Monthly ΔpCO_2 climatology

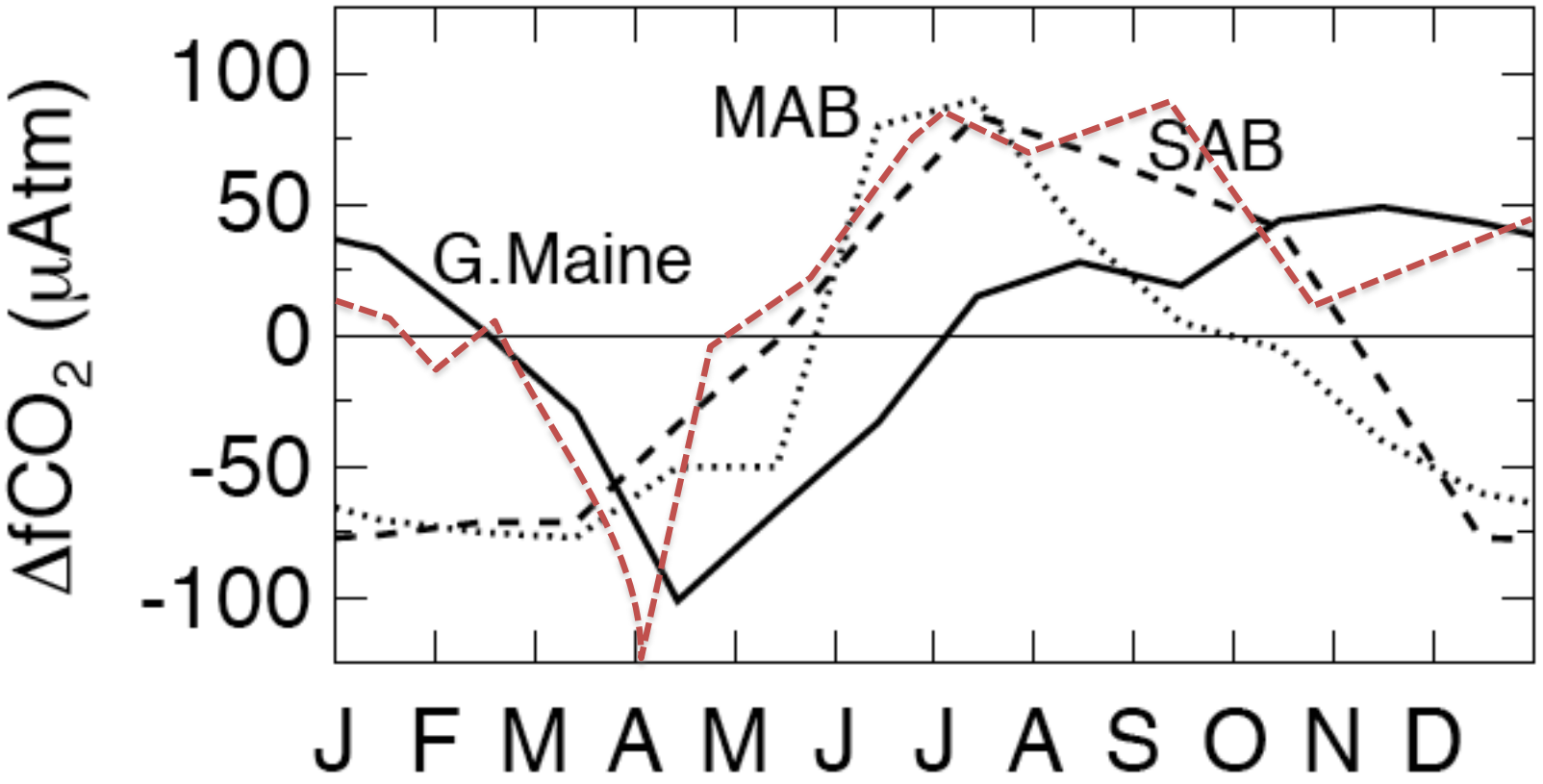
