

ECDS – Environment Climate Data Sweden

Annual Report for 2011





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Appendices

Only available in Swedish, not included in this document

- 1 ECDS operational plan**
- 2 Current status for activities in the operational plan**
- 3 Participants in the ECDS reference group**
- 4 Summary of promotion activities**
- 5 Communications plan**

This report summarises the activities and financial results for the year 2011.

1 Introduction

Environment Climate Data Sweden (ECDS) is a joint undertaking of the Swedish Research Council (VR) and the Swedish Meteorological and Hydrological Institute (SMHI). The purpose of this service organisation is to improve the access to data for Swedish climate and environmental researchers. ECDS will make it easier for researchers to access existing data both within Sweden and abroad and will also provide support and advice for data issues for the entire research process. The Swedish Research Council has promised to finance ECDS with at least 4.5 million Swedish kronor (SEK) per year during the period 2009-2013, and SMHI contributes with at least 1.7 million SEK per year.

ECDS is a knowledge centre for national and international datasets and provides the link between data owners and data users. The activities focus on collection and distribution of information about the data, as well as storage, documentation and making the data accessible. ECDS is a competence centre for data management, with information about standards and tools for making data accessible.

The ECDS data service has a user interface via a web portal. Communication with other data portals is planned to be automatic, i.e. it should be possible to “harvest” metadata at the system level of other data portals. In the same way, ECDS should be able to harvest metadata from external systems. Standardised metadata catalogues are a prerequisite for this to work, and ECDS follows the ISO standards that have been put down for geographic data.

2 Summary

The work started in May 2009, and the time until the end of 2010 was spent building up the organisation, appointing staff and a Board, and organising and planning the activities. Knowledge and information was gathered about national and international climate and environmental databases as well as standards for data exchange and IT tools. Development of the ECDS Data Portal began.

During 2011 the ECDS Data Portal was put into operation. The first data sets were published and the support function was established in consultation with the first users. External activities such as promotion and data collection were started.

3 Activities during 2011

The ECDS activities are described in the operational plan, which together with the budget is approved by the Board in November each year.

The ECDS organisation has an outreach part and a technical part focused on IT development. Figure 1 below shows a symbolic diagram of the ECDS infrastructure.

During 2011 the activities have focused on:

1) Operations

- a) Continue to build cooperation with the users, in particular within the ECDS reference group
- b) Inform and promote ECDS at meetings, workshops and conferences, both nationally and internationally
- c) Develop ECDS communications with the users
- d) Develop the ECDS website, www.ecds.se
- e) Collect user requirements for continued development of the data portal
- f) Launch ECDS with the media

2) Technical support

- a) Put the ECDS Data Portal 2.0 into operation in June
- b) Develop the data portal and metadata profile to enable it to be adapted to INSPIRE
- c) Develop the support function for users, the ECDS Help desk
- d) Enable data storage at Swestore

