



Fall Seminar Series

Thursday, October 2nd @ 3 pm

Room 200, Oceanography & Physics Building

Or Via Zoom

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Title

**Extreme Indian Summer Monsoon States Stifled
Bay of Bengal Productivity Across the Last
Deglaciation**

ABSTRACT

Indian summer monsoon (ISM) hydrology fuels biogeochemical cycling across South Asia and the Indian Ocean, exerting a first-order control on food security in Earth's most densely populated areas. Although the ISM is projected to intensify under continued greenhouse forcing, substantial uncertainty surrounds anticipating its impacts on future Indian Ocean stratification and primary production—processes key to the health of already-declining fisheries in the region. Here we present century-scale records of ISM runoff variability and marine biogeochemical impacts in the Bay of Bengal (BoB) since the Last Glacial Maximum (~21 thousand years ago (ka)). These records reveal extreme monsoon states relative to modern strength, with weakest ISM intensity during Heinrich Stadial 1 (~17.5–15.5 ka) and strongest during the early Holocene (~10.5–9.5 ka). Counterintuitively, we find that BoB productivity collapsed during both extreme states of peak monsoon excess and deficits—both due to upper-ocean stratification. Our findings point to the possibility of future declines in BoB primary productivity under a strengthening and more variable ISM regime.

Zoom: Contact OES Admin- OESadmin@odu.edu