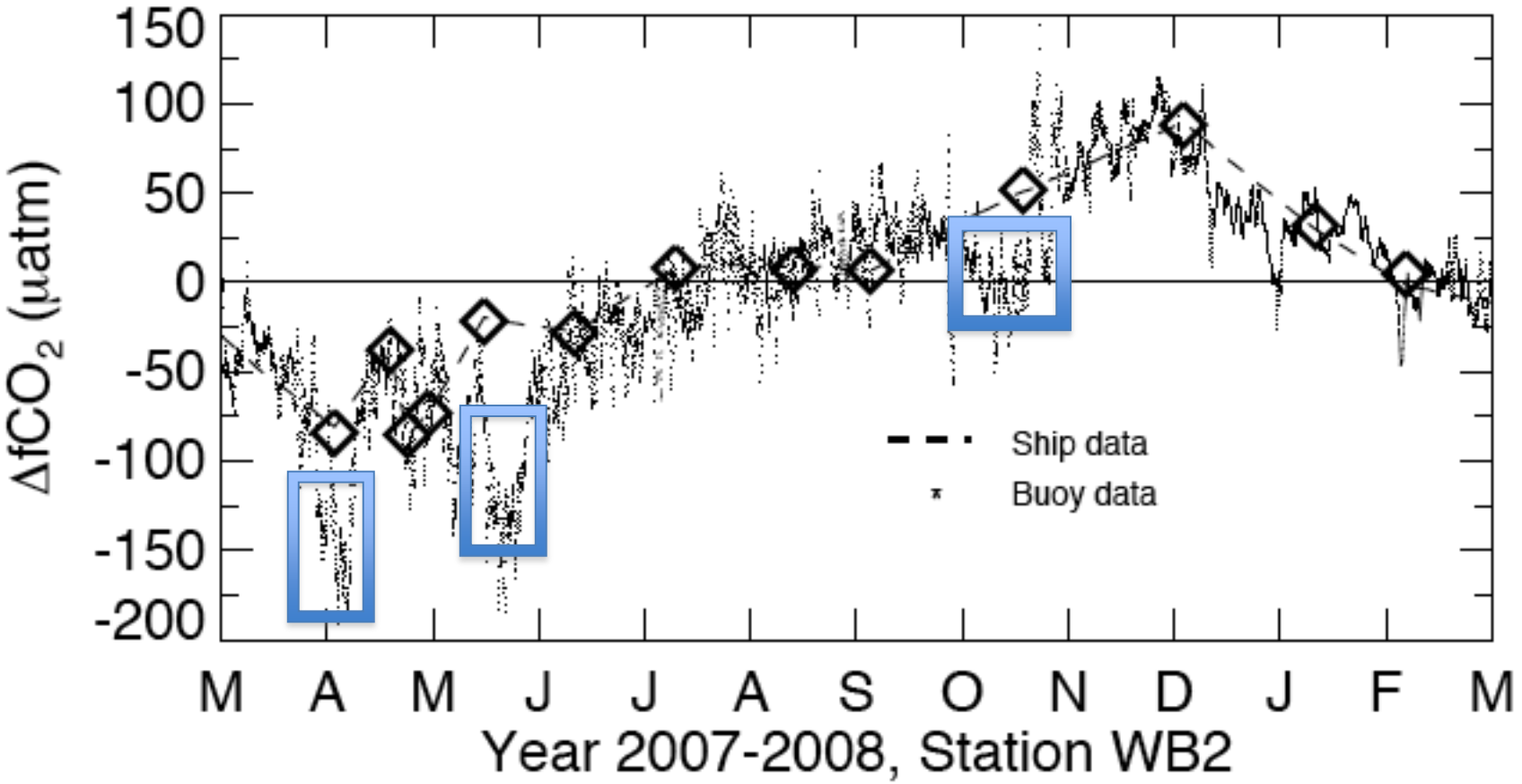


