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ECDS – Environment Climate Data Sweden

Annual Report for 2012





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Annual Report for 2012

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This report summarises the activities and financial results for the year 2012.

1 The past year

A productive year of work with the Swedish infrastructure Environment Climate Data Sweden (ECDS) is now behind us.

2012 was a special year for several reasons. After more than two years of development, ECDS activities have attained an increasingly operational character. The infrastructure is maturing. The ECDS metadata portal was operational for the whole year, with very little downtime. More descriptions of interesting environmental and climate data are entering the ECDS portal. However the volume needs to increase significantly in order to fulfil the ambition to be the yellow pages for Swedish researchers in the field of environmental and climate data. During 2012 ECDS participated in a lot of seminars and workshops, and also visited institutes, research groups and even individual researchers. This increased collaboration has provided new insight, as well as the realisation that our activities play an important role for the current research process, where it is increasingly important to be able to find relevant data.

During 2012 ECDS user support has received an increasing number of queries from researchers, not least in connection with the call from the Swedish Research Council (SRC) and Formas in the spring. Many researchers contacted ECDS with questions concerning the planned publication of data from their prospective environmental and climate projects.

2012 also stands out because ECDS was evaluated by the contractor SRC during the summer and autumn. The results of the evaluation were very interesting, and confirmed the experiences of our own working perspective. ECDS has just started a very long journey. In order to reach the goal of improved sharing of environmental and climate data, as a foundation for better research, nothing less than a large-scale paradigm shift is needed. It must be self-evident for researchers to document and share their data. This requires a research environment where researchers are provided with the necessary training and resources, as well as individual incentives for this important work. The conclusions of the evaluation report give ECDS important guidance for improving its work. It is also interesting that the report raises two large research-strategic issues. How can ECDS help Swedish research data to be stored in a long-term sustainable way so that it is useful for future research? How can ECDS ensure that data from Swedish research can also be discovered in an international context while also helping Swedish researchers to find and use research data from their international colleagues?

The big environmental and research questions on the agenda today do not follow national boundaries. International cooperation will become increasingly important. ECDS work with metadata builds on well-established international standards and is therefore an important pillar for this cooperation. We will also see an increase in multi-disciplinary research where bridges need to be built between many areas such as natural sciences, technology, social sciences, health, and sustainable development. This in turn places higher demands on research infrastructures which need to complement each other in a way that provides researchers with the optimum conditions for their work. Increasing cooperation between ECDS and the Swedish National Data Service and Swedish LifeWatch are good examples of this.

2 Summary

2.1 A short history

Environment Climate Data Sweden (ECDS) was set up jointly by SRC and SMHI. The purpose of this service organisation is to improve access to data for Swedish environmental and climate researchers. ECDS also provides support and advice on data issues for the whole research process. ECDS is the link between data owners and data users.

Activities focus on collection and distribution of information about data, as well as preserving, documenting and making the data available. ECDS also supplies information about standards and tools for making data available and can be regarded as a knowledge centre for national and international datasets.

SRC finances ECDS with at least 4.5 million SEK per year during the period 2009-2013. SMHI's input is an in-kind contribution of at least 1.7 million SEK per year.

ECDS activities started in May 2009. The period up to the end of 2010 was a build-up phase – recruiting staff, a Board, and organising and planning the work to be done. Knowledge about national and international climate and environment databases was gathered, together with 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 datasets were published and the support function was established in collaboration with the first users. External activities such as promotion and data collection were initiated.

2.2 Results

During 2012, ECDS has further developed the data portal, in particular by updating the metadata profile in line with the requirements of the European INSPIRE directive. In addition, cooperation with the National Super-computer Centre (NSC) has continued, to enable data storage for users with small needs and limited resources. A test project for visualising the stored data was also established during 2012.

Promotion of the ECDS Data Portal and services intensified during the year, with the aim of increasing awareness of ECDS and to investigate and import datasets into the data portal. Promotion activities include participation in seminars at various Swedish universities, institutes and governmental agencies, as well as visiting research groups, individual data owners and experts. Promotional activities include production of information material and direct communication with Swedish environmental and climate researchers and their universities.

By the end of the year the portal contained 116 datasets of various sizes. There were 53 publishers. Both figures are lower than the goal for the year despite increased promotion and communication. What is needed is a stronger incentive for researchers to share their data. This conclusion was also noted in the ECDS evaluation which was carried out by an international expert panel on behalf of SRC during the autumn of 2012. The evaluation recommends several practical improvements for ECDS work and also raises long-term strategic requirements

such as increased activities for data storage and a clearer international role for ECDS.

2.3 The way forward

Experience from the work done so far together with the recommendations from the external evaluation during 2012 provide valuable guidance for ECDS work during 2013 and further into the future. The long-term suggestions for improvement will play a major role in planning the future work of ECDS. Planning activities started at the end of 2012 and will result in an application to SRC for continued financing of ECDS after 2013.

3 Activities 2012

ECDS activities are described in the operational plan which is approved by the Board in November each year, see Appendix 1.

ECDS is organised into a promotional section and a technical section focused on IT development. Figure 1 shows a schematic and symbolic diagram for the ECDS infrastructure.

During 2012 the work carried out within the two different sections has focused on:

1) Operational activities

- a) Expand cooperation with users, especially the ECDS reference group, see Appendix 2.
- b) Inform and promote ECDS at meetings, workshops and conferences, both nationally and internationally, see Appendix 3.
- c) Continue development of ECDS communications with users.
- d) Continue development of the ECDS website, www.ecds.se

2) Technical support

- a) Develop the data portal and metadata profile so that they are INSPIRE-compatible.
- b) Develop the support function for users, the ECDS Helpdesk.
- c) Enable data storage at Swestore and make it possible to administrate via the data portal.

