

**Synthesis of basin-scale air-sea flux fields**

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New basin-scale air-sea flux fields are being developed based on the following strategy: 1) deployment of surface flux reference sites, surface moorings deployed in key meteorological regimes around the world and equipped with accurate, well-calibrated sensors that sample once per minute, capture surface meteorological variability (wind speed and direction, air and sea temperature, barometric pressure, incoming shortwave and incoming longwave radiation, precipitation, relative humidity), provide the data needed for computation of bulk-formulae air-sea fluxes of heat, freshwater, and momentum; 2) equipping the VOS doing the high resolution XBT lines with the same sensors to obtain spatial information; 3) rigorous calibration procedures; and 4) use of these in-situ data to guide a data assimilation effort that brings in remote sensing data and surface fields from numerical weather prediction models. Observations from two operating surface reference station and from the VOS are shown as are air-sea flux fields for the Atlantic Ocean.