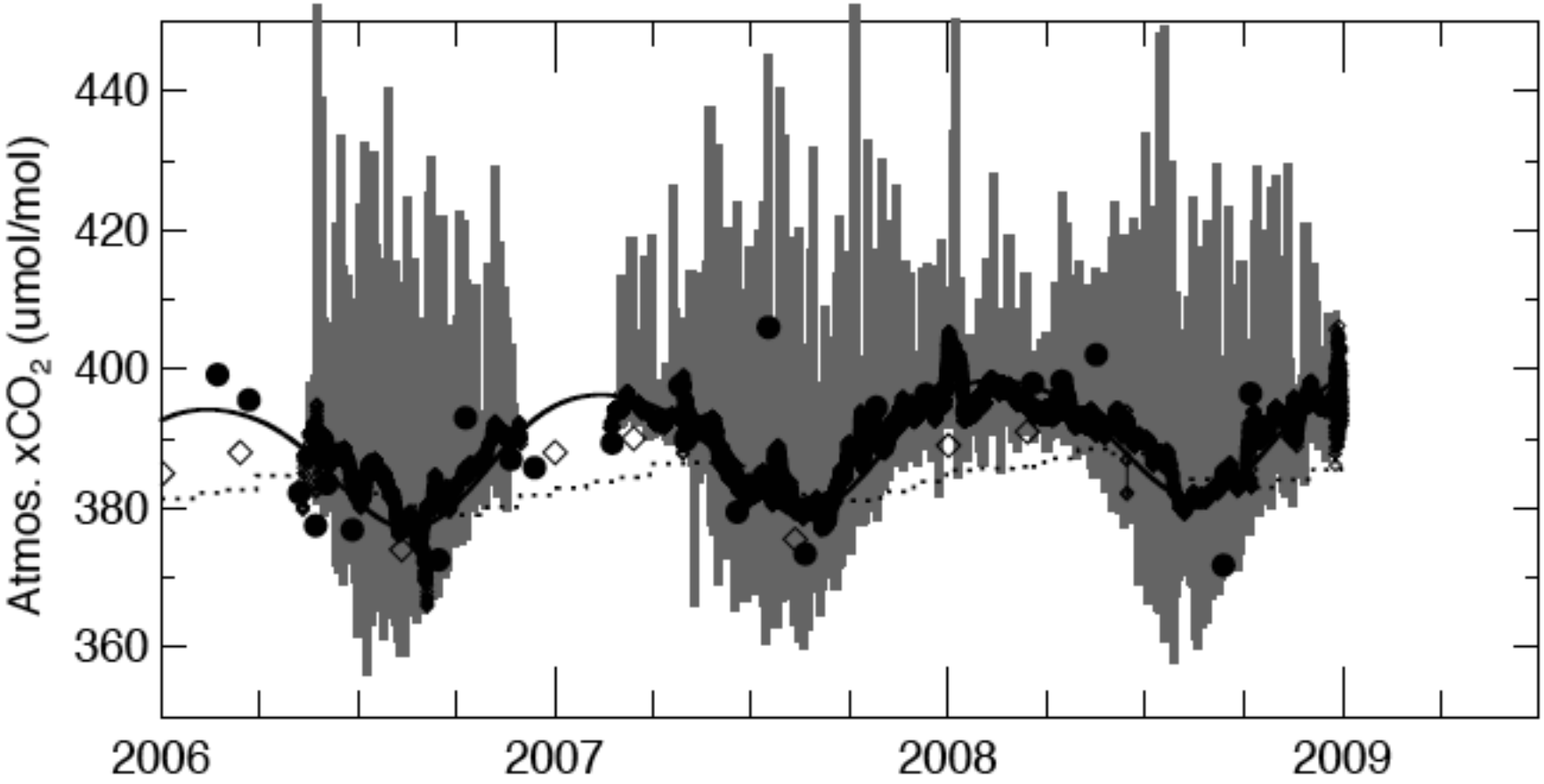
Figure 11 Estimated annual cycle of air-sea ΔfCO_2 for this Gulf of Maine study region (solid), for the Mid-Atlantic Bight (dotted), and the South Atlantic Bight (dashed) where the latter two results are derived from DeGrandpre et al. (2002) and Jiang et al. (2008) respectively.

