Lat	Lon	Locale	Additional Oceanographic Justification Purposes
68	-8	OWS M (Norwegian Sea)	Monitor properties of Atlantic waters entering Nordic Seas + Norwegian Sea Deep Water.
55	-21	OWS Juliet or Lima	Evolution of waters in warm and cold limbs of the MOC.
53	-35	IfM-Kiel float park	As above.
45	-45	East of Grand Banks	Examine subtropical-subpolar exchanges; monitor waters in both warm and cold limbs of MOC.
40	-70	Station W (Site D)	Western endpoint for MOC baroclinicity; monitoring properties of deep western boundary current
35	-35	Center of Azores-Bermuda High	
20	-30	Trade Wind Zone	
15	-19		Eastern partner of above.
40	5	Golf de Lyon	Observe deep convection.
-42	9	SW of Cape Town	Collect eddy statistics.
-63	-65	S side of Drake Passage	Paired with above.

Table 1a. Proposed Flux reference sites in the Atlantic Ocean

Lat	Lon	Ocean	Locale	Other justification:
50	-150	Pac	Station Papa	Observe upper-ocean water mass property changes with partner stations, monitor strength of baroclinic gyre circulation.
38	150	Pac	Kuroshio Extension	Monitor strength and properties of subtropical mode water.
25.7	135.5	Pac	JMA OWS	
28.2	126.3	Pac	JMA OWS	
29	135	Pac	JMA OWS	
37.5	134.4	Pac	JMA OWS	
-42	-130	Pac	Subtropical S. Pacific	Gather eddy statistics
3	145	Pac	W. Pac. Warm Pool	.
15	62	Ind	Arabian Sea	
10	90	Ind	Bay of Bengal	
-45	64	Ind	Kerguelen Is.	Gather eddy statistics

Table 1b : As Table 1a but for the Pacific and Indian Oceans. Notes - (1) Observe upper-ocean water mass property changes with partner stations, monitor strength of baroclinic gyre circulation. (2) Monitor strength and properties of subtropical mode water. (3) Gather eddy statistics.

