

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

- **Funds what?**
 - Only coordination of science activities, through COST “Actions”
 - 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

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COST Action on Space Weather : Action 724 Developing the scientific basis for monitoring, modelling and predicting 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 modeling and monitoring of the Sun-Earth system.

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COST Action on Space Weather : Action 724

- **The general aims of the Action:**
 - To coordinate research into improving modeling 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

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COST Action on Space Weather : Action 724

- **Four Working Groups**
 - WG1 Monitoring and predicting solar activity for Space Weather
 - WG2 The radiation environment of the Earth
 - WG3 Interaction of solar wind disturbances with the Earth
 - 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 co-ordinated service delivery (probably via web)
- **Duration - 4 years**

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WG1: Monitoring and predicting solar activity for Space Weather

• Aims of research

- To research the use of solar observations (eg. extreme ultraviolet images, X-ray observations, radio emissions) and models (eg. magneto-hydrodynamic models of flux tubes) for predicting energetic particle events;
- To research the use of solar observations and models (as above) for predicting coronal mass ejections;
- To research the modelling and prediction of solar extreme ultraviolet radiation (EUV) which affects atmospheric density and hence drag on satellites at low Earth orbit altitudes.
- To liaise with COST Action 271 where monitoring and modelling of solar activity is relevant to ionospheric radio propagation;
- Liaise with WG4 to ensure relevant data and models are incorporated in a European Space Weather Network.

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WG2: The radiation environment of the Earth

• Aims of research

- To develop a quantitative model of the interaction of solar energetic particle events with the Earth's magnetosphere;
- To develop a quantitative model of the development of trapped radiation in the Earth's magnetosphere during geomagnetic storms;
- To develop a quantitative model of the variation of galactic cosmic radiation in response to solar activity;
- To study how electronic technology in satellites, launchers and aircraft is affected by the Earth's radiation environment;
- To study how humans are affected by solar and cosmic radiation in different activities (eg. astronauts, aircrew, air passengers, on the ground).
- To set up and maintain a database of recorded effects on electronic technology and human health;
- Liaise with WG4 to ensure relevant data and models are incorporated in a European Space Weather Network.

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WG3 Interaction of solar wind disturbances with the Earth

• Aims of research

- To develop a quantitative model of the propagation of observed coronal mass ejections (CME) through the interplanetary medium to predict their arrival at Earth;
- To develop a quantitative model to predict geomagnetic storms and ionospheric current systems from observations of the solar wind made by ACE;
- To liaise with COST Action 271 where modelling of the ionospheric response to geomagnetic storms is relevant to ionospheric radio propagation;
- To develop the capability to model electric fields induced in the ground by geomagnetic storms;
- To set up and maintain a database of recorded effects of geomagnetic storms on technological systems;
- Liaise with WG4 to ensure relevant data and models are incorporated in a European Space Weather Network.

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WG4 Space Weather Observations and Services

• Aims of research

- Coordinate a network of European websites relevant to data, models, prediction and public outreach;
- Develop methods and standards for data exchange to enable coupling of different space weather models (eg. using Spacegrid) and to disseminate relevant information to users;
- Liaise with COST Action 271 to let COST 271 benefit from space weather model development and to incorporate COST 271 output where it will be of benefit to other space weather services;
- Maintain databases of users and statistics about the service

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Management Committee

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



COST Action on Space Weather : Action 724

This COST action has been initiated by Toby Clark (UK), as an initiative of the ESA SWWT

Current status of Proposal

- Accepted
- Waits for inaugural meeting (may / june 2003)
- Coordination not finished. Countries are welcomed

website : <http://cost724.obs.ujf-grenoble.fr/>



COST Action on Space Weather : Action 724

- Israel: interested

- Belgium: 15/11/2002 Daniel Heynderickx
- Bulgaria: 20/11/2002 Tsvetan Pantelov Dachev, Ivan Kutiev Secretary
- Finland: 09/10/2002 Rami Vainio, Risto Pirjola Pavol NEJEDLIK
- France: 09/10/2002, Jean Liliensten, Thierry Dudok de Wit
- Germany: 09/10/2002, Frank Jansen, Norbert Jakowski
- Greece: 09/10/2002, Anna Belehaki
- Hungary: 16/10/2002, Viktor Wesztergom
- Italy: 15/10/2002 Maurizio Candidi Mauro Messerotti
- Spain: 07/11/2002 Sanahuja Parera Blas, De La Morena Carretero Benito
- United Kingdom: 09/10/2002, Richard Swinbank, 2nd in spring
- Total 10



I have no answer or sometimes even no contact in:
Austria, Croatia, Cyprus, Estonia, Holland, Ireland, Island, Latvia, Lithuania, Luxembourg, Former rep. Yugoslav of Macedonia, Norway, Poland, Portugal, Romania, Sweden, Switzerland, Fed. Rep. of Yugoslavia

A glass of (French) wine to anyone here who can help me !



What room is left for a COST action ?

- FP6: Galileo = 20 M € GMES = 45 M €
Satcom = 15 M €
- Network of excellence (FP 6): 10 M €/100
res./5years
- Integrated project (FP 6): ≈ few 10th M €
- Pilot project (ESA): ≈ few 100th k €
- COST (EEC)An average of 60 k €/per Action ...

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So, motivation is not money !

And other (national) possibilities for funding
are worth trying

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SO WHAT ?

- COST gives priority to research: applications are studied but
not realised
- Allows synthetic view of SW
- COST MC may be used as scientific committee for IP, PP,
NoE ...
- With no money (almost), little pressure: COST can be a
think tank for Space Weather. In particular, to define *what is
space weather* !
- COST will be the best place to define the future standards
for SW

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