

Education, Outreach and Emerging Markets: Worldwide Efforts

Norma B. Crosby

Belgian Institute for Space Aeronomy, Belgium

Thursday, 21 Nov. 2013, 13:30-15:00

Room: Scala 2

SWWT EOEM Splinter, ESWW10, Antwerp, Belgium

SWWT Topical Working Groups (TWGs)

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

- Drivers of Space Weather (e.g. solar, S-T, including future missions and instrumentation) [Subgroup 1: Solar Magnetic Energy, spokesperson: H. Lundstedt (IRF) ; Subgroup 2: Solar Storms (Solar Flares, CMEs, SEP events), spokespersons: N. Vilmer (Paris Observatory) and O. Malandraki (NOA)]
- Ground Effects (GIC, prospecting, tourism), spokesperson: M. Wik (NeuroSpace)
- Atmospheric Effects (incl. drag), spokesperson: S. Bruinsma (CNES)
- Ionospheric Effects, spokesperson: M. Angling (University of Birmingham and QinetiQ)
- Spacecraft, Launcher and Aircraft Environments, spokesperson S. McKenna-Lawlor (STIL), co-spokespersons F. di Marco (VEGA) and G. Reitz (DLR)
- Education, Outreach and Emerging Markets, spokesperson: N. Crosby (BIRA-IASB)
- Space Weather Forecast, spokesperson L. Trichtchenko (NRCan), co-spokesperson S. Bloomfield (Trinity College Dublin)

Education, Outreach and Emerging Markets (EOEM) TWG

OVERALL OBJECTIVE

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

- Education and Outreach Activities
- Identifying Emerging Markets.

EOEM ESWW10 Splinter Abstract

The SWWT Topical Working Group (TWG) "Education, Outreach and Emerging Markets (EOEM)" concerns education (formal and informal) and public outreach activities. Efforts on both national level as well as international are included.

The EOEM TWG is also an umbrella for potential future space weather markets.

This year's EOEM splinter meeting will look back on some of the highlights from the last ten years and discuss the future too in regard to this TWG.

EOEM TWG: The next years

Looking for the next EOEM TWG spokesperson(s) as a function of future EOEM organization.

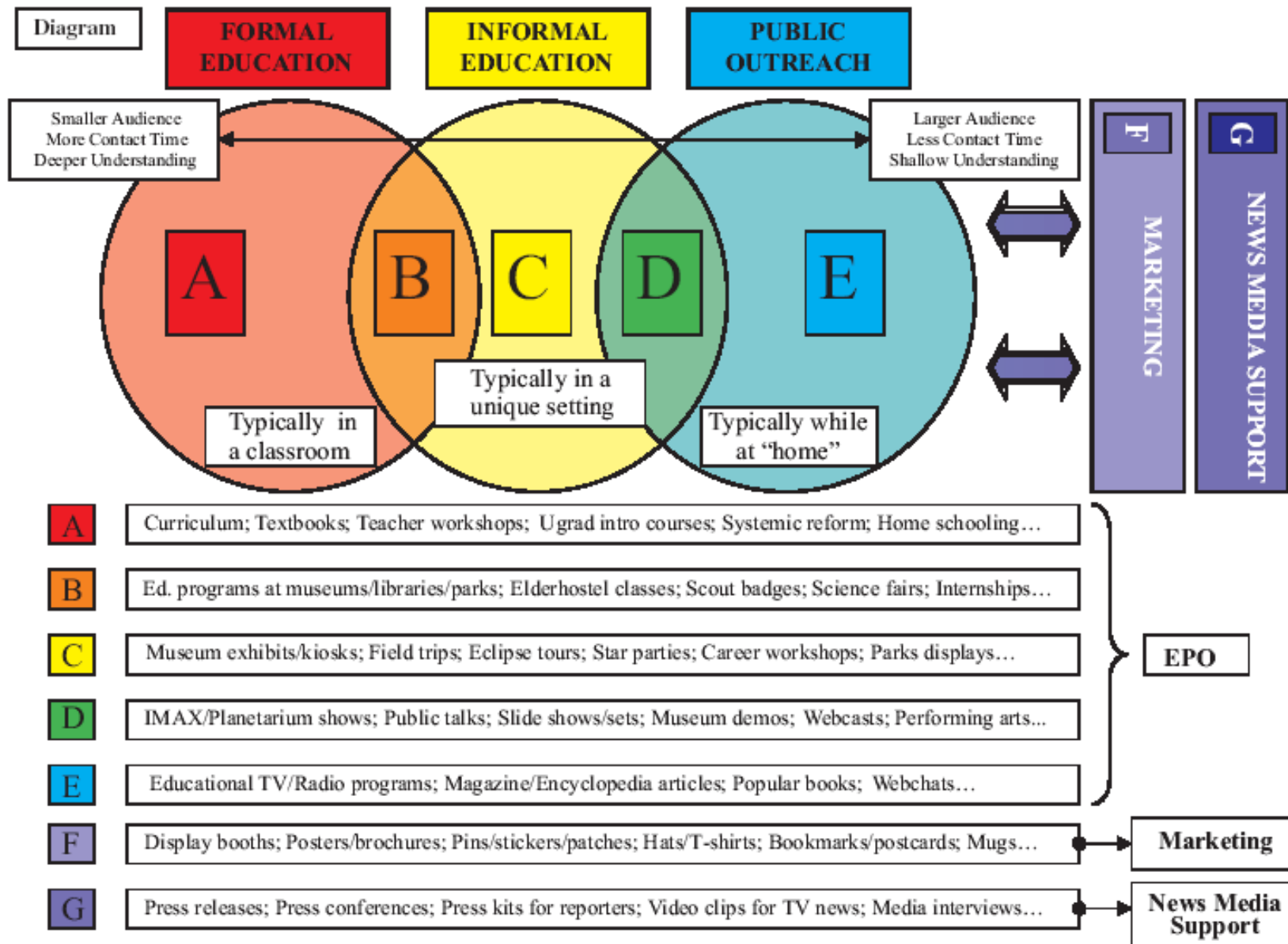
Should the EOEM TWG be restructured into two sub-groups or two separate TWGs?

