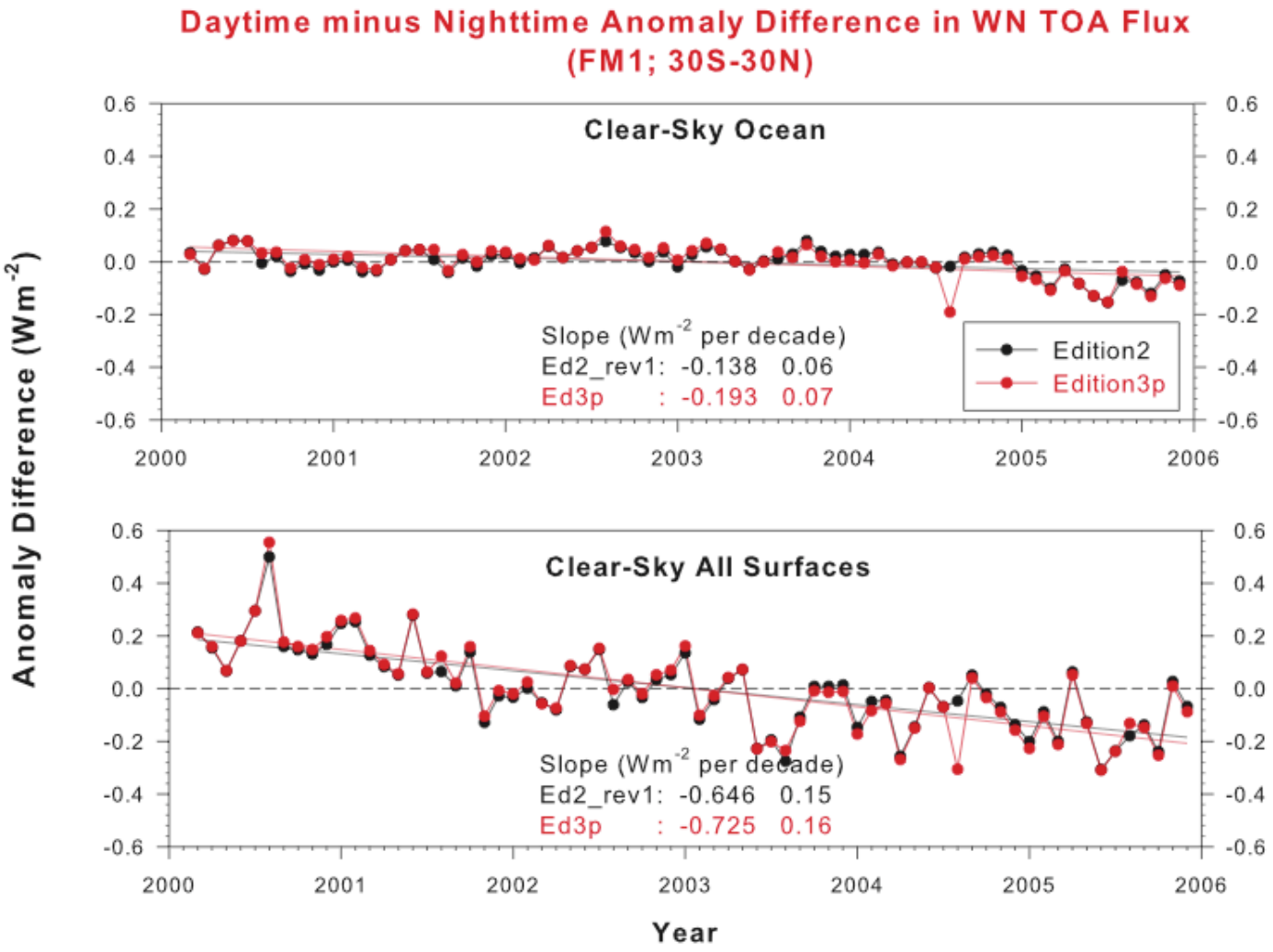
Clear Sky Window Flux Anomalies For Aqua

Nitchie Manalo-Smith
SSAI
Hampton, VA

Norman G. Loeb
NASA LaRC
Hampton, VA


Daytime minus Nighttime Anomaly Difference in WN TOA Flux
(FM1; 30S-30N)
Clear-Sky Ocean
Slope (Wm-2 per decade)
Ed2_rev1: -0.138 0.06
Ed3p : -0.193 0.07
Edition2
Edition3p
Clear-Sky All Surfaces
Slope (Wm-2 per decade)
Ed2_rev1: -0.646 0.15
Ed3p : -0.725 0.16
Anomaly Difference (Wm-2)
Year
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
2000
2001
2002
2003
2004
2005
2006

OBJECTIVE

Determine whether the Aqua day/night flux differences for Aqua are consistent with Terra.

