

CAWSES theme2

space weather : science and application

- report of recent activities -

K. Shibata (Kyoto Univ.)

and J. Kozyra (Univ. of Michigan)

2. Space Weather: Science and Applications

Co-Chair- Janet Kozyra, U. of Michigan, USA

Co-Chair - K. Shibata, Kyoto University, Japan

Proposed campaign framework that views the “whole earth as an instrument” for making key space weather observations.

CAWSES could:

- **Recruit and coordinate needed observing sites**
- **Identify and collaborate with major programs worldwide (Spaceship Earth, Intermagnet, GEDAS, CNOFS, etc.)**
- **Set up website and needed technology in collaboration with other programs like ILWS, eGY, etc.**
- **Organize world-wide analysis campaigns on particular themes or for selected events (from NICE Mtg.)**

2. Space Weather: Science and Applications

Co-Chair- Janet Kozyra, U. of Michigan, USA

Co-Chair - K. Shibata, Kyoto University, Japan



Proposed campaign
an instrument” for
CAWSES could

the “whole earth as
ner observations.

- Recruit and coordinate participating sites
- Identify and coordinate programs worldwide (Spaceship Earth, CNOFS, etc.)
- Set up website in collaboration with other projects
- Organize world-wide analysis campaigns on particular themes or for selected events (from NICE Mtg.)

Report

- Stanford Workshop (Dec. 10-12, 2005)
 - on Campaign Observations of 2005 Sep
 - 2nd CAWSES space weather campaign
 - JOP178 solar filament observation campaign
- Working group report
 - Continuous H alpha Imaging Network (CHAIN) (courtesy of H. Kurokawa)
- Future Workshops

from CAWSES newsletter vol 3, No. 1

*Report of CAWSES Space Weather workshop at Stanford,
December 10-12, 2005*

Report by K. Shibata (shibata@kwasan.kyoto-u.ac.jp)

A mini-workshop on Space Weather was held at Stanford University during December 10-12, 2005. The purpose of the workshop was not only to discuss the campaign observation results of September 2005, for both the 2nd CAWSES Space Weather and JOP178 Solar Filament observation campaigns, but also to encourage better communication between solar and geophysicists through collaboration on the campaign observational results. About 36 people attended, including 16 solar physicists and 20 geophysicists, mainly from USA and Japan.

Though the time after the campaign was short, interesting reports of various observations were presented, partly because the solar activity during this campaign was extremely high due to the delta-type sunspot region NOAA 0808 from where 11 X-class and 28 M-class flares occurred during the campaign. It was also found that intensive communication between solar and geophysicists was quite useful and necessary, and this kind of interdisciplinary meetings (even small and informal in nature) will have to be held more frequently in the future. We appreciate all SOC members: J. Kozyra, K. Shibata, J. T. Hoeksema, T. Roudier, T. Ogino, S. Kikuchi, H. Hudson, B. Tsurutani, N. Nitta, N. Gopalswamy, B. Schmieder, M. Oka, and particularly thank T. Hoeksema for his help as LOC-chair.

JOP 178 / 2005 Campaign

<http://bass2000.bagn.obs-mip.fr/jop178/index.html>

**Th. Roudier (P.I.) (1) , S. Rondi (1) , J.M. Malherbe (2) , P. Mein (2) ,
B. Schmieder (2), V.Bommier (2) , N. Mein (2) , J. Moity (2), Ch. Coutard (2)
G. Molodij (2), N. Meunier (1), M. Rieutord (1), R. Tkaczuk (1),
G. Aulanier (2), Berlicki (2) , E. Pariat (2) , K. Bocchialini (3), G. Pouget (3) ,
J. Solomon (3), P. Suetterlin (4), M. Svanda (5), Tziotziou (4), Steve Keil (6) ,
K.S. Balasubramaiam (6), Y. Deng (7) , J Staiger (8), P. Rudawy (9)
D. Pallamraju (10), R. Kitai (10), M. Svanda (11)**

Presented by Pr. K. SHIBATA (Hida and Kwasan observatories ,Japan)

- (1) Observatoire Midi Pyrénées.
- (2) Observatoire de Paris, Meudon, France A.
- (3) Institut d'Astrophysique Spatiale France
- (4) Universiteit Utrecht, Utrecht, Netherlands
- (5) Astronomical Institute Ondrejov Czech Republic K and the Global High Resolution H-alpha Network
- (6) Sacramento Peak Observatory (USA)
- (7) Yuanyong Huairou Solar Observing Station (China)
- (8) KIS-Freiburg- VTT (Germany)
- (9) Wroclaw Observatory
- (10) Hida and Kwasan observatories (Japan)
- (11) Astronomical Institute Ondrejov Czech Republic

1) Scientific objective

The first objective is to study at the same time the photospheric and chromospheric motions around filaments.

2. The second objective is to understand the environment of the filament inside the corona

2) Participating instruments:

Observations Multi- λ **September 2005** 19 instruments : 3 Space - 16 Ground

(TOTAL = SPACE : 45 h , SOL: 280h)

Space:

TRACE (EOF GSFC)

SOHO MDI CDS (EOF GSFC)

Ground:

VTT (Vacuum Tower Telescope, Tenerife) , THEMIS (Tenerife) , DOT (Dutch Open Telescope, La Palma)

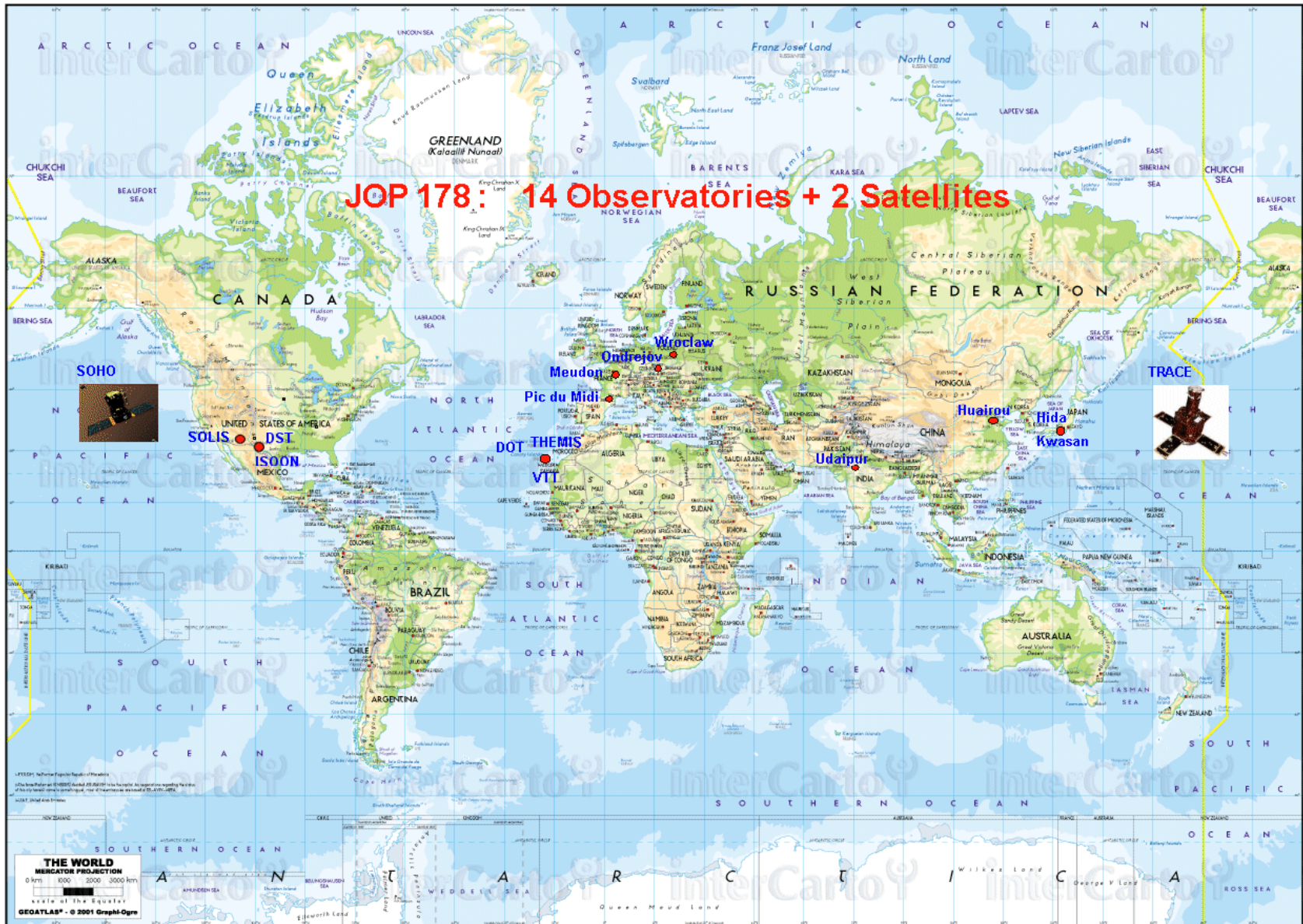
DST (Dunn Solar Telescope, Sac Peak) , MST (Meudon Solar Tower, Meudon)