Shadwick et al, 2010

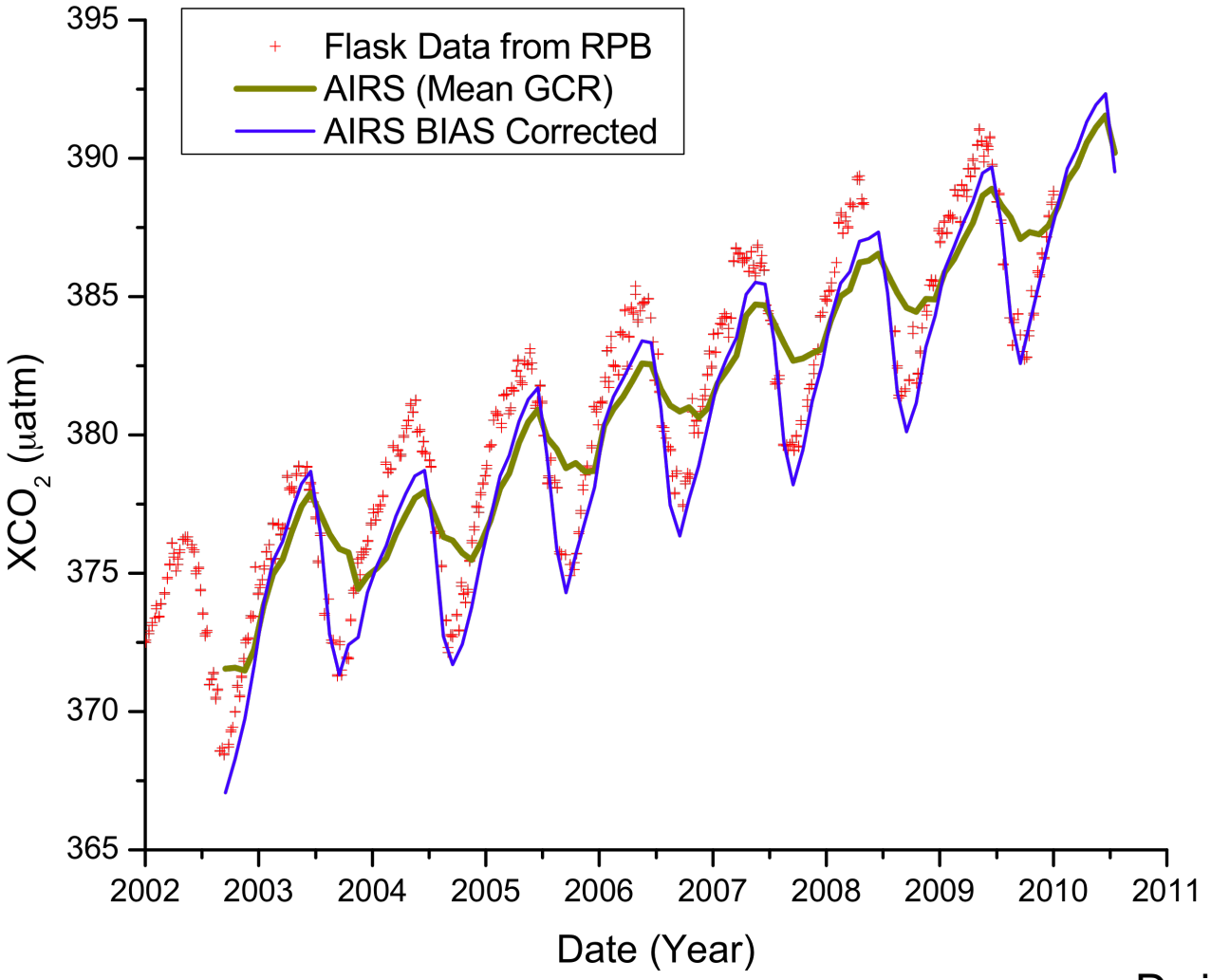
Hourly versus ~monthly sampling



UNH/PMEL time series of atmospheric pCO_2



NASA-AIRS mid-tropospheric pCO_2 (blue), pCO_2 flask data, Barbados (red)