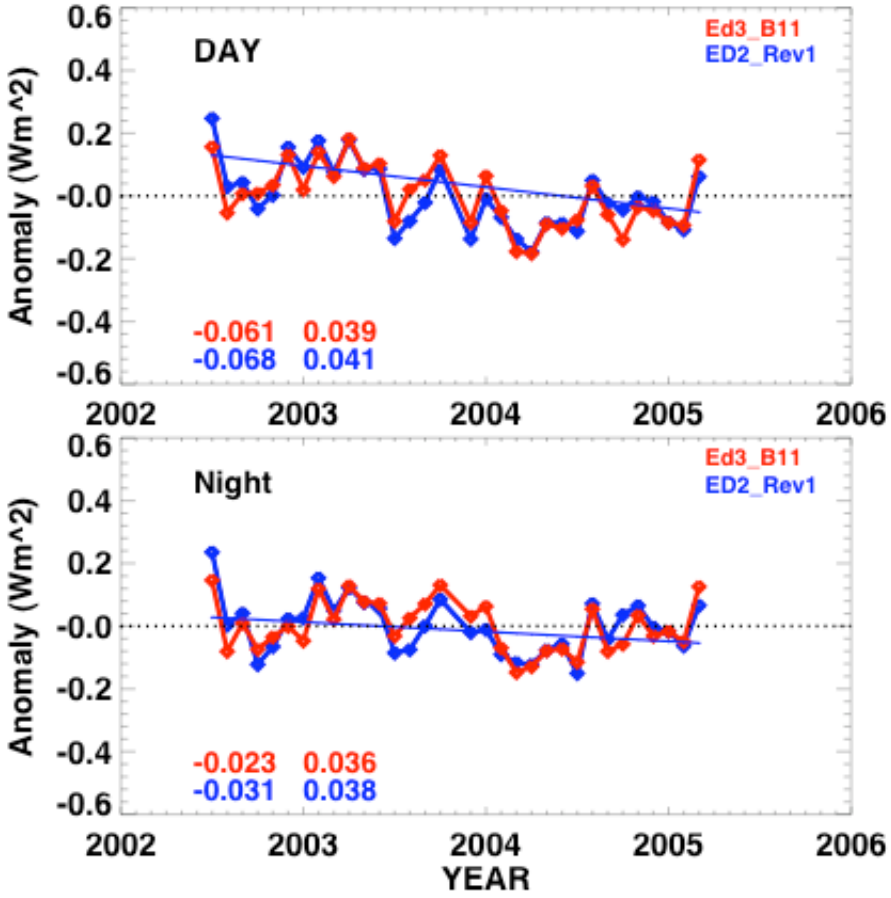
DATA

Generate database of gridded daily day/night files from SSFs of fluxes, PW, Ts, etc. for clear/all-sky conditions

- Aqua FM3 & FM4: July 2002 - March 2005
- Ed2B_Rev1, Ed3_Beta11
- CERES cloud-free footprints only
- Ocean only vs. All Surfaces