ECDS tools for re-using data

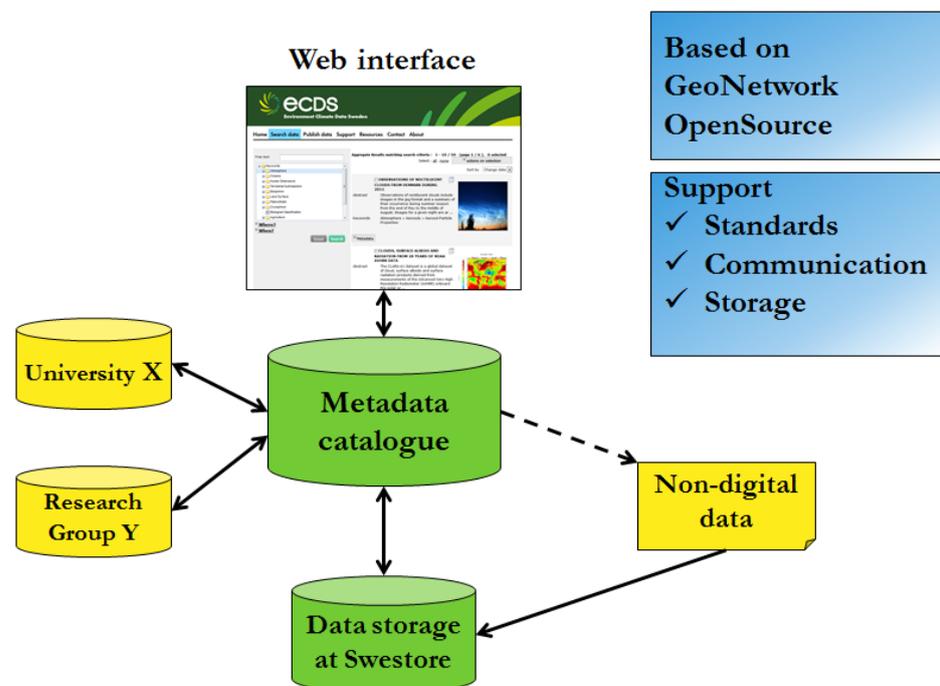


Figure 1. Schematic and symbolic diagram showing the ECDS infrastructure.

At SMHI the work of ECDS is placed under the Core Services department. ECDS has its own budget and its own cost centre for bookkeeping of all transactions. However ECDS does not have its own unit within SMHI's organisational structure. The Director is organisationally placed within the Core Services marketing department and the system administrator belongs to a department with operational 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 via internal transactions. The flexibility of this procedure means that staff with the relevant competence can be made available to ECDS depending on requirements at the time.

Work on the ECDS technical platform and technical support is organized as a system management object, which is the model used by SMHI for operation and administration of all larger IT systems.

3.1 Competence

During 2012, ECDS has continued to work in the constellation that was formed during 2009-2011. Staff turnaround during 2012 has been kept low. The position of communicator was vacant for part of the year (April-September), but during the autumn a new communicator was appointed. The IT team has expanded to include a consultant. By the end of 2012 the ECDS group had 12 members working 10-100% for the following roles:

- Director
- Promotion, data collection
- Help desk
- Communication
- System administrator, coordinator
- Technical system administrator
- IT architect, data modeller
- System developer
- Expert on ISO standards and the INSPIRE directive

3.2 Reference group

The ECDS reference group is an important part of the concrete cooperation between ECDS and Swedish researchers. The group includes both data users and data suppliers, mainly from universities and a few governmental agencies. Their role is to influence:

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

And also to:

- Be ambassadors for ECDS
- Contribute to data collection

The first members of the reference group were recruited during spring 2010 and the group has expanded successively since then. There are currently 22 active members, see Appendix 2.

3.3 Collaboration with the National Super-computer Centre, NSC

Collaboration with the National Super-computer Centre in Linköping (NSC) has continued with regular meetings and practical development. The main focus has been on data storage within Swestore, the Swedish storage initiative, which has emerged as an important activity of the SNIC (Swedish National Infrastructure for Computing) network. ECDS and NSC have also taken the first steps towards a long-term plan to develop services linked to the data stored at Swestore.

The result of the collaboration with NSC is that ECDS users can store data at SNIC/Swestore and that the following documents are being produced, forming the basis of the data storage activities and future Service Level Agreements with users:

- Collaboration agreement for ECDS as a part of SMHI's collaboration agreement with NSC
- Memorandum of Understanding between ECDS and SNIC, under formation
- ECDS data storage policy
- Letter of Comfort, giving ECDS a legal capacity from SMHI

3.4 Collaboration with the Swedish National Data service, SND

ECDS actively collaborates with its sister initiative within the field of social sciences, humanities, and medicine, SND. Collaboration occurs at various levels for both overarching issues and concrete technical questions. The directors of ECDS and SND are co-opted to each other's Board, which forms a good platform for raising common strategic issues. Both initiatives work actively towards improved access to important research data within their respective fields and have met at several national open access conferences during the year.

Where technical collaboration is concerned, both ECDS and SND need robust, long-term solutions for storage of research data, such as SNIC/Swestore. SND is also the Swedish centre for distributing Digital Object Identifiers (DOI) for datasets. Through SND, ECDS has access to their own DOI series which will be used in the future for data for which long-term storage is guaranteed.

SND has similar promotional activities to ECDS with the aim of reaching more researchers who could make use of the infrastructure. They have also identified similar difficulties with persuading researchers to actively participate in sharing their data.

3.5 Collaboration with Swedish LifeWatch, SLW

Collaboration between ECDS and SLW started during the year. ECDS participated in one of SLW's Swedish coordination meetings and SLW gave a presentation at a meeting of the ECDS scientific committee and Board. The general common goal is to improve access to data within the subject area of the respective infrastructure, complemented with concrete activities around metadata and IT. As a result, Dyntaxa (Swedish Taxonomic Database) and Artdatabanken (Swedish Species Information Centre) are now visible in the ECDS data portal. A meeting between the communicators for SLW and ECDS concluded that the needs for promotional activities are different, since the projects are in different development phases. Therefore, ECDS has not had any common information campaigns with SLW, but has informed researchers about SLW at relevant meetings.

