

ESA STUDY CONTRACT REPORT			
ESA contract no: 14069/99/NL/SB	Subject: Study for an ESA Space Weather programme		Contractor: CCLRC
* ESA CR() No	* STAR CODE	This is volume 1 of 1	Contractor reference: ESWS-RAL-RP-0002
<p>Abstract: This study investigated the requirements for, and implementation of, a European space weather programme. The study has followed a systems approach: (a) establishing user requirements for space weather services, (b) identifying the measurement capabilities and modelling processes required to support these services, (c) specifying the instruments needed to perform those measurements, (d) specifying the infrastructure required to support those sensors, to collect data from them and to generate and disseminate the required products, and (e) maintaining traceability throughout this process. The result of the study is a proposal to establish a space weather programme that collects data on relevant space weather parameters through a combination of space-based and ground-based sensors and processes these to deliver products required by users. We conclude that implementation of space-based sensors will require an explicit programme involving a mixture of dedicated missions and hitch-hiker payloads. In contrast, the ground-based sensors could be built on the existing and extensive base of ground-based measurements across Europe. But there is an urgent need for better European co-ordination in order to demonstrate the value of such measurements and build support for continued funding. At present ground-based programmes are fragmented and thus are often at risk of cuts. We have developed a plan for the organisation and implementation of a European space weather programme to achieve these objectives. We have also identified a set of options to allow the phased implementation of this programme according to the available funding.</p>			
The work described in this report was done under ESA contract. Responsibility for the contents resides in the author or organisation that prepared it.			
Names of authors: M. A. Hapgood			
ESA Study Manager: A. Hilgers Div. Directorate		ESA budget heading TBC	