

## **Atmospheric nourishment of global ocean ecosystems on a changing planet**

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As part of this study, we propose to follow the deposition events of individual nutrients: phosphorous, nitrogen, and iron. We will characterize their bioavailability and trace their sources and deposition process through the use of the Community Atmospheric Model – 6 (CAM6). Then, using satellite-derived products including ocean chlorophyll, phytoplankton carbon, and fluorescent yields, we investigate how ocean ecosystems respond to atmospheric deposition events over the 25-year satellite record.

If successful, our study will identify another important mechanism for future ocean biology change beyond changes in ocean temperature and circulation. This new regulatory factor coupled to the aerosol system will need to be incorporated into ALL Earth system models focused on future predictions of ocean health and feedback to the sequestration of atmospheric carbon dioxide.

We are a truly interdisciplinary team of atmosphere and ocean scientists, satellite data analysts, and modelers who are eager to apply this new understanding and constrained model to project how future climate-induced changes will affect life on a changing planet.