A Climatology of fluorescence off the California Coast

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Abstract (Oral Presentation)

The California Underwater Glider Network (CUGN) has been monitoring the coast of California since 2006 with Spray underwater gliders that typically dive down to 500 m, resulting in profiles approximately 3 km apart every 3 hours. The fluorometer onboard Spray emits blue light with wavelengths of approximately 470 nm and measures wavelengths of 685 nm, which allows for estimating the Chlorophyll concentration. Differences between sensors from mission to mission poses a challenge in producing continuous and consistent measurements of fluorescence from underwater gliders. In order to address this issue, we propose a calibration model consisting of an offset and a gain to correct the differences between fluorescence measurements from MODIS-Aqua and the Spray glider. Our calibration model is applied to over 100,000 profiles of fluorescence from the CUGN, covering 13 years along three recurrent CalCOFI lines, allowing to construct a climatology of fluorescence off the California coast. Because the calibration uses widely available satellite data, this approach may be used generally for autonomous profiling devices.