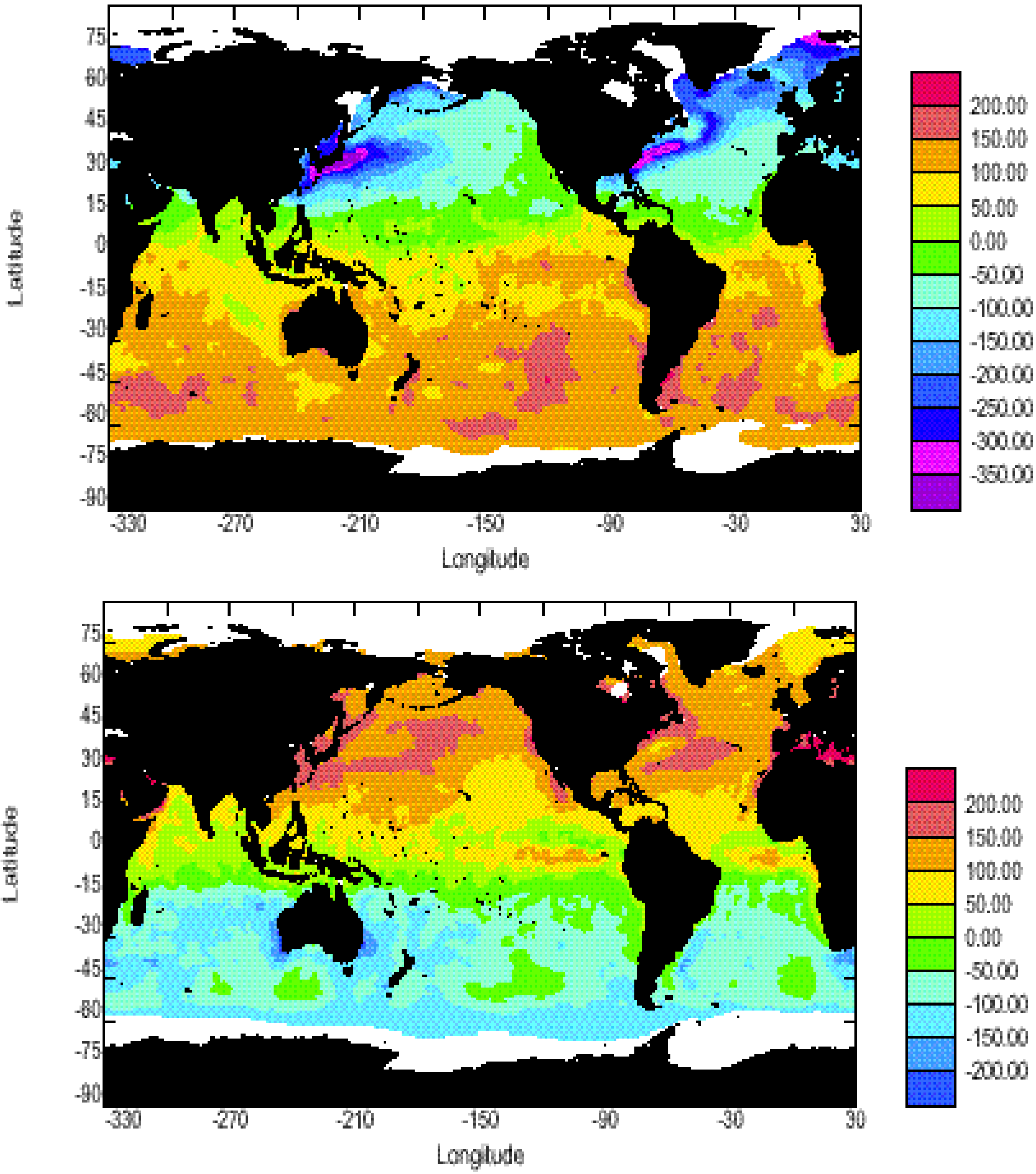


Figure 1 Mean net heat flux from the SOC climatology (Josey et al. 1998): (a) January; (b) July.

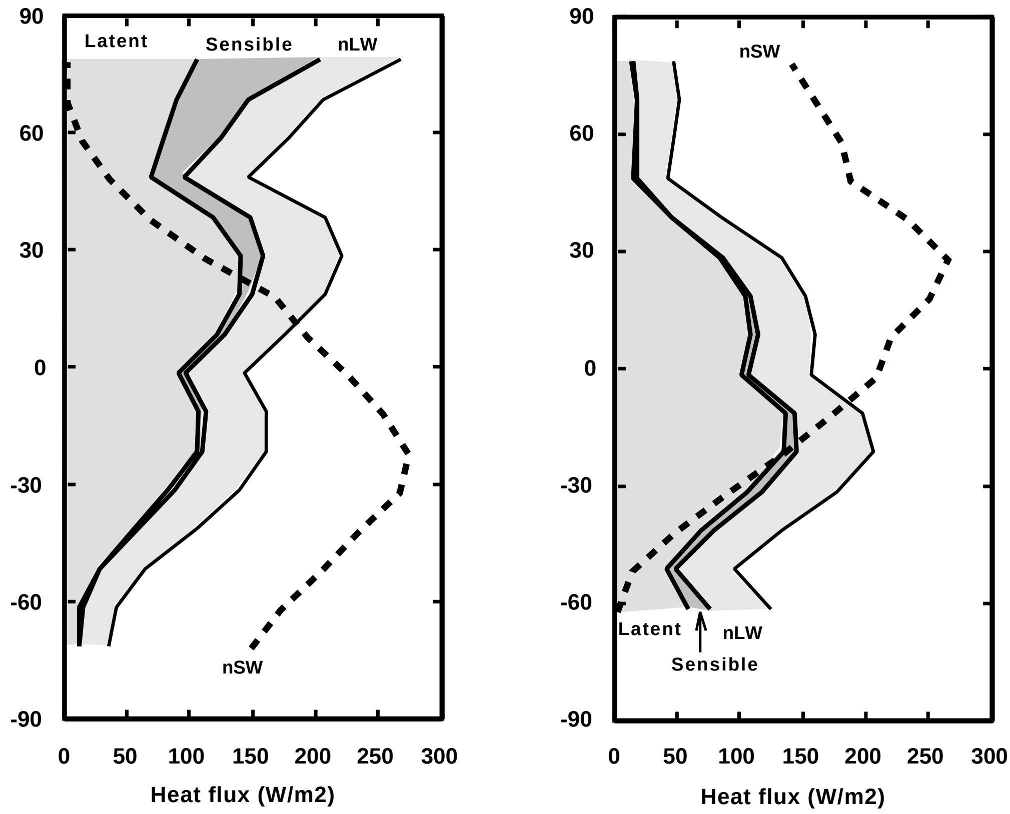


Figure 2. Zonal mean values of the flux components derived from the SOC climatology (from Josey et al. 1999b) for (a) January; (b) July.

