



SND-KM: Building the Swedish resource for climate and environmental data

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An increasing world population, industrial development, globalization and changing weather and climate patterns are exerting enormous pressures on planet Earth. Dealing with increasing environmental problems and their consequences will require an unprecedented international cooperation and coordination at regional and global levels. Science is an integral part of the response, establishing a shared basis of knowledge as well as directly underpinning the design, implementation, monitoring and evaluation of policies to mitigate, and adapt to, the problems. The GEO-initiative has clearly shown the enormous value of coordinated, sustained and shared Earth observation (EO) within its nine societal benefit areas. GEO has demonstrated that the full and open access to EO data boosts their usage in a multitude of applications, generating both direct and indirect societal benefits. According to the International Council for Science (ICSU), the flow of, and access to, scientific data and information are critical factors in ensuring the participation of scientists in international research.

Many researchers usually face at least three key data-related problems in their work, namely, difficulties to find data relevant to their study and fit for a specific purpose, difficulties to integrate relevant data in their studies due to poor interoperability (e.g., user-unfriendly data formats, lack of metadata), and difficulties resulting from complicated or prohibitive data policies and cost models. In addition to a paradigm shift regarding our openness to collaborate and share, technical solutions are needed to effectively overcome these barriers. Following an investigation on the status of sharing of climate and environmental data within Sweden, the Swedish Research Council established the Swedish national data service for environmental and climate data (SND-KM) in 2009. During 2009-2013, SND-KM will build a Swedish resource for environmental and climate data, assisting scientists in both the search for relevant data as well as the archiving of metadata for climate and environmental datasets within their projects. SND-KM will also support researchers with best practices and recommendations on the long-term storage of data, helping in particular smaller research groups to find and use external storage facilities for their data.

At the technical level, SND-KM will take into account ongoing initiatives such as the European INSPIRE-directive and the work on data sharing and interoperability performed in international initiatives and organizations such as GEO, WMO or ICSU. Building upon the experiences with a first demo application (SND-KM 1.0) in 2010, an updated version using GeoNetwork is scheduled to be operational before summer 2011. One of the project's key challenges for the next years will be to populate the resource with metadata of relevant climate and environmental data sets. In the short term, this will require a significant proactive commitment from researchers to publish and share their data. In the long term, this process is likely to be facilitated by emerging political frameworks, stimulating the full and open exchange of climate and environmental data. A promising example of the latter is the trend of research funding agencies moving towards funding models, where the publication and accessibility of a project's data are essential deliverables required to receive project funding.