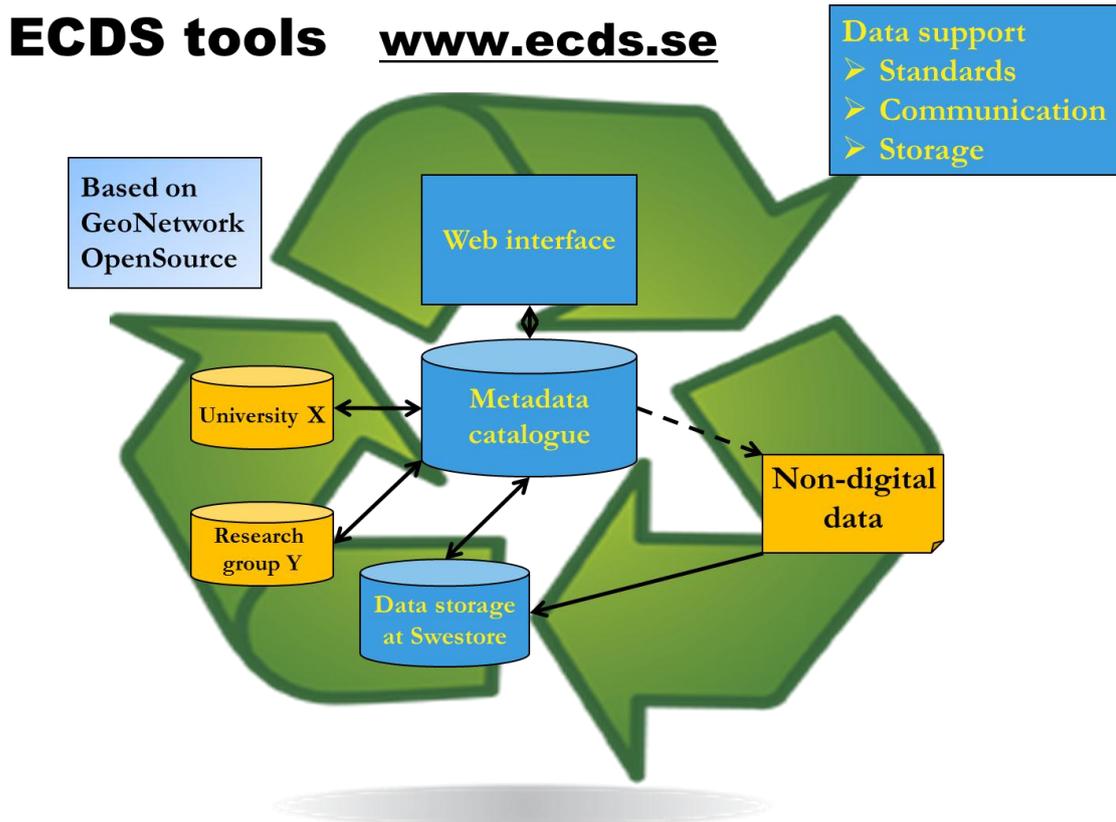


Figure 1. Data recycling - symbolic diagram of the ECDS infrastructure

At SMHI the ECDS activities are carried out in the Core Services Department. ECDS has its own budget and its own cost centre where all transactions are entered. ECDS is however not a separate

department in SMHI's organisation. The Director is part of the Core Services marketing unit and the system administrator belongs to a unit of project managers. Other resources within ECDS belong to different parts of the organisation such as the IT department and the Research department. Their time is purchased by internal transactions. This method provides better flexibility by being able to adapt the work force according to the competence needed for ECDS.

IT development has been carried out from the start in 2009. A first, simplified system solution, ECDS Data Portal 1.0, was in operation very early on but was not used much. In June 2011 the ECDS Data Portal 2.0 was put into operation.

SMHI was responsible for the Swedish IPY data portal. Metadata from this portal has been transferred to the ECDS Data Portal during 2011, which means that Swedish IPY data can now be searched using the ECDS Data Portal. The IPY data portal will be phased out.

The first ECDS Director, Håkan Grudd, was appointed in 2010-01-01 to work 75 % at SMHI for ECDS and 25 % as a researcher at Stockholm University. During autumn 2010 it became clear that Håkan would leave ECDS at the end of 2010, for a new post as researcher at Stockholm University. The task of recruiting a new director began and from 2011-01-01 Thomas Klein is the Director of ECDS. Thomas works 75 % with ECDS and 25 % with other tasks at SMHI.

3.1 Competence

During the period 2009-2011 the working group for ECDS has been successively put together. Three members of staff have been recruited externally to SMHI specifically for ECDS work, and other members are existing internal resources at SMHI with different competences. At the end of 2011 the group was made up of 9 members, working between 10 and 100 % and covering the following roles:

- Director
- Promotion and data collection
- Help desk
- Communication
- System administration, coordination
- Technical system administration
- IT architecture, data modelling
- System development
- Expert on ISO standards and the INSPIRE directive.

3.2 Reference group

The ECDS reference group consists of both data users and data providers. Their role is to influence:

- The metadata profile
- The requirements specification
- The design of the user interface

And also to:

- Act as ambassadors for ECDS
- Contribute to data collection.

