WORKING GROUP ON

Ethics and best practices for ocean observing and applications

Room 5

Sessions organizers: Michèle Barbier, leader (Institute for Science & Ethics, France),
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Invited speaker: Shelley Denny (University of Dalhousie, Canada)

In the Anthropocene, knowledge of the ocean as part of the whole Earth system is essential for appropriate sustainable management of marine resources, maintaining balanced ecosystems to prevent major changes that will most likely impact humanity. Recognizing this importance, the United Nations has proclaimed a decade of ocean science for sustainable development (2021-2030) to develop a common framework for ocean science. The study of the many interrelationships in the ocean requires the integration of multidisciplinary approaches and different investigative tools, skills and methods, one of which is observation. Therefore, the ocean observing community has a responsibility to provide the best scientific knowledge, based on international collaboration, to enable wise global strategic decisions to be made today. The sustainability of economic and social activities is another key point to ensure the supply of energy and other natural resources for future generations. This societal expectation from ocean science is commensurate with the maturity of the scientific subject.

With this maturity, the ocean observing community can start discussing its own ethics. A tentative definition of ocean observation ethics has been proposed recently (Barbier et al. 2018[1]). It is seen as a reasoned reflection and set of actions based on technological advances to develop oceanographic knowledge that takes external dimensions into account. These dimensions are environmental, societal, legal, political, social, economic, historical, philosophical, and cultural. An ethical framework would facilitate design recommendations for exemplary and responsible behavior necessary for ocean science and beyond to support sustainability, stability of our oceans and the resilience of the Earth system. Ethics in ocean observation have been considered in different white papers for setting up the future observing system, such as the AtlantOS Blueprint (de Young et al., 2018), the European Strategy for Atlantic Ocean Observing (Edited by Erik Buch, et al. 2019).
Core-values suggested by Barbier et al. (2018) can be included in an Ocean Observation ethical framework and should be included in Best Practices for ocean observing systems.

An adoption of ethical recommendations should be envisioned and developed by the whole Ocean observing Community. The expected output of the discussion will be the drafting of statement on "ocean observation ethics", a dissemination strategy to encourage the community to endorse this statement, the potential setting out of an ad hoc science ethics committee on ocean observations to

[1] Ethical recommendations for ocean observation (2018) *Barbier M., Reitz A., Pabortsava K., Wölfl A.-C., Hahn T., and Whoriskey F.* Adv. Geosci., 45, 343-361, 2018 (DOI: 10.5194/adgeo-45-343-2018)

address ethical issues and how to integrate ethics in the implementation strategy of the UN Decade of Ocean Sciences for Sustainable Development (2021-2030).

Four sessions will be organised on different specific aspects and after short presentations by the co-leaders to set the scene, an open discussion should define and agree on core values in ocean observation to be adopted to become an integrated part of best practices.

(Moreover, a research topic is currently submitted to *Marine Frontiers* as a Special issue on Ocean sciences and ethics, transversal to all research topics, TBC).

Session 1 on Ethics in ocean observation, overview (speaker: Michèle Barbier)

21 September, 1pm UTC, 2 hours

The aim of this session is to highlight the core values applicable to ocean observation, which can then be improved and adopted to become an integrated part of best practices in ocean observing systems. Ethics are the sum of all elements that will enable sustainable research and monitoring endeavors and will include elements drawn from the philosophical, social and natural scientific dimensions. These are as follow:

– Respecting and minimizing impacts from research and monitoring on ocean ecosystems
– Respecting and engaging local people in research activities from multiple cultures and diverse sectors
– Working with the goal of global benefit based on reciprocal relations, transparency and responsibility
– Maximizing the efficiency and quality of observations in research activities
– Engaging society and communicating with and advising policymakers
– Sharing data: acquire once, use multiple times
– Encouraging learning

Session 2 on Ocean observation and indigenous groups (speaker Shelley Denny)

22 September, 1pm UTC, 2 hours

As society moves to incorporate new knowledge systems/streams into science-based decision making, and especially to embrace indigenous knowledge streams, new ethical issues are arising. In Canada and other jurisdictions, moves are now occurring to bring indigenous participation into all facets of many new research programs in meaningful ways. However, as western science moves towards an open access for research data, indigenous peoples are seeking ways to correct historical injustices that resulted when they could not protect their knowledge and maintain ownership and control of data that would affect them and influence their relationship with the environment. One indigenous model to address this is the Ownership, Control, Access and Possession (OCAP) framework. It is important that western researchers understand and embrace the ethical basis of indigenous concerns and adjust in ways that also permit us to meet ethical obligations to western research. The discussion should help define best practices on that topic.

Session 3 on Ethics & fisheries (speaker: Macenzie Mazur)

23 September, 1pm UTC, 2 hours

Fisheries are complex and involve a variety of stakeholders that are strongly impacted by the process and outcome of fisheries science. Fisheries science also depends on information and often participation from a variety of stakeholders. As a result, transparency in data and methods is an important ethical issue in fisheries science that needs to be addressed. Indeed, FAO's ethical approach to fisheries calls for data transparency. However, transparent data and methods are not easily accessible in fisheries science. Fisheries often come with large amounts of data that are not centrally stored and as a result, not accessible to many. Additionally, the methods are often not clearly communicated or available to all stakeholders. Including fisheries stakeholders in data collection and methods and clear science communication are two approaches to address this ethical issue. Satisfying a broad range of stakeholders with the process of fisheries science is difficult but necessary for ethical science. The discussion should help define best practices on that topic.

Session 4 on Optimizing infrastructure (speaker: Frederick Whoriskey)

24 September, 1pm UTC, 2 hours

Most ocean research infrastructures depend mostly or wholly on public funding to maintain their development, operations and maintenance. This potentially confers on the scientists who operate and use them an ethical responsibility to maximize benefits from these expensive investments. Many ocean observation infrastructures are established for unique, single purposes. Currently, the ocean science community does not systematically evaluate whether particular deployments could serve multiple purposes and more cost-efficiently bring bigger benefits to society. Figuring out how to do this should be a priority of the science community. The discussion should help define best practices on that topic.