Spectro Lunette Jean Rosch (Pic du Midi) , SOLIS (USA), ISOON (USA), Coronagraph

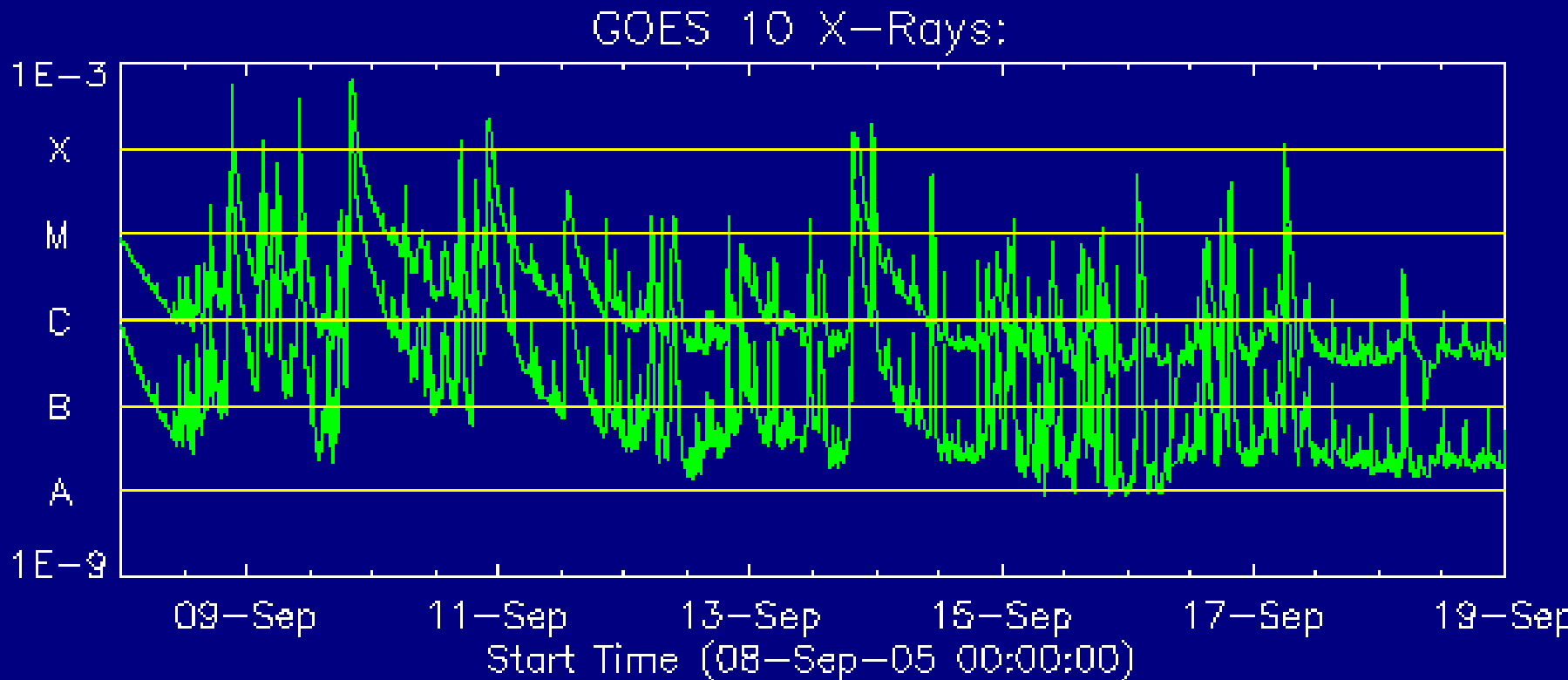
BialkovSpectrograph Ondrejov , Huairou Solar Observing Station (China), Hida and Kwasan

observatories(Japan) , Wroclaw observatory and [the Global High Resolution H-alpha Network](#)

1) Observatories location



38 Flares, 12 X , 26 M



(Courtesy of B. Schmieder)

CAWSES space weather
workshop at Stanford
Dec 10-12, 2005

LOC: T. Hoeksema,
W.W.Hansen Experimental Physics
Laboratory,
Stanford University

Organizing Committee

J. Kozyra, K. Shibata, J. T. Hoeksema,
T. Roudier, T. Ogino, S. Kikuchi,
H. Hudson, B. Tsurutani, N. Nitta,
N. Gopalswamy, B. Schmieder, M. Oka

Objective of the workshop

- to begin collaborative analysis of the sun-to-Earth data sets collected during the **Sept 2005 CAWSES Space Weather campaign** and continue analysis of other CAWSES events
- to serve as a planning meeting identifying important science focus areas for a worldwide internet workshop/poster session in early 2006. This internet workshop will facilitate research and collaboration, the results from which will hopefully be submitted as presentations in upcoming CAWSES sessions at national and international meetings.
- to facilitate a closer communication among sun-to-Earth science disciplines. Especially **to encourage closer communication between solar and geo-physicists**

participants : 36 persons

- (Japanese-solar/heliospheric) 7
 - Shibata, Oka, Narukage (Kyoto Kwasan Obs),
 - Asai, Shimojo (NAOJ/Nobeyama),
 - Fujiki (Nagoya STE Lab) Kato (Osaka U.)
- (Japanese-magnetospheric/ionospheric) 10
 - Ogino, Kikuchi, Shiokawa (Nagoya STE Lab)
 - Omura, Kato, Tsubouchi (Kyoto RASC)
 - Shinagawa, Hori (NICT) Shinohara (Kyushu U.) Murata (Ehime)
- (USA-solar) 9
 - Hoeksema, Liu, Kosovichev, Benevolenskaya, Hayashi (Stanford U.)
 - Nitta (Lockheed) Hudson (UC Berkeley)
 - Gopalswamy (NASA) Yurshychyn (BBSO)
- (USA-magnetospheric/ionospheric) 10
 - Kozyra (U. Michigan) Tsurutani (JPL) Verkhoglyadova (UC Riverside)
 - Basu (Boston U.) Santimay Basu (AFRL) Pallamraju (Boston U.)
 - Mannucci (NASA) Paxton (Johns Hopkins U.) Sanches (SRI) Horton (U. Texas)



W. W. HANSEN
EXPERIMENTAL PHYSICS LABORATORY

ANNEX B
455

December 10 : tutorial talk

9:30-12:40 **chair: Kozyra**

- Solar Flares (Shibata)
- CMEs (Hudson)
- Magnetic Field in the Corona and Heliosphere (Hoeksema)

12:40 - 2:00 Lunch

chair: Shibata

2-2:40 Helioseismic Observations of Magnetic Flux Emergence (Kosovichev)

2:40 - 3:20 Solar Energetic Particles (Nitta)

3:20 - 4:00 Magnetic storm activity associated with ICMEs and CIRs (Tsurutani)

4:00 - 4:20 Break

4:20 - 5:00 Inner magnetosphere (Kozyra)

5:00 - 5:40 Ionospheric Plasma Structuring during Magnetic Superstorms (Basu)

December 11

chair: Tsurutani

9:30 -10:10 Overview on CMEs and space weather with particular reference to the Sep Jan periods (Gopalswamy)

[Space Weather Events & Campaign Data Sep 2005](#)

10:10-10:50 Halpha and Magnetic Field data (Yurchyshyn)

10:50-11:10 Break

11:10-11:50 Magnetospheric Storms (Kikuchi)

11:50-12:30 Halpha and other data from Hida Obs (Narukage)

12:30 - 2:00 Lunch Break

chair: Kikuchi

2:00-2:40 Ionospheric Effects (Manucci(Tsurutani))

2:40-3:20 Solar Flares and related data in Aug/Sep 2005 (Asai)

3:20-4:00 Ionosphere (Shiokawa)

4:00-4:40 Magnetospheric/Ionospheric campaign results (Kozyra introduce ppt files prepared by other people)

4:40-5:00 break(20min)

5:00-5:40 SEPs and IP Disturbances observed by Geotail (Oka)

5:40-6:00 WINDMI model (Horton)

December 12

chair: Ogino

9:30 - 10:10 Solar JOP178 campaign results (Shibata introduce ppt files prepared by Roudier, Schmieder, Balasubramaniam)

Other events (Aug, June, Jan 2005, Nov 2004)

10:10 - 10:40 Solar Flares and related data in Jan 2005 and Nov 2004 (Shimojo)

10:40-11:00 Break

11:00-11:40 Magnetospheric Storms (Shinohara)

11:40-12:20 TIMED observations of the Ionosphere-thermosphere during the Aug/Sept 2005 interval (Paxton)

12:30 - 2:00 Lunch Break

chair: Gopalswamy

2:00 - 2:40 Solar Wind and CMEs (Fujiki)

Modeling and Future Plans

2:40 - 3:20 MHD Modeling (Ogino)

3:20 - 4:00 Ionospheric modeling (Mannucci)

4:00 - 4:40 Wave-Particle Interactions (Omura)

4:40 - 5:20 Solar Wind modeling (Hayashi)

5:20 - 6:00 lists of science questions (Kozyra)

Science Focus Areas

Stanford CAWSES Workshop

Dec 10-12, 2005

Kozyra

Overarching Questions

- What are the sun-Earth system wide implications of low to sub-Alvenic Mach number flows in the solar wind? What conditions produce such flows? Do these conditions change the solar wind - magnetosphere interaction significantly? Are they involved in the saturation of the polar cap potential and sawtooth events? What signatures might be produced in various regions of geospace?
- **Do AR near or embedded within (Anemone regions) coronal holes produce different signatures at Earth?** Do they channel an unusual amount of energy into auroral region (magnetotail) compared to the ring current (inner magnetosphere)? Possible consequences of low solar wind density :
 - Poor shock acceleration of SEPs
 - Intense high-energy polar rain from superhalo solar wind electrons
 - Weaker ring current due to low plasma sheet density
 - Stronger and longer-lived penetration electric fields
- How deep in altitude do the influences of solar variability penetrate? Important new observations that show: (1) SEPs impact the global electric circuit, (2) hardness of the SEP spectrum shown to change its impact on stratospheric chemistry, (3) relativistic radiation belt electrons observed to precipitate into ionosphere during flux drop-out events in the inner magnetosphere. What features in solar active regions determine the hardness of the spectrum?