The members of the reference group were recruited during spring 2010 and have been gradually increasing. The reference group now has 20 active members.

3.3 Collaboration with the NSC

Collaboration with the NSC (National Super-computer Centre in Linköping) has continued with regular meetings and practical development work.

The result of the collaboration with the NSC is that the ECDS users can store data on Swestore. In addition the following documents have been produced to form the basis of the data storage activities:

- Collaborative contract for ECDS as a part of SMHI's contract agreement with NSC
- Letter of Intent for ECDS and Swestore, the basis of the definition of the ECDS role within Swestore
- ECDS data storage policy.

3.4 Scientific Advisory Committee

According to the agreement between SMHI and the Swedish Research Council, ECDS has to have a Scientific Advisory Committee. "The Committee shall have a broad membership, national and international, from different fields. The Committee shall include members from international joint organisations and researchers with expertise in several aspects of data requirements for climate and environmental research."

The main tasks of the Scientific Advisory Committee are as follows:

- Provide advice as to how ECDS should contribute to Swedish environmental and climate research of the highest standard
- Evaluate the work and progress of the initiative compared with the goal of improved access and data sharing for environmental and climate research, and provide advice about strategies and priorities.
- Recommend further actions, including possible complementary activities (projects or programmes), to improve complete and open sharing of data and information within the environmental and climate area.
- Ensure compatibility and integration between ECDS and relevant European and international initiatives within the environmental and climate area such as SEIS, INSPIRE, COST, GEOS, and ICSU.
- Evaluate the spectrum, balance and quality for scientific content that is made available through the initiative and provide advice on general scientific issues related to environment and climate.

Against the background of these criteria, the following Scientific Advisory Committee for ECDS was appointed during 2011:

- Deliang Chen, Göteborgs University, Executive Director of the International Council for Sciences (ICSU) until 2012.
- Manuela Soares, DGRTD (The EC's Research Directorate), and European alternative chair for the GEO initiative (Group for Earth Observation)
- Ipek Erzi, Tubitak (Scientific and technological research council of Turkey), Vice-chair of the COST domain committee ESSEM
- André Jol, Head of Vulnerability and Adaptation group, EEA (European Environment Agency).

A first meeting was organised during 2011 and took place on 8-9 February 2012 at the same time as an ECDS Board meeting.

3.5 Promotion activities

Promotion started in 2010 by participating in national and international conferences and workshops, and establishing the reference group.

During 2011 the ECDS external activities have successively increased. Once the ECDS Data Portal 2.0 became operational (summer 2011), the ECDS Data Portal and services could be promoted. Members of the ECDS reference group contribute to this work by being ambassadors for ECDS within their own networks.

During the year, ECDS has also started to actively contact researchers who might consider contributing interesting data to the ECDS Data Portal. Around fifty researchers have been contacted, mainly through existing networks and by searching at universities and colleges. The experiences from this activity will be important for the more structured search activities that are to be carried out during 2012.

In general the response to ECDS activities has been very positive. Both researchers that have contacted ECDS and researchers that have been contacted by ECDS have shown an interest and understanding of the task of documenting and sharing research data for environment and climate.

3.6 Communication

ECDS external communication in 2011 has been carried out in different ways:

- Cooperation, see sections **Fel! Hittar inte referenskölla.**, 3.3 and 3.4
- Support to users, see section 4.4
- Meetings and seminars, see section **Fel! Hittar inte referenskölla.**
- The website, this section
- Other promotion activities, this section

In addition to promotion, cooperation and support, the communication activities during the year have mainly consisted of building up the website ecds.se and producing the basic documentation needed to promote ECDS.

The ECDS website guides users of the data portal and provides support for data management issues. It also contains information about contact persons, collections of links and a description of the ECDS work. The front page has a news flow to keep it dynamic, which flags important events and new datasets.

The website is constructed following the SMHI concept for project sites, where relevant guidelines for the web are incorporated. The ECDS reference group has influenced the design of the website. The first working version was put into operation in June. Visitor statistics can be found in section 7.

