



DIVERSITAS IGBP IHDP WCRP

*The **ESSP** is a partnership for the integrated study of the Earth System, the ways that it is changing, and the implications for global and regional sustainability.*

In 2001 at the first Global Environmental Change Open Science Conference in Amsterdam the 1400 participants (from more than 100 countries) signed the Amsterdam Declaration on Global Environmental Change. The declaration called for strengthening the cooperation amongst the global environmental change research programmes, for greater integration across disciplines, environment and development issues and the natural and social science. It also called for greater collaboration across national boundaries and for intensified efforts to enable the full involvement of scientists from developing countries.

In response to the declaration, the four international global environmental change research programmes: DIVERSITAS (the international programme of biodiversity science), IGBP (International Geosphere-Biosphere Programme), IHDP (International Human Dimensions Programme on Global Environmental Change), and the WCRP (World Climate Research Programme) joined together to form the ESSP (Earth System Science Partnership). The ESSP brings together researchers from diverse fields, and from across the globe, to undertake an integrated study of the Earth System.

The interactions and feedbacks between the component parts of the Earth System exhibit multi-scale temporal and spatial variability. Understanding of the System's natural dynamics has advanced greatly in recent years, and now provides a sound basis for evaluating the effects and consequences of human-driven change. ESSP contributes to this endeavour through a number of activities:

- Joint Projects on food, carbon, water, and health
- Integrated Regional Studies
- Capacity Building
- Open Science Conferences

Joint Projects

The aim of the Joint Projects is to build a GEC-oriented research agenda of direct relevance for societies, with particular emphasis on four fundamentally important issues. In brief, these projects aim to elucidate the additional challenges caused by GEC for carbon dynamics, food, water and health, and to understand the implications of human-driven changes in these issues for

the functioning of the Earth System. The Joint Projects are thus designed to directly address the two-way interaction between GEC and global sustainability issues.

Integrated Regional Studies

The ESSP is currently developing a small set of Integrated Regional Studies (IRS), designed to contribute sound scientific understanding in support of sustainable development at the local level. These studies will also improve overall knowledge of regional-global linkages in the context of Earth System dynamics. The first such study is in Monsoon Asia (MAIRS).

Regional Activities and Capacity Building

Regional activities are important to ESSP's mandate on several levels. Current knowledge demonstrates that, at the regional level, aspects of global environmental change manifest significantly different - yet surprisingly coherent and teleconnected - Earth System dynamics. These are often broadly associated with socio-economic and geopolitical characteristics. ESSP regional activities also seek to directly address the differences in scientific capabilities in various regions of the world. Each of the four GEC programmes organises research activities and capacity-building initiatives, and helps establish scientific networks. The Joint Projects, MAIRS and Global Change System for Analysis, Research and Training (START) have a strong suite of capacity building and networking elements to their activities. ESSP Partners also collaborate closely with the Asia-Pacific Network for Global Change Research (APN) and the Inter-American Institute for Global Change Research (IAI).

Global Environmental Change Open Science Conferences

ESSP recognises the importance of broad interaction amongst the many scientists that contribute to its activities. As such, the Partnership is committed to hosting major international science meetings. The first ESSP Open Science Conference - Challenges of a Changing Earth - was held in Amsterdam in July 2001. The second Open Science Conference - Global Environmental Change: Regional Challenges - was held in Beijing in November 2006.

ESSP Funding

The principal source of funding for ESSP research is science funding agencies (e.g. research councils and other national/regional science agencies). Many of these are members of the International Group of Funding Agencies for GEC Research (IGFA).

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