3.6 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, GEOSS, 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, University of Gothenburg, August Röhss Chair in Physical Geography directed towards Geoinformatics, Chair of the Committee.
- Manuela Soares, DGRTD (EC Research Directorate), Director of Transport, and European co-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), climate expert.

A first meeting was held on 8-9 February 2012 at the same time as an ECDS Board meeting. Several representatives from SRC, SLW and the Swedish Environmental Protection Agency took part, together with the SAC and the Board. The meeting included an introductory session with presentations of current developments for data sharing in Sweden and internationally.

The meeting concluded in particular that:

- Better access to environment and climate data is important, both from a research and environmentally political perspective
- Better incitement is needed to increase data sharing
- Connecting distributed data sources and architecture is a significant technical challenge. Use of accepted international standards such as INSPIRE significantly helps this work.

The conclusions from this meeting can be found on the ECDS website together with information about the Scientific Advisory Committee.

Planning started during 2012 for the next meeting between the ECDS SAC and the Board. The meeting is planned to be held on 13-14 March 2013, focusing on the future of ECDS after the first project phase.

3.7 Promotion activities

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

ECDS promotion activities have successively increased during 2011-2012. A list of selected national and international seminars and conferences where ECDS was involved can be found in Appendix 3. Members of the ECDS reference group contribute to these activities by being ambassadors for ECDS within their own networks.

During the year, ECDS has actively contacted around a hundred researchers who might consider contributing interesting data to the ECDS Data Portal, mainly through existing networks but also by searching at universities and technical colleges. ECDS has also taken the initiative to cooperating with other infrastructure projects, for example ICOS (Integrated Carbon Observation System).

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. However the threshold to actually contributing data to the portal is often high.

3.8 Communication

A communications plan has been produced, see **Fel! Hittar inte referenskälla..** The activities focus mainly on getting more data into the portal. ECDS had the ambition to collaborate with Swedish LifeWatch and SRC for communication

issues. However since ECDS was without a communicator for part of the year this has affected communication activities, so that some activities have been postponed.

ECDS external communication during 2012 has been carried out in different ways:

- Cooperation and collaboration, see sections 3.3, 3.4 and 3.5
- Support to users, see section 5.3
- Meetings and seminars, see section 3.7
- The website, this section

The ECDS website has been further developed during the year. It guides the users through the Data Portal and provides support for data management issues. There is information about how to contact ECDS staff, useful links, and a description of ECDS activities. The front page has a news flow to keep it dynamic, which flags important events and new datasets, as well as seminars and presentations where ECDS has been involved.

Visitor statistics for www.ecds.se and the data portal can be found in section 8.

A new information sheet aimed towards researchers was produced during the autumn.

3.9 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 governmental agencies, 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. During 2012, ECDS has expanded the metadata profile so that it now covers all obligatory metadata elements of the INSPIRE metadata profile. In the Data Portal publishing interface the user can choose whether to enter their metadata following the INSPIRE metadata profile or whether to use the earlier ECDS profile which is slightly simpler.

During 2012 the metadata profile was updated to version 2.1. A description of the metadata profile can be found in the Metadata profile reference document in the "About" section of the ECDS webpage.

4 External evaluation of ECDS

During 2012, ECDS was evaluated by SRC together with ten other Swedish research infrastructures. The purpose of the evaluation was to identify the results of the activities of the eleven infrastructures so far during their establishment and construction phase, and to obtain the information necessary for deciding the future level of financing, and financial terms. The evaluation focused particularly on the following five aspects:

- Development of the infrastructure with regard to the organisation and activities
- Accessibility for researchers
- Cooperation between the infrastructure nodes, between the national infrastructures and between national and international infrastructures
- A user perspective with particular focus on support and training for the user
- Relationship between the host institute and the research infrastructure

The result of the evaluation forms the basis of SRC's decision (via the Council for Research Infrastructure) about continued financing and any measures needed to improve the operational activities. The evaluation was carried out by international expert panels who were informed through material provided by the respective infrastructure, meetings with representatives and results from interviews with users.

According to the evaluation report, ECDS has started to work. The ECDS portal for environmental and climate data follows recognised international standards for metadata within INSPIRE and shows great potential. However a much greater volume of registered data is needed in the portal before ECDS reaches its full potential. The evaluation report also gave about 10 concrete recommendations relevant to ECDS future work. Suggested improvements cover practical issues such as the ECDS internal organisation and external control as well as two large strategic decisions concerning the future formation of ECDS. One of these strategic issues is how ECDS can provide more assistance for data storage. With the current arrangement, ECDS focuses more on metadata and data storage has a lower priority. The other big strategic issue is how ECDS can realise ambitions for better international links with Swedish environmental and climate data.

The recommendations from the evaluation provide valuable guidance for the future work of ECDS and for planning the next work period for ECDS (2014-2018). The work on the next phase of ECDS started during 2012 and will be presented in an extension application to SRC during spring 2013.

5 Technical developments 2012

During 2012 the resources for system development and maintenance were reduced while more resources were used for promotional activities.

5.1 ECDS Data Portal

Two new versions of the ECDS Data Portal were released during the year.

The first release contained bug fixes and small improvements to the functionality.

The second release had more improvements and included a change in the ECDS metadata profile. It now includes all obligatory metadata elements from the Swedish INSPIRE profile, which meant five new metadata elements. Two further new metadata elements were added. The first gave the status of the dataset, e.g. planned, under development, complete, discontinued. The second can be used to give a unique identifier to the dataset, such as a DOI.

A third version, released in January 2013, adapted the ECDS Data Portal to changes in the IT infrastructure such as a new version of the OS, a new version of the database manager and a new mail server.

5.2 Data storage on Swestore

Swestore is a national resource financed by SRC through SNIC, the Swedish National Infrastructure for Computing.