Overarching Questions

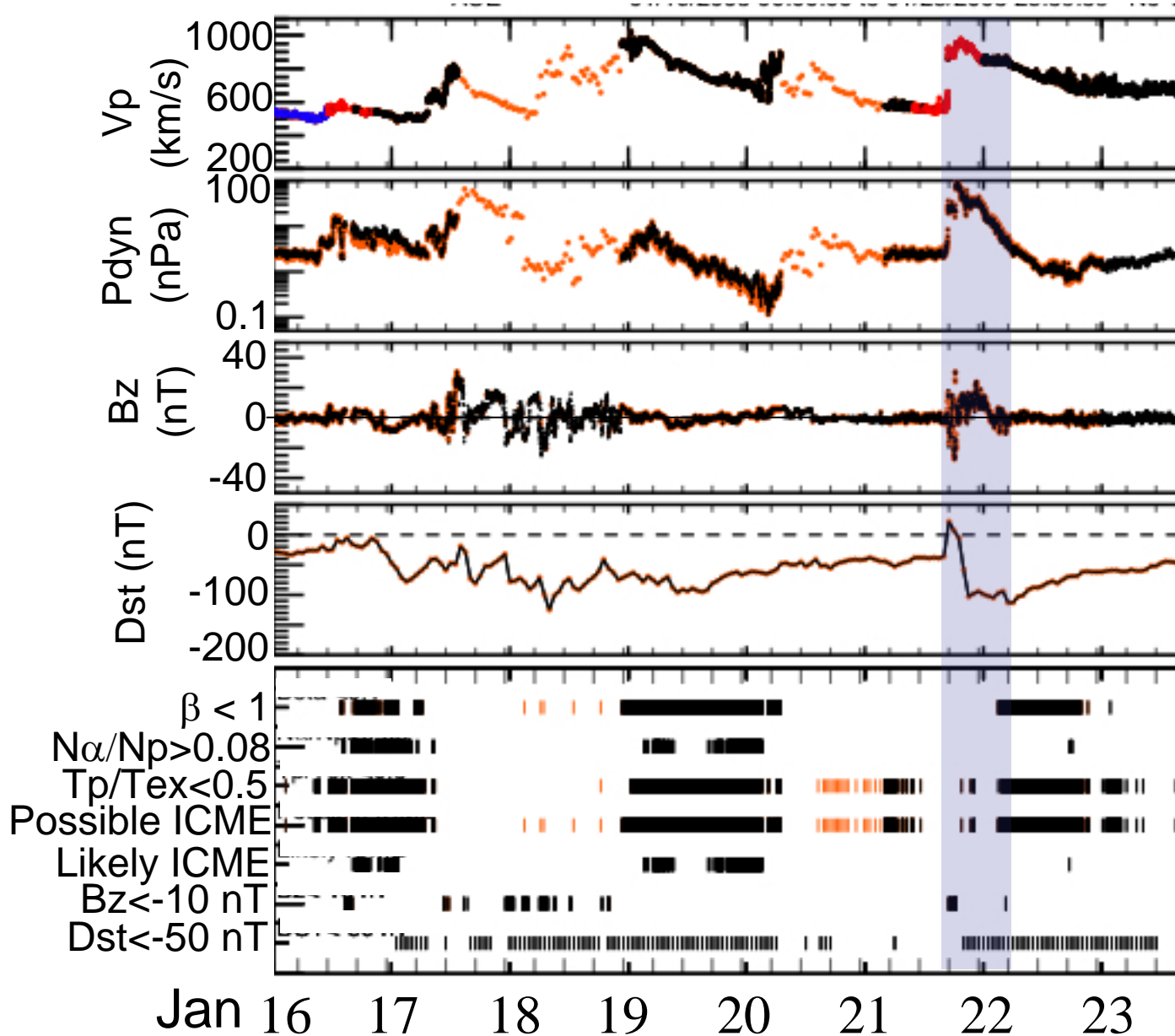
- Role of location of AR on the solar disk and subsequent geoeffectiveness in terms of SEPs and magnetic storm effects
 - West limb events have strong SEPs, weak storms
 - Central disk events have strong storms but weak magnetic connection between Earth & SEPs
- What are the effects of preconditioning?
 - Does seeding the interplanetary medium with turbulence prior to shock passage increase efficiency of shock-acceleration
 - Scatter-free transit of SEPs within CME (containing low densities and smooth field) still attached to the Sun decreases travel time to Earth. Does this explain rapid appearance of SEP within 15 minutes of flare onset during the 21 Jan 2005 long-duration flare.
- Under what conditions does the nature of the AR region itself influence the geoeffective properties of the CMEs.
 - Aug/Sept 2005 AR798/808 produced disturbances that favored auroral region energy input over ring current energy input in both transits of the solar disk
 - Nov 2004 two S-N CMEs and then a N-S CME from the same active region

Overarching Questions

- Are there “super-substorms” triggered by extremely large P_{dyn} and IMF B_z variations? Examples: 21 Jan 2005 and 24 Aug 2005
- Mid/low latitude ion/ENA auroras seen during some storms and not others. Seen during all superstorm and also during a handful of events associated with high dynamic pressure in which very strong substorms are triggered in the main phase of magnetic storms. Same conditions also suggested to produce great red auroras. Extremely distorted magnetosphere configuration.
- Green line seen at low-latitudes in mid-Japan but not north. Signature of electron precipitation seen by GUVI in 24 Aug 2005 event at low latitudes. What process produces this?
- Equatorial super-fountain.
 - In Nov 2004, signature of penetration electric field followed very rapidly by electric field due to overshielding in the ring current. What does this do to super-fountain?
 - Inverted ionosphere -- oxygen from super-fountain flows down field lines at mid-latitudes in the equatorial anomalies.
- Red auroras in the main phase of large storms shown to occur during large substorms in the main phase of magnetic storms? Same conditions for ion/ena auroras. Are there Great Red Auroras occurring during non-superstorm events?
- How does the balance of source populations for magnetotail and inner magnetosphere change in superstorms? What are the consequences for the geospace system response to extreme driving? How does the flow of plasma through the magnetosphere contribute to the strength of the superstorm under conditions of saturated polar cap potential?

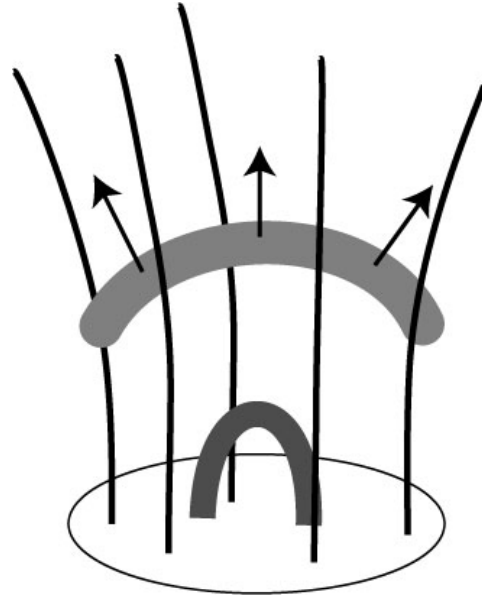
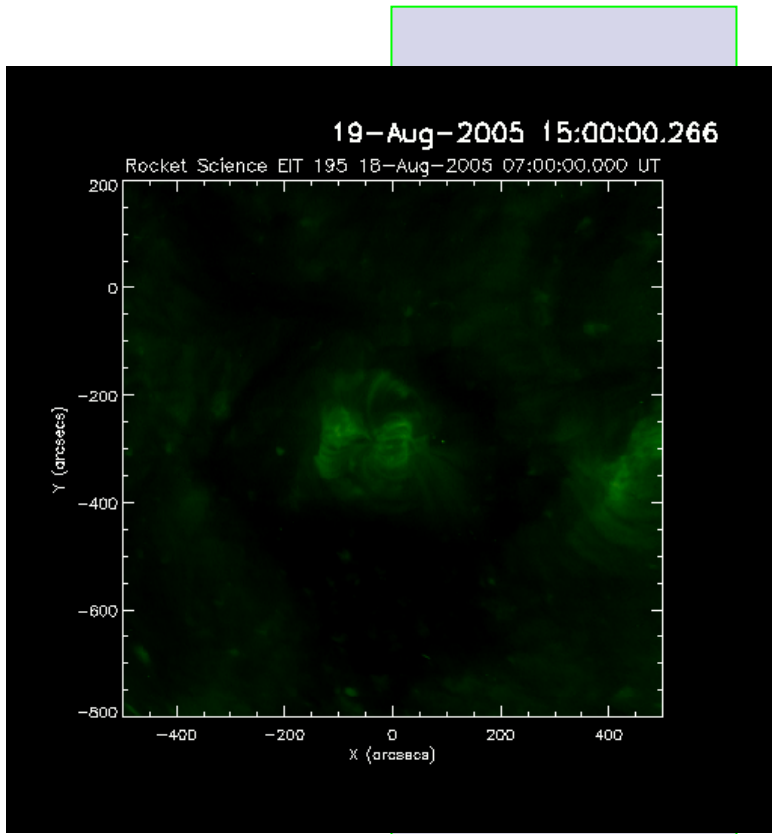
“Super-Substorms?”