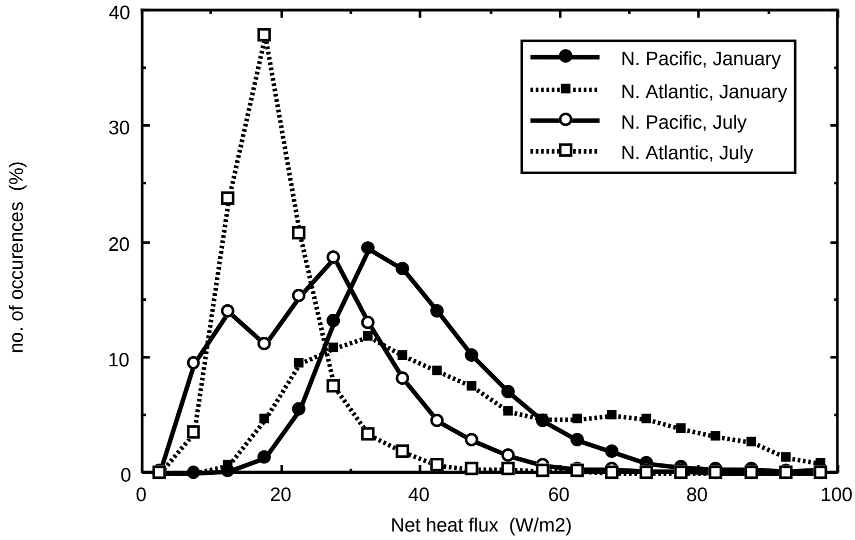


Figure 3. Histograms of.the interannual variability of monthly 1°x 1° mean values of the net heat flux for the North Atlantic and North Pacific oceans for January and July as calculated from the SOC surface flux climatology (Josey et al. 1999a).

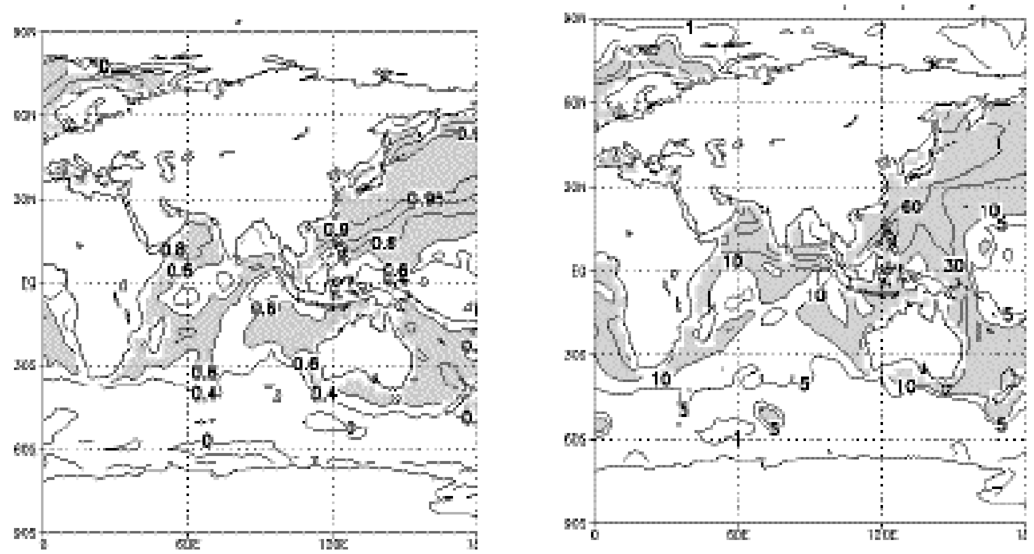


Figure 4(a) Correlation of monthly mean evaporation between the da Silva et al. (1974) VOS based climatology and the NCEP/NCAR reanalysis for 1981-92. Contours 0, .4, .6, .8, .9, and .95. Values over 0.6 are shaded. (b) Average number of ship reports available to NCEP1/month/2.5^{o} box for 1981-92. A nine-point smoother was applied to the field. Values over 10 are shaded.