ECDS has reserved storage space at Swestore, for use primarily by “data owners with small needs and limited resources for data management”. About ten datasets are stored there, and all can be accessed via the ECDS Data Portal. So far the storage on Swestore has been carried out manually. A coordinator from ECDS copies the researcher’s data files to a suitable directory on Swestore. A program has been developed during the autumn enabling authorised researchers to manage their datasets themselves (saving files, removing files, exchanging files, etc.) and will be put into operation during the first quarter of 2013.

ECDS will also implement THREDDSS for access to data stored on Swestore. THREDDSS is an analysis tool that simplifies the management of data in a number of data formats, the most common being NetCDF. The metadata can be shown, a subset of the files can be produced and data can be visualised. The OGC service WCS and WMS have been implemented. THREDDSS currently exists in a demo version for data stored on a file server at SMHI. Swestore plans a change to their infrastructure during spring 2013, and after that THREDDSS can be linked to Swestore and put into operation.

ECDS also uses the storage space on Swestore for graphic illustrations of datasets. A dataset that includes a graphic illustration in the metadata increases the visibility of the dataset and makes the ECDS Data Portal more attractive.

5.3 Help desk

In addition to the data portal functionality, ECDS offers support to users. This function is called the ECDS Help desk. Knowledgeable staff at ECDS provide support to researchers for questions about data management, in particular for searching and publishing data, but also for data communication and data storage.

During 2012 around 30 researchers have contacted the ECDS Help desk. Most of the questions concern how to fill in a data publication plan and contact has been made in conjunction with calls from Formas and SRC. Other examples are questions concerning a specific dataset or interest in adding a metadata post in ECDS for their own database. Researchers who already have data in a national or international database with their own metadata management have asked about automatic data transfer to ECDS.

6 Financial report

6.1 Annual accounts for 2012

The ECDS accounts for 2012 are shown in Table 1, which shows the distribution between salaries and expenses and also the distribution between operational activities and technical development. ECDS operational activities include promotion, helpdesk and administration. ECDS technical development includes both maintenance and development of the Data Portal.

Table 1. Distribution of ECDS costs for 2012.

Results 2012

Operational activities (kSEK)	Salaries	Expenses	
Director	884	56	
Board	123	11	
Reference group, Scientific Advisory Committee	14	43	
Promotion, information material	311	20	
Coordination, competence centre, helpdesk	991	30	
<i>Total</i>	2323	160	Operations 2483 kSEK

Technical support (kSEK)	Salaries	IT environment	
Maintenance	1186	100	
Development	0	30	
<i>Total</i>	1186	130	Technical support 1316 kSEK

Income 2012	4500 kSEK
Brought forward from 2011	413 kSEK
Result 2012	3799 kSEK
Contribution margin	389 kSEK
Carried forward to 2013	725 kSEK
 SMHI – INSPIRE	 4280 kSEK

6.2 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 development has been discussed. The importance of promotion has been highlighted. Figure 2 shows the percentage distribution between operations and technical development for the period 2010-13. This is a recurring discussion point in the work of the Board.

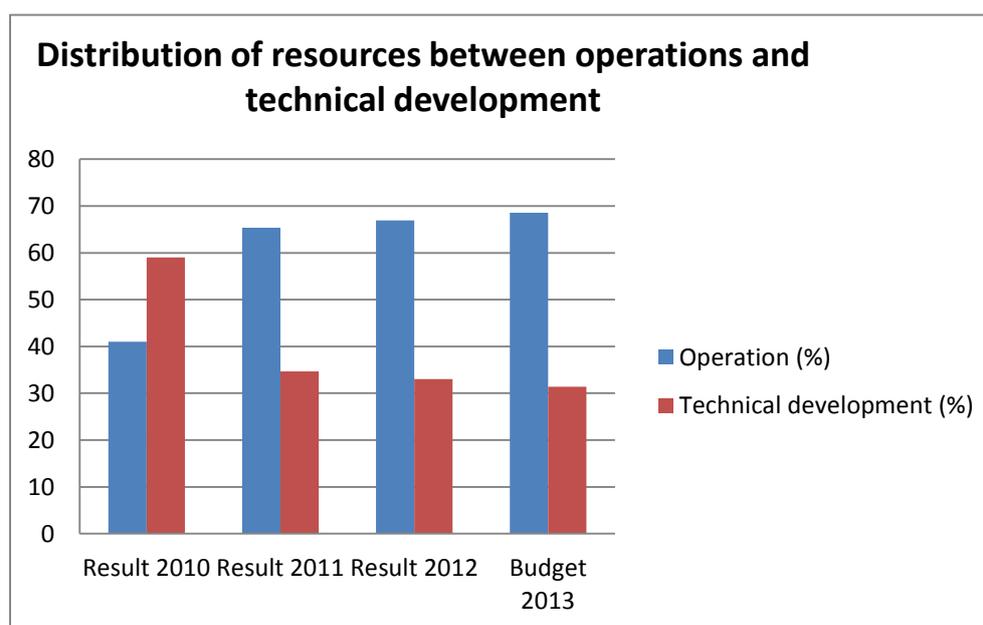


Figure 2. Percentage distribution of resources 2010-2013. The green bars represent operational resources and the blue bars represent technical development.

6.3 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 2.

Figures marked * are an estimate of an “in-kind-contribution”. ECDS cooperates with these parallel projects with the goal of synergising technical development. This will be achieved by synchronising technical platforms and competence as far as possible. In addition, 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 “SMHI’s INSPIRE Data Portal” (SID) is being run in close cooperation with ECDS. The same members of staff develop these two systems as a team. During 2012 this has resulted in common competence development and coordinated metadata profiles. When SMHI’s data becomes available according to INSPIRE requirements via SID, they will be published via ECDS. This will happen

successively during 2013. Therefore we consider that the budget of the SID project can cover most of SMHI's part of the in-kind contribution. There are also other projects being run by SMHI which will be useful to ECDS when they have finished. Some of them are included in Table 2 with a small part of their total budget.

The total for NSC's part of the in-kind contribution is the actual result calculated from the staff hours worked when collaborating with ECDS.

