International Ocean Network (ION) Charter

Revised and modified 01/25/2001 at Mt Fuji, Japan (OHP/ION Symposium).

This charter was adopted in June 1993, amended in January 1995 and January 2001.

The ocean is an essential key to understand the interactions between the physical, chemical and biological processes governing the earth's system. Furthermore, to understand the dynamics of the earth's interior, it is necessary to instrument the 2/3 of the earth's surface covered by oceans. The international earth and ocean sciences community recognizes the need for long-term observatories in the oceans, at fixed locations, in order to provide optimally sampled observations of global scale processes, in real-time when appropriate, and for the long-term monitoring of time dependent processes on the regional and local scales.

In view of the above, and to take advantage of on-going efforts in several countries, the International Ocean Network (ION) was formed to foster synergies among different disciplines, and to facilitate cooperation in the development of critical elements of the observing systems, harmonization of those elements of the system that would allow shared maintenance of the observatories, development of common plans for the use of international resources (e.g. Ocean Drilling Program, Global Ocean Observing System,...), timely exchange of data, coordination of siting plans.

ION is an international association affiliated with IUGG (International Union of Geodesy and Geophysics). In the future, ION may become affiliated with other international associations having interest in observatories in the oceans.

1. ION welcomes the participation of all countries with an active program in the development, deployment, and operation of ocean observatories.

2. The activities of ION will be coordinated by the steering committee.

3. The members of the steering committee willbe appointed or elected from within the countries they represent and may have indefinite term of office. The international organizations, with which ION is affiliated may name their representatives to the steering committee.

4. The steering committee will be headed by a chairman elected for a 4 year term, and assisted by a secretary.

5. The steering committee will form all necessary working groups and special technical committees as required towards reaching the objectives of ION.

6. The steering committee will meet at least every year, and special meetings may be called by the chairman as appears necessary for the progress of ION.

7. ION welcomes cooperation with other international organizations involved with global observing systems.

Objectives of ION

As established at the 1995 Marseilles ION Workshop and revised at the 2001 Mt Fuji OHP/ION Symposium.

Long term observations on the ocean floor of a variety of phenomena are required to address a range of important problems in Earth systems science.

Observatories must be sites where scientists can deploy diverse instruments and share infrastructure, in which observations of several different phenomena are combined and are continued at the decadal time scale.

Data collected at the observatories must be made freely available to the global community of scientists.

ION must function as a clearing house for the exchange of information and for data exchange, and as an advocacy group to funding agencies.

In order to achieve these goals, technical developments are required that should urgently address the following points:

Real time data recovery from ocean bottom observatories is required for some applications and desirable for all, although probably not practical without data transmission via cables and buoys. Current efforts towards scientific re-use of existing cables and the development of appopriate buoys are strongly required.

The desirability of modularity, common components, and standardized formats to lower costs and provide ease of maintenance is recognized. The state-of-the-art, however, is not yet at the point where clearly superior components can be identified for common use, and experimentation with a broad range of devices is encouraged. Communication between engineers concerning the results of these experiments is necessary for logical evolution of these systems. Harmonization of interfaces to facilitate the interchangeability of instruments and the sharing of maintenance tasks is necessary.

Additional recommendations

Formulated at Mt Fuji 2001 ION meeting

A comprehensive global view at the decadal time scale is needed to understand ocean and climate variability and solid earth processes. This should be achieved through a balance between fixed, floating, and space based observatories.

A multidisciplinary approach to ocean observatories is essential to further understanding of interactions between physical, chemical, biological and geological forcings and responses in ocean systems.

Extension to oceans of observing systems currently available on land are essential not only in solid earth geosciences but also in other disciplines such as biology and meteorology.

Ocean observatories are needed to document enormous spatial and temporal variability in the ocean and earth systemns

Ocean observatories are needed to connect seafloor processes and fluxes to full water column processes and fluxes and document fundamental changes in the spatio-temporal patterns that are currently taking place.

The concept of observatory should be viewed as covering volumes rather than "spots" on the map, and should include large aperture sensors such as cables.

There should be a "push" for development of sensors that can operate stably over long times and take advantage of observatory infrastructure, especially in biology, chemistry and geodesy.

Initiation of permanent southern ocean observatories must be achieved over the next 10 years.