

SWWT Education, Outreach and Emerging Markets (EOEM) Topical Working Group

“Raise and maintain awareness of space weather effects on the systems affected by space weather and how space weather impacts modern society.”

Norma B. Crosby

Belgian Institute for Space Aeronomy, Belgium

Tuesday, 18 June 2013, 09:30-17:00
Royal Observatory of Belgium, Brussels, Belgium

Welcome and Introduction

<http://spaceweather.eu/swwt/eoem>

EOEM OBJECTIVES

- To cover **E**ducation (primary to university), both formally (schooling, textbooks, etc.) and informally (museums, webcasts, etc.)
- To cover Public **O**utreach activities (TV/radio programmes, popular books, etc.).

Who to target:

- general public (e.g. educational institutions at all levels)
- engineers and managers
- policy makers.

Education and Outreach

1. Ebro Observatory, Spain: EPO activities
2. Open Doors @ the Space Pole
3. EPO Articles in SWSC
4. Northern Lights
5. Space Environment Information System: SPENVIS User Workshop

1. Ebro Observatory, Spain, EPO activities provided by Dr. Estefania Blanch Llosa

**Ebro
Blog**

Cròniques de l'Observatori de l'Ebre

Geociència quotidiana



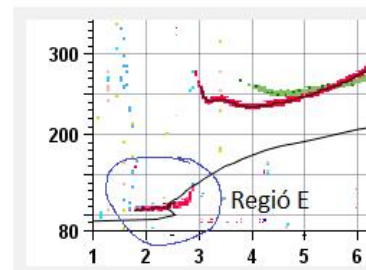
[Pàgina d'inici](#) [Sobre aquest blog](#)

Aquest dissabte esperem una probable tempesta geomagnètica intensa

Publicat el [2013/04/11](#) per [redactor](#)

Aquest matí s'ha detectat una fulguració solar (M6.5). Una fulguració solar és una tremenda explosió en el Sol que allibera, de forma sobtada, l'energia emmagatzemada en els seus camps magnètics. En qüestió de pocs minuts el material es calenta a molts milions de graus i produeix un esclat de radiació en tot l'espectre electromagnètic.

Segons l'alerta del [Solar Influences Data Analysis Center](#) a Bèlgica, la fulguració ha anat acompanyada d'una Ejecció de Massa Coronal



Ampliació de l'ionograma corresponent a les 07:05. L'eix d'ordenades mostra l'altura (km) i l'eix d'abscisses mostra la freqüència (MHz).

Cerca

Contacta'ns

Si voleu enviar-nos algun missatge o opinió relacionats amb aquest blog, podeu enviar-nos un missatge de correu electrònic a blog@ob-sebre.es. Si voleu contactar l'Observatori de l'Ebre per a temes no relacionats amb aquest blog, [consulte primer aquesta pàgina](#).

Visita la nostra pàgina principal

A la nostra pàgina principal hi trobaràs més informació sobre el nostre centre, la seva organització i com contactar-nos.

Ebro Observatory

18 Nov. 2012 event



1. The lecture “Solar storms: an emerging natural hazard” was given by Dr. Joan Miquel Torta, a researcher at the Center.

2. Visit of the facilities including solar section where old and current solar telescopes are kept.

3. Workshop on electromagnetism related to the generation of induced currents and of the electrojet.

GOAL: help the public understand the large-scale weather phenomena that occur daily in the upper atmosphere in the auroral regions.



2. Open Doors in Uccle, Belgium

LE PÔLE ESPACE
OUVRE
SES PORTES

DE POOL RUIMTE
OPENT
DE DEUREN

25 et 26 mai 2013

25 en 26 mei 2013



10h-18h / 10u-18u

Avenue Circulaire -3- Ringlaan 1180 Uccle / Ukkel

Observatoire royal de Belgique / Koninklijke Sterrenwacht van België
Belgisch Instituut voor Ruimte-Aëronomie / Institut d'Aéronomie Spatiale de Belgique
Institut Royal Météorologique / Koninklijk Meteorologisch Instituut

Affiche (.png)

Programma - Programme (.pdf)

Brochure (.pdf, 2 MB)

Opgelet! Beperkte bereikbaarheid op zondag wegens 20km door Brussel
N'oubliez pas! Accès limité le dimanche en raison des 20 km de Bruxelles
(Parcours)(.pdf)



Observatoire royal de Belgique

11 Physique solaire

- Visite du télescope solaire

12 Bâtiment central

- Planétologie
- GPS et Service de l'heure
- Séismologie et gravimétrie
- Météo spatiale & PROBA2 (ESA-SSCC)
- Astro-shop
 - concours de coloriage pour les enfants
 - concours pour les jeunes

