

The establishment of the South African Environmental Observation Network (SAEON)

Description

SAEON was established to function as a comprehensive and sustained South African Earth observation network that delivers long-term reliable data for scientific research and informs decision-making for a knowledge society and improved quality of life. Funded by the Department of Science and Technology and managed by the National Research Foundation, SAEON has initiated a series of actions to improve the coordination and facilitation of in situ long-term observation and monitoring systems, to increase understanding of environmental processes, and to enhance prediction of the behavior of the natural systems. Based on three pillars in terms of its mandate - observation, information and education - SAEON has made considerable progress towards addressing the challenges of:

- Collecting, archiving, providing and integrating long-term observation data to inform research and predictions of environmental change
- Providing accurate, high-quality, long-term and timely information to inform evidence-based decision-making by policy-makers, civil society and private sector
- Facilitating the full and open exchange of data, metadata and information products
- Building vital capacity in the environmental sciences



A national summit involving all the major SAEON stakeholders and scientists in the field was held in 2006 to map out a way forward and to evolve a structure for integration between the long-term observation activities and the various players involved. The summit advanced multidisciplinary cooperation in addressing South Africa's long-term environmental concerns and re-emphasised SAEON's commitment to improving societal well-being and underpinning national priorities. Following intensive consultation with all stakeholders involved, the SAEON Ndlovu Node (savanna biome), Elwandle Node (coastal-inshore zone), Fynbos Node (Cape floristic kingdom) and node for marine-offshore systems were established and are operational. The nodes for the arid regions and wetlands-grasslands-forest mosaic have been designated and are being developed. A node is an office with capacity to implement programmes focused on achieving SAEON's objectives. The nodes provide SAEON with geographical coverage.

Like GEO, SAEON is committed to substantial capacity building efforts in human resources, institutions and observational infrastructures, particularly in developing countries. SAEON's environmental science education outreach initiative has become a recognised leader in its field. Partnering with industry, government (the Department of Education), science councils and conservation bodies, the program is designed to enhance science education by providing educator support. One of the main objectives of the program is to stimulate an interest in environmental science as a career. SAEON has also established a vibrant Graduate Student Network to provide a student-managed network where graduate students can network, present their work and undergo training to develop essential observation understanding and skills.

As in the case of the GEOPortal, special attention is devoted to the development of information systems to facilitate archiving and dissemination of long-term and related environmental data. The SAEON information system provides interoperability among the distributed data holdings of its participating members and is regulated by a flexible data policy that promotes a culture of data sharing. SAEON coordinates the Southern African Data Centre for Oceanography (SADCO) and is also involved in the process to establish a national Antarctic data management centre.

Nodes are designed to provide strategically placed infrastructure (staff, sites, equipment and services) for the coordination of observation and data systems that will be shared by visiting researchers and their students, both local and international. By forming strategic partnerships with other research institutions, the nodes provide a unique framework for enhancing dialogue and working to leverage and contribute to the development of comprehensive, coordinated and sustained environmental observations, guided SAEON's core science plan.

The SAEON concept of an institutionalized network of organizations pooling intellectual, physical and financial resources has been lauded as an innovative approach to research management. SAEON has forged strategic partnerships with most of South Africa's premier research organizations, conservation agencies and industries. These include:

- Obtaining advice at three levels (policy, scientific and node management) from the full range of national stakeholder organizations
- Long-term agreements with four independent organizations for hosting SAEON Nodes
- General collaborative agreements with a growing number of universities, science councils and conservation bodies
- Specific collaborative agreements on several observation, research, product development and capacity building projects
- A collaborative agreement on the development of a shared information system and spatially enabled portal and Digitization of databases currently on paper
- Successful externally sponsored collaborative science awareness events
- Joint workshops and conferences with partner organisations and agreements to share observational equipment and data
- Co-supervision of research students

From its position at the tip of Africa, SAEON collaborates with relevant international players in environmental observation, to coordinate global and regional observations, fill gaps in existing systems and identify new observations to minimize gaps. Spawned by the International Long Term Ecological Research Network (ILTER), SAEON has in turn become a driving force behind the establishment of ELTOSA (Environmental Long-Term Observatories of southern Africa) and the development of a joint research program for it.

Relevance to GEO

Having been established in 2002, the year before GEO, SAEON is a parallel national initiative in full support of the ideals for GEOSS, and indeed one of its building blocks. SAEON is already operative in several of the GEO societal benefit areas and its observations and research will eventually be relevant to all of them.

Current Status and next steps

In the five short years since its inception, the South African Environmental Observation Network (SAEON) has become the leader in long-term environmental research and observation in South Africa. The need for SAEON in South Africa has been reflected in the continued and increased funding for the project by the Department of Science and Technology.

Next steps include the delivery of the SAEON data portal and all its intended capacities, growing the SAEON Nodes and participants; delivery of a core science plan supported by the stakeholders; delivery of products for science and policy; developing additional data centres; promoting data collection, sharing and accessibility; creating functional connectivity to GEOSS; and, linking the education-outreach program to the GLOBE program. Gaps include repatriation of data holdings held abroad; a metadata system incorporating ontologies; and sufficient bandwidth for efficient online research and data sharing.

For further information, visit www.saeon.ac.za