

Instructions: For each SAB Work Plan Topic, please complete the information requested below. Please provide timelines consistent with the SAB providing input to NOAA on the topic within the next 6-15 months. For deliverables, we are looking for information syntheses, issue summaries, etc., with options (stated as options) for NOAA to consider.

SAB Work Plan Topic: Review the Use of Observing System Simulation Experiments (OSSEs)

Champion(s): Eugenia Kalnay and Susan Avery

Description of Planned Work:

For the SAB 2018-2019 Work Plan, the above topic was identified, with the statement: “An OSSE is a modeling experiment used to evaluate the impact of new observing systems on operational forecasts when actual observational data are not available. OSSEs are done: 1) to find out if a new observing system will add value to NWP analyses and forecasts; 2) to make design decisions for a new observing system; and 3) to investigate the behavior of data assimilation systems in an environment where the system’s behavior is known (paraphrased from Prive & Errico PPT, 2015). NOAA uses OSSEs in many of its programs for a number of purposes related to its observing and modeling activities.”

The EISWG discussed this topic at its July 2018 meeting and decided to set up a team to work on this topic. The planned work includes:

- An EISWG work plan
- Decide on the team membership
- Review the use of OSSEs in NOAA, Navy, NASA, and elsewhere
- Develop options for NOAA to consider current and future research and development (R&D) work in this area, such as the combination of OSSEs with EFSO (which is being carried out at AOML with UMD collaboration, and is expected to strongly enhance and accelerate the current abilities of OSSEs).

Deliverables: (Expected Product or Outcome—note that this may, but need not necessarily be, a report; other outcomes could be a memo, slide deck presentation, etc.)

A short white paper that will review the use of OSSEs in NOAA, Navy, NASA, and elsewhere; and develop recommendations for NOAA to consider and provide rationales for each recommendation made.

Timetable: Include interim steps, such as presentations by NOAA or outside experts before the full SAB, engagement with working groups, or other key steps.

31 August 2018: submit the EISWG OSSE work plan to SAB

30 September 2018: Finalize the team membership

31 October 2018: Review the use of OSSEs in NOAA, Navy, NASA, and elsewhere

31 December 2018: Develop recommendations for NOAA to consider; finish the draft white paper

31 January 2019: revise the white paper based on EISWG and other inputs

Mid-February 2019: finalize the white paper for submission to SAB

Participants: SAB Members, NOAA liaisons, NOAA Federal Advisory Committees and Other Collaborators Working on this Topic—Please list and explain.

EISWG members: Bill Hooke, Xubin Zeng, (and a couple more, e.g., one on ocean measurements and one from the private sector, would be desirable; as EISWG leads this effort, it may be most appropriate for an EISWG member to chair this group?)

SAB members: Eugenia Kalnay and Susan Avery

Climate Working Group members: 1-2 members are expected (need to contact CWG co-chairs)

NOAA liaison: Lidia Cucurull, NOAA AOML

Domain expert: Fred Carr (note that other people mentioned here, such as Bob Atlas and Eugenia Kalnay, are also domain experts)

Navy liaison: Nancy Baker

NASA liaison: Mike Bosilovich (GSFC) and Derek Posselt (JPL)

Resources needed: Please describe what is needed

Ensure NOAA line offices will provide the information in a timely fashion when we request it.

Facilitate teleconferences for team discussions.

Potential Challenges:

Time schedule may be delayed because of the holiday season and AMS/AGU meetings in December 2018 and January 2019.