Dwight Gledhill

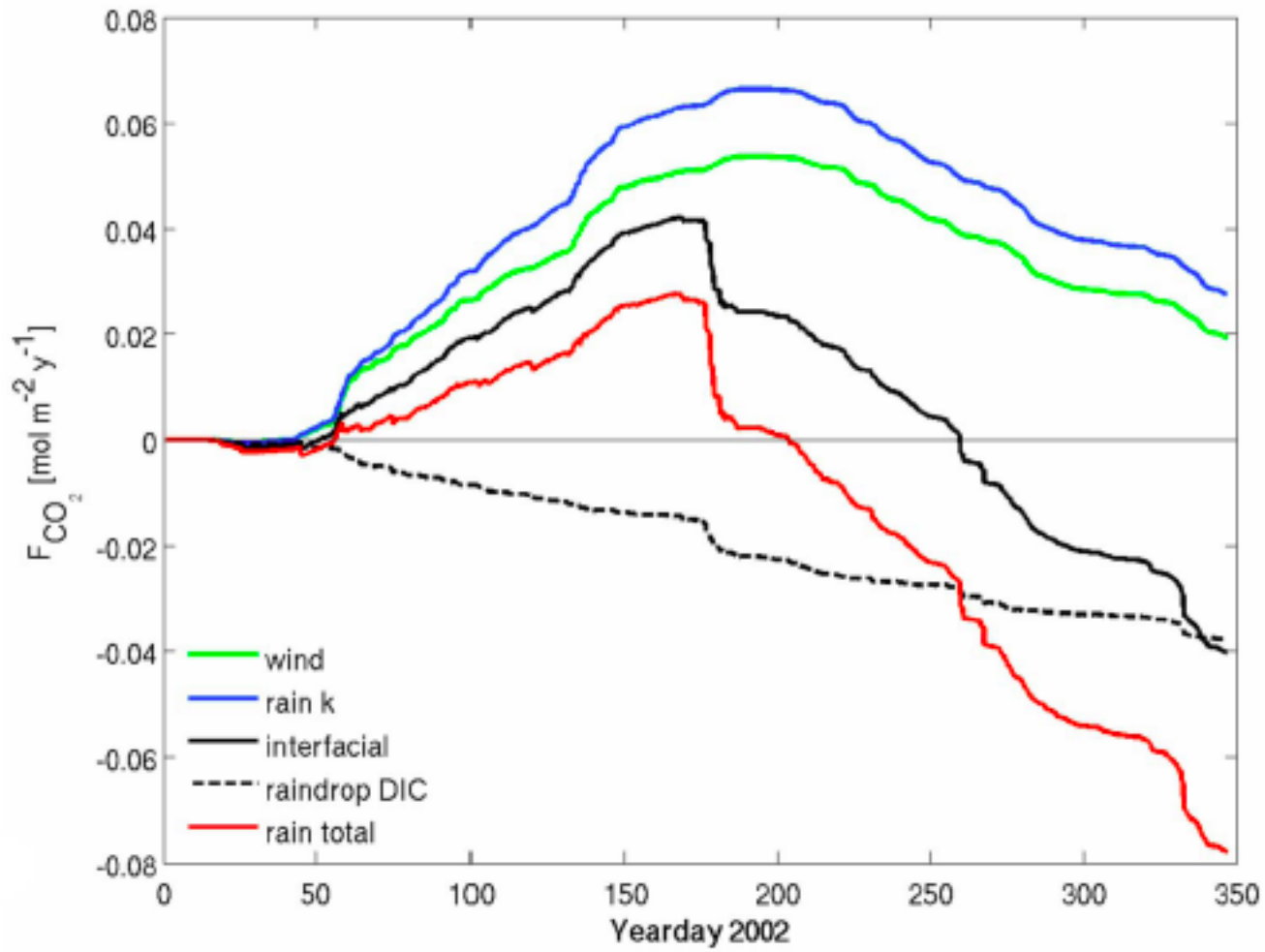
