

What Perimeter for a European Space Weather Programme?

F. Lefeuvre
1st European SW week – 29 Nov 2004

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? What problems ?

? What programme ?

? What Users ?

? What actions ?

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WHAT PROBLEMS ?

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- Effects on the Sun/Earth system of variations in the solar activity are recognized
- The existence of a US national SW programme is understood
- The point is to know if Europe is concerned and, if the answer is yes, who is concerned?

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SEC report on intense SW storms, Oct. 19-Nov. 07 2003

- For the Science mission operation team of the NASA Goddard Space Flight Center
 - 59 % of the Earth and Space Science missions experiences effects
 - 24 % of the missions either turned off their instruments or took other protective actions
- Air traffic operators reported minor to severe impacts on HF communications for airlines on polar routes, flight centers restricted flight paths
- GPS operations were affected by the change in TEC of the ionosphere - even for dual frequency receivers
- Power companies did experience some problems, etc.

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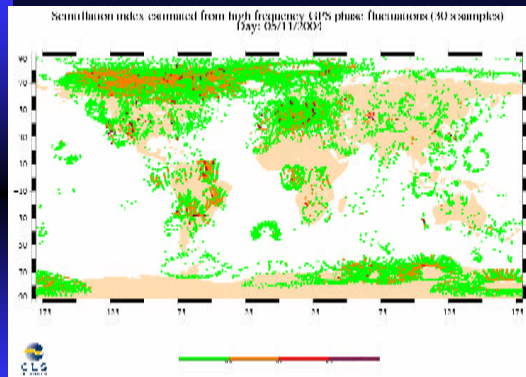
QUESTIONS

- ? Were the cautions taken for satellites and airlines were necessary or not?
- ? If yes, could the same problems affect European activities?

Part of the answers will be given in the reports of the ESA SW pilot projects – this week

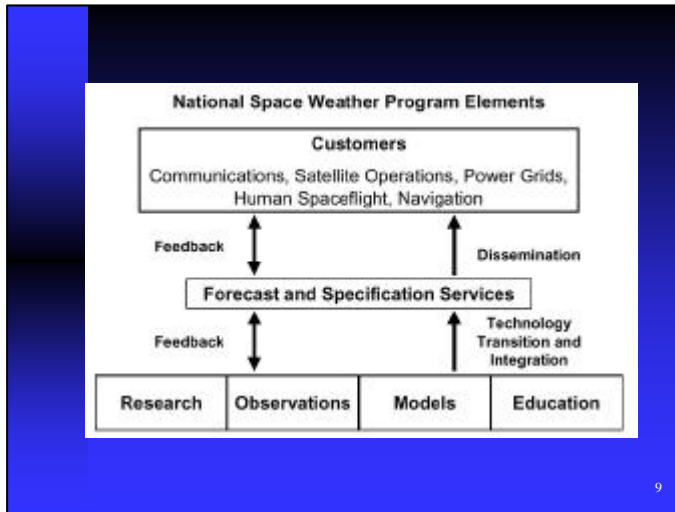
See the Nov 2004 CLS animation

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WHAT PROGRAMME ?

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EUROPEAN CONTEXT

Funding directed to Science

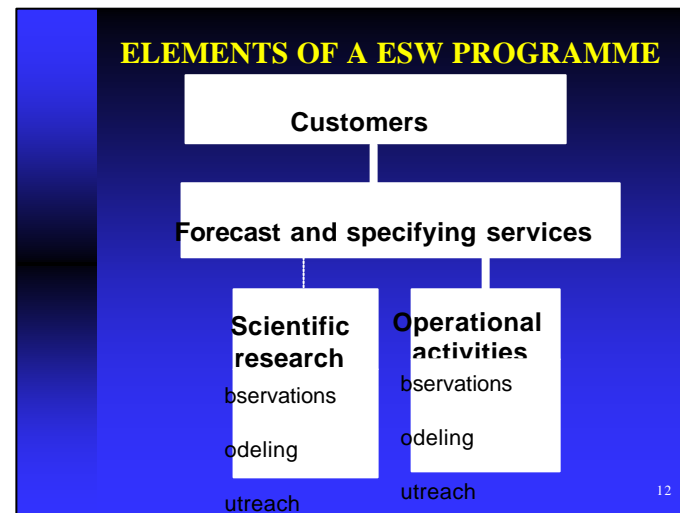
- The ESA Space Science Department (ILWS)
- EU
 - ? support mainly for management and networking
 - COST 724 (Developing the scientific basis for monitoring, modelling and predicting Space Weather)
 - ESF E-STAR project (European Solar Terrestrial and Atmospheric Research)
 - ? support for projects
 - framework programmes (FP6 ??; FP7 ?)
 - ERC ?
- National Agencies