Table 2. SMHI projects of use to ECDS 2012

Project	Use for ECDS	Total (kSEK)	Project cost (kSEK)
SMHI's INSPIRE Data Portal (SID)	Metadata model for INSPIRE	1 400 *	4 280
	SMHI data into the ECDS Data Portal		
NSC collaboration	Data storage expertise, collaboration meetings	190	
	Swestore development		
NewArc/MORA Product portal	Meteorological data, metadata model, search functions Visualisation (in the future)	200 *	19 627

Total 1,7 kSEK

7 The Board

SRC and SMHI have appointed a Board for ECDS consisting of:

- Joakim Langner, SMHI, Associate Professor, (Chairman and 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 SRC)
- Agneta Andersson, Umeå University, Professor, Department of Ecology and Environmental Science, (member representing universities and colleges nominated jointly by SRC 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 SRC and SMHI).

In addition to the Board members, the Director for SND (Swedish National Data Service), Hans-Jörgen Marker, in Göteborg and the Director of SNIC (Swedish National Infrastructure for Computing), Jacko Koster, have the right to attend and provide input to the ECDS Board meetings. Magnus Stenbeck was previously co-opted to the ECDS Board as Director of DISC (Database Infrastructure Committee) was thanked for his work when DISC was disbanded, and Jacko Koster (SNIC) was selected as a new co-opted member.

Four Board meeting have been held during the year:

2012-02-09 Norrköping, SMHI
2012-05-08 Stockholm, Swedish Environmental Protection Agency
2012-09-25 Norrköping, SMHI
2012-12-10 Stockholm, Swedish Environmental Protection Agency

Board meetings are increasingly held as video conferences to save time, money and the environment.

The Operational Plan (Appendix 1) and the budget have been approved by the Board. Minutes of Board meetings and the Operational Plan are available on ECDS Projectplace (www.projectplace.se).

8 User statistics and key figures

Visitor statistics for www.ecds.se are shown in Table 3. The statistics for the ECDS Data Portal are shown in Table 4.

Table 3. Total number of visitors to www.ecds.se (excluding the data portal)

	Visits	Unique visitors	Page views	Page views / visit
2011	2 483	586	8 081	3,25
2012	6 505	2 310	16 380	2,52

Table 4. Key figures for the ECDS Data Portal

Date	Availability/ month %	Number of visits/month	Number published	Total 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
2013-01-01	99,94	544	53	116

The statistics from www.ecds.se show that the number of visits, the number of unique visitors and the number of page views has increased compared to the previous year. The number of page views per visit has reduced which means that returning visitors have learnt to find their way around the site and go directly to the pages useful to them. Table 5 shows the most frequently visited web pages.

Table 5. Web pages on www.ecds.se with the most visits

	Visits 2012
ECDS front page	6771
Search data	2915
Publish data	1282
Data publication plan	1156

This report was reviewed and accepted at the Board meeting in 2013.

Norrköping, 28 February 2013

Joakim Langner

Appendix 1. ECDS Operational Plan



**ECDS Operational Plan
2010-13**



Revised 2012-12-04

Dnr 2012/2325/10.5

Background

Full, open and trouble-free access to environmental and climate data is a fundamental requirement for research today, especially if the research is going to contribute to the solution for the big environmental and socioeconomic issues facing the world. The Swedish Research Council (SRC) has given SMHI the task of creating a strategic resource to promote long-term storage and accessibility of important data from Swedish climate and environmental research. The Swedish Research Council decided to give this task to SMHI for the period 2009-2013. During this time period, SMHI will develop and operate Environment Climate Data Sweden (ECDS) as a broadly focused national activity.

Purpose

ECDS is a national resource that will improve the possibilities of finding, publishing and accessing long-term data from Swedish research, and therefore contribute to helping Sweden to become world leaders in environmental and climate research. Search activities will be aimed at the research community to provide advice about data management and to draw new data to the centre. ECDS will develop a technical infrastructure (portal and metadata catalogue for environmental and climate data) which will be complemented with personal advice from a team of experts, enabling optimal support to researchers during the entire research period. ECDS will actively contribute to current debates for more open sharing of environmental and climate data in order to reach its vision. ECDS will (in the future) also share knowledge of relevant standards and tools for managing metadata and data (reading, writing, visualisation and processing).

Vision

ECDS will become central to the Swedish infrastructure for environmental and climate research guided by the ambition of "Full, open and trouble-free access to data". ECDS works in line with the visions of ICSU, UNESCO and GEO in particular and in close cooperation with other actors with similar ambitions. ECDS will be established as a leading competence centre for national data for environmental and climate research. ECDS will also be a competitive and attractive Swedish node for international collaboration, and the work of ECDS will contribute to satisfying the needs of the national and international research community and societal information for environmental and climate data and that Sweden becomes a world leader for environmental and climate research.

Strategic goals

The ECDS user interface will be a web portal combined with personal service.

1. ECDS will be a knowledge centre for datasets by

- locating and reporting Swedish data that is relevant to climate and environmental research
- locating and linking to relevant international datasets
- collaborating with other interested actors on issues concerning datasets

2. ECDS will provide services for data management by

- providing advice about the organisation of data and metadata
- providing practical support so that data can be entered into the ECDS system
- helping data owners searching for resources to make important data available.

3. ECDS will provide a web portal with information and advice, links and a search function. It will provide several levels of service to the users.

This means that a data portal is developed stepwise:

- Portal level 1 – a simple portal with basic information about data suppliers and their data
- Portal level 2 – a web interface enabling publishing and searching of metadata following ISO standards, aiming to follow the INSPIRE directive where possible.
- Portal level 3 – increased functionality for making data available and for visualisation, as well as integrating with appropriate data sources (databases / data portals)
- Portal level 4 – extended functionality for long-term storage of data.

Definition of climate and environmental data

Climate and environmental data is data with a geographic connection that can be used as a basis for new research about the developments in the climate and natural environment of the earth.

