

Belgian Institute for Space Aeronomy (BIRA-IASB)

Institut d'Aéronomie Spatiale de Belgique (IASB)

Belgisch Instituut voor Ruimte-Aeronomie (BIRA)

# SWWTTWG EOEM (Education, Outreach and Emerging Markets)

Norma B. Crosby

Belgian Institute for Space Aeronomy, Brussels, Belgium

## http://spaceweather.eu/swwt/eoem



#### EUROPEAN SPACE WEATHER PORTAL

Home Search Log

#### Topical Working Groups

In addition, several "Topical Working Groups (TWGs)" maintain regular contact via email. TWG are responsible for initiating projects, discussing new advances and/or progress in existing research and service development. All members of the SWWT are invited to participate in the TWGs. The current list of TWGs are:

#### JROPEAN SPACE WEATHER PORTAL

Home Search Log in

The European gateway to Space Weather resources

#### Navigation

- About
  - COSPAR-PSW
  - COST
  - EU-H2020
  - EU-FP7

  - o ESA
  - SWWT o STCE
- Services
- Document Repository
  - Model Access
  - Data Access
  - Now / forecasting

  - Software
- Outreach
  - Introduction
  - Activities
  - Bibliography

#### Home

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

Submitted by Norma Crosby on Wed, 02/01/2012 - 16:31.

This website replaces the previous EOEM website.

#### Mission Statement

Main objectives of the EOEM Topical Working Group (TWG) are:

Other Resources DOCUMENTS

Sign In

- . Education (primary to university), both formally (e.g. schooling, textbooks, etc.) and informally (e.g. museum exhibits/kiosks, career workshops, etc.).
- Public Outreach activities for all ages (e.g. TV/radio programs, popular books, etc.).
- . Acts as an umbrella for Emerging Markets (e.g. space tourism, human health on Earth) in the context of European space weather services until markets are "mature enough" to have a TWG of their own or be part of one.

#### Composition

Spokesperson

Norma B. Crosby, Belgian Institute for Space Aeronomy, Ave. Circulaire 3, 1180 Brussels, Belgium

Email: norma.crosby@aeronomie.be

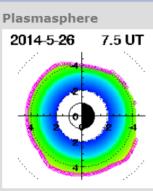
Several "Topical Working Groups (TWGs)" maintain regular contact via email. TWG are responsible for initiating projects, discussing new advances and/or progress in existing research and service development. All members of the SWWT are invited to participate in the TWGs. The current list of TWGs is as follows:



- Subgroup 1: Solar Magnetic Energy, spokesperson: H. Lundstedt (IRF)
- o Subgroup 2: Solar Storms (Solar Flares, CMEs, SEP events), spokepersons: 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) UPCOMING EVENTS



- You are not signed in. SWWT Terms of Reference
  - Minutes of Plenary Meeting 34 (20th November 2013)
    - Minutes of Plenary Meeting 33 (18th June 2013)



SEP event forecast

108



# EOEMTWG: The next years of DAERONOMIE SPATIALE DE BELGIQUE BELGIAN INSTITUTE FOR SPACE AERONOMY BELGISCH INSTITUTU VOOR RUIMTE-AERONOMIE INSTITUT D'AERONOMIE SPATIALE DE BELGIQUE BELGIAN INSTITUTE FOR (discussed last year at ESWW10)

## Should the EOEMTWG be restructured into two sub-groups or two separate TWGs?

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

## Participants were divided into four groups

- Brainstorming on the above topics
- Summaries were given by each group.



#### **Education and Outreach**



## Who to target?

- Children (7-18 years), Students (e.g. university), Elderly people (> 65 years)
- Broad general public
- Policy makers.

### How to target?

- Internet (social media), Visual aids, Open source, Virtual scientist, TV shows,
   Comic books
- Invite children to the Institute or "book a scientist" for schools
- Teach space weather to teachers (e.g. lectures); aurora (attractive subject to explain space weather)
- Special events (e.g. invite an astronaut, solar eclipse, Venus transit), Open Doors, Summer camps, Summer schools.



## **Emerging Markets**



### Potential future space weather markets

- Insurance companies
- Space law
- Aurora flights
- Medical consequences of space weather
- Filming industries/ stage performance.

### How to target?

- Associations, Insurance groups, High level unions
- Demonstration instruments and educational material
- MBA program in space weather
- Scientific support to tourism ("entertainment" = "educational"); visitor center to accompany tourist center.



## BIRA-IASB 1964-2014

# EOEMTWG: The next years of DAERONOMIE SPATIALE DE BELGIQUE BELGIAN INSTITUTE FOR SPACE AERONOMY BELGISCH INSTITUTUT VOOR RUIMTE-AERONOMIE INSTITUT D'AERONOMIE SPATIALE DE BELGIQUE BELGIAN INSTITUTE FOR (discussed last year at ESWW10)

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

## APPOINTMENT OF NEW EOEM SPOKESPERSONS WILL OCCUR THIS FRIDAY AT THE EOEM TWG SPLINTER:

- ✓ Dr. Petra VanlommelRoyal Observatory of Belgium
- ✓ Dr. Gaël Cessateur
   Physikalisch-Meteorologisches Observatorium Davos



## **ESWWII EOEM SPLINTER**



# Education and Communication: Citizen Science

Petra Vanlommel, Gaël Cessateur, Norma B. Crosby

Friday, 21 Nov. 2014 16:30 - 18:00 Room Mosane