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Cluster Science Data System  
Scandinavian Data Centre  
Readiness Review  
Executive Summary

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# 1 Introduction

## 1.1 Overview

The Scandinavian Data Centre constitutes one national data centre (NDC) out of 7 national data centres in the Cluster Science Data System. The SDC has responsibility for producing EFW data products for the CSDS. Its prime customers are the Scandinavian science community and the other data centres.

The SDC is physically located at the Alfvén Laboratory, Royal Institute of Technology, Stockholm, Sweden. The implementation workload is, however shared between Cluster EFW CoI research groups in Sweden, Norway and Finland as described in section 1.2. The implementation work and operations will be done basically within the frame of normal research department resources.

The limited resources for the software development implies that the design is made in a work-load efficient way, and no major new development is undertaken. Examples of such consequences are:

- Implementation is made on an existing Open-VMS/Alpha system where we have deep system knowledge due to long experience of using VMS systems.
- The Data Base Server contain modules from the ISDAT data base handler which has been developed as a prototype for Cluster detailed data handling over several years prior to the SDC development.
- The SDC depends on the CSDS User Interface as external user interface and for certain data base services.

A major advantage of the SDC development situation is that all development is done in close contact with (or even directly by) the EFW scientists, thus assuring high product quality from the scientific point of view.

## 1.2 Management

The SDC development is performed in co-operation between the space physics research groups at the Royal Institute of Technology (Alfvén Laboratory), the Swedish Institute of Space Physics (Uppsala Division), The University of Oslo (Physics Department), and the University of Oulu. The responsibility for the implementation lies with the SDC manager (G. Holmgren, IRF-U). In addition there is a SDC Technical Manager (Bengt Harald Nilsson, KTH), and a SDC Scientist (Per-Arne Lindqvist, KTH). These three, together with staff from the UiO and Oulu groups form a Project Group that meet regularly (approximately once per month) for progress reporting and discussion of implementation issues. The project group reports to a governing group consisting of heads of the four research groups. Progress reports are also given to EFW team meetings, and the CSDS project. The head of the Plasma Physics Division of the Alfvén Laboratory, Professor Carl-Gunne Fälthammar, represents the SDC in the CSDS Steering Committee.

## 1.3 Acronyms

Acronym	Meaning
CoI	Co-investigator
CSDS	Cluster Science Data System
DDR	Detailed Design Review
EFW	Electric Field and Wave Experiment
IRF-U	Institutet för Rymdfysik, Uppsalaavdelningen Swedish Inst. of Space Phys., Uppsala Division
ISDAT	Interactive Science Data Analysis Tool
IWG	Implementation Working Group
KTH	Kungliga Tekniska Högskolan Royal Institute of Technology
NDC	National Data Centre
PI	Principal Investigator
SDC	Scandinavian Data Centre
UiO	University of Oslo

Table 1: Acronyms

## 1.4 Reference Documents

- [1] Cluster Science Data System, Architectural Design for the Scandinavian Data Centre. Technical Report DS-SDC-AD-0001, KTH, October 1994. Issue 1.4.
- [2] Cluster Science Data Package, SDC Acceptance Data Package. Technical Report DS-SDC-TN-0001, IRF-U, September 1995. Issue 2.0.
- [3] CSDS Operator's Manual for the Scandinavian Data Centre. Technical Report DS-SDC-UM-0001, KTH, September 1995. Issue 1.1.
- [4] CSDS User's Manual for the Scandinavian Data Centre. Technical Report DS-SDC-UM-0002, KTH, September 1995.
- [5] Scandinavian Data Centre, user requirements. Technical Report DS-SDC-UR-0001, Swedish Institute of Space Physics, Uppsala Division, September 1993. Issue 1.2.

## 2 Technical Status

A detailed technical status report is given in [Ref. 2].

## 2.1 Software

Both the pipeline processing (CSDS parameter processing) and the interactive processing (health control, EFW calibration update, quick science etc.) are based on ISDAT components. All main components are implemented and are running. Some components, like spacecraft ephemeris, FGM data access, final calibration routines, still remain to be updated or implemented. However, all missing software components will be implemented prior to the launch. Basically, the late scheduling of the implementations are due to a coordination with software development within the Cluster Wave Experiment Consortium (WEC) in order to avoid duplication of work. All interfaces to the CSDS are tested and running.

## 2.2 Documents

The following CSDS/SDC documents are all up to date:

1. CSDS SDC User Requirements [Ref. 5]
2. CSDS SDC Architectural Design [Ref. 1]
3. CSDS SDC Operator's Manual [Ref. 3]
4. CSDS SDC User's Manual [Ref. 4]

## 2.3 Tests

The following tests have been performed. Test reports are included in [Ref. 2] where applicable.

**Unit tests** There are no major outstanding anomalies.

**SDC acceptance by CSDS** The SDC acceptance test was performed 19 May 1995. The test was witnessed and approved by ESTEC.

**Integration tests** We have one major outstanding SPR: The ISDAT map file generation can only be performed on a limited number of files for each session. This does, however, not prevent the SDC from running the pipeline processing.

**CSDS User Interface Acceptance Test** About 50 SPR:s of varying importance have been reported to ESRIN. The CSDS User Interface Release 3 has been accepted by the SDC.

**System Functional Tests, SFT** No major anomalies were identified.

## 3 Schedule

The SDC development is basically on schedule.

## 4 Conclusions

We conclude that the SDC, as a data centre, is ready for the CSDS commissioning phase. In the EFW scientific software there are still components that remain to be implemented or improved. However, this is in accordance with plans and all required components will be in place in time for the CSDS commissioning.