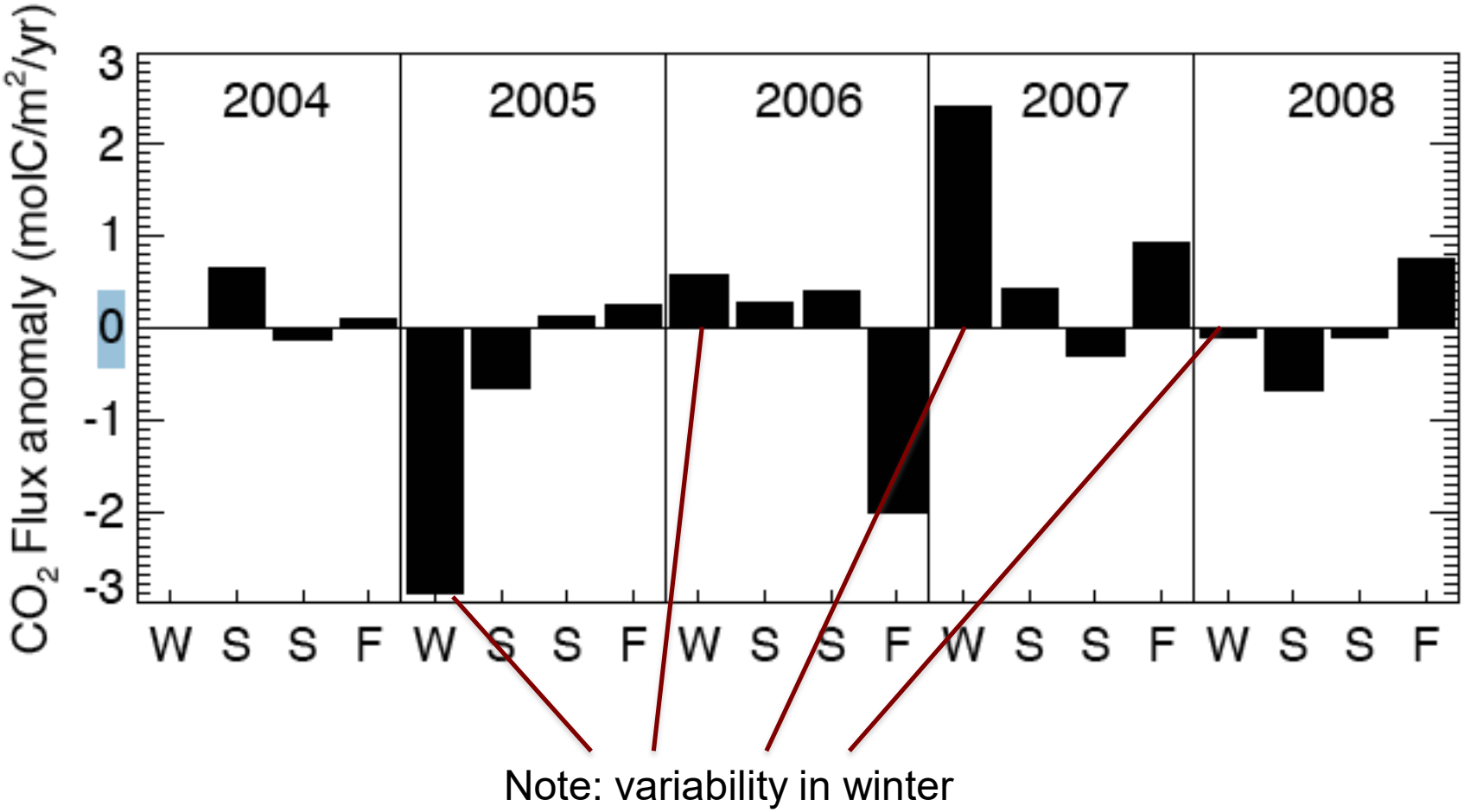
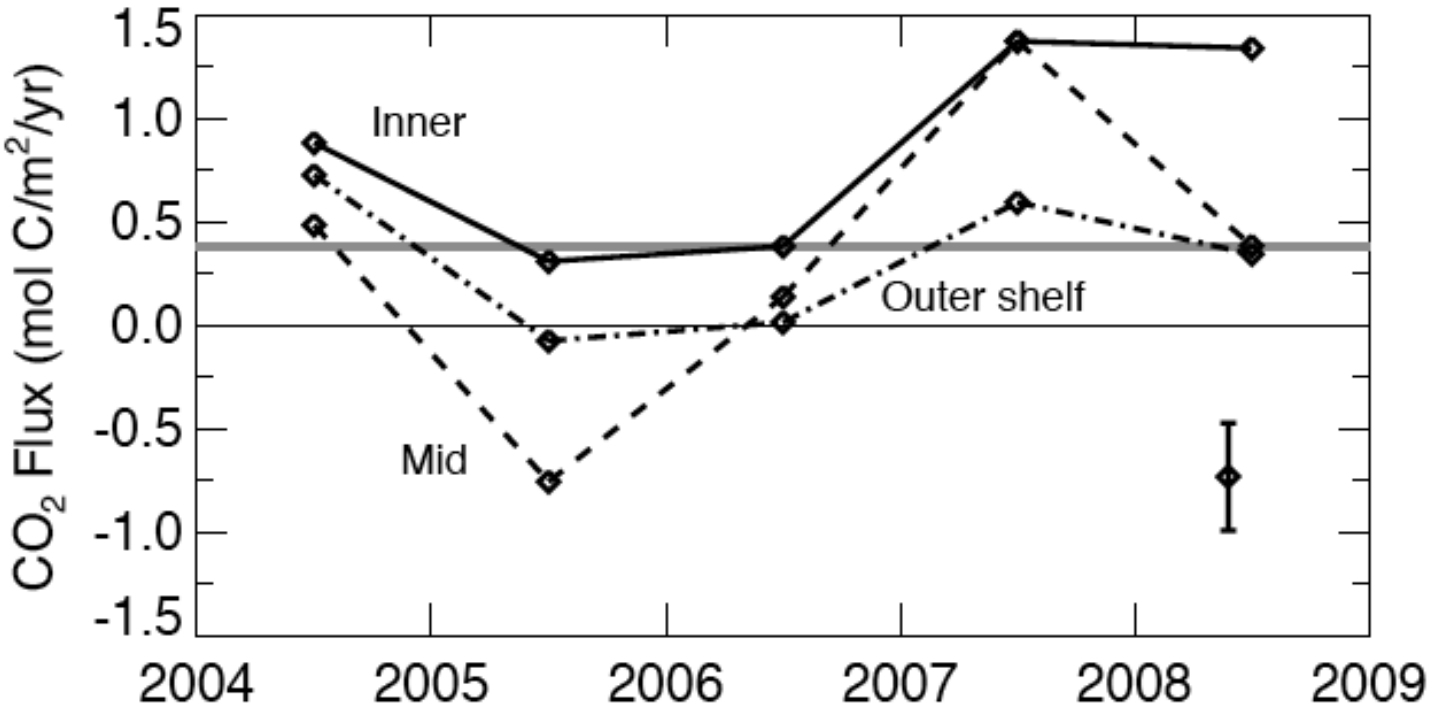