- Subgroup 1: Education and Outreach
- Subgroup 2: Emerging Markets.

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.).



This 3-circle Venn diagram offers a conceptual framework for planning education and public outreach programs associated with scientific research programs.

Cherilynn Morrow, Space Science Institute, May, 2000. Email camorrow@colorado.edu.

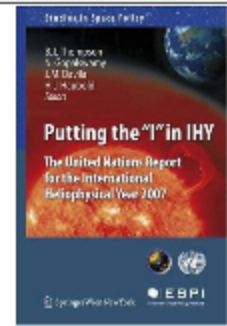
<http://www.spacescience.org>

International Heliophysical Year

Please Note: IHY has officially closed as of March 2009, and this site is no longer being updated. Many aspects of IHY are being continued through the [International Space Weather Initiative \(ISWI\)](#)

Additionally, analysis of IHY science campaigns is continuing through the [Whole Heliosphere Interval](#) activities

A book summarizing IHY's activities is available for purchase on [amazon.com](#)



The main banner for the International Heliophysical Year (IHY) 2007-2009. It features a large illustration on the left showing the Sun's magnetic field lines and the Earth's magnetosphere. The text on the right describes the goals of the year: 'Advancing our Understanding of the Fundamental Heliophysical Processes that Govern the Sun, Earth and Heliosphere', 'Continuing the tradition of international research and advancing the legacy on the 50th anniversary of the International Geophysical Year', and 'Demonstrating the Beauty, Relevance and Significance of Space and Earth Science to the World'. A circular inset on the left mentions the 'International Geophysical Year' and its 50th anniversary in 1957. The bottom of the banner includes the 'IGY Gold History Program' and a navigation bar with links: 'SCIENCE', 'OBSERVATORY DEVELOPMENT', 'OUTREACH', 'HISTORY', 'about', 'organization', 'get involved', 'newsroom', 'events', 'resources', 'contact'. On the far right, there is a vertical strip with four small images of space phenomena and a call to action: 'ENTER YOUR SCIENCE CIP ONLINE NOW'. Below the banner, there are two rows of flags representing participating countries and a row of language options: 'Česka', 'Deutsch', 'Español', 'Français', 'Italiano', '日本語', 'Nederlands', 'Polska', 'Slovenščina', 'Türkçe'.

<http://ihy2007.org/>

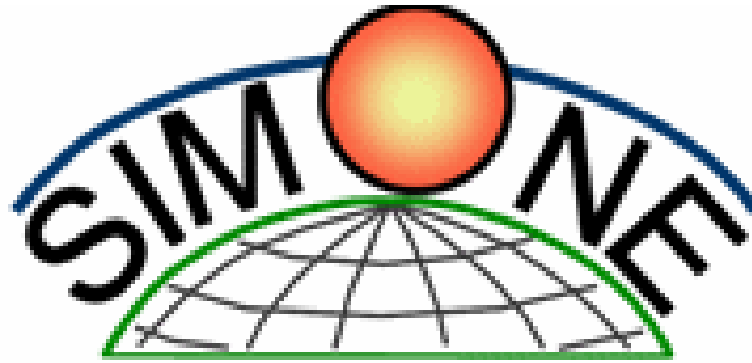
Space Weather and Europe - an Educational Tool with the Sun



The goal of SWEETS was to raise public awareness of space weather, the sun, solar activities, cosmic rays and their effect on our society.



