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The Current Feedback to the Atmosphere: Implications for the Ocean Dynamics, Air-Sea Interactions, and Climate.

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In the past few years, it has been demonstrated that the regional Ocean-Atmosphere interactions can strongly modulate the variability and the mean physical and biogeochemical state of the ocean. In this presentation, the focus will be on the influence of the surface current on the atmosphere (i.e., current feedback). Based on satellite observations and using a set of regional ocean and atmosphere coupled simulations carried out over different regions encompassing a realistic Tropical Channel, and Eastern and Western boundary current systems, we will illustrate to which extent those interactions can control the exchange of energy between the Ocean and the Atmosphere, the mean, mesoscale, and submesoscale circulations, and the Western Boundary Currents Dynamics. Implications for climate, thermal air-sea interactions and how to force an oceanic model is furthermore discussed.