

THE GCP

The Global Carbon Project (GCP) is a joint project of the Earth System Science Partnership (ESSP) formed by Diversitas, the International Geosphere-Biosphere Program (IGBP), the International Human Dimensions Program (IHDP), and the World Climate Research Program (WCRP).

The GCP provides an internationally consistent framework for the coordination and integration of regional and global research of the carbon-climate-human system.

It also leads new exploratory science and synthesis, and supports the development of integrated carbon research agendas in key regions around the world.



AIMS

GCP aims to develop comprehensive, policy relevant understanding of the global carbon cycle, encompassing its natural and human dimensions and their interactions.



SCIENCE THEMES

Patterns and Variability

Geographic and temporal distribution of the major pools and fluxes at regional and global scales.

Processes and Interactions

Controls of natural and human-driven sources and sinks of carbon with identification of specific links between cause and effect.

Carbon Management

Likely future dynamics of the carbon-climate-human system, focused on points of intervention and windows of opportunity for management by human societies.

ACTIVITIES

State of the Carbon Cycle

Provide annual updates of the global carbon budget including anthropogenic emissions, atmospheric CO₂ accumulation and the strength of the ocean and terrestrial carbon sinks.

Global Carbon Observations

Aid in the design of observation systems to support model-data assimilation for global and regional carbon budgets, and to gain understanding of process.

Regional Carbon Budgets

Develop methodologies for full carbon budgets of land masses, sea margins and ocean basins using bottom-up and top-down data constraints.

Vulnerability of Carbon Pools

Study significant carbon pools (permafrost, peatlands, vegetation-fire, methane hydrates, solubility and biological pumps), to quantify carbon content and vulnerability to atmospheric emission due to changes in climate and land use.

Urban and Regional Carbon Management

Study the role of urbanization in the global carbon cycle, including urban development pathways and consequences, cross-city comparative studies, and strategies for carbon management.

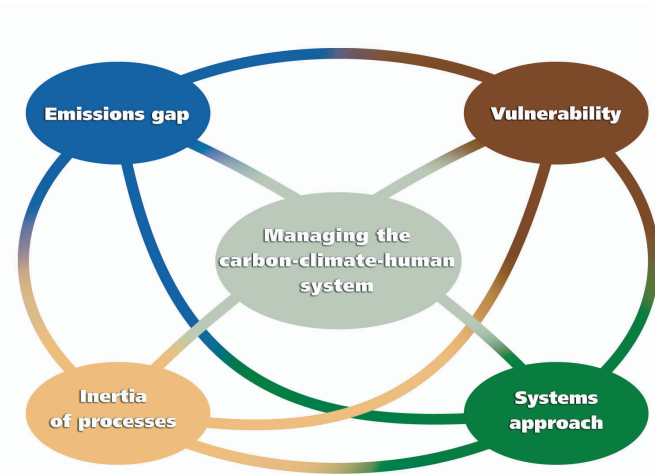
Synthesis and Interface with Policy

Provide high-level research synthesis, and develop publications and events to engage with international policy processes.

INTEGRATED FRAMEWORK

There are profound interactions between the carbon cycle, climate, and human actions. These interactions have implications for the long-term management of CO₂ emissions required to stabilize atmospheric CO₂ concentrations.

Key attributes of the coupled carbon-climate-human system are: the emissions gap, vulnerability, inertia of processes, and the need for a systems approach that integrates carbon management into a broader set of rules and institutions governing the human enterprise.



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Internationally Coordinated Research
on the
Global Carbon Cycle



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