Figure 3. Cumulative net air-sea CO_2 fluxes during 2002 at 156°E at the equator. Flux from ambient $p(CO_2)$ climatology and wind only gas transfer velocity (green), from ambient $p(CO_2)$ and rain gas transfer velocity (blue), from $p(CO_2)$ chemical dilution and rain gas transfer velocity, or interfacial flux (black solid), from raindrop wet deposition of DIC (black dash), and from the total rain (red).

Seasonal CO_2 flux anomaly (western Gulf of Maine)



Air-sea carbon flux 2005-2009 (Vandemark et al, 2010)



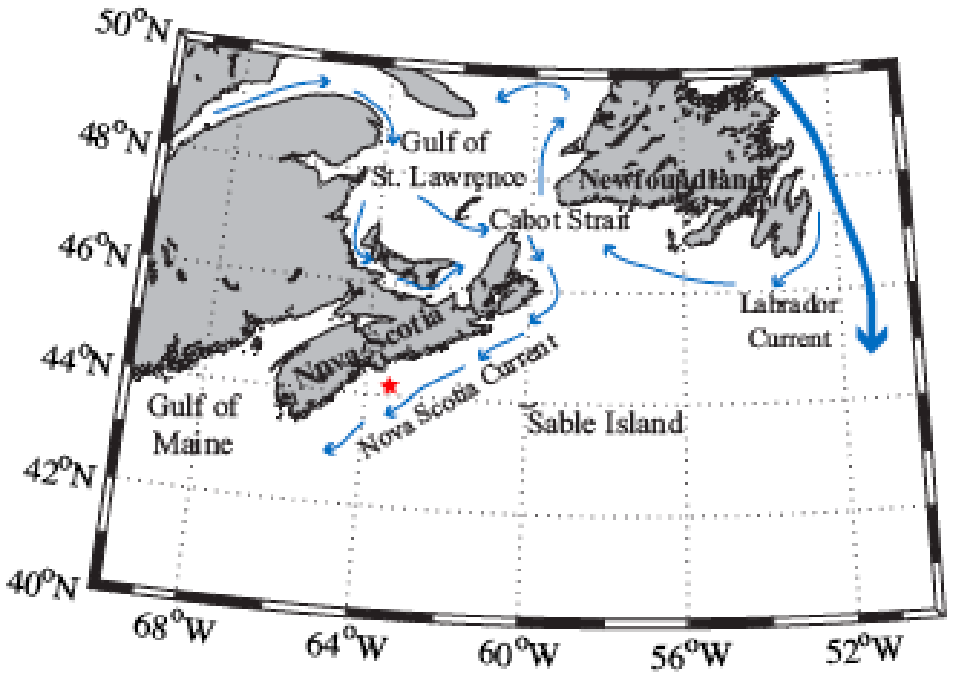
Mean +0.32 mol m^{-2} y^{-1}

+1.34 mol m^{-2} y^{-1} in 2007

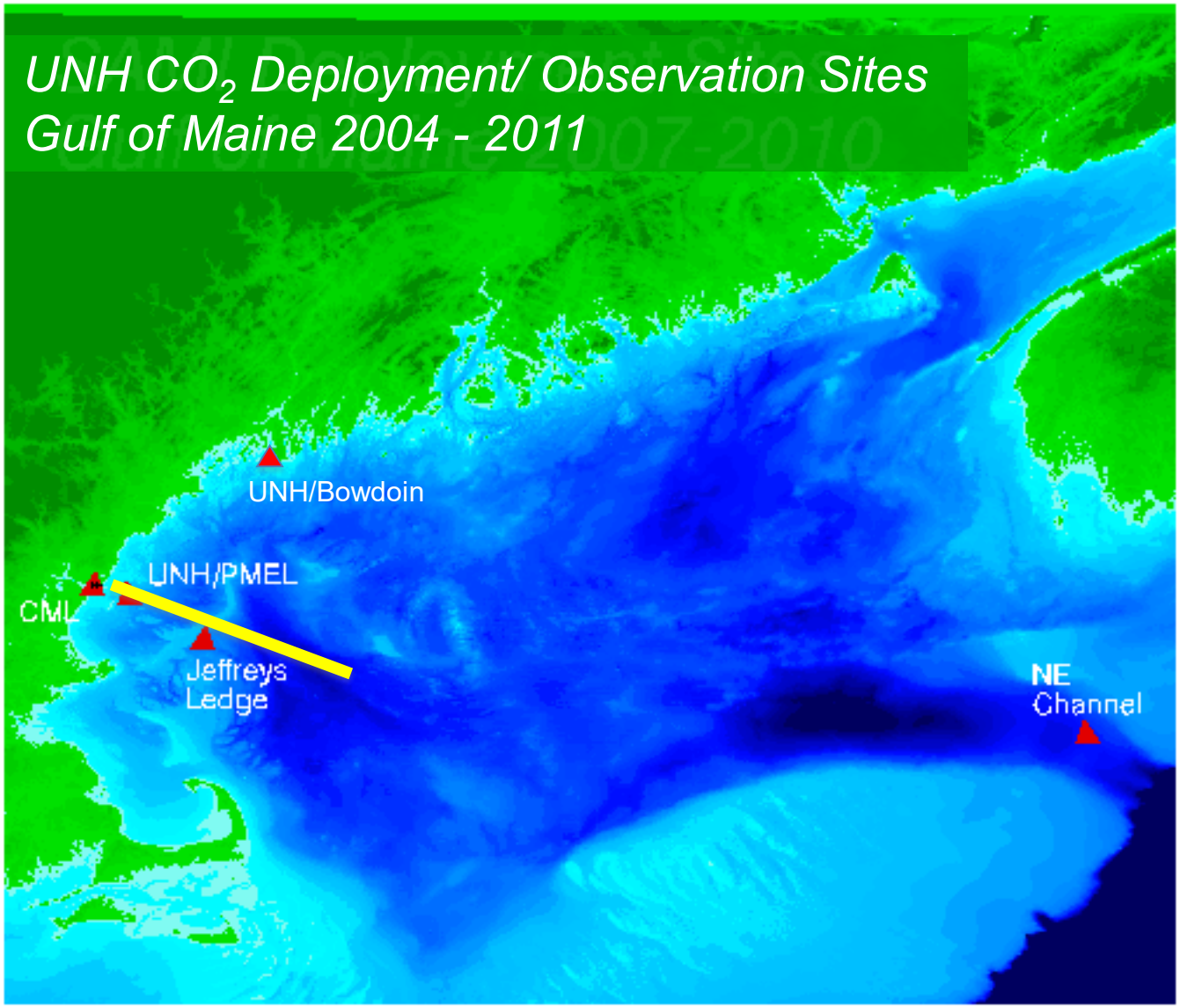
- 0.75 mol m^{-2} y^{-1} in 2005

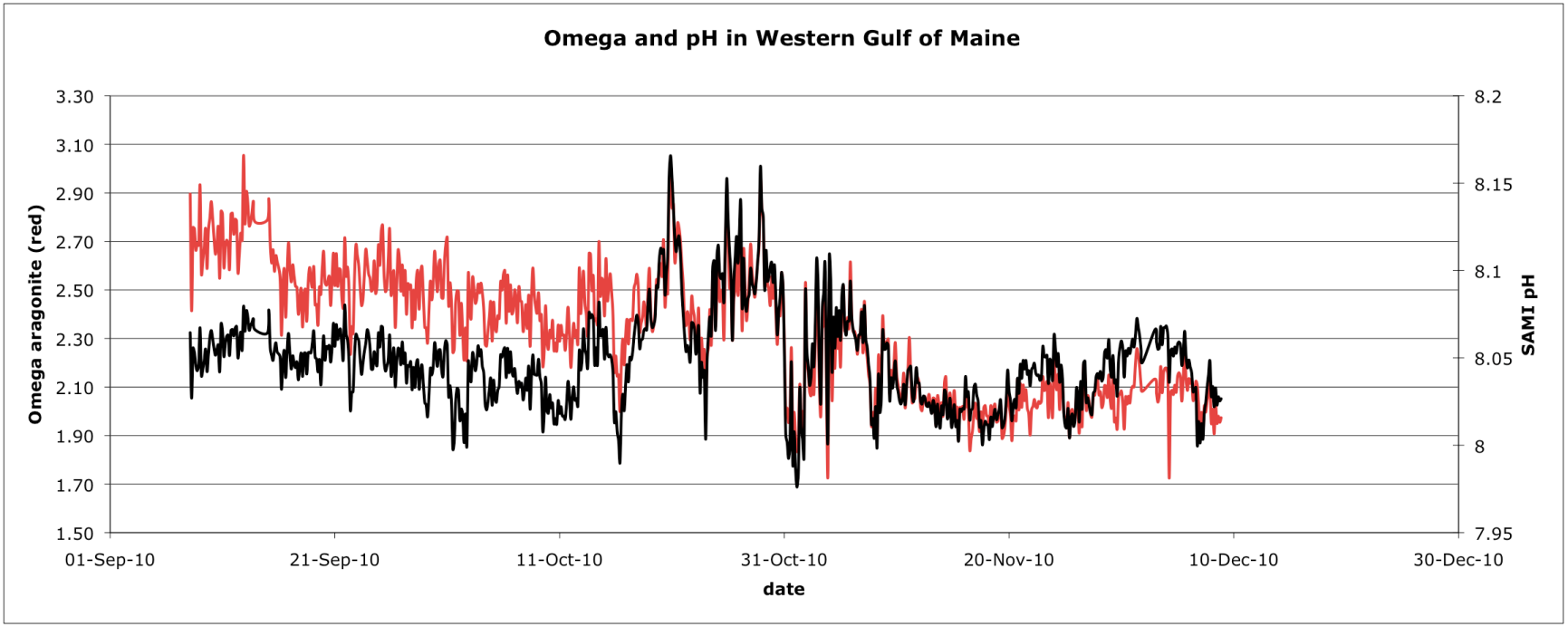