To strengthen the establishment of ECDS, a graphic profile was developed, including a logo and other graphic elements. An information base for communications was put together, containing information sheets, PowerPoint presentations for various purposes, and a template for posters.

In September ECDS was launched at SMHI with a news article on the intranet and with seminars. The first general external launch of ECDS took place in December with a press release to the media and to information officers at selected universities and institutes, see table 1 below.

A communications plan has been developed for these activities. The work during the autumn and the plans for 2012 mainly focus on getting more data into the portal. ECDS has the ambition to cooperate with Swedish LifeWatch and the Swedish Research Council on communication matters.

Table 1. Result of the press release on 7 December

The article was sent out to media and academic networks as well as around 20 information centres at universities and authorities. This resulted in the following articles:

| News distributor and articles | Effect |
|--|--|
| smhi.se http://www.smhi.se/omsmhi/press/Pressmeddelanden/nu-sakras-svensk-miljo-och-klimatforskning-1.19085 | Number of visits: 529 |
| SMHI newsletter "Medvind", notice | |
| SMHI Twitter | Retweeted 11 times, including Miljöbloggen which has 800 followers |
| ReCycling: http://www.recyclingnet.se/artiklar/forskarnyheter/tjanst-for-okad-atkomlighet-av-klimatdata/ | |
| Klimatsmart: http://klimatsmart.se/?page=news&id=14116 | |
| Newsdesk: http://www.mynewsdesk.com/se/pressroom/smhi_-_sveriges_meteorologiska_och_hydrologiska_institut/pressrelease/view/nu-sakras-svensk-miljoe-och-klimatforskning-713047 | |
| Miljörapporten: http://www.bwz.se/miljorapporten/b.aspx?l=A17D935F-4378-4D43-B09F-D2B604F6FDC9&r=63223&rcrc=98287FB6 | |
| Swedish LifeWatch: http://www.slu.se/lifewatch | |

3.7 Metadata profile

The key to a successful data portal for data exchange is to standardise the metadata and data communication. SMHI has recommended that ECDS follows ISO standards and that the metadata profile satisfies the requirements of the INSPIRE directive. The concrete work has been based on ISO19115 Core and has also taken IPY's metadata profile and the Swedish national geodata profile used in the Geodata portal (www.geodata.se) into consideration.

Research data is not actually covered by the INSPIRE directive, but since researchers are interested in data from authorities, which will be made available following INSPIRE's metadata profile, the possibilities for data exchange for the ECDS metadata increase if the INSPIRE guidelines are followed. ECDS aims to expand the metadata profile so that researchers wishing to publish data both within ECDS and the Geodata collaboration will be able to use the same metadata profile and therefore avoid doing the same work twice.

The foundations have been laid for both these metadata profiles but we are working towards a moving goal. ISO standards are being developed and the INSPIRE directive is still under implementation, which means that implementation rules and data specifications are being formed in parallel with our work. The ECDS metadata profile is therefore a dynamic document.

During 2010 the first version of the ECDS metadata profile was documented. It was realised in the ECDS Data Portal 2.0 during 2011 and is clearly visible in the user interface for input of metadata.

4 Technical developments 2011

Technical developments during 2010-11 have focused on the ECDS Data Portal level 2, an advanced data portal where metadata can be published and searched. Data providers can also be offered data storage on Swestore.

The ECDS Data Portal 2.0 was put into operation in June. ECDS uses the *open source* software GeoNetworks as a base for the technical platform. The GeoNetworks user interface has been simplified and further developed to suit the needs of the ECDS users.

The latest versions of the technical vision, requirements specification and project plan are available on the ECDS ProjectPlace at www.projectplace.se.

4.1 User-centred development

A requirements specification was produced in preparation for the development of the ECDS Data Portal 2.0. The requirements were formulated based on an agreement between SMHI and the Swedish Research Council (Level 1-4) together with what the ECDS working group considered necessary.

The development of the data portal was then carried out in dialogue with the users in the ECDS reference group. They were asked to successively review frequent updates of the software and provide feedback that influenced the development. The first updates were presented by ECDS staff who visited the users to obtain their comments at source. After four test versions the data portal was considered ready for operation, only one month later than originally planned. With hindsight we consider that this was time well spent. The involvement of the reference group was very important in achieving a good data portal.

