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**The quality of surface meteorology from unattended buoys and from VOS**

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Surface flux reference sites, surface moorings deployed on an annual cycle in key meteorological regimes around the world and equipped with 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) and select Volunteer Observing Ships (VOS) instrumented with the same sensors are being used to collect the surface meteorological data needed to produce air-sea fluxes for climate studies. The characteristics and performance of these unattended sensors are presented, and the calibration and comparison procedures used to estimate the accuracies of the observations, which include laboratory calibration and intercomparisons in the field and on land, are discussed. Finally, plans to address issues that now limit quality and gain further improvements are outlined.