Limitations and special agreements

SMHI and SRC have agreed on the following limits to activities

Environmental monitoring data and other data from governmental agencies are not part of the *primary* task of ECDS. Those data of interest to ECDS users can be imported into the system if the authorities finance it themselves.

By special agreement, ECDS will be able to:

- Store long-term data for universities and other research institutes
- Participate in national and international development projects in the database field, in cooperation with the Swedish Research Council and Swedish universities, colleges and other research institutes.

Objectives and activities

Objective	Activity	End date
<p>1.1 ECDS – Finding and importing datasets</p> <p><i>Locate and import metadata for Swedish data relevant to climate and environmental research, and link to relevant international datasets.</i></p> <p><i>Locating datasets is coordinated with promotion activities and carried out at an ambition level in line with available resources</i></p>	<p>● 1.1.1 Locate national research data, relevant to ECDS</p> <p><i>Cooperate with researchers and research organisations to locate, categorise and quality-check the datasets. Relevant datasets are reported in the ECDS portal.</i></p>	● 2013-12-31
	<p>1.1.3 Locate international data, relevant to ECDS</p> <p><i>Locate, categorise and document international data portals relevant to climate and environmental research. Establish links to international database in the ECDS portal.</i></p>	● 2013-12-31
	<p>1.1.4 Import IPY data and contact network</p> <p><i>Import data and the contact network from IPY into the ECDS system.</i></p>	☑ 2011-06-17
<p>1.2 ECDS – Cooperation established and data portal well-known</p> <p><i>The ECDS network of interested parties has been created with the purpose of encouraging important data to be placed in the data portal. Research groups from larger universities and colleges in Sweden are included. The data portal is being promoted and is well-known within the network.</i></p> <p><i>A scientific advisory committee has been established.</i></p> <p><i>Done 2013-12-31</i></p>	<p>● 1.2.1 Establish a Scientific Advisory Committee</p> <p><i>Establish a Scientific Advisory Committee.</i></p>	☑ 2011-06-01
	<p>1.2.2 Establish a reference group for technical development</p> <p><i>A reference group that contributes to the development of the functionality and promotion of the data portal has been formed. Its composition and role is being continually developed.</i></p>	☑ 2012-12-31
	<p>1.2.3 Promote the ECDS data portal and services</p> <p><i>Activities to spread information about ECDS and recruit datasets.</i></p>	● 2013-12-31
<p>2.1 ECDS – Develop research support & helpdesk services</p> <p><i>ECDS will develop the organisation and staff in order to:</i></p>	<p>● 2.1.1 Information material</p> <p><i>The website contains all the basic information. In addition there are presentations, info sheets and posters. These are being continually developed.</i></p>	● 2012-12-31

Objective	Activity	End date
<ul style="list-style-type: none"> • Provide practical support so that data is incorporated into the ECDS portal • Provide advice about the organisation of data and metadata • Support data owners searching for resources to make their important data available. <p>Done 2013-12-31</p>	<p>2.1.3 Input metadata to the ECDS data portal</p> <p>Datasets delivered by researchers are input into the operational version of the data portal. This is done by the researchers themselves. The ECDS Help desk provides assistance if required.</p>	<p>● 2013-12-31</p>
	<p>2.1.4 Help desk services in operation for Data Portal 2.0</p> <p>Organisation and tasks defined.</p>	<p>☑ 2011-05-03</p>
	<p>2.1.5 ECDS website 2.0 in operation</p> <p>The website contains sufficient information about standards and tools for documentation and for making data available, as well as legal aspects of establishing databases. Routines for new users have been defined.</p>	<p>☑ 2011-04-30</p>
	<p>2.1.6 Communication with users</p> <p>Detailed activities are planned and followed up in the ECDS Communications Plan.</p>	<p>● 2013-12-31</p>
<p>3.1 ECDS – Data portal level 1 & 2 developed</p> <p>A portal with a developed system solution that enables detailed descriptions of data/metadata following ISO standards and providing a contact route to the data supplier (link or email). The portal enables data providers to fetch and revise metadata. The users should be able to search and fetch metadata. Data providers are themselves responsible for delivering data to the users.</p> <p>Done 2011-12-31</p>	<p>☑ 3.1.1 Project: ECDS Data Portal level 2</p> <p>Project directives, project plans and a final report can be found on Projectplace.</p>	<p>☑ 2011-05-01</p>
	<p>3.1.2 ECDS data storage on NSC</p> <p>Collaboration with NSC to enable storage of other data on NSC/Swestore. Create a link between metadata in the ECDS data portal and data in Swestore. NSC responsible: Tom Langborg</p>	<p>☑ 2012-06-15</p>

Objective	Activity	End date
<p>3.2 ECDS – Data Portal level 3 developed</p> <p><i>A portal that continues to build on the system solutions for levels 2 and 4, and which also includes functionality for fetching data from the provider. Some services for visualisation of the data are built into the portal. Data is stored at the provider but can be reached via the ECDS portal.</i></p> <p>Done 2013-12-31</p>	<p> 3.2.1 Project: ECDS Data Portal level 3</p> <p><i>Level 3 means that the ECDS Data Portal is integrated with selected data sources, enabling automatic updating of metadata and delivery of data. Planning with Swedish LifeWatch, Swedish EPA and the Earth Sciences Centre in Lund was carried out during 2012. Development work will be done in 2013. The ambition is to be able to demonstrate both harvesting and onward distribution of metadata.</i></p> <p><i>Visualisation and distribution of data stored on Swestore (in NetCDF format) will be enabled using the THREDDS tool.</i></p>	<p> 2013-12-31</p>
<p>3.3 ECDS – Data Portal level 4 developed</p> <p><i>A portal that continues to build on the system solutions for level 2, where ECDS can also offer to host the data, where the data is stored at Swestore/NSC and administrated by ECDS. Data is made available through the ECDS data portal.</i></p> <p>Done 2013-01-31</p>	<p> 3.3.1 Project: ECDS Data Portal level 4</p> <p><i>Storage of data at Swestore/NSC is possible. For "small data volumes" (see the ECDS data storage policy) data is uploaded and downloaded through the ECDS Data Portal. "Large data volumes" are loaded using a direct link to Swestore.</i></p>	<p> 2013-01-31</p>
<p>3.4 ECDS – Application for continued financing from 2014</p> <p><i>SRC evaluated ECDS activities during autumn 2012. The result has been published in a report and forms the basis of an application for extending ECDS and a new Operational Plan.</i></p> <p>Done 2013-03-26</p>	<p> 3.4.1 Write the application ...</p>	<p> 2013-03-30</p>

