



Space Weather Precursor Services under ESA's SSA programme

Gareth Lawrence (1), Simon Reid (1), Eva Robbrecht (2), Michel Kruglanski (3), Rowena Smillie (4), Norbert Jakowski (5), Daniel Heynderickx (6), Pablo Beltrami (7), and Truls-Lynne Hansen (8)

(1) RHEA System SA, Louvain-la-Neuve, Belgium (g.lawrence@rheagroup.com), (2) Royal Observatory of Belgium, Uccle, Belgium (eva.robbrecht@oma.be), (3) Belgian Institute of Space Aeronomy, Uccle, Belgium (michel.kruglanski@oma.be), (4) Spacebel SA, Hoeillart, Belgium (rowena.smillie@spacebel.be), (5) German Aerospace Centre, Neustrelitz, Germany (norbert.jakowski@dlr.de), (6) DH Consultancy, Leuven, Belgium (DHConsultancy@skynet.be), (7) Etamax Space GmbH, Braunschweig, Germany (p.beltrami@etamax.de), (8) University of Tromso, Tromso, Norway (truls.hansen@uit.no)

The contract SN-1 Space Weather Precursor Services (Part 1) is one of the first contracts to be awarded by ESA under the Space Weather element of the Space Situational Awareness (SSA) programme. Of the three SSA elements, the Space Weather element is the most mature since a variety of assets already exist to facilitate the study and understanding of the hazards and the risks they pose. Furthermore, Space Weather research is a well-established discipline within Europe, so we are in the fortunate position of having access to both state-of-the-art resources and world-leading expertise. The challenge for the SSA Space Weather element is to consolidate this disparate set of resources so as to optimise them as a system.

The Space Weather Precursor Services has two primary objectives: a) develop roadmaps and requirements for a future set of SSA Space Weather services, and b) deploy existing topical key assets to provide initial Space Weather services. The development activity involves: an audit of all relevant assets distributed throughout Europe and ESA member (and partner) states; a review of all services that the Space Weather element will need to provide under the future system; and the critical roadmapping of how to develop existing and new assets in order to optimally provide this set of services. The deployment activity will: collect a set of existing assets under a purpose-developed User Portal to provide a first iteration of the future services; implement a Coordination Centre and other necessary User Support infrastructure; and engage end users to familiarise themselves with a Service-Oriented approach and provide feedback to further improve the future Space Weather services. Both activities will make extensive use of a network of Expert Service Centres, each of which will be led by a core team member and which further includes the highest level expertise within Europe.

The presentation will detail the overall objectives and current status of the project, and outline the make-up of the project team and partners. The overall service topology of both the Space Weather element and SSA programme will be described, and we will elaborate on key concepts like Federated Elements, Expert Groups, User Domains and Expert Users and illustrate the relationships and dependencies between them. It is important to note that the scientific community is anticipated to be an End User of SSA services from the earliest stages, and two of the eight User Domains are clearly aimed at scientists. We will underline the important role that the scientific community has to play in the evolution of the project, and show how this input may influence the future Space Weather services provided under the SSA programme.