/lars/>)



Thank you for your attention!