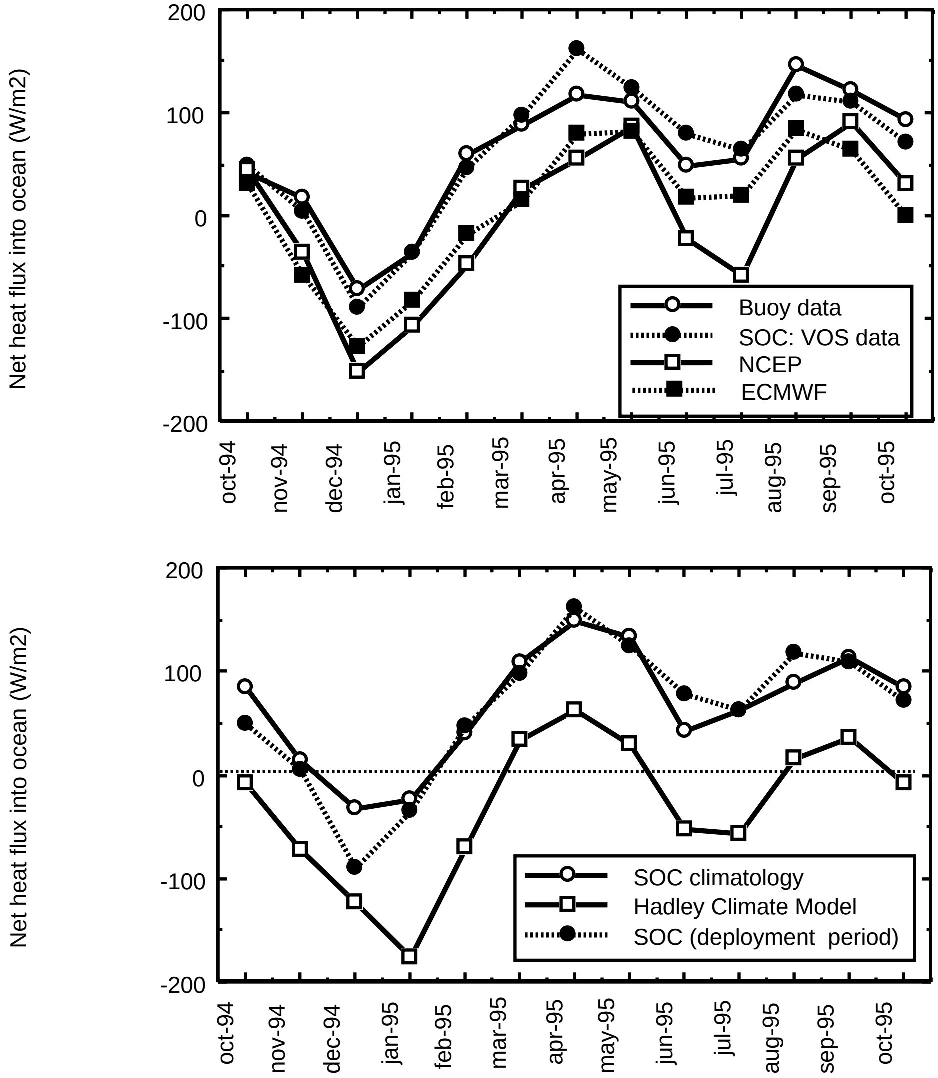


Figure 5. Net heat flux at an Arabian Sea buoy site (adapted from Weller et al. 1997). (a) the measured buoy values, the values from the SOC flux dataset, and fluxes from the ECMWF and NCEP NWP models. In each case the data are for the actual buoy deployment period. (b) The SOC flux values for the deployment period and for the 1980 to 1993 mean values. Also shown are the fluxes from an AMIP run of the Hadley Centre climate model (Hall et al. 1995).