13 Salle Méridienne

- Astrophysique
- Musée : Anciens instruments

14 Tente STCE :

- Conférences**

15 Tente Planétarium

- Activités pour les enfants : Bricolage et astronomie
- Quiz pour les jeunes

16 Télescope Schmidt

- Visite continue

Institut Royal Météorologique de Belgique

21 Bureau du temps virtuel

22 Tente "100 ans IRM"

23 Tente des expériences + stand bpost

24 Visite du parc climatologique *Visites guidées (durée 30min) ***

25 Lancement d'un ballon-sonde à 11h30 et 15h30 *(cela ne dure que quelques minutes !!)*

26 Salle de conférence avec des animations en 3D

27 Exposition artistique de photographies géantes et de peintures

28 Ecran avec des images du site prises en altitude par un hélicoptère drone

Institut d'Aéronomie Spatiale de Belgique

31 Mesure des gaz à effet de serre

32 Planeterella Simulation d'une aurore polaire

33 Salle de conférence **

34 Atelier pour enfants (6-14 ans) "J'aime mon Soleil !"

35 Grande Tente d'exposition

- Atmosphère de la Terre
- Atmosphères planétaires
- Climat
- Qualité de l'air
- Ozone
- UV
- Physique spatiale
- Station Spatiale Internationale ISS
- Projets satellites
- Ingénierie
- Quiz Spatial
- Coin enfants (lecture, coloriage, grimage, puzzles,...)
- Atelier Fusée à eau de l'Euro Space Center (à partir de 6 ans)

**Horaire sur l'autre page

I Love My Sun

<http://www.ilovemysun.org/>

My Drawings



Opendeurdagen / Portes Ouvertes 2013



3. EPO Articles in SWSC

J. Space Weather Space Clim. 3 (2013) A07
DOI: 10.1051/swsc/2013029
© J. Liliensten et al., Published by EDP Sciences 2013



RESEARCH ARTICLE

OPEN ACCESS

The Planeterra experiment: from individual initiative to networking

Jean Liliensten^{1,*}, Gabrielle Provan², Sandrine Grimald³, Asgeir Brekke⁴, Erwin Flückiger⁵, Petra Vanlommel⁶
Cyril Simon Wedlund^{7,8}, Mathieu Barthélémy¹, and Pierre Garnier³

¹ Institut de Planétologie et d'Astrophysique de Grenoble, 38041 Grenoble, France

*Corresponding author: jean.liliensten@obs.ujf-grenoble.fr

² Institution University of Leicester, LE1 7RH Leicester, UK

³ Onera – The French Aerospace Lab, 31055 Toulouse, France

⁴ History of Geoph. and Space Sciences Journal, University of Tromsø, Department of Science and Technology, Faculty of Science and Technology, N-9037 Tromsø, Norway

⁵ Physikalisches Institut, University of Bern, Sidlerstrasse 5, 3012 Beme, Switzerland

⁶ Royal Observatory of Belgium, Rue Groeselenberg 57, 1180 Uccle, Belgium

⁷ Belgian Institute for Space Aeronomy, Brussels, Belgium

⁸ Now at Finnish Meteorological Institute, Helsinki, Finland

Received 4 June 2012 / Accepted 1 February 2013

J. Space Weather Space Clim. 3 (2013) A04

DOI: 10.1051/swsc/2013026

© Y. Tulunay et al., Published by EDP Sciences 2013



RESEARCH ARTICLE

OPEN ACCESS

The COST example for outreach to the general public: I love my Sun

Yurdanur Tulunay^{1,*}, Norma Bock Crosby², Ersin Tulunay³, Stijn Calders², Aleksei Parnowski⁴, and Desanka Sulic⁵

¹ Department of Aerospace Engineering, METU, Ankara, Turkey

*corresponding author: e-mail: ytulunay@ae.metu.edu.tr

² Belgian Institute for Space Aeronomy, Ringlaan-3-Avenue Circulaire, 1180 Brussels, Belgium

³ Department of Electrical and Electronics Engineering, METU, Ankara, Turkey

⁴ Space Research Institute NASU & NSAU, Kyiv, Ukraine

⁵ Faculty of Ecology and Environmental Protection, University Union – NIKOLA TESLA, Belgrade, Serbia

