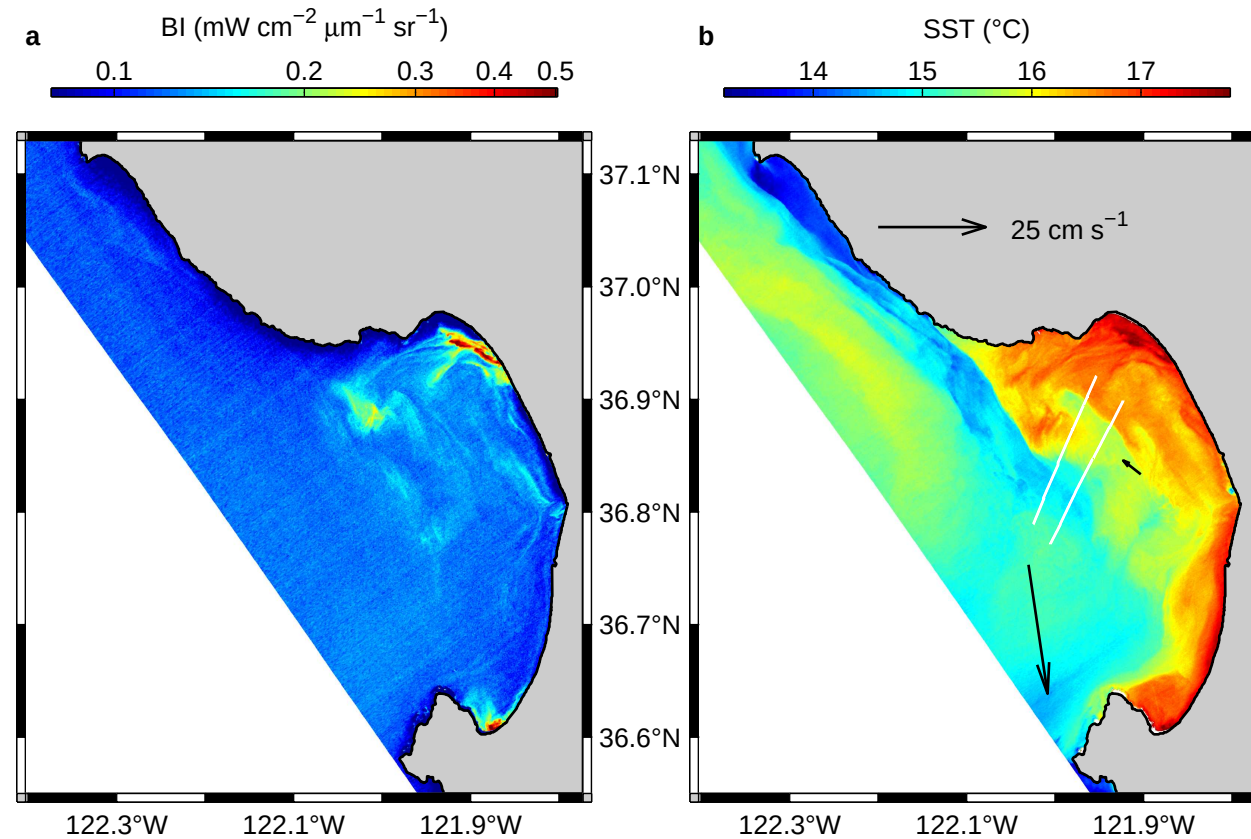
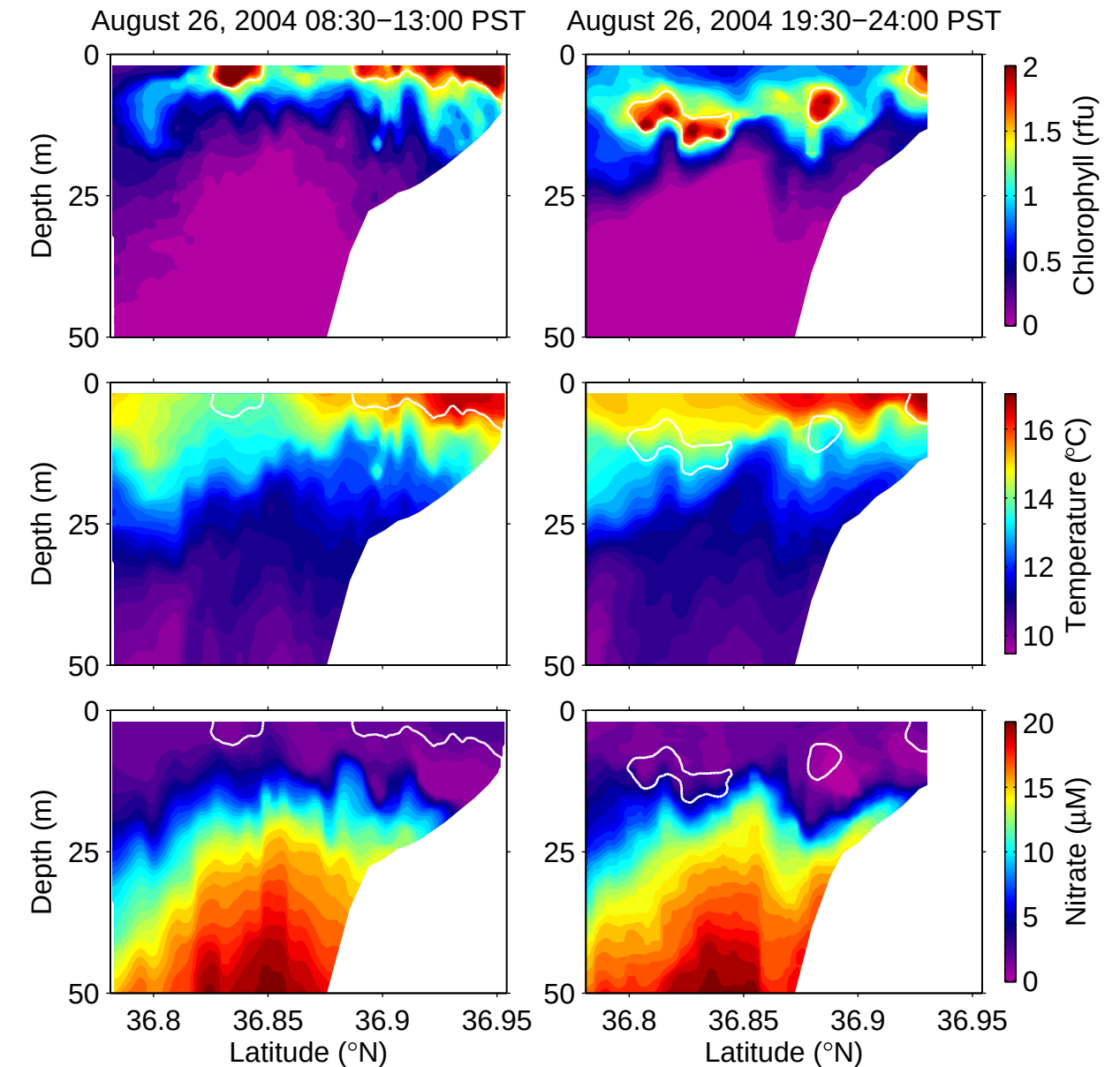


Tracking Red Tide Blooms

Aircraft



AUV



During a major red tide bloom in Monterey Bay, the *Dorado* AUV was used together with airborne remote sensing to track the rapid bloom expansion. Shown on the left are a bloom index and sea surface temperature mapped by the MODIS Airborne Simulator (MAS) on August 26, 2004. The white lines in the SST image show the tracks of AUV surveys made during this day (northern line) and the following night (southern line). Shown on the right are three of the variables mapped by *Dorado*: Chlorophyll fluorescence (bloom intensity), temperature, and nitrate (nutrient) concentrations. The left column is from the August 26 daytime survey, and the right column is from the nighttime survey. These AUV data clearly show that the bloom migrated into deeper, more nutrient rich waters during the night (the white contours overlaid on temperature and salinity indicate the bloom location). The vertical migration is an indicator of the red tide species, which migrate downward to acquire nutrients at night. Satellite remote sensing (not presented here) shows that this rapidly spreading bloom filled the entire bay within only a few days. These observations are in a manuscript being reviewed for publication in the journal *Harmful Algae*.