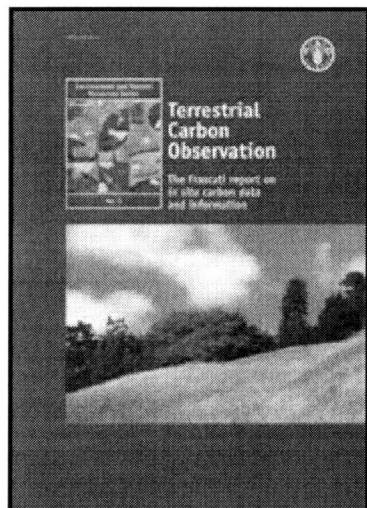




Terrestrial Carbon Observation - No. 5 - The Frascati Report on In Situ Carbon Data and Information



Environment and Natural Resources Service
Sustainable Development Department
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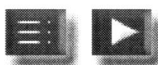
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FOREWORD

It is well known that long-term systematic observations of terrestrial ecosystems are inadequate for accurately measuring and understanding the processes of global environmental change. Although satellite observing systems can generate vast amounts of data and go a long way in filling some of these gaps, the results need to be verified *in situ*.

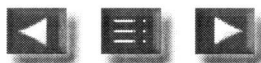
In situ observations - measurements that are taken directly on the ground by scientists and resource managers - are a key element in ensuring the accuracy and validation of global change products. However, much more investment in *in situ* observing systems is needed to realize this goal.

Carbon is a good example of why *in situ* data are so vitally important. To understand the terrestrial carbon cycle, data are needed on land use and land-cover change, forest cover and change, soil characteristics, fire, biomass and net primary productivity, to name just a few. The accuracy of these measurements has a significant influence on the accuracy of global estimates of terrestrial carbon stocks and fluxes and on climate change policy discussions and decisions taken by countries. In the end, these decisions have important economic implications for climate change adaptation and mitigation.

This report is a first attempt to mobilize the community of terrestrial and atmospheric scientists towards taking a systematic and collaborative approach to improving *in situ* carbon data availability and strengthening the institutional capacity, in particular in the developing countries.

The benefits of improved *in situ* terrestrial carbon observations within the TCO framework will mean that countries can generate accurate estimates of their national and regional carbon stocks and fluxes as well as make more informed decisions related to the sustainable use and management of their cropland, forest and grazing land resources.

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ABSTRACT

Terrestrial Carbon Observation: The Frascati report on *in situ* carbon data and information. Editors J. Cihlar, M. Heimann and R. Olson. 136 pp, 1 Figure, 4 tables, 5 appendixes, Environment and Natural Resources Series No. 5, FAO, Rome, 2002.

ABSTRACT

Data on the spatial and temporal distribution of carbon sources and sinks in the terrestrial biosphere are needed by both the scientific and the policy communities working on climate change issues. To gather the necessary data the Terrestrial Carbon Observation (TCO) initiative was launched in 1999 by the Integrated Global Observing Strategy Partnership (IGOS-P). It is a component of the Integrated Global Carbon Observations (IGCO) theme which also includes the ocean and atmosphere.

The concept behind TCO is to focus on assembling and generating terrestrial carbon data using *in situ* (ground based) and satellite data in combination with a number of climate models in order to obtain a more accurate understanding of global stocks and fluxes.

The *in situ* component is complex and much less organized at the global level than the satellite component. To accelerate the preparations for TCO implementation, GTOS with the International Geosphere-Biosphere Programme (IGBP) held a workshop specifically addressing *in situ* data issues.

This report summarizes the workshop objectives and the discussions, conclusions and recommendations made by the international carbon experts who attended the meeting.

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