

China's potential contributions to SOOS and MOSAiC

Dake Chen (dchen@ldeo.columbia.edu)

Second Institute of Oceanography, State Oceanic Administration, China

The Southern Ocean Observing System (SOOS), and the Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC), are two of the major ongoing international initiatives for polar research. SOOS was officially launched at the end of 2011, and since then it has built a network of stakeholders and contributors, all working together to achieve its well-defined mission and objectives. Currently SOOS is implemented based on its regional working groups and there is a clear need for a broad-scale circumpolar design. On the other hand, MOSAiC is a more focused, short-term experiment presently at its final planning stage. It will have a three-tiered observational strategy, including a central observatory, a distributed network and a large-scale connection, as well as a comprehensive modeling hierarchy. This calls for a strong international collaboration to provide scientific, technic and logistic supports.

Here we first briefly review the scientific goals of SOOS and MOSAiC from a global perspective, and then discuss the potential roles of China in these two international initiatives, in accordance with our national polar research programs supported by various agencies. In particular, starting with a description of our existing capabilities in both Antarctic and Arctic research; we outline our plans for future enhancement in technology and infrastructure, as well as our suggestions on the implementation of SOOS and MOSAiC. The take-home messages include:

- (1) China is now in the process of largely enhancing its polar research activities, which certainly will lead to significant contributions to SOOS and MOSAiC;
- (2) For SOOS, we propose a multi-platform, multi-disciplinary circumpolar “Big Ring” design to serve as its sustained “backbone”;
- (3) For MOSAiC, we will participate in all three tiers of its field observations as well as modeling efforts, aside from providing logistic support.