

Introduction to Space Weather Application Pilot Project

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- Space weather scope
- Study objectives
- Roadmap

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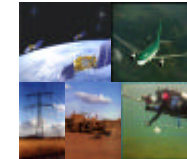
Scope of Space Weather

"conditions on the sun and in the solar wind, magnetosphere, ionosphere, and thermosphere that can influence the performance and reliability of space-borne and ground-based technological systems and can endanger human life or health"

[US National Space Weather Programme]

Some Space Weather Effects..

- Satellites and payloads affected by radiation, plasma, thermosphere, particulates;
- Astronauts - ISS, future exploration missions;
- Radiation hazards to air crew and avionics;
- Ground power outages from currents induced in lines;
- Disruption to communications relying on the ionosphere;
- Disruption of navigation satellite signals (GPS - Galileo);
- Prospecting;
- Climate;



ECOSPACE

SOLAR INFLUENCES

Solar corona

Solar wind

Magnetosphere

Ionosphere

Telluric

EXTRA-SOLAR INFLUENCES

Cosmic rays

Dust

Near Earth Objects

Seismic

MAN-MADE INFLUENCES

Electromagnetic

Radiation

Debris

Other...

How to best address the space weather issues in Europe?

- Activities now in Europe:
 - Geomagnetic indices (Kp, AE,...) part of world-wide network.
 - Ionosounds, Magnetometers, radars, observatories... (ground sci)
 - Scientific instruments (Space agencies + ground science)
 - S/C housekeeping radiation monitors (ESA + National)
 - Soon: METOP/SEM (Meteosat)
- Activities now in US:
 - **Same as in Europe** +
 - LANL fleet (DoE)
 - GOES fleet (NOAA)
 - TIROS fleet (NOAA)
 - DMSP fleet (USAF)
 - GPS fleet (USAF)
 - Huge R&D programme (especially USAF and LWS).

How to best address the space weather issues in Europe?

MARKET IN US:

- A FEW VERY BIG CUSTOMERS:

- NOAA (policy requirements)
- USAF (GPS and others...)
- NASA (ISS)

MARKET IN Europe:

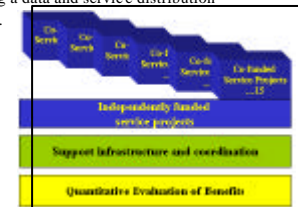
- SMALL CUSTOMER BASE:

- POSSIBLE IMPROVEMENTS:

- European independence & reliability
- Effective use of resources
- Reactivity to customer request

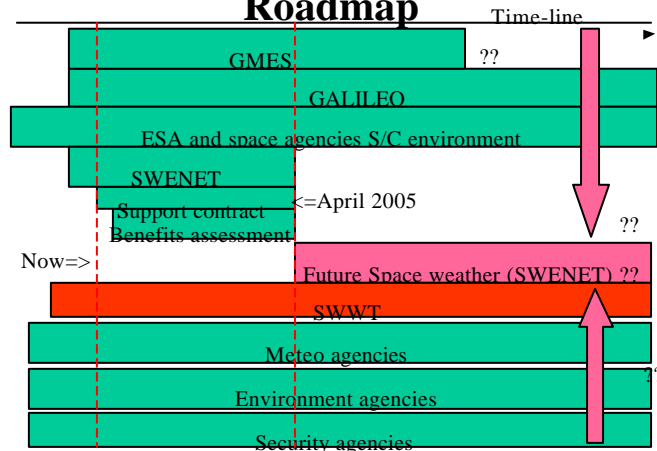
The Space Weather Applications Pilot Project (Funded by GSP)

- The pilot project focuses on developing a network of service development activities (SDAs) for space weather applications with close links to users.
- SDAs team users and service providers. Users play a key role in the SDAs, defining the service goals and participating in the final evaluation.
- SDAs are participating in a common Space Weather European Network (SWENET). An additional activity will be responsible for supporting and networking the SDA activities. Main tasks will include developing a data and service distribution infrastructure in consultation with the SDAs. Co-located meetings and workshops are also being organised.



- Finally, an independent benefit assessment will be carried out in order to establish the economic and other benefits of the services

Roadmap



Conclusion

- Very innovative way of working for ESA and other European entities.
- Need to demonstrate usefulness of coordinated activity.
- Need to foresee alternative support for a possible continuation of the coordinated service beyond April 2005.