SWEETS "Space Weather Bus"



Sun & Ionosphere MOnitoring NEtwork

SIMONE was a German student project for space weather research and was involved in German national activities related to the IHY.

The objective was to detect solar flares by measuring the intensity of long-wavelength radio signals.

I Love My Sun



My Drawings



Opendeurdagen / Portes Ouvertes 2013



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

EO Articles in the SWSC Journal

J. Space Weather Space Clim. 3 (2013) A07
DOI: [10.1051/swsc/2013029](https://doi.org/10.1051/swsc/2013029)
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RESEARCH ARTICLE

OPEN ACCESS

The Planeterra experiment: from individual initiative to networking

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

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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

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

DOI: [10.1051/swsc/2013026](https://doi.org/10.1051/swsc/2013026)

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RESEARCH ARTICLE

OPEN ACCESS

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

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Received 7 June 2012 / Accepted 9 January 2013



The Abdus Salam
International Centre
for Theoretical Physics

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AND APPLICATIONS**

18 - 29 October 2010

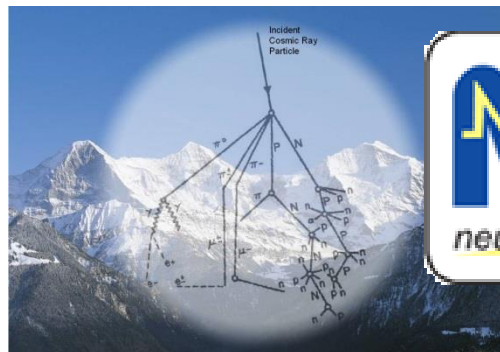
Miramare, Trieste, Italy

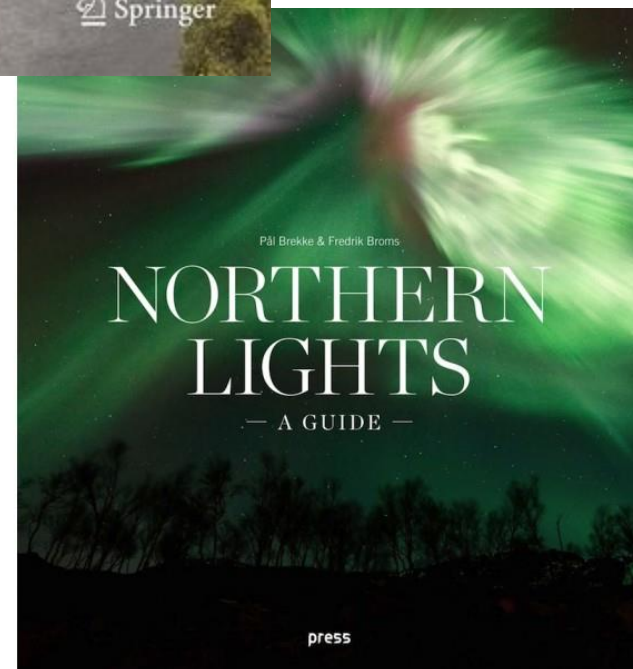
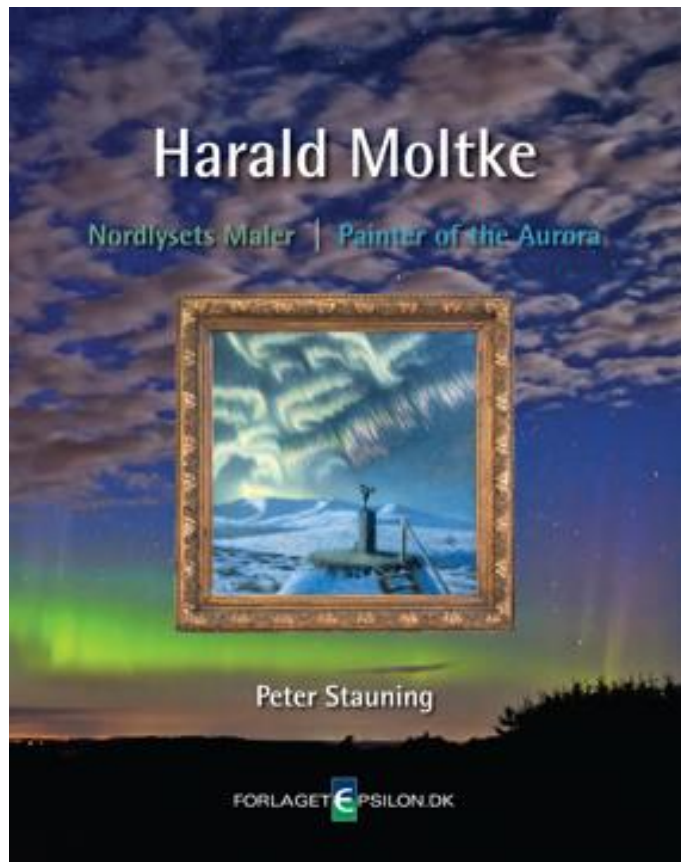


