Air-sea exchange group report on “Priorities for advancement of the ocean observing system”

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1. What are the needs for advancement of the ocean observing system?

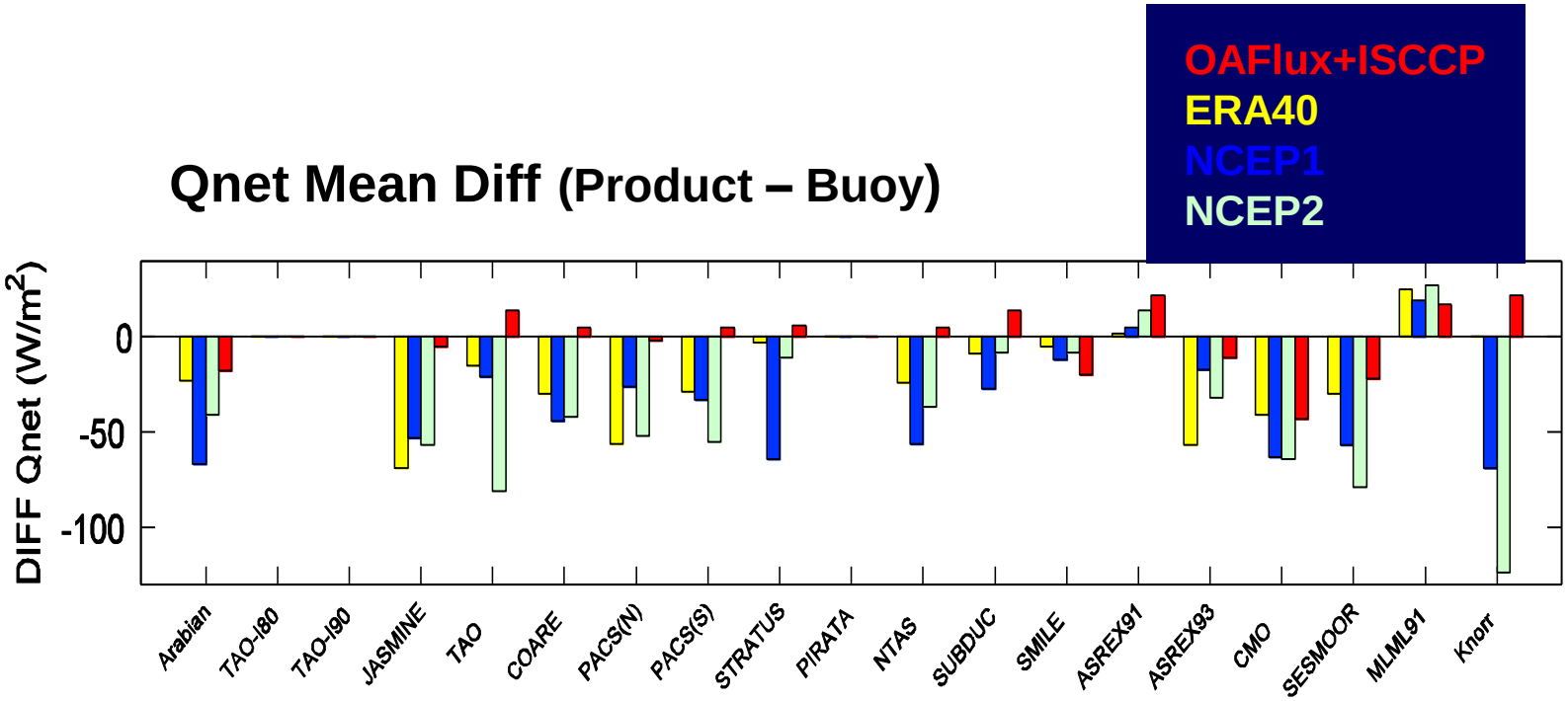
(a) Long-tem Goals

(b) Current status

(c) Short-term increments

(a) Goals:

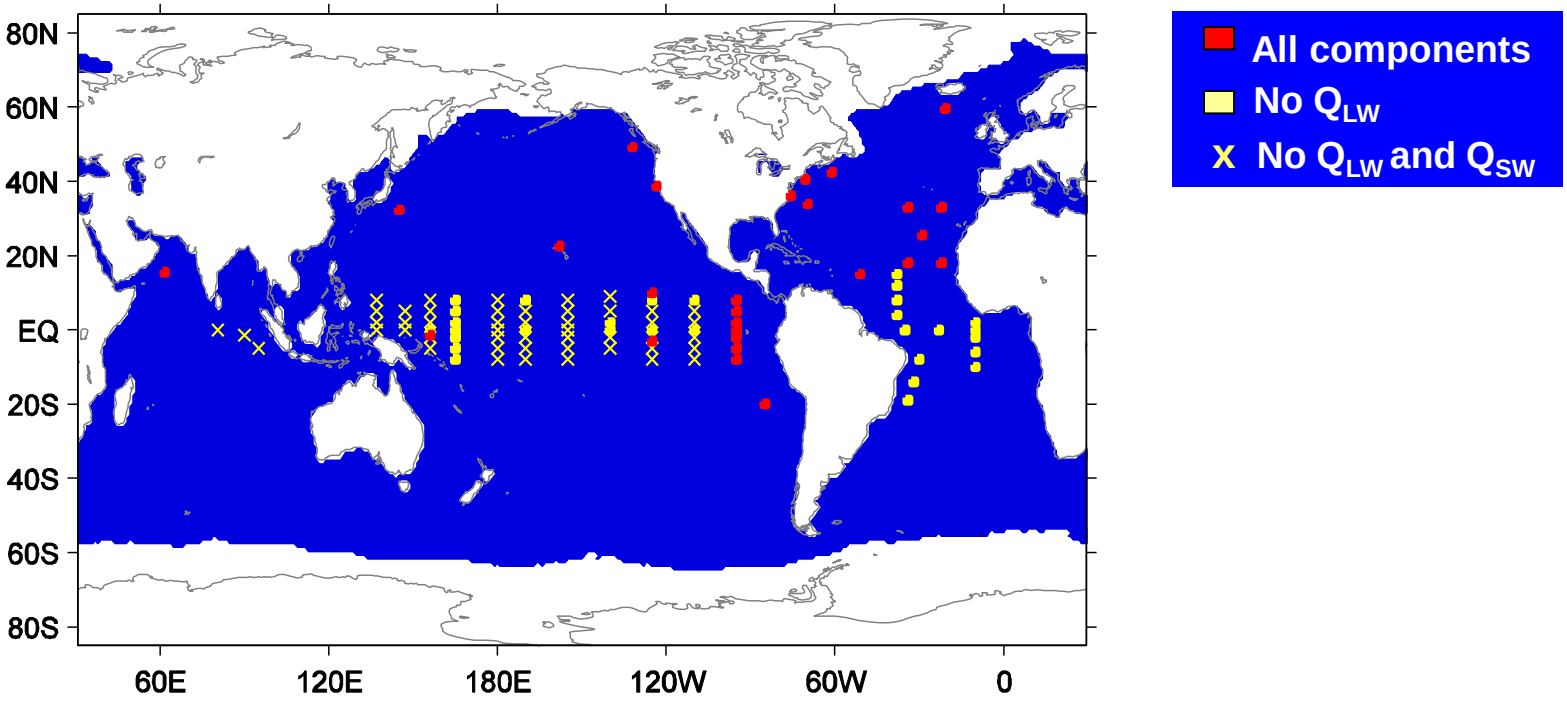
- Accuracy for net heat flux estimates: ±10Wm^{-2}
- Balanced global energy budget