4.2 The functionality of the data portal

The basic functionality of the portal enables a user with interesting datasets to publish metadata on the data portal and also allows climate and environmental researchers to search for datasets within their field of interest.

In order to publish metadata a researcher first needs to be authorised (by having a username and password). When a researcher has entered the metadata for a dataset it is then reviewed. This review is carried out in the ECDS Help desk (see section 4.4). Only after a successful review can metadata become public and searchable.

A dataset can be searched in four different ways and these can be combined into a more detailed search profile. The search options are:

- Free text searching
- WHAT (searching for a specific GCMD Science keyword)
- WHEN
- WHERE

The user then sees a hit list summarising the datasets that match the search criteria. For each dataset, the complete metadata can be shown with a simple click. One of the metadata elements is a URL link to a location where the data is stored. The user can then access the data. ECDS recommends that data is freely available according to the Creative Commons Attribution licence. This provides other researchers with the opportunity to use the data with the condition that the source is acknowledged. This “attribution” condition is important both for quality and to motivate researchers to share their data.

4.3 Data storage on Swestore

ECDS has reserved storage space at Swestore (a national resource financed by the Swedish Research Council through SNIC, the Swedish National Infrastructure for Computing). The development project produces the functionality for uploading and downloading data via the ECDS portal. This functionality is available for manual storage of data in 2011 and will be developed further during 2012, which is earlier than specified in the original application to the Swedish Research Council.

The storage space is to be used primarily for “researchers with small needs and limited resources for data storage” but can also be used for older datasets, which are no longer connected to a university or research institute.

During the year the role of ECDS within Swestore has grown. In the future ECDS will administer applications for storage space at Swestore from all researchers within the field of climate and environment. The extent of this work is currently not known.

4.4 Help desk

In addition to the data portal functionality, ECDS offers support to users. This function is called the ECDS Help desk. The ECDS staf provides support to researchers for questions about data management, in particular for searching and publishing data, but also for data communication and data storage. The ECDS Help desk was contacted by several researchers even before the ECDS Data Portal had become operational.

New for 2011 was the introduction of a requirement to create a data publishing plan to be included for publication by the Swedish Research Council and Formas (The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning) during the spring. Projects that were expected to generate environmental and climate data were then encouraged to contact ECDS. The result was that about 30 researchers contacted the ECDS Help desk.

ECDS has produced a template to simplify the researcher’s work in producing a data publishing plan. The template is built on the ECDS metadata profile and enables researchers to describe their expected data contribution in a clear and simple way, right from the start. This work can then be used by the researchers when the final dataset is reported in the ECDS Data Portal at the end of the project. The template is available on the ECDS website.

5 Financial report

5.1 Annual accounts for 2011

The ECDS accounts for 2011 are shown in Table 2, which shows the distribution between salaries and expenses and also the distribution between operations and technical support.

Table 2. Distribution of ECDS costs for 2011

Result 2011

| Operations (kSEK) | Salaries | Expenses | |
|---|-----------------|-----------------|--------------------------------|
| Director | 796 | 129 | |
| Board | 86 | 115 | |
| Promotion, information material | 195 | 27 | |
| Coordination, competence centre, helpdesk | 666 | 17 | |
| <i>Total</i> | 1743 | 288 | Operations 2031 kSEK |

| Technical Support (kSEK) | Salaries | IT environment | |
|---------------------------------|-----------------|-----------------------|---------------------------------------|
| Maintenance | 129 | 158 | |
| Development | 1658 | 194 | |
| <i>Total</i> | 1787 | 352 | Technical Support 2139 kSEK |

| | | |
|----------------------------------|-------------|-------------|
| Income 2011 | 4500 | kSEK |
| Brought forward from 2010 | 435 | kSEK |
| Costs 2011 | 4170 | kSEK |
| Overhead¹ | 353 | kSEK |
| Carried forward to 2012 | 412 | kSEK |
| In-kind from SMHI and NSC | 1700 | kSEK |

5.2 Distribution of resources

When the Board and the Swedish Research Council review the figures in the budgets and earlier reports, the issue of the distribution between operations and technical support has been discussed. The importance of promotion has been highlighted. Figure 2 shows the percentage distribution between operations and technical support for the period 2010-14. This is a recurring discussion point in the work of the Board.