AL dips to -
3000 nT



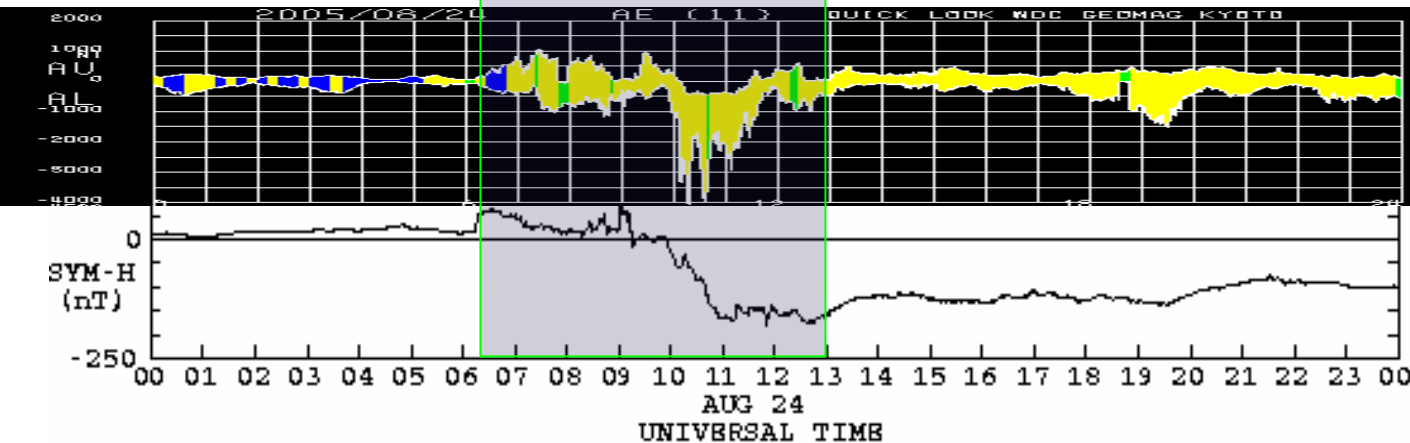
Elliott et al.,
SH23A-0316

24 August 2005



AL dips to
-4000 nT

Solar
source:
Anemone
active
region



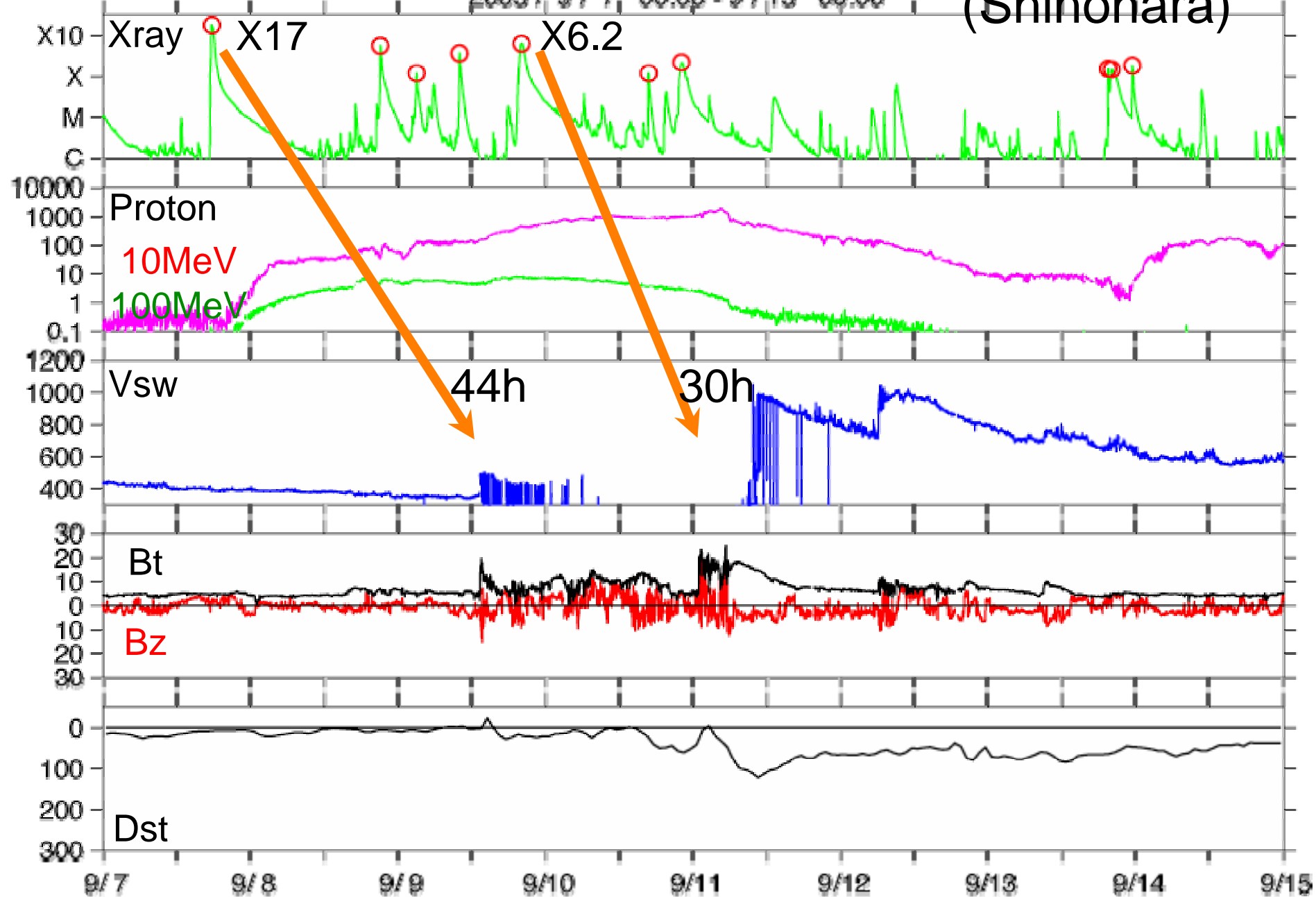
Aug/Sept 2005 Events

- Appears that more energy into auroral (magnetotail) rather than ring current (inner magnetosphere) processes in both events
 - Active region 798 embedded in a coronal hole - “anemone” structure in Aug 2005. Cannot tell if same is true on second appearance in Sept 2005
 - Super-substorm (AL reaches -4000 nT, HP > 1200 GW on 24 Aug; -2000 nT on 11 Sept)
 - Unusually high auroral heating on 10 Sept producing equatorward meridional wind on the dayside which overcomes poleward wind due to solar differential heating. Produces positive storm effect in ionosphere.
- Plasma sheet & solar wind density low. Nsw drops below 1/cc at the trailing edge of each event. High energy polar rain.
- Comparing 24 Aug 2005 (min Dst ~ -215 nT) with 20 Nov 2003 (min Dst ~ -500 nT) which were both driven by min Bz ~ -60 nT, the ring current ENA at energies > 20 keV looks very similar. A large enhancement in ENA fluxes at 5 keV in the 20 Nov 2003 event indicate that much of the ring current energy may have been carried at energies < 10 keV in this event.
- Radiation belt electrons were enhanced beginning at each of these storm intervals. Unusually deep penetration of the electrons through the slot region and into the inner belt occurs several days after each storm coincident with a subsequent solar wind disturbance.

