



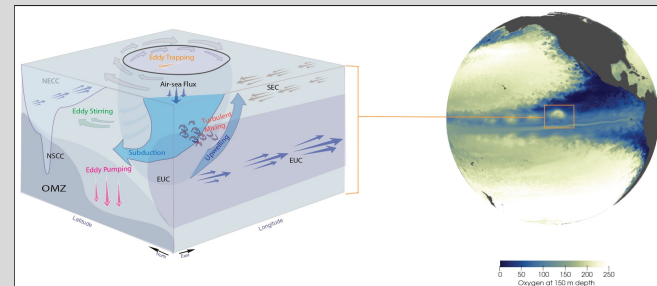
ATOC COLLOQUIUM

Welcome!

Please join us for the next ATOC Colloquium on **Friday, April 8** from **11:00 AM–12:00 PM**, which will be held in **SEEC S228 and simulcast over Zoom**. This week's colloquium features **Dr. Yassir Eddebbar (UCSD)**. Please join us for coffee beginning at 10:45 AM and stay for a special Graduate Student Appreciation lunch afterwards. **Please be aware that masks are now optional on the CU Boulder campus.**

Ocean Oxygen Dynamics and Variability Across Scales: Insights from an Earth System Model

Ocean biogeochemistry is tightly intertwined with its physics. A fascinating expression of this interaction can be seen in the distribution of a critical component of the ocean's chemistry and biology: dissolved oxygen (O₂). A more concerning expression of this coupling is the observed long-term decline of O₂ associated with anthropogenic warming impacts on gas solubility and ventilation, a phenomena named "Ocean Deoxygenation". Attribution of the latter is very challenging due to sparse sampling and poor understanding of processes governing O₂ distribution and its large variability imparted by climate and ocean dynamics. In this talk, we will explore, using different configurations of the Community Earth System Model, how climate variability, both internally (e.g. ENSO) and externally (e.g. volcanoes) generated, and ocean mesoscale processes (e.g. eddies) influence the air-sea exchange, distribution, and cycling of O₂ in the upper ocean. Particular focus will be given to the tropical Pacific, where O₂ is naturally low and where the largest long-term O₂ loss rates have been reported. Here, our model simulation suggests a complex interplay of mesoscale eddies, equatorial jets, and turbulent mixing modulates the distribution and ventilation of O₂. Implications for future observing systems and model projections are discussed.



Location: SEEC S228 & Zoom

Zoom:

<https://cuboulder.zoom.us/j/98918610767>

Password: ATOC

About the ATOC Colloquium

The Department of Atmospheric and Oceanic Sciences (ATOC) Colloquium is typically held **every other Friday** from **11:00 AM–Noon**. Colloquia alternate between the following formats: (A) Full-length talk by a faculty member or invited speaker, (B) Three conference-length talks by graduate students. If you would like to nominate a speaker (including self), please email the ATOC Colloquium Committee Chair, Prof. Jan Lenaerts (jan.lenaerts@colorado.edu). Please visit www.colorado.edu/atoc/colloquium for further details.