Status symbols

-  Activities ongoing according to plan
-  Activities finished with expected results

Financing

The budget for the work set out in this business plan is 6.2 million SEK per year for 2010-2013. The Swedish Research Council contributes at least 4.5 million SEK per year and SMHI contributes at least 1.7 million SEK per year for the period 2010-2013. SMHI's financial contribution of at least 1.7 million SEK per year consists of a number of development projects closely connected to the ECDS technical platform and it is expected that ECDS will use these results.

Organisation and staff

Board

Lars Eklundh, Lund University, Associate Professor, Division of Physical Geography and Ecosystems Analysis, (member nominated by SRC)

Agneta Andersson, Umeå University, Professor, Department of Ecology and Environmental Science, (member representing universities and colleges nominated jointly by SRC and SMHI)

Hjalmar Croneborg, Swedish University of Agricultural Sciences, Programme manager, Swedish Species Information Centre, (member representing universities and colleges nominated jointly by the SRC and SMHI).

Manuela Notter, Swedish Environmental Protection Agency, Assistant Head of Department, Analysis and Research, (member nominated by SMHI).

Joakim Langner, SMHI, Associate Professor, (member nominated by SMHI)

Contractor: Swedish Research Council (contact: Magnus Friberg)

Director: Thomas Klein

Project group:

Britt Frankenberg

Jan Svensson

Thierry Barrusta

Barry Broman

Cecilia Bennet

Jessica Forsgard

Zhengjian Zhao

Frank van der Stelt

Scientific Advisory Committee (SAC):

- Deliang Chen, University of Gothenburg, August Röhss Chair in Physical Geography directed towards Geoinformatics, Chair of the Committee.
- Manuela Soares, DGRTD (EC Research Directorate), Director of Transport, and European co-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), climate expert.

Reporting

- Board meetings four times per year
- Annual reports to the Swedish Research Council

Missive

The Director hereby submits the ECDS operational plan for approval. I am also committed, to the best of my ability, and within the limits of the budgeted resources, to endeavour to attain the goals put down within this plan.

Norrköping 10 December 2012

Thomas Klein
Director of ECDS

The plan is approved for ECDS during the period 2009-2013, to be revised annually.

Norrköping 10 December 2012, on behalf of the Board

Joakim Langner

Appendix 2. Participants in the ECDS Reference Group 2012

ECDS Reference Group 2012

Surname	First name	University	Address
Adelsköld	Göran	SLU	SLU, Ledningskansliet, Box 7070, 750 07 Uppsala
Axelsson	Anna-Lena	SLU	Institutionen för skoglig resurshushållning, SLU 901 83 UMEÅ
Bryntse	Sofia	SLU	Inst. för energi och teknik, SLU Box 7032 750 07 UPPSALA
Buckland	Philip	UU	Dept. Historical, Philosophical and Religious Studies Umeå University, Sweden
Charpentier Ljungqvist	Fredrik	SU	Stockholms universitet Historiska institutionen, Centrum för medeltidsstudier 106 91 Stockholm
Grudd	Håkan	SU	Bert Bolin Centre for Climate Research Department of Physical Geography and Quaternary Geology Stockholm University SE-106 91 Stockholm
Hansson	Lars-Johan	SMHI	SMHI, 601 76 Norrköping
Hellström	Margareta	LU	Lunds universitet Sölvegatan 12 Institutionen för geo- och ekosystemvetenskaper 22362 LUND
Jakobsson	Martin	SU	Stockholms universitet Institutionen för geologi och geokemi 106 91 Stockholm
Jonasson	Christer	ANS	Abisko Naturvetenskapliga Station SE-981 07 Abisko
Jonsell	Ulf	Polar	Polarforskningssekretariatet Box 50003 104 05 STOCKHOLM
Kindvall	Oskar	SLU	ArtDatabanken, SLU Bäcklösavägen 10 Box 7007 750 07 Uppsala
Kjellström	Erik	SMHI	SMHI, 601 76 Norrköping
Landelius	Tomas	SMHI	SMHI, 601 76 Norrköping
Lindroth	Anders	LU	Lunds universitet Sölvegatan 12 Institutionen för geo- och ekosystemvetenskaper 22362 LUND
Moberg	Anders	SU	Stockholms universitet Institutionen för naturgeografi och kvartärgeologi 106 91 Stockholm

Mohammad	Rezwan	SU	Stockholms universitet 106 91 Stockholm Institutionen för geologi och geokemi
Nilsson	Carin	SMHI	SMHI, 601 76 Norrköping
Rayner	David	GU	University of Gothenburg 405 30 Göteborg, Sweden PO Box 460 Department of Earth Sciences
Thierfelder	Tomas	SLU	Inst. för energi och teknik, SLU Box 7032 750 07 UPPSALA
Tivander	Johan	CTH	Chalmers Energi och Miljö/Miljösystemanalys Chalmers Tekniska Högskola 412 96 Göteborg
Wikner	Johan	UMU	Havsmiljöinstitutet, Umeå Marina Forskningscentrum, Norrbyn SE-910 20 Hörnefors