During CAWSES campaign observations

2005 / 9 / 7, 00:00 - 9 / 15 00:00

(Shinohara)



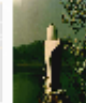
Working group

– Continuous H alpha Imaging Network (CHAIN)

- Leader: [H. Kurokawa \(Japan\)](#) ,
Members : [H. Wang \(USA\)](#),
[B. Schmieder \(France\)](#), [H. Zhang \(China\)](#), etc.
- Purpose: To bring representative of solar observatories together worldwide to construct a new CAWSES data analysis tool – continuous H alpha observations
(global high resolution H α network + Hida FMT + more)



GLOBAL HIGH-RESOLUTION H α NETWORK



SUN ONLINE
RECENT MOVIES
DAILY MOVIES
SOLAR ACTIVITY

LATEST IMAGES
HOURLY DATA
ARCHIVE






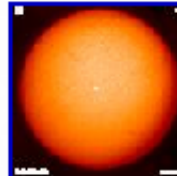
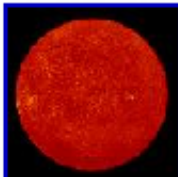
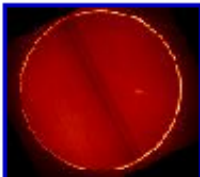
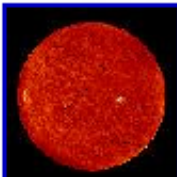
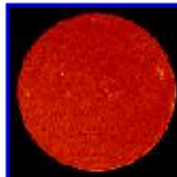

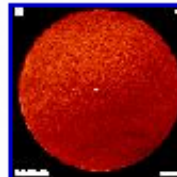
NEWS

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LATEST IMAGES FROM THE GLOBAL H-ALPHA NETWORK

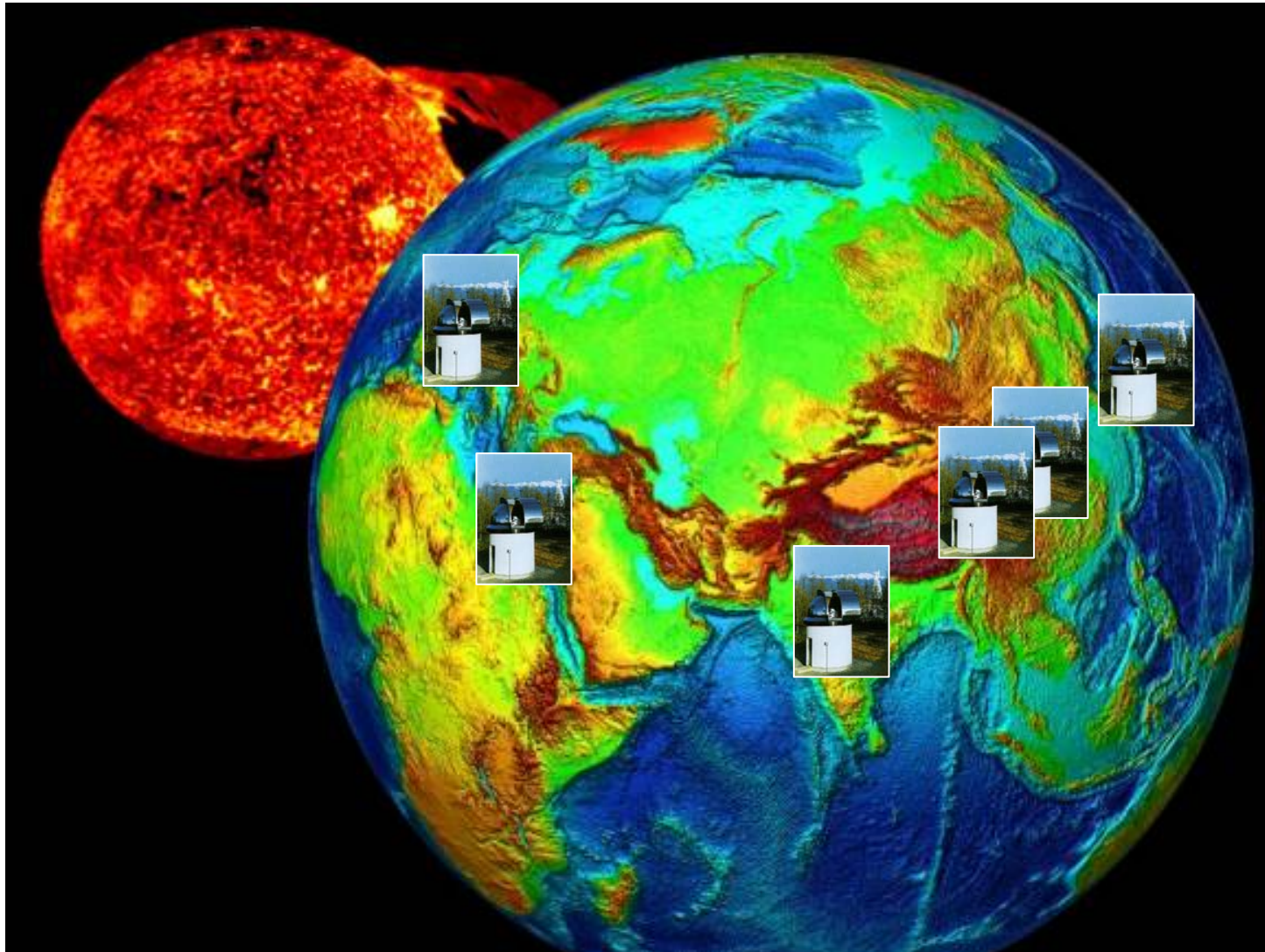
Follow this link for all latest images in the archive

Big Bear Solar Observatory	Observatoire de Paris, Meudon	Kanzelhöhe Solar Observatory	Catania Astrophysical Observatory	Yunnan Astronomical Observatory	Huairou Solar Observatory
					
21:53:48 UT, Apr 04, 2005	14:16:37 UT, Apr 04, 2005	06:03:13 UT, Apr 04, 2005	06:50:06 UT, Mar 30, 2005	01:36:45 UT, Mar 30, 2005	08:08:35 UT, Apr 02, 2005
					
21:53:48 UT, Apr 04, 2005	14:26:02 UT, Apr 04, 2005	06:03:13 UT, Apr 04, 2005	06:50:06 UT, Mar 30, 2005	01:36:45 UT, Mar 30, 2005	08:08:35 UT, Apr 02, 2005

Upper Panel: Original data. Lower Panel: Contrast enhanced images.
Please click on the images to view the 2K x 2K versions.

<http://www.bbso.njit.edu/Research/Halpha/>

CHAIN (Continuous H Alpha Imaging Network) project (leader : Prof H. Kurokawa)



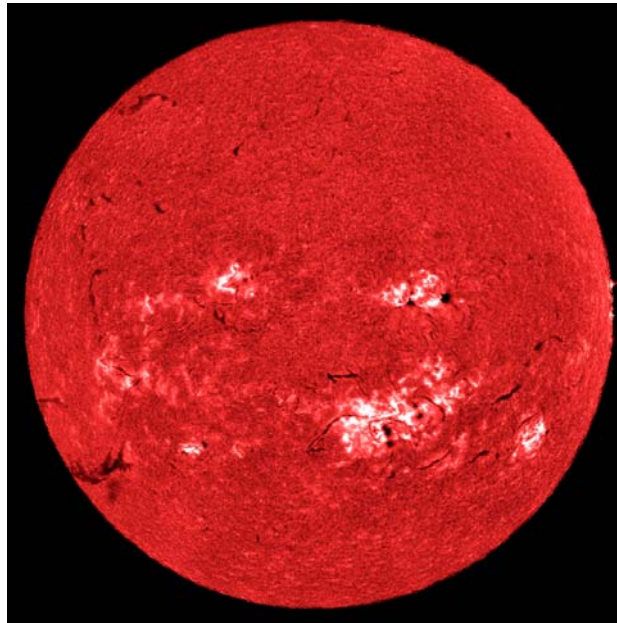
Whole Earth H alpha Solar Observation

SMART (Solar Magnetic Activity Research Telescope) at Hida Observatory of Kyoto University, 2003 – observing full Sun H α and vector magnetic fields every 1 minute

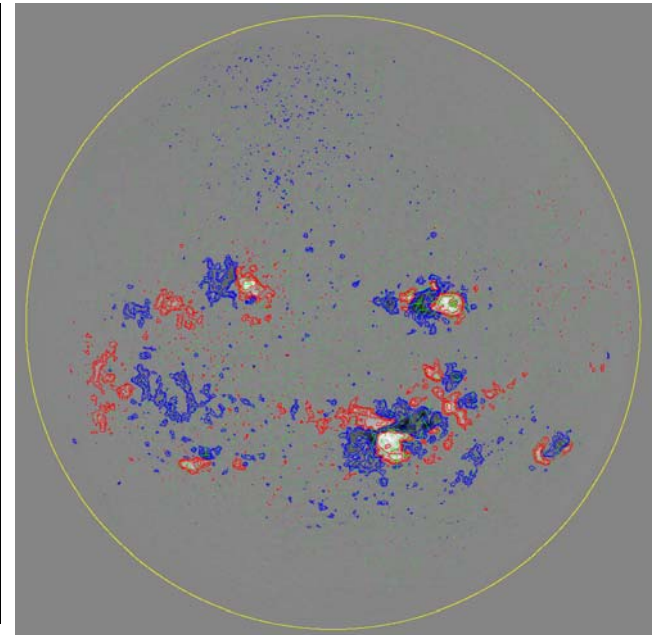


SMART (solar magnetic activity research telescope)

consisting of 4 (two 25 cm and two 20 cm) telescopes



H alpha image



Vector magnetic field

Please visit our home page

<http://www.kwasan.kyoto-u.ac.jp/index.en.html>

The image shows a Netscape browser window with the following elements:

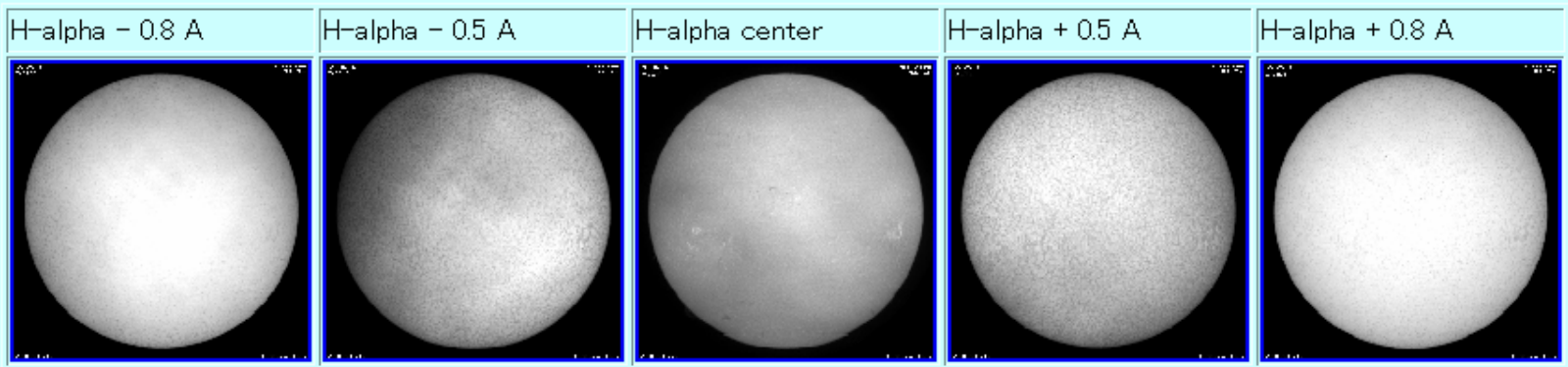
- Browser Title Bar:** Kwasan and Hida Observatories, Kyoto University - Netscape
- Menu Bar:** ファイル(F) 編集(E) 表示(V) ジャンプ(G) ブックマーク(B) ツール(T) ウィンドウ(W) ヘルプ(H)
- Navigation Buttons:** Back, Forward, Reload, Stop
- Address Bar:** <http://www.kwasan.kyoto-u.ac.jp/index.en.html>
- Search Bar:** Mail, ホーム, 検索, Shop@AOL
- Header:** 京都大学 大学院理学研究科附属天文台 (Kyoto University Graduate School of Science, Department of Astrophysics) and a link to 日本語 (Japanese).
- Main Content:**
 - Kwasan and Hida Observatories**
Graduate School of Science, Kyoto University, Japan
 - About**
 - Our Policy
 - History
 - Facilities
 - Members
 - Directions
 - Pictures
 - Research**
 - Projects
 - Recent Work
 - Annual Report
 - Workshops
 - SMART Data Archive**

Here, you can access full-disk H-alpha images obtained with Solar Magnetic Activity Research Telescope (SMART) at Hida Obs., Kyoto University. [about SMART](#)
 - The 6th Solar-B Science Meeting**

The 6th Solar-B Science Meeting was held at The Kyoto International Community House from November 8 to 11, 2005.
 - Filamentary structure on the Sun (24th March, 2005)**

Research group of Hiroaki Isobe

SMART T1 latest images



Data archive

- [jpeg images](#)
[2005-Jul](#) [2005-Aug](#) [2005-Sep](#) [2005-Oct](#) [2005-Nov](#) [2005-Dec](#)
[2006-Jan](#) [2006-Feb](#) [2006-Mar](#) [2006-Apr](#) [2006-May](#) [2006-Jun](#) [2006-Jul](#)

[Back](#)

SMART T1 (2005-Sep) - Netscape

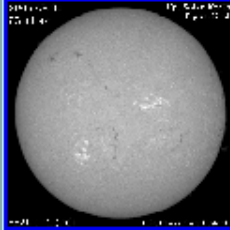
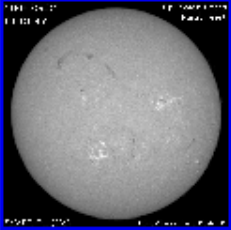
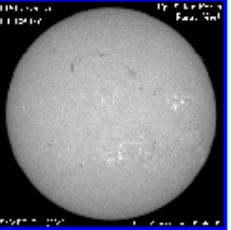
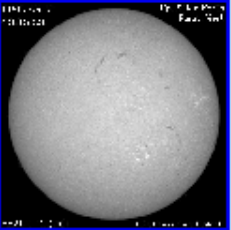

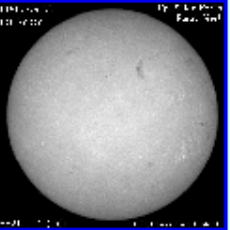

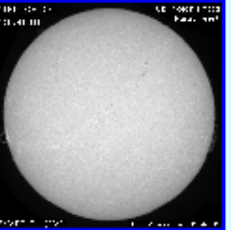
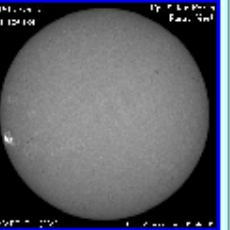
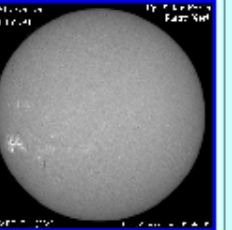
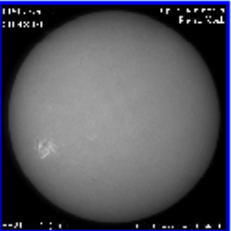
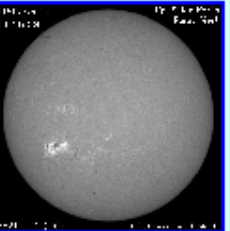
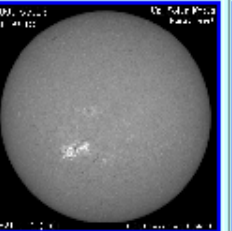
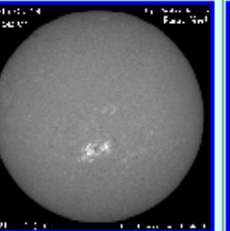
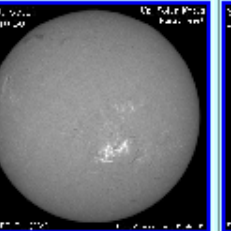
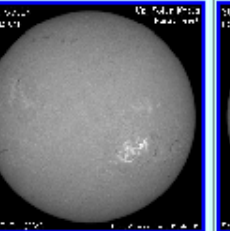
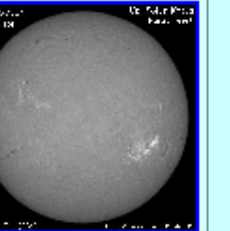
ファイル(F) 編集(E) 表示(V) ジャンプ(G) ブックマーク(B) ツール(T) ウィンドウ(W) ヘルプ(H)

http://www.hida.kvoto-u.ac.id/~smart/daily/05Sep/05Sep.html

ジャンプ 検索

Mail ホーム 検索 Shop@AOL

2005-Sep

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 (Movie m c p)  Obs.log	2 (Movie m c p)  Obs.log	3 (Movie m c p)  Obs.log
4 (Movie m c p)  Obs.log	5 	6 (Movie m c p)  Obs.log	7 	8 (Movie m c p)  Obs.log	9 (Movie m c p)  Obs.log	10 (Movie m c p)  Obs.log
11 (Movie m c p)  Obs.log	12 (Movie m c p)  Obs.log	13 (Movie m c p)  Obs.log	14 (Movie m c p)  Obs.log	15 (Movie m c p)  Obs.log	16 (Movie m c p)  Obs.log	17 (Movie m c p)  Obs.log

www.hida.kvoto-u.ac.jp からデータを転送中...

