Background

The Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO), led by Director Jinendra Ranka, is investigating how improved ocean circulation models and characterization of ocean variables might prevent strategic or tactical surprise for national security. To assist DARPA/DSO in its investigations, a small experts group was formed.

On August 1, 2024, the **DARPA Ocean Synoptic Sensing Roundtable** was held at Stanford University. The primary goal of the DARPA Stanford Roundtable was to gather a group of experts to evaluate existing ocean models, identify unmet needs, and explore high-risk research areas aligned with DARPA's risk-reduction mission.

Organized by Ann Kerr (DSO) and Steven Koonin (Hoover Institution, Stanford), the Roundtable Discussions were structured around six key Topics and Questions, with experts contributing ideas and materials before and after the meeting. A dedicated database was created to house these contributions, including meeting materials and post-meeting updates. Access is provided via links within the Report.

This report captures both the Roundtable and subsequent informal discussions among the participants. It includes comments, and materials prepared and submitted in advance of the Roundtable Discussions and those arising from follow-up discussions. The body of the Report captures the essence of the Roundtable Discussions; detailed comments and supporting material are in the Appendices. The Roundtable was limited to invited experts to facilitate discussions. After the Roundtable, DARPA/DSO held an RFI Workshop, Advancements in Ocean Modeling and Monitoring, organized and chaired by Dr. Rebecca Chmiel, DARPA Innovation Fellow. The Workshop was held on October 29, 2024, in Arlington, Virginia

Ann Kerr and Steven Koonin
Convenors

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