

COST - European Cooperation in the field of Scientific and Technical Research

- **Funds what?**
 - Only coordination of science activities, through COST “Actions”
 - Run by Management Committee (MC)
 - Some tasks can be sub-divided into Working Groups
 - Up to 3 MC meetings per year
- **Funds who?**
 - 32 member states eligible to participate in actions
 - All EU and ESA states are members
 - Each participating state can appoint 2 members of MC
 - encourages links with non-COST states (eg USA, Canada...)
- **How much and for how long?**
 - 50-60keuro for up to 4 years

1

Proposal for COST Action on Space Weather

- **Main objective**
 - **to develop within a European framework the scientific basis of space weather applications, and to explore methods for providing a comprehensive range of services to a variety of users, based on modelling and monitoring of the Sun-Earth system.**

2

Proposal for COST Action on Space Weather

- **The general aims of the Action:**
 - To coordinate research into improving modelling and prediction of space weather
 - To promote where necessary the deployment of new instrumentation to satisfy data requirements, and the development of new models
 - To educate potential users of space weather data
 - To gather feedback from users which may be used to improve services
 - To develop a forum for exchanging “best practice” among users and providers of space weather services
 - To set standards on data exchange

3

Proposal for COST Action on Space Weather

- **Four Working Groups**
 - WG1 Space Weather and Satellites, Launchers and Aircraft
 - WG2 Space Weather and Human Health
 - WG3 Space Weather and Ground-based Technology
 - WG4 Space Weather Observations and Services
- **General Aims of WGs 1-3**
 - research modelling and forecasting
 - To promote where necessary deployment of new instrumentation to satisfy data requirements, and development of new models
 - set up data bases of measured effects
 - match outputs to user requirements
- **Aim of WG 4**
 - To develop coordinated service delivery (probably via web)
- **Duration - 4 years**

4

WG1 Space Weather and satellites, launchers and aircraft

- Aims of research
 - use of images and observations to predict space weather events, such as energetic particle enhancements
 - Prediction of variations in galactic cosmic radiation related to conditions in the solar wind
 - How are various types of technology affected by solar/cosmic radiation?
 - Use of geophysical and solar observations in predicting satellite drag
 - To promote where necessary deployment of new instrumentation to satisfy data requirements, and development of new models
 - Liaise with COST 271

5

WG2 Space Weather and human health

- Aims of research
 - use of images and observations to predict space weather radiation events
 - Prediction of variations in galactic cosmic radiation related to conditions in the solar wind
 - How are humans affected by solar/cosmic radiation?
 - Astronauts, airline passengers, aircrew,
 - Is it of concern on the ground?
 - (Refer to EU Directive 96/26/EURATOM)

6

WG3 Space Weather and Ground-based technology

- Aims of research
 - Is it possible to predict geomagnetic storms and ionospheric current systems from solar observations?
 - Is it possible to model associated ground electric fields?
 - Is it possible to model GIC in power systems and pipelines?
 - What other technologies are affected, or may be affected in future?

7

WG4 Space Weather Observations and Services

- Aims of research
 - Develop methods and standards for data exchange to enable coupling of different STP and applied models (eg Spacegrid?)
 - Coordinate network of European websites relevant to data, models, prediction, public outreach
 - Liaise with COST 271
 - STP models which may assist COST 271
 - Incorporate COST 271 output relevant to space weather network
 - Maintain database of users and statistics about the service

8

Management Committee

- Organise and oversee coordination of Working Group activities
- Organise annual seminars/workshops
- Coordinate publication of refereed articles on space weather.
- Promote public outreach with lectures, general articles etc.
- Liaise with ESF SPECIAL Network (which space weather data and models can be used to research links with climate?)

9

Proposal for COST Action on Space Weather

Interest expressed by:

- IGAM (Austria)
- BIRA, KU Leuven (Belgium)
- Geophysical Institute (Czech Republic)
- DMI (Denmark)
- FMI (Finland)
- CNES, LPG and Meudon (France)
- DLR (Germany)
- NOA (Greece)
- DIAS (Ireland)
- TAO (Italy)
- RWC Warsaw (Poland)
- Univ. Barcelona, Observatori de l'Ebre (Spain)
- IRFL (Sweden)
- Qinetiq, RAL, MSSL (UK)
- ESA
- +others

10

Proposal for COST Action on Space Weather

Current status of Proposal

- Draft Technical Annex at

<http://www.geomag.bgs.ac.uk/COST>

- Submitted on 18 March 2002
- Consideration by Meteorology TC 18/19 April 2002

11