

Assessing change in Southern Ocean ecosystems: implementation through the combined activities of the Southern Ocean Observing System and the ICED Southern Ocean Sentinel

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Recent discussions in the IPCC and the Antarctic Treaty System have shown the great importance to policy makers for measuring change in Southern Ocean ecosystems but that there are many gaps in our current knowledge. A capability is being developed to assess dynamics and trends in these ecosystems to understand what is likely to change as whales and seals recover from over-exploitation along with the varying influences of ozone hole recovery, ocean acidification and climate change in the future. This capability is being developed in the Southern Ocean Observing System and in the Southern Ocean Sentinel, which is a signature project in the IMBER Program, Integrating Climate and Ecosystem Dynamics of the Southern Ocean. These two programs complement each other in designing and implementing an observing system to measure change in Southern Ocean ecosystems and in developing statistical and mathematical methods for assessing status and trends in these systems based on the observation system. This talk will describe the significant progress being made by the Southern Ocean ecological community in building this capability and discuss the future work program that will yield a co-ordinated interdisciplinary, multinational activity equivalent to those programs within SOOS that have been established for the physical sciences. It will describe how the community is assembling a set of ecosystem Essential Ocean Variables, how it is developing a systematic field program for obtaining these measurements in a cost-effective manner and the innovations that are being sought to enhance this capability. It will also illustrate this progress using the joint development between Japan, Australia and France of this capability for the Indian Sector of the Southern Ocean. The talk will conclude by presenting the timetable over the next 4 years on how these programs can contribute to assessment of status and trends in Southern Ocean ecosystems over the next 4 years.