*First European School on: Fundamental processes
in Space Weather: a challenge in numerical modeling*

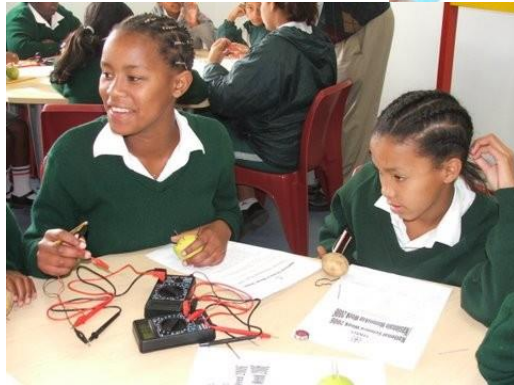
Organized by: *SWIFF* **Co-organizer:** *CINECA, COST Action ES0803*

Supported by: *Spineto Studi, INAF, Dip. Fisica Pisa*





SANSA Space Science in South Africa



Space Weather in the Space Physics class in UPV/EHU Space Science and Technology Master, Spain



Ebro Observatory, Spain

18 Nov. 2012 event



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

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@obs-ebre.es. Si voleu contactar l'Observatori de l'Ebre per a temes no relacionats amb aquest blog, consulteu 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 Blog

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



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.

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)





CLASSROOM COLLECTS AND PROVIDES SPACE WEATHER EDUCATIONAL MATERIAL. YOU CAN UPLOAD AND DOWNLOAD FOR FREE.

Language Audience Max number of results Keywords (search in abstract, title and authors)

TITLE	AUTHORS	LANGUAGE	AUDIENCE
Solar activity indices	Ioannis ZOIS	English	Master and phd students
Understanding the Space Environment	Whitney Lohmeyer	English	Press +
Διαστημικός καιρός και Ηλεκτρικά δίκτυα	Ioannis ZOIS	Greek	General public
Soarele. steaua de langa noi	Cristiana Dumitrache +	Romanian	General public
Space Education web page	Mari	Armenian	Press +
Proba2@School	Elke D'Huys +	Dutch	Press +
Satellites as a working tool	Dan Seaton +	English	Children 5-7years
La météo spatiale et les éjections de masse coronales	Luciano Rodriguez	French	General public
Space Weather: interpreting the wind	Petra Vanlommel +	English	Master and phd students
Ruimteweer	Petra Vanlommel +	Dutch	Commercial company

CLASSROOM is developed within the European Commission's Seventh Framework Programme **eHEROES**.

<http://stce.be/classroom/>

Education and Outreach:

Who to target?

- General public (e.g., educational institutions at all levels)
- Engineers and managers
- Policy makers
- Etc.

How to target?

EOEM

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.



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Welcome and Introduction

<http://swh2012.cosmos.ru/>



 English
 Русский

About the Conference

Space Weather Effects on Humans: in Space and on Earth

International Conference

Space Research Institute
Moscow, Russia
June 4-8, 2012

About the Conference

Important Dates

Organizing Committee

Program Committee

Registration

Abstract preparation
guidelines

Travel Information

Visa

Accommodation

During the last thirty years there has been steady progress in our understanding of the influence that space weather has on the state of human health both in Space and at Earth. This development is mainly based on research conducted on humans onboard space stations and

Emerging Markets:

Potential future space weather markets:

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

How to target?

The
Future

EOEM TWG: The next years

Should the EOEM TWG be restructured into two sub-groups or two separate TWGs?

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- Subgroup 2: Emerging Markets.

ESWW10

22 Nov. 2013, 15:15-16:45

Splinter on “Promoting Citizen Science for Space Weather Research and Applications”

EGU2014

ST6.1/EOS16/NH9.14/PS5.6 “Raising and maintaining awareness of our local space weather: education and public outreach (co-organized)”

Convener: Athanasios Papaioannou | Co-Convener: Jean Lilensten

29 Nov. 2013: Deadline for Support Applications