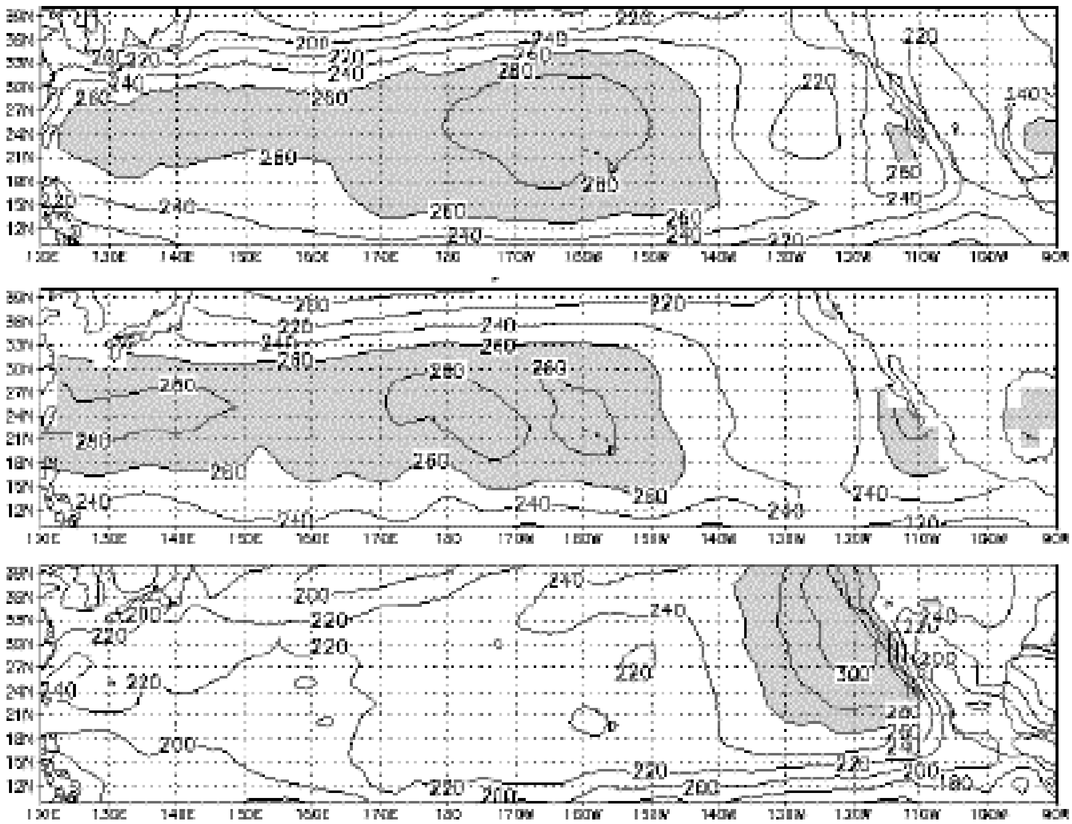


Figure 6. Net shortwave radiation at the ocean surface for July 1983-1990: (a) satellite based estimate (Darnell et al. 1992); (b) ship based estimate (da Silva et al. 1994) untuned; (c) ECMWF reanalysis (adapted from White & da Silva, 1999).