スタート connection - Netscape SMART T1 (2005-S... Microsoft PowerPoint - ... 20:53 火曜日

---SMART Observation Log--- 2005-Sep-15

T1

Start: 2005.09.14 23:48 UT

End: 2005.09.15 07:45 UT

(1) 23:48--07:13

(2) 07:44--07:45

Wavelength: -0.80 -0.50 0.00 0.50 0.80 A

DataAmount: 1726 images

Observer: J. Dun, T. Ishii, T. Kawamichi, N. Nishizuka

Event list:

23:48 - 00:11 UT C3 flare, NOAA10808

00:14 - 00:40 UT C9 flare, NOAA10808

01:46 - 02:30 UT M1 flare, NOAA10808

Error list:

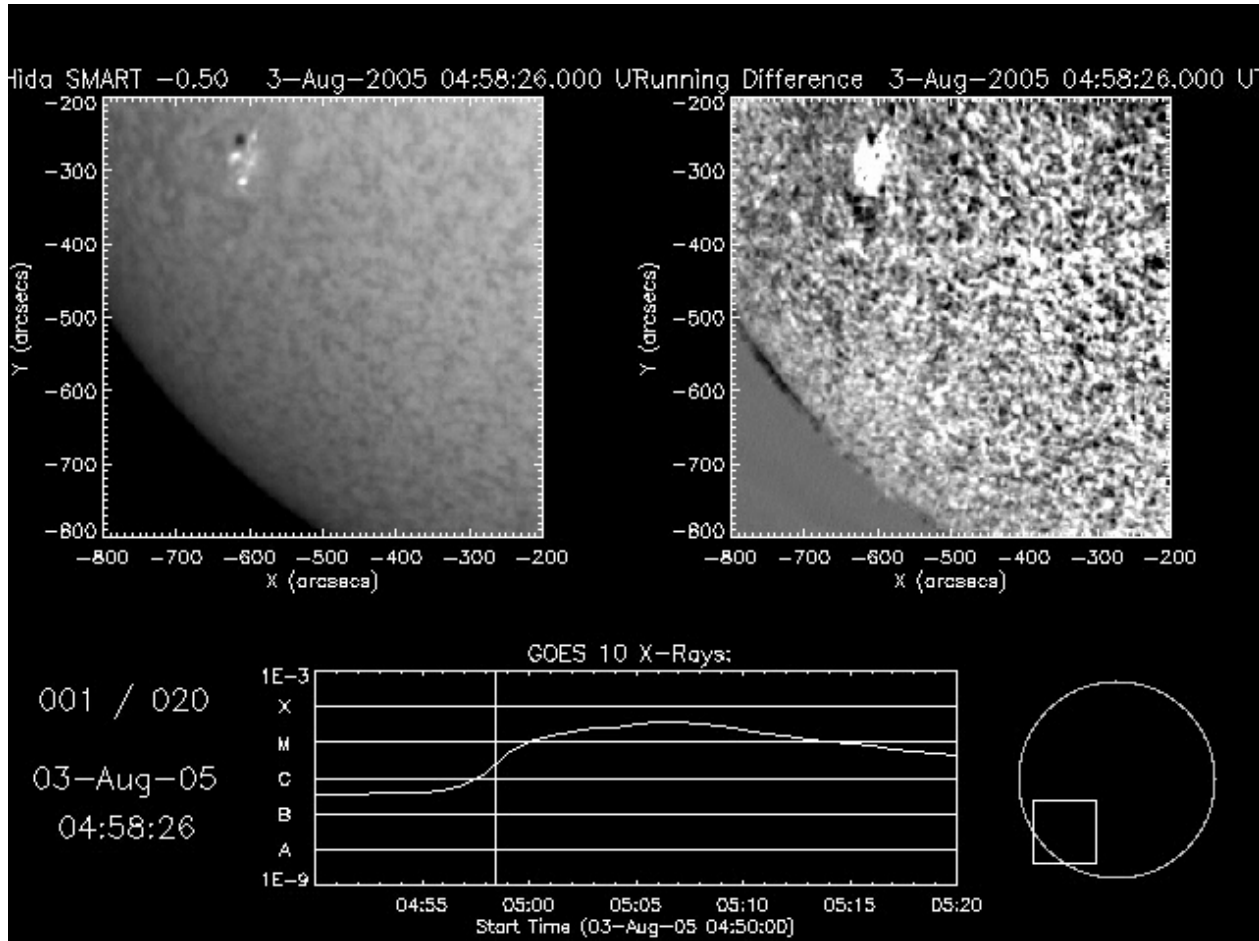
all day T2 lyot filter error

14:40 JST PC1 software error, reboot

Discovery of Triple Moreton Waves in one flare (Narukage et al. 2006)

High-resolution observation of Moreton wave with

Hida/SMART of Kyoto Univ

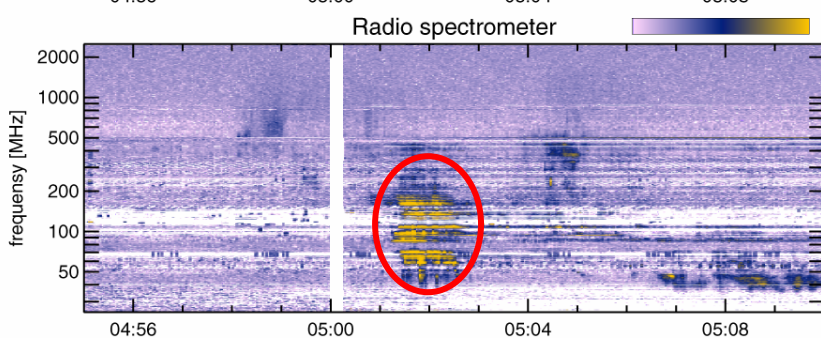
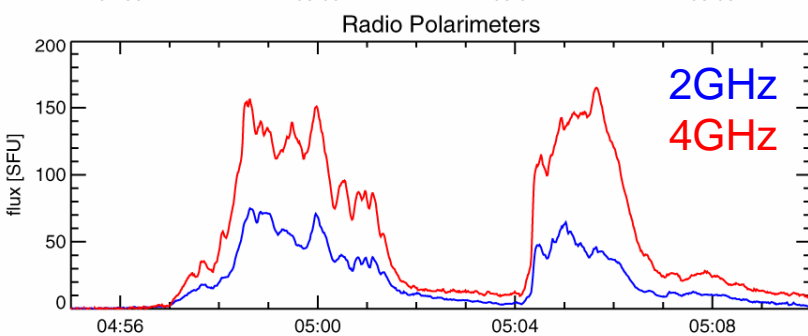
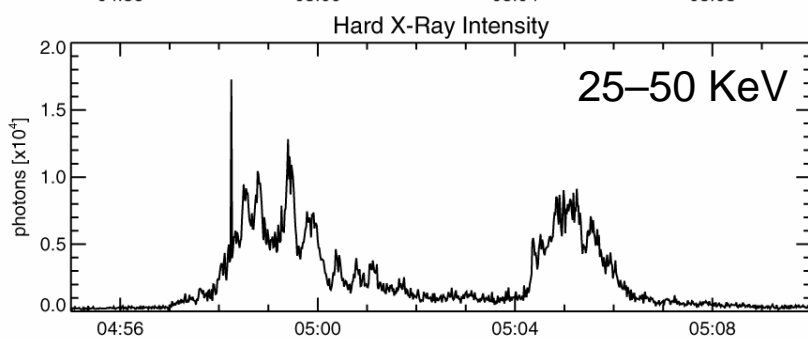
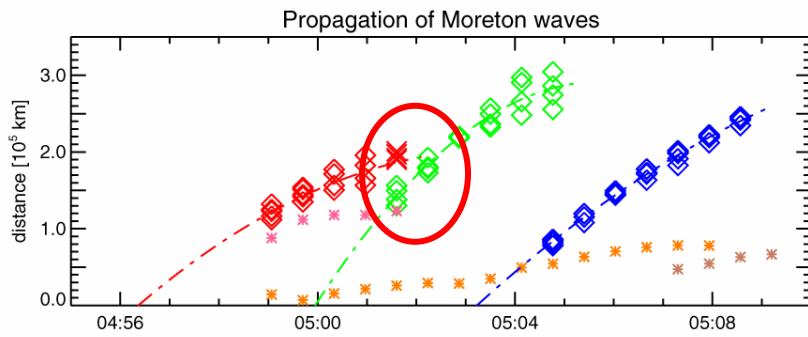


H alpha -0.5 A

running difference images of H alpha - 0.5 A

Triple Moreton Waves (Narukage et al. 2006)

- **1st wave** (~460 km/s) is caught up with **2nd wave** (~740 km/s) to merge into one wave
- Radio intensity increased when two waves merged
- Similar phenomena are seen in Cannibalism CME (Gopalswamy et al. 2001) which reported radio intensity increase when merging

