Space Weather Splinter
21 April 2009

Mike Hapgood
Agenda

1. Welcome
2. ESA Space Situational Awareness programme
3. Space Environment and Effects Network of Technical Competence
4. Space weather opportunities in Framework 7
5. COST action ES0803 - Developing Space Weather Products and Services in Europe
6. US report on extreme space weather
7. Discuss possible actions
8. AOB
Space Situational Awareness

- ESA SSA programme approved at Nov 2008 MC
  - Three-year initial programme (review 2011 MC)
- Build *operational* services to monitor conditions in space:
  - Objects, debris – collisions, hostile threats to spacecraft
  - Space weather & NEOs (emphasis on former)
  - Space weather is flagship for cooperation with US
- UK in core programme at minimum level (€330k)
  - Not (yet?) in options: space weather & data centres
- Relevance to MIST/UKSP
  - R&D to set up programme (e.g. SpW monitors, new services)
  - Demonstrates economic impact
SEENoTC

- **ESA network**
  - Members: B, D, E, F, S, UK + Eurospace
  - UK reps: Mike Hapgood & Ian McCrea

- **Focus on Space Environment & Effects**
  - Environment includes particle radiation & plasma
  - Sensors, data access, models

- **Harmonise R&D in these areas**
  - Identify relevant research
  - Look for synergies
  - Encourage collaboration
  - Seek future opportunities
Framework 7 - Space

• 3rd call expected 31 July, with a deadline of 30 November
• Expect ~€40-45m for *Strengthening Space Foundations*
  – Including *Reducing the Vulnerability of Space Assets*
  – Space weather and space debris, not in 1\textsuperscript{st} and 2\textsuperscript{nd} calls
  – Effects on spacecraft: forecasting, mitigation & modelling
  – Proposals must complement ESA SSA Programme

• UK FP7 space information day
  – BNSC planning for July, brief on 3\textsuperscript{rd} call
  – promote networking for UK participants
  – BNSC aware space weather is UK interest
  – perhaps advising on finding partners across Europe
Framework 7 – Research Infrastructure

• FP7 supports development of RIs
  – Projects to provide better infrastructure for research (instruments, services, tools, …)
  – I3 model: human networking, trans-national access and research on infrastructure (e.g. tools development)
  – HELIO – new heliospheric data access project starts 1 June under e-infrastructure line,
  – Next call is targeted rather than bottom-up, initial lobbying for space weather unsuccessful so far
  – EURIPPOS – proposed ionosphere/plasmasphere project, session at EGU
HELIO objectives

• To create a collaborative environment where scientists can discover, understand and model the connection between solar phenomena, interplanetary disturbances and their effects on the planets (esp. the Earth)
• To establish a consensus on standards for describing all heliophysical data and champion them within international standards bodies, e.g. the IVOA
• To develop new ways to interact with a virtual observatory that are more closely aligned with the way researchers wish to use the data
• Desire is to create something in useful to the community, however it chooses to use it. Therefore need input and feedback from the community during all phases of the project
# The HELIO Consortium

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Spring MIST @ NAM, April 2009
COST ES0803

http://www.costes0803.noa.gr/beta/index.html

Spring MIST @ NAM, April 2009
COST ES0803 structure

• WG 1. Advanced methods to model and predict space weather effects
  – SG 1.1: Progress in scientific understanding of space weather
  – SG 1.2: Performance of available research and operational models
  – SG 1.3: Improvement for operational models
  – SG 1.4: Codes for new space weather products and services
• WG 2. Space weather products and services
  – SG 2.1: Identification of current space weather resources
  – SG 2.2: Market segmentation including cartography and users requirements
  – SG 2.3: Feasibility study for new market-oriented products and services *
• WG 3. Exploitation, Dissemination, Education, Outreach
  – SG 3.1: Upgrade of the European Space Weather Portal
  – SG 3.2: Dissemination of advanced scientific and technical results
  – SG 3.3: Seminar and training courses
  – SG 3.4: General public outreach to the non-specialist
COST ES0803 organisation

- Provides EU funding for travel / networking
  - Workshops, …
- UK reps: Alan Aylward, Alan Thompson
  - MH deputy
- 1st workshop 1-3 Apr 2009
  - Weak UK attendance: AT + Rami Qahwaji (Bradford)
  - http://gifint.ifsi-roma.inaf.it/paperi.html
- Encourage more UK involvement
  - 13 UK expressions of commitment
- Is there a wider constraint on UK involvement in Euro SpW? Time? Money? RC interest?
US report on extreme SpW

• Workshop in May 2008, report in Jan 2009
• Attracted wider attention
  – March 09 NS article stimulated much interest
  – Including a couple of PQs (but also nutty fringe)
• Uses Carrington event as canonical example
  – Builds on 2006 ASR special issue
  – Example of Low Frequency High Impact event –
    transcends everyday experience, needs science input
  – Some government awareness of this issue
• How to follow up in sensible way?
  – MH exploring what science is needed
AOB?