¹ Overhead costs are included in some of the hourly costs when buying staff time from other SMHI departments. The overhead that is presented separately is therefore only a part of what is debited; other overheads are included in the labour costs that are presented in table 2.

Figure 2 also shows the future focus for ECDS. During 2012 the plan is to focus more on promotion work and less on technical development. We have decided to bring forward the development of the functionality for data storage at Swestore, including uploading and downloading of data via the ECDS Data Portal (level 4 in the operational plan). During 2013 we will develop the integration with other relevant data sources for automatic data exchange (level 3). This will need more resources for technical development, which means that there are fewer resources for the promotion work.

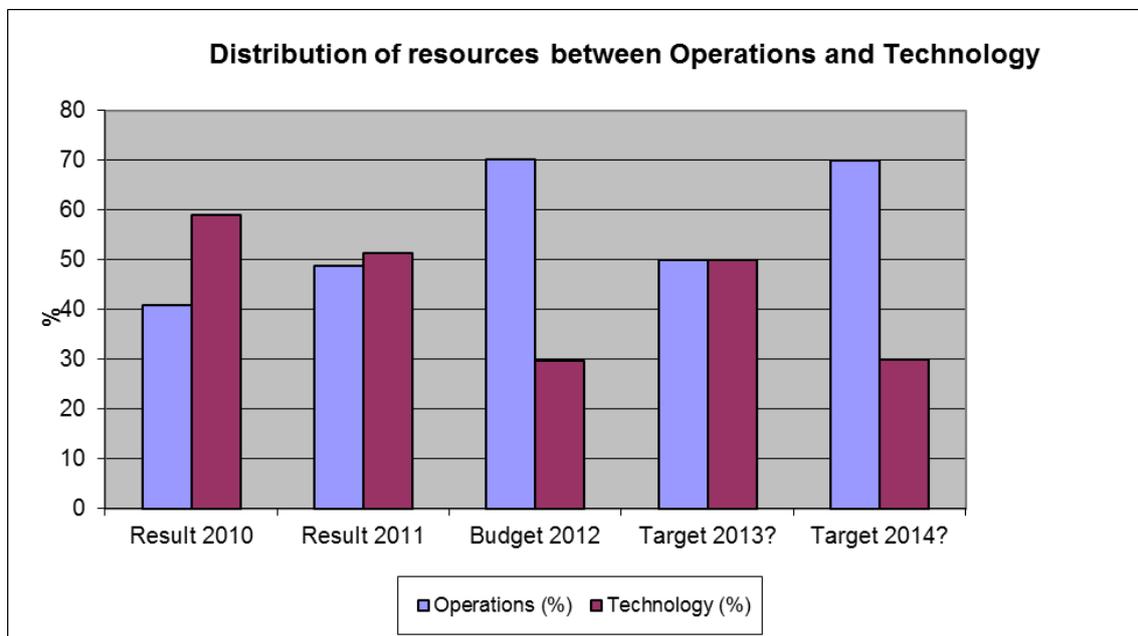


Figure 2. Distribution of resources shown as percentages

5.3 SMHI and NSC shared financing

SMHI and NSC contribute at least 1.7 kSEK per year in the form of a number of development projects closely linked to the ECDS technical platform, where it is expected that ECDS can use the results, as well as the use of NSC for data storage, see table 3.