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Funding directed to operational activities

- The ESA Technical Department
 - General Study Programme – GSP - (pilot projects, SWENET, etc...)
 - General Support Technology Programmes – GSTP – (R&D)
- EU
 - framework programmes (GMES and GALILEO included)
- National Agencies
- Private firms

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Links between science and operational activities

- Scientific activities provide
 - knowledge of the Sun/Earth system
 - Observations
 - Scientific models
- Operational activities provide
 - Identification of critical points to be studied in the Sun/Earth system
 - Statistical observations
 - Constraints on the scientific models

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WHAT USERS ?

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Satellite designers
Satellite operators
Launchers
Communication
Man in space
Security
ground systems
Insurance
Tourism
Research

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Present and potential European users

- Private firms
- National agencies (space, communication, meteorology, defence, etc.)
- European entities (ESA, EUMETSAT, GMES, GALILEO, European defence?, etc.)
European entities must receive demands and/or agreements from their member states

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Common problem

Each potential user would like to have a good estimation of the potential risks for its own activities. Pilot projects will provide some answers, but how to make a correct estimation without having :

- access to the relevant data bases (files on service limitations, data anomalies, geomagnetic activities, etc.) ?
- relevant funding ?

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WHAT ACTIONS ?

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Space Weather Working Team (SWWT)

A *forum* working on

- Strategic vision about the advancement of a European SW programme
 - actions directed to European entities (SWWT Board)
 - Actions directed to National entities (SWWT members)
 - Coordination of actions related to operational services
- Topical groups
- fundamental research (H. Lundstedt)
 - ground effects (R. Pirjola)
 - atmospheric effects (A. Blusson)
 - ionospheric effects (L. Cander)
 - Spacecraft and Aircraft environments (A. Hilgers)
 - Education, outreach and emerging markets (N. Crosby)

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- In the past elaboration and constitution of a COST action (COST 724)
- FP6 projects supported by SWWT
 - STREP proposals sent to GMES were rejected (ESA responsibility and/or secondary risks)
 - proposal submitted to NEST/INSIGHT
- Other FP6 projects
 - projects related to propagation through the ionosphere have been either submitted or accepted
- FP7 ? (action from national members ? From ESF?)

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EUMETSAT

- No involvement unless actions are demanded by national members
- However, one EUMETSAT officer will follow activities on radio occultation measurements

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Security

- A SW presentation will be made at 1st AAF international conference – Military space : Questions in Europe, April 25 – 27, 2005, Paris.
- A scientific committee including :
 - SWWT members
 - members of European National defence organizationsis progressively set up to organize a dedicated meeting or a dedicated session in an existing meeting

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Agenda of the Nov 30 SWWT meeting

1. Welcome , F. Lefeuvre
2. Adoption of the Agenda
3. Action Review from Previous Meeting (cfattachment)
4. Activities of Topical Groups - Topical group leaders
5. Pilot Project Mid-Term Review - A. Hilgers/A. Glover
6. IPY, eGY, IHY ... (topics introduced by M. Candidi in the GEN1 session) M. Candidi
7. Status of COST 724 Action , J. Liliensten
8. Joint SWWT COST724-WG4 meeting
9. Coordination of ESA Space Weather Applications Activities with COST Action 724 F. Jansen/J. Liliensten/A. Hilgers
9. Roadmap/Perspectives (F. Lefeuvre/J. Liliensten/A. Hilgers)
10. Next meeting
11. AOB.

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