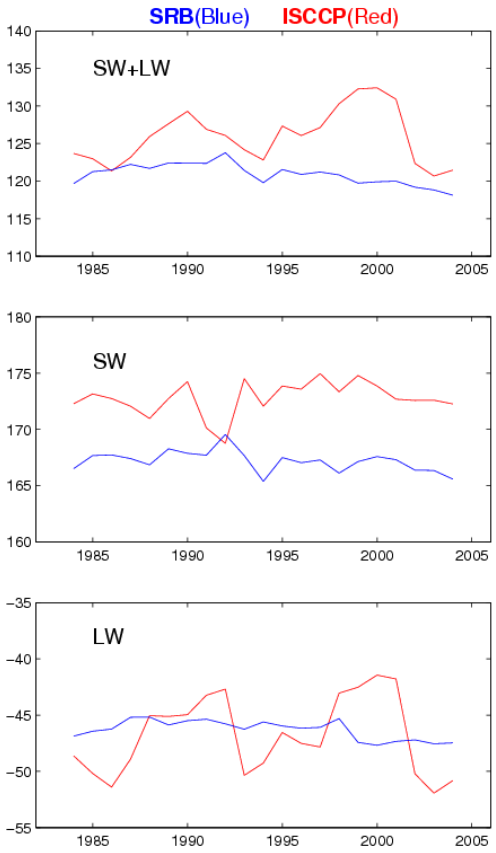
(b) Current status of global air-sea flux measurements:

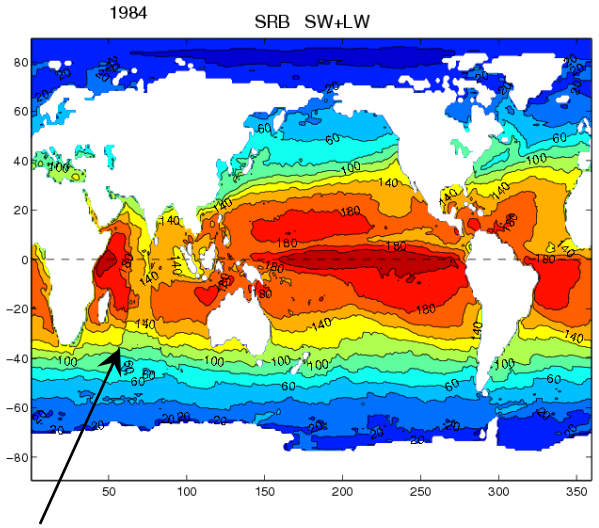
There are needs for

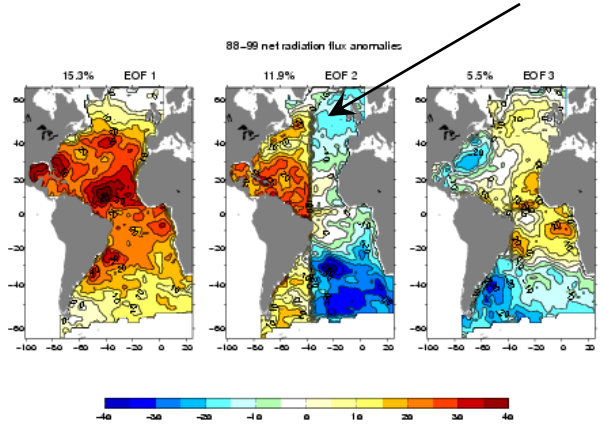
- better spatial coverage, particularly at higher latitudes
- high quality, continuous record, long duration
- simultaneous measurements of wind, wave, radiations in addition to humidity, temperature, and precipitation



Satellite radiation products:
discontinuity in both space and time







There is a need of radiation (longwave and shortwave) sensors at reference sites and along cross-basin VOS sections.

(c) Short-term increments

- Review flux observing capacity on existing platforms (buoys, research vessels, VOS, coastal guard/icebreakers…)

- Improve efforts to install radiation sensors on all buoys

- Improve efforts to install air-sea flux sensors on major cross-basin VOS

2. What are the needs of the ocean observing and user communities?

(1) High frequency sampling (at least 3-hourly, ideally 10-minute)

(2) Error bar information for flux measurements and analysis products

3. What are the recommended priorities for the Climate Observation Program?

- Review existing flux observing capacity on existing platforms (buoys, research vessels, coastal guard/icebreakers…)
- Improve efforts to install radiation sensors on all buoys, air-sea&flux sensors on arctic research vessels, icebreakers, major cross basin VOS
- Reenergize a flux workgroup to focus on review and strategic planning and to prepare for OceanObs (2008?)