Table 4. The annual air-sea CO_2 fluxes from 1999 to 2008, both shelf-wide, and in grid box 1 comprising the CARIOCA mooring, in units of mol C m^{-2} yr^{-1}. Negative values indicate an outgassing of CO_2 to the atmosphere. The 7 gird boxes covering the Scotian Shelf region have an area of 222,700 km^2; Box 1 has an area of 31,800 km^2 (see also Fig. 13).

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Shelf-wide	-0.6	-1.3	-0.7	-1.7	-0.8	-1.1	-0.5	-0.02	-0.1	-0.1
Box 1	-1.75	-2.25	-1.4	-2.45	-1.5	-1.5	-1.0	-0.8	-0.95	-1.1



Shadwick et al, 2010


UNH CO_2 Deployment/ Observation Sites
Gulf of Maine 2004 - 2011
UNH/Bowdoin
UNH/PMEL
CML
Jeffreys
Ledge
NE
Channel


Omega and pH in Western Gulf of Maine
Omega aragonite (red)
3.30
3.10
2.90
2.70
2.50
2.30
2.10
1.90
1.70
1.50
SAMI pH
8.2
8.15
8.1
8.05
8
7.95
01-Sep-10
21-Sep-10
11-Oct-10
31-Oct-10
20-Nov-10
10-Dec-10
30-Dec-10
date

Northeastern Regional Coastal Ocean Observing System