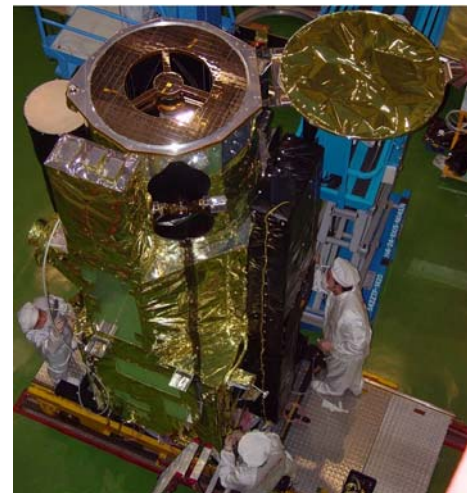
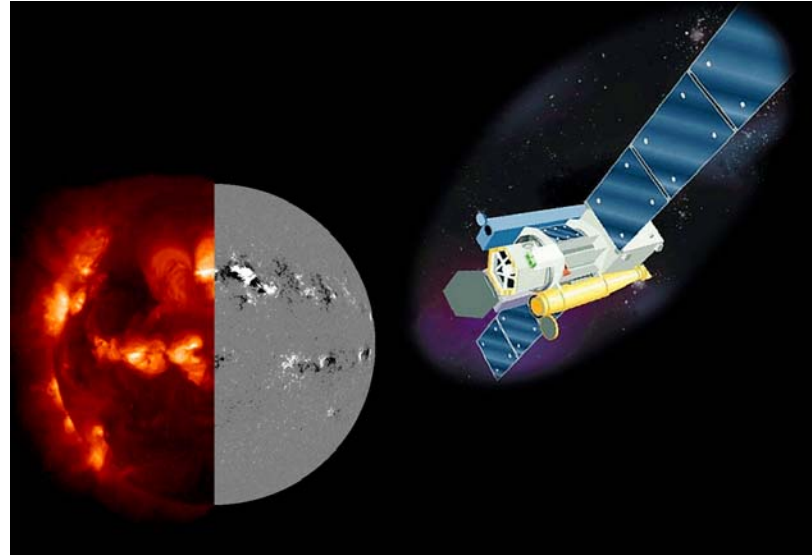


timing



Solar-B Mission

- Solar Optical Telescope (SOT)
- X-Ray Telescope (XRT)
- EUV Imaging Spectrometer (EIS)
- to be launched on 2006, Sept. 23
 - Mission Lifetime: > 3 years
- Scientific objective
 - coronal heating mechanism
 - elementary MHD processes such as magnetic reconnection
- Data will be opened immediately after observation



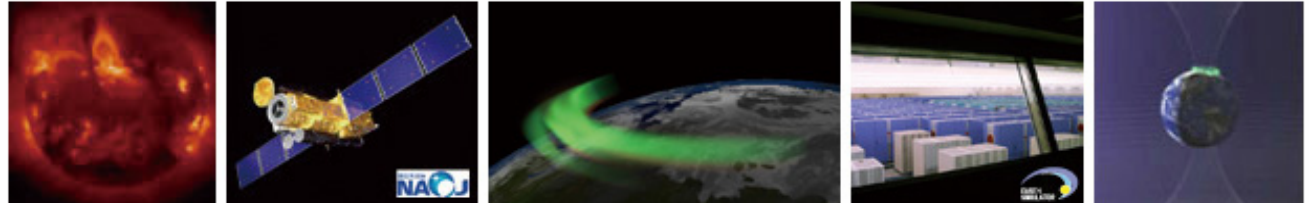
CAWSES International Workshop on Space Weather Modeling (CSWM)

November 14 to 17, 2006

Earth Simulator Center, Yokohama, Japan

[TOP PAGE](#)

[TOPICS](#)



Scientific Organizing Committee

K. Shibata (Co-chair, Kyoto University, Japan)

K. Kusano (Co-chair, The Earth Simulator Center, Japan)

J. Buechner (Max-Planck-Institut fuer Sonnensystemforschung, Germany)

T. I. Gombosi (The University of Michigan, USA)

N. Gopalswamy (NASA, Goddard Space Flight Center, USA)

M. Hesse (NASA, Goddard Space Flight Center, USA)

J.U. Kozyra (The University of Michigan, USA)

J. Lin (Yunnan Astronomical Observatory, China; Harvard-Smithsonian Center for Astrophysics, USA)

T. Ogino (Nagoya University, Japan)

B. Sanahuja (Universitat de Barcelona, Spain)

S. T. Wu (University of Alabama in Huntsville, USA)

Purpose of the workshop

- to provide a forum for review of the recent progress and the scientific challenges in space weather modeling research.
- **Science Program:**
- The workshop consists of several sessions on the following topics:
 - The Sun and the solar corona (including special session on Solar-B)
 - CMEs, heliosphere, and solar wind
 - Magnetosphere, Ionosphere
 - Novel numerical modeling

2nd announcement (July 18)

◆ Submission, Registration & Hotel Reservation:

The abstract submission, the workshop registration and the hotel reservation are now accepted at <http://www.es.jamstec.go.jp/cswm/>. As seating capacity is limited to 150, we recommend you to register early.

◆ Deadlines:

The abstract submission	September 1, 2006
The workshop registration	September 1, 2006
The booking of accommodation	September 1, 2006

◆ Registration Fee:

20000 Japanese yen (regular participants)

10000 Japanese yen (students)

The payment should be by cash at the registration desk.

◆ Science Program:

The workshop consists of several sessions on the following topics:

The Sun and the solar corona (including special session on Solar-B),
CMEs, heliosphere, and solar wind,
Magnetosphere, Ionosphere, and
Novel numerical modeling.

Please contact Dr. Kusano

◆ For Information Contact:

Kanya Kusano, The Earth Simulator Center, JAMSTEC

E-mail: CSWM_esc@jamstec.go.jp



Working group

- **WG2.6 Modeling, Simulations, and Data Assimilation**
 - **Leader S. T. Wu (USA, University of Alabama, USA)**
 - **Members (= (?) SOCs of modeling workshop in 2006)**
 - K. Kusano (The Earth Simulator Center, Japan)
 - K. Shibata (Kyoto University, Japan)
 - J. Buechner (Max-Planck-Institut fuer Sonnensystemforschung, Germany)
 - T. I. Gombosi (The University of Michigan, USA)
 - N. Gopalswamy (NASA, Goddard Space Flight Center, USA)
 - M. Hesse (NASA, Goddard Space Flight Center, USA)
 - J.U. Kozyra (The University of Michigan, USA)
 - J. Lin (Yunnan Astronomical Observatory, China; Harvard-Smithsonian Center for Astrophysics, USA)
 - T. Ogino (Nagoya University, Japan)
 - B. Sanahuja (Universitat de Barcelona, Spain)
 - S. T. Wu (USA, University of Alabama, USA)

Alaska workshop

March 2007, Alaska, USA

- Date: 3 days during Mar. 18(Sun)-25, 2007
- Place: Alaska
- Purpose
 - To discuss comparative study of solar flares and magnetospheric substorms as a basis of space weather research
 - To encourage communication between solar and geo physicists
 - To watch real aurora !
- Expected number of participants ~ 30 - 50
- SOC candidates
 - Shibata, Akasofu, H. Wang, Ogino, Obara, Kozyra, Tsurutani, J.Kahn, (Scholer), Terasawa, (Lui), Buechner, ,, , ???

International CAWSES symposium

Oct. 23-27, 2007, Kyoto, Japan

Important Dates:

First circular: August 1, 2006

Second circular: April 1, 2007

Abstract submission deadline: May 31, 2007

Financial support request deadline: May 31, 2007

Early registration deadline: July 31, 2007

Registration Fees:

Payment received by May 31, 2007
(after May 31, 2007)

Professional	25,000 (35,000) yen
Student	15,000 (25,000) yen
Accompanying Person	5,000 (10,000) yen

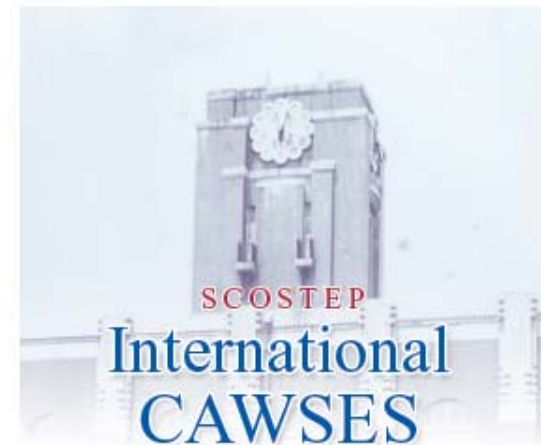
Local Organizing Committee:

M. Akioka, K. Fujiki, T. Goka, H. Kawano, T. Kikuchi,
H. Kojima, K. Kusano, K. Maezawa, T. Maruyama,
S. Masuda, T. Murata, S. Nagata, T. Nakamura,
T. Ogino (chair), T. Ono, A. Saito, N. Sato, Ki. Shibata,
S. Taguchi, T. Terasawa, F. Tohyama, S. Tsuneta,
H. Usui, S. Watanabe, T. Watanabe, T. Yokoyama

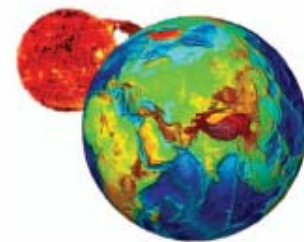


CAWSES = Climate And Weather of the Sun-Earth System; A five-year (2004 - 2008) program to foster a scientific approach to understanding the short term (Space Weather) and long term (Space Climate) variability of the integrated solar-terrestrial environment, and for its societal applications, sponsored by SCOSTEP.

For details about the Symposium, see the Web site:
<http://www.stelab.nagoya-u.ac.jp/cawses/>



Kyoto, Japan
October 23 - 27, 2007



Conveners:
T. Tsuda, R. Fujii, K. Shibata,
and M. Geller

The End

Thank you.