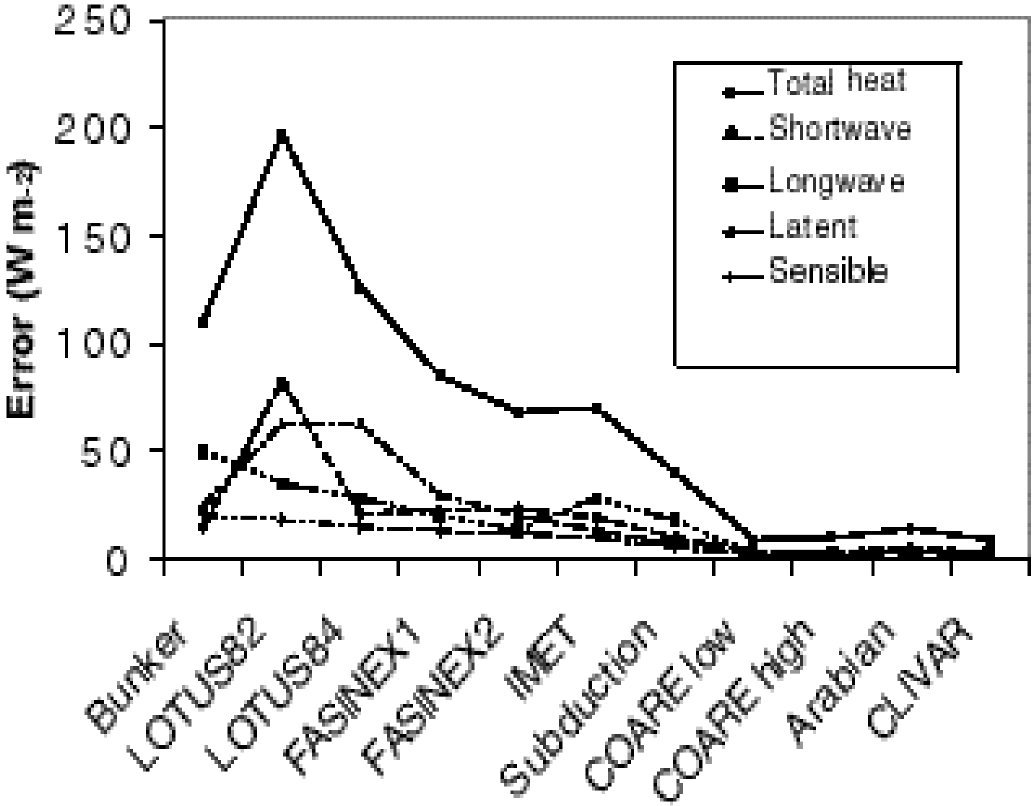
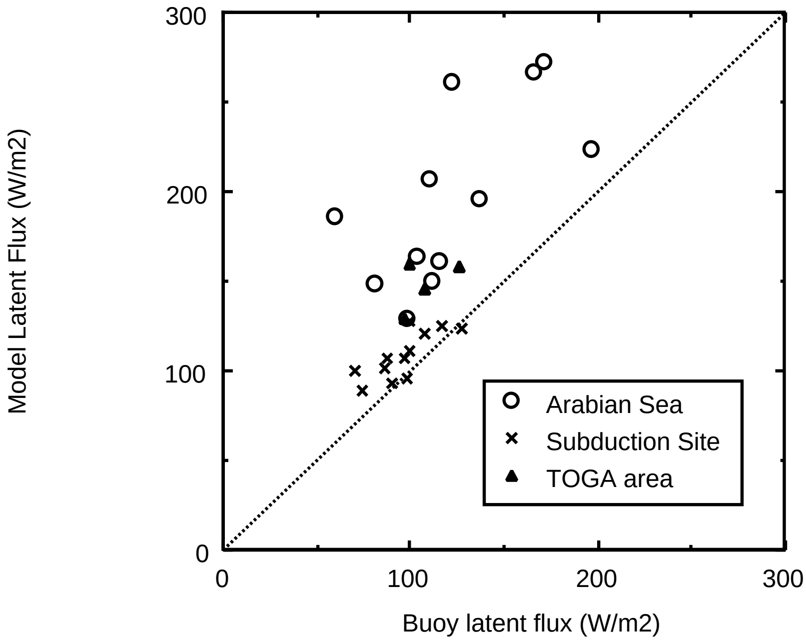


Figure 7. The reduction of measurement error in the components of the heat flux and net heat flux associated with surface mooring deployments during various experiments since the early 1980s. The errors estimated in climatologies of the early 1980's, such as Bunker's, are given as a starting point.



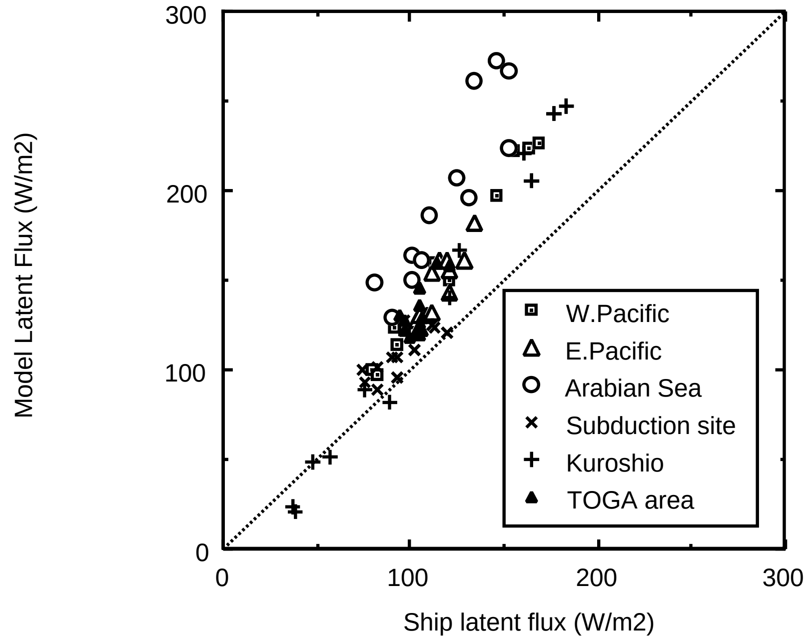


Figure 8. Comparison of monthly mean latent heat fluxes from a model (the Hadley Centre HADAM3 model) and (a) estimates from IMET buoy deployments; (b) values from the SOC ship-based climatology.