

2023 ECCO Annual Meeting

Jan 25-26, 2023
Salvatori Seminar Room
Mudd Building of Geophysics and Planetary Science (South Mudd)
California Institute of Technology
Pasadena, CA

DAY 1, Jan 25

- **Opening (8:30-9:15, 10 mins each)**
 - Welcome and logistics (I. Fenty)
 - Remarks from NASA Program Managers
 - Physical Oceanography (N. Vindogradova-Shiffer)
 - Modeling, Analysis, and Prediction (D. Considine)
 - Cryosphere (T. Markus)
 - Discussion / Q&A [5 minutes]

- **Supporting NASA Science Priorities (9:15-10:30, 10 mins each)**
[I. Fukumori moderator]
 - ECCO project overview and recent highlights (I. Fenty)
 - SWOT altimetry mission
 - ECCO and SWOT (J. Wang)
 - SWOT data assimilation using ECCO tools (M. Archer)
 - Coupled climate model development with ECCO-GEOS (D. Menemenlis)
 - Carbon (D. Carroll)
 - Ocean and Ice-Sheet Coupling (E. Larour)
 - Discussion / Q&A [15 minutes]

- **Break (10:30-10:45)**

- **Supporting NASA Open Science and Community Outreach (10:45-11:45, 10 mins each)**
[O. Wang moderator]
 - Engaging Scientists with ECCO (A. deCharon)
 - ECCO + PODAAC (C. Ou)
 - ECCO Tutorials (A. Delman)
 - ECCO + EIS (D. Felikson)
 - Remote streaming and visualization with Jupyter Notebook and IDX2 (N. McCurdy)
 - Discussion / Q&A [10 minutes]

- **Lunch and group photo (11:45-1:30)**

- **Science with ECCO 1 (1:30 - 2:30, 10 mins each) [I. Fenty moderator]**
 - Seismic ocean thermometry (J. Callies)
 - Tunnels in the ocean: following climate signals from the subtropics to the tropics in ECCO (J. Gebbie)
 - Relationships among trends in subsurface warming, bottom pressure, steric height, and ssh. (J. Steinberg)
 - Using ECCO to study overturning variability in the North Atlantic (Y. Kostov)
 - Discussion / Q&A [15 minutes]

- **Coffee Break (2:30-2:45)**

- **Technical developments 1 (2:45-4:00, 10 mins each) [D. Carroll moderator]**
 - ECCO Modelling Utilities [EMU] (I. Fukumori)
 - New prior covariance formulation within the MITgcm/ECCO framework using a Matérn type correlation model (T. Smith)
 - Submarine melt parameterization (K. Schulz)
 - Downscaling (M. Wood)
 - Cost function evaluation in data space (A. Verdy / M. Mazloff)
 - Discussion / Q&A [25 minutes]

- **Science with ECCO 2 (4:00-5:00, 10 mins each) [D. Menemenlis moderator]**
 - Influence of Quantity of In Situ Data Assimilated in ECCOv4r4 (D. Halpern)
 - An adjoint-weighted principal components approach for determining dominant atmospheric drivers of ocean variability (D. Amrhein)
 - What are the dominant atmospheric drivers of decadal AMOC variability? (D. Stephenson)
 - ECCO adjoints advance efforts of climate prediction and projection (T. Lee)
 - Discussion / Q&A [20 minutes]

- **Close Day 1 (5:00)**

Group Dinner (6:00)

Thai Dinner at Saladang Garden, Pasadena

DAY 2, Jan 26

- **Announcements (9:00-9-10)**
- **Production efforts (9:10 - 10:05, 10 mins each) [I. Fenty moderator]**
 - Central Production
 - V4r5 Summary (Fukumori)
 - Multi-grid Optimization (Wang)
 - ASTE (A. Nguyen)
 - Regional assimilation efforts at SIO (M. Mazloff & G. Gopalakrishnan)
 - Discussion (15 minutes)
- **Looking Ahead / Emerging Activities 1 (10:05-10:30)**
 - Thoughts on coupled data assimilation (D. Stammer)
 - Discussion (15 minutes)
- **Break (10:30-10:45)**
- **Science with ECCO 3 (10:45-12:00, 10 mins each) [I. Fenty moderator]**
 - Drivers of subsurface Pacific cooling in the ECCO Version 4 Release 4 state estimate [J. Gebbie on behalf of A. Meza]
 - Uncertainty quantification of ocean melting under Pine Island Ice-Shelf (T. Smith)
 - Modeling of marine ecosystems and ocean robots (G. Forget)
 - How ECCO supports winds and currents mission concept (H. Torres)
- **Lunch (12:00-1:30)**
- **Science with ECCO 3 cont. (1:50-2:00, 10 mins each) [I. Fenty moderator]**
 - Preliminary results from a time-varying ice-sheet state estimate (D. Cheng)
- **Technical developments 2 (2:00-2:30, 10 minutes, each)**
 - MITgcm (J-M-C)
 - ECCO-GEOS coupling (C. Hill)
 - Discussion / Q&A [10 minutes]
- **Coffee Break (2:30-3:00)**
- **Looking Ahead / Emerging Activities 2 (3:00 - 4:00)**
 - ECCO-Darwin (D. Carroll)
 - Global biogeochemical runoff (R. Savelli)
 - Uncertainty estimation and observing system assessment & design (P. Heimbach, H. Pillar)
 - Machine learning for predicting Arctic sea-ice motion (L. Hoffman)
 - Discussion / Q&A [10 minutes]
- **Open discussion (4:00-4:55) [P. Heimbach moderator]**
 - Emerging topics including online workshops and summer school
- **Closing (4:55-5:00)**