Received 7 June 2012 / Accepted 9 January 2013

4. Northern Lights

IN THE FEBRUARY 2013 ISSUE >



Featured Articles

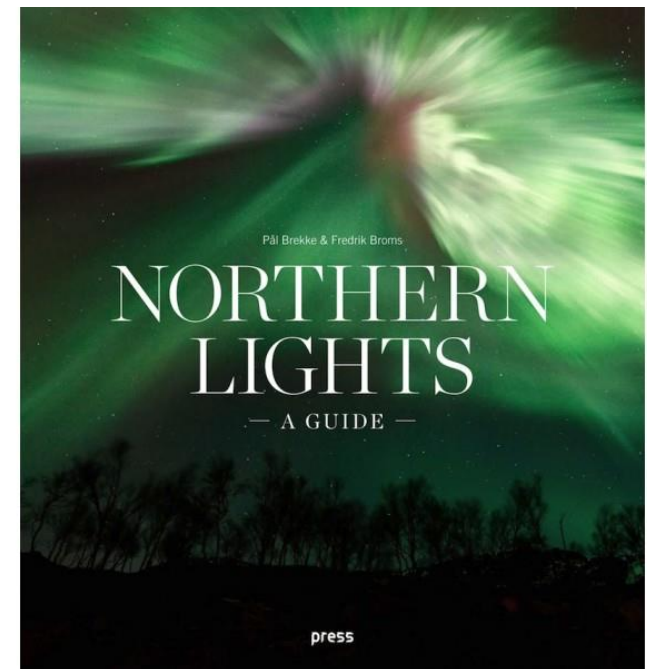


Secrets of the Northern Lights

After centuries spent marveling at auroras' spectacular and fearsome displays, people have solved many of their mysteries.

By Pål Brekke

Northern Lights - A Guide
By Pål Brekke & Fredrik Broms



5. Space Environment Information System: SPENVIS User Workshop



SPENVIS

NAVIGATION

- Home
- Access
- Register

- About SPENVIS
- Documentation
- Credits
- Rules of conduct

- My account
- Forums
- Bug tracker
- Lost password



SPENVIS User Workshop 2013 Brussels, Belgium 22 - 24 May 2013

[Click here for more information](#)

Welcome to [ESA's](#) Space Environment Information System, a WWW interface to models of the space environment and its effects, including the cosmic rays, natural radiation belts, solar energetic particles, plasmas, gases, and "micro-particles".

Space Situational Awareness

In the framework of ESA's SSA Preparatory Programme, the version 4.6.4 of SPENVIS has been re-deployed in Redu Data Centre.

Need help?

Beside a large set of contextual help pages, the SPENVIS system includes a forum (💬) where users can exchange their experiences and tips. In case of problems, please consult our bug tracker system (🐛) and feel free to post any bugs.

If you have forgotten your password, you can reset it [here](#). If you want to change your password, you can do it [here](#).

Registration

Use of SPENVIS on this site is **free of charge**, but a user registration is required. Please read the [terms & conditions](#) before registering.

If you are student or teacher, please read [this](#) first.

[Register now](#)

System requirements

SPENVIS requires a browser with JavaScript support (tested with Firefox 2.0.0.6 and MS-IE 7.0). Some outputs require a [VRML/X3D plugin](#) (tested with Octaga Player 2.3.0.3).

Current version

The current version of SPENVIS (4.6.6) was released on April 18, 2012.

Project Manager: Michel Kruglanski
Application Engineers: Erwin De Donder & Neophytos Messios
IT development: Emmanuel Gamby, Laszlo Hetey & Stijn Calders
Contact: spenvis_team@aeronomie.be

ESA Technical Officer: H. Evans



SPENVIS User Workshop 2013
Brussels, Belgium
22 - 24 May 2013

Steering Committee: M. Kruglanski (BIRA/IASB), H. Evans (ESA/ESTEC), E. Daly (ESA/ESTEC), D. Rodgers (ESA/ESTEC)

The SPENVIS User Workshop will be held at the [Royal Library](#) of Belgium, Belgium's national and scientific library. It is one of the most important libraries in Europe since its history goes back to the 15th century. It is located in the heart of Brussels at walking distance from the Central Railway Station.



Sessions:

1. SPENVIS in general
2. Space Radiation Environment
3. Geant4 Tools
4. Single Event Effects
5. Spacecraft Charging
6. Miscellaneous

EOEM OBJECTIVES

- To cover **E**merging space weather **M**arkets by acting as an umbrella for markets until they are “mature enough” to have a topical working group of their own in the context of an European space weather programme.

Potential future space weather markets:

- Possible effects (direct and indirect) of space weather on human health on Earth
- Aurora tourism
- Space tourism
- Astrobiology.

[Many have to do with human health.]

EOEM: The Future

Should the EOEM TWG be restructured into two groups?

- Education and Public Outreach
- Emerging Markets.