Appendix 3. Summary of Promotion activities

ECDS participation in meetings and seminars 2012

National

- Promotion of ECDS, Swedish Institute for the Marine Environment, Gothenburg, 25 January
- Discussion on collaboration med EPOS, Uppsala University, 6 February
- Meeting with SRC, Stockholm, 21 February
- Cooperation and communication, Stockholm University, 2 March
- Telephone conference about researchers' access to geodata at governmental agencies, SRC, 7 March
- National Supercomputer Centre, Linköping University, 13 March
- Representation of SRC at a geodata collaboration partner meeting, 21 March
- Polar forum, Stockholm 26-27 March
- Workshop on data management, Luleå Technical University, 2-3 April
- Seminar Umeå University and SLU "open access for research data", Umeå 3-4 April
- Meeting with Stockholm University, 24 April
- Telephone conference with SUHF about access to geodata for universities, 7 May
- Development planning, SLU, 16 May
- Meeting with Lund Technical University, 24 May
- Meeting Water resources engineering, Lund, 24 May
- Telephone conference with SUHF about access to geodata for universities, 25 May
- Collaboration of Swedish governmental agencies for remote sensing and GMES, Umeå, 28-29 May
- SMHI laboratory, Gothenburg, 29-30 May
- Meeting with VTI environmental researchers, May
- SMHI Bpo department, Norrköping, 16 August
- Geodata for education and research, Uppsala, 24 August
- Seminar on the digital explosion, Gothenburg, 17 September
- Evaluation SRC, Stockholm, 18 September
- Meeting with the Earth Science Centre, University of Gothenburg, 24 September
- Seminar Earth Science Centre, University of Gothenburg, 25 September
- Meeting Atmospheric Chemistry, University of Gothenburg, 25 September
- Meeting about DOI, SND Gothenburg, 25 September
- Meeting with Uppsala University library, 22 October
- Meeting with Swedish LifeWatch, 23 October
- Seminar CEC Lund, 14 November
- GIS day, Lund, 14 November
- Sea and Society conference, Swedish Institute for the Marine Environment, 28-29 November
- Development planning SLW, SLU Uppsala, 19 December

International

- ECDS Scientific Advisory Committee and Board, Stockholm, 9 February 2012.
- GEO HLWG-22, Brussels, 9 March 2012
- EGU 2012, Vienna, 23-24 April 2012

- GAC, Gothenburg, 23-24 May 2012
- GEO HWLG-23, Brussels, 23 October 2012

- GEO-IX, Brazil, 22-23 November 2012
- GMES meeting between Swedish governmental agencies and EEA, Stockholm, 30 November 2012

Appendix 4. Communication Plan



ECDS Communication Plan

Research fields often lack an overview of the data available. In many cases it is difficult to find data. The data is not always stored in a sustainable way. ECDS aims to become a comprehensive metadatabase in the climate and environment field, and is therefore a welcome initiative for Swedish climate and environmental research.

Interest in searching for data or using ECDS to support data-related issues is considered to be significant. **The challenge for the project is initially to fill the portal with data, i.e. to get different actors to publish their metadata. Communication activities should primarily support this work. Communication must also aim to increase interest and knowledge about ECDS.**

Changes in rules and regulations can stimulate or eliminate barriers for metadata registration. This is however not covered in this plan.

Communication goals

The primary goal of ECDS communication activities is to stimulate metadata registration. This is done by generating interest, and providing information and training for ECDS.

Message

ECDS simplifies searching and publishing of metadata and ensures long-term sustainable data storage. “ECDS – Your gateway to environment and climate data”. Supporting arguments are that metadata registration increases data citation for the researcher.

Channels

In order to prioritise data capture, personal visits, talks and dialogue are important. www.ecds.se is used to raise interest and provide information. SMHI’s internal and external channels and press releases can also be used. If possible, communication activities should be coordinated with Swedish LifeWatch. The Board and reference group are key people in spreading interest and information.

Target groups, actors and key people

Prioritised target groups for communication activities are researchers at selected Swedish universities and institutes. Members of the Board, the reference group and the project team are important ambassadors for ECDS.

Target group	Goal
<ul style="list-style-type: none"> • Swedish researchers in the field of environment and climate • Prioritised research groups: researchers and data owners at the universities in Stockholm, Gothenburg, Lund, Umeå/Luleå and at SLU. • Researchers and data owners at SMHI • International researchers in the field of environment and climate 	<p>Provide data. Use the portal.</p> <p>Be aware, international data sharing.</p>
<ul style="list-style-type: none"> • Research financers • Ministry of Environment • Governmental agencies: Environmental Protection Agency, Geological Survey, Space Board, Board of Agriculture, Forest Agency • Environmental Research institute • Industry magazines, science editors, • CEC (Carin Nilsson), CIRC and NRM (Fredrik Ronquist) 	<p>Spread the word on ECDS</p>
<ul style="list-style-type: none"> • ECDS Board and reference group 	<p>Actively promote ECDS development</p>
<ul style="list-style-type: none"> • Project group and reference group 	<p>Train and educate about ECDS, actively promote ECDS development</p>
<ul style="list-style-type: none"> • SMHI employees, interested members of the public 	<p>Be aware of ECDS</p>

The following Activity Plan is continually updated:

Activity plan for ECDS communication 2012

WHAT	PURPOSE	HOW
Visits/seminars Participation in conferences	Promote data capture and use of the portal, spread information about ECDS Also inform about Swedish LifeWatch	See separate document "Travel plan". <ul style="list-style-type: none"> • Take active contact with universities in Stockholm, Gothenburg, Lund, Umeå and Luleå • Examine previous calls from SRC for info about data owners • Make an inventory of relevant conferences
Home page (excluding Data Portal) – Front page – Place for documentation	Continued improvement and updates General overview, current news, new datasets Create a place for existing documents	Permanent item at communications meetings of the project group Smarten up, update with news
Build up contacts and networks	Spread information about ECDS	Produce a common message Plan joint activities
Sendouts	Spread the word on ECDS, promote the Data Portal	Send information to key people (e.g. heads of department, people interviewed previously), newsletters, press releases, use SMHI's info channels
Printed matter/adverts	Spread the word on ECDS	Info sheet in Swedish
Evaluation		Number of new datasets, visitor statistics, press coverage
Other ideas: Showcase, instruction film, advertising, scientific articles, Wikipedia, social media, annual ECDS meetings		