Table 3. SMHI projects relevant to ECDS in 2011

| Project | Relevance to ECDS | Total (kSEK) | Project cost 2011 (kSEK) |
|----------------------------|--|--------------|--------------------------|
| NewArc/MORA | Meteorological data, metadata models, search functions | 500* | 11240 + 7840 |
| BÅK-tvätt | Visualisation (in the future) | 200* | 9470 |
| SMHI's INSPIRE Data portal | Metadata model for INSPIRE | 1110 | 1110 |
| | SMHI data to the ECDS Data Portal | 50 | |
| NSC medverkan | Data storage experts coordination meetings | 120 | --- |
| | Swestore development | 45 | |

Total 1,3-2 kSEK

Figures marked * are an estimate of an “in-kind-contribution”. ECDS cooperates with these parallel projects. The goal is that selected datasets from SMHI will be delivered via the ECDS Data Portal and eventually also be visualised there. The results will not be available until these parallel projects have been completed.

The project SMHIS’s INSPIRE Data portal is being run in close cooperation with ECDS. During 2011 the results were a development of a common competence and synchronised metadata profiles and requirements specifications. Therefore we consider that the entire project budget can be included in the in-kind contribution.

5.4 Follow-up of costs for IPY

The ECDS Board has decided that the IPY database is relevant to ECDS. The data was therefore transferred to the ECDS Data Portal during 2011. SMHI did not receive any funds for operation and maintenance of the IPY data portal during the period 2009-2011. The ECDS accounts in the Annual Report for 2009 showed a technical accounting error that was discovered in the report to the Swedish Research Council for the period 2009 – 2010-06-30. This error shows that SMHI owed 561 kSEK to ECDS. A repayment plan was accepted in the ECDS Annual Report for 2010. The debt would be repaid by the costs of IPY being covered by SMHI, instead of requesting extra funds from the Research Council. The plan included budgeted costs for 2011. The final figures are presented in the table below:

| | Amount (kSEK) |
|--|----------------------|
| SMHI’s debt to ECDS | 561 |
| IPY development 2009 | 155 |
| IPY maintenance 2010 | 200 |
| IPY maintenance and transfer of data to ECDS | 177 |
| Difference | 29 |

The debt has therefore been repaid except for 29 kSEK.

6 The Board

The Swedish Research Council and SMHI have nominated a Board for ECDS consisting of:

- Joakim Langner, SMHI, Associate Professor, (member nominated by SMHI)
- Manuela Notter, Swedish Environmental Protection Agency, Assistant Head of Department, Analysis and Research, (member nominated by SMHI).
- Lars Eklundh, Lund University, Associate Professor, Division of Physical Geography and Ecosystems Analysis, (member nominated by the Swedish Research Council)
- Agneta Andersson, Umeå University, Professor, Department of Ecology and Environmental Science, (member representing universities and colleges nominated jointly by the Swedish Research Council and SMHI)
- Hjalmar Croneborg, Swedish University of Agricultural Sciences, Manager of the “Arter” programme, Swedish Species Information Centre, (member representing universities and colleges nominated jointly by the Swedish Research Council and SMHI).

In addition to the Board, the Director for SND-HMS, Hans-Jörgen Marker, in Göteborg and the Director of DISC, Magnus Stenbeck/Staffan Marklund, have the right to attend and provide input to the ECDS Board meetings.

Four Board meetings have been held:

2011-02-03 Norrköping, SMHI

2011-05-04 Stockholm, Swedish Research Council

2011-09-14 Norrköping, SMHI

2011-11-23 Göteborg, SND-HSM

The operational plan and the budget have been approved by the Board. Minutes of Board meetings and the operational plan have been put onto the ECDS ProjectPlace (www.projectplace.se).

7 User statistics and key figures

The following key figures have been obtained for the first months of the ECDS Data Portal:

| Date | Availability per month; % | Number of visits per month | Number of publishers | Number of datasets |
|------------|---------------------------|----------------------------|----------------------|--------------------|
| 2011-11-01 | 99,97 | 475 | 19 | 71 |
| 2011-12-01 | 100 | 402 | 21 | 72 |
| 2012-01-01 | 100 | 396 | 22 | 82 |

Total number of visits to www.ecds.se in 2011:

586 unique visitors generated 2 483 visits and 8081 page views.

The report was reviewed and accepted at the Board meeting on 2011-02-09.

Norrköping 9th of February 2012

Joakim Langner