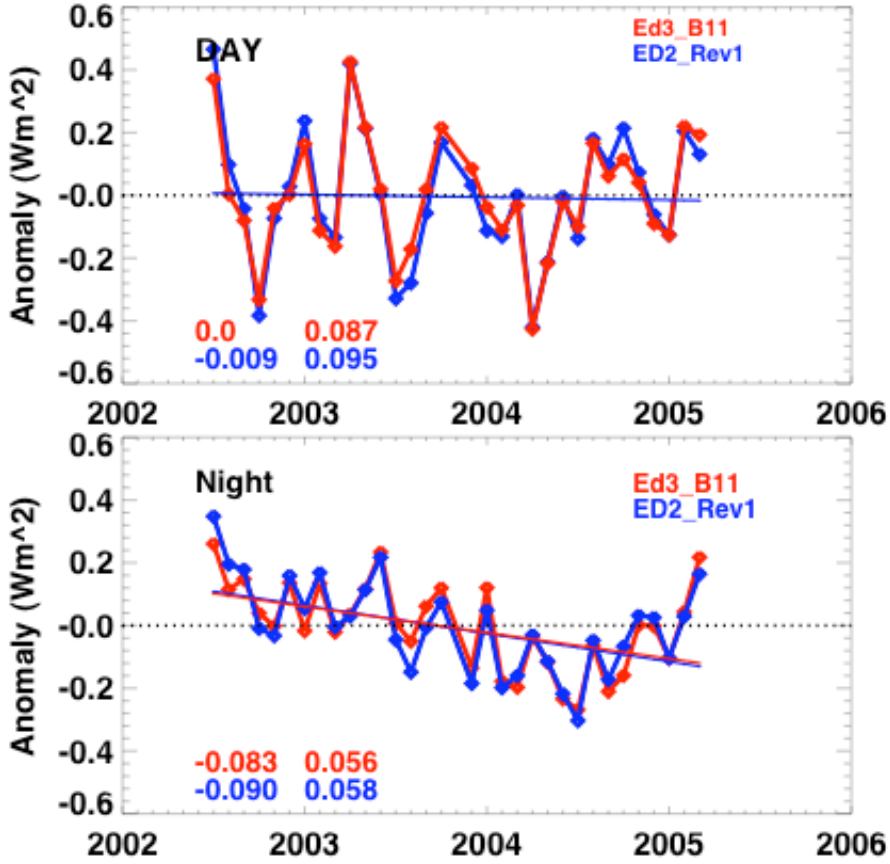
Deseasonalized Anomalies in WN TOA Flux for Clear Sky (Ocean)

(FM3: 30S - 30N)

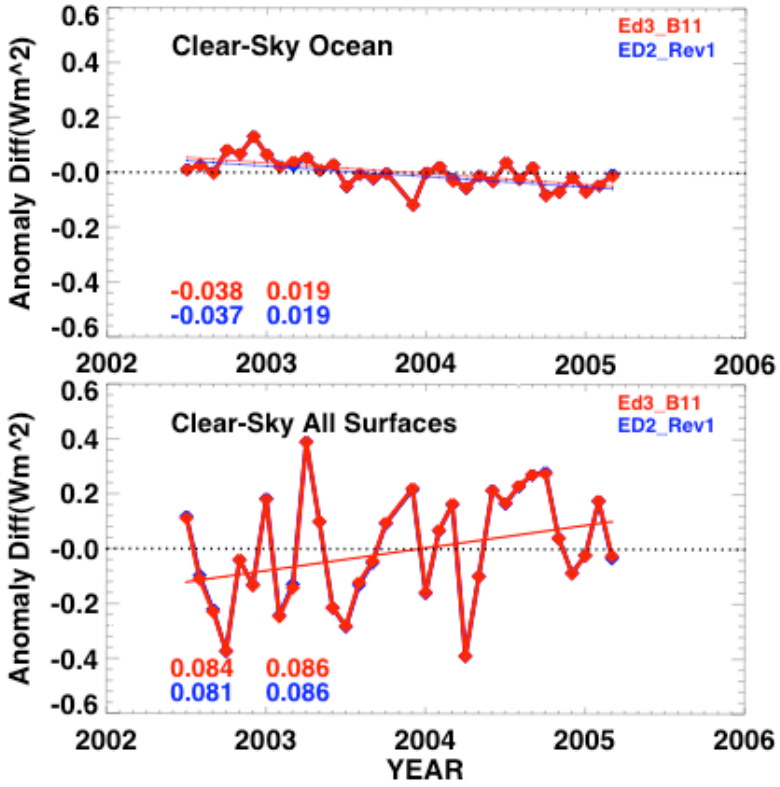


Deseasonalized Anomalies in WN TOA Flux for Clear Sky (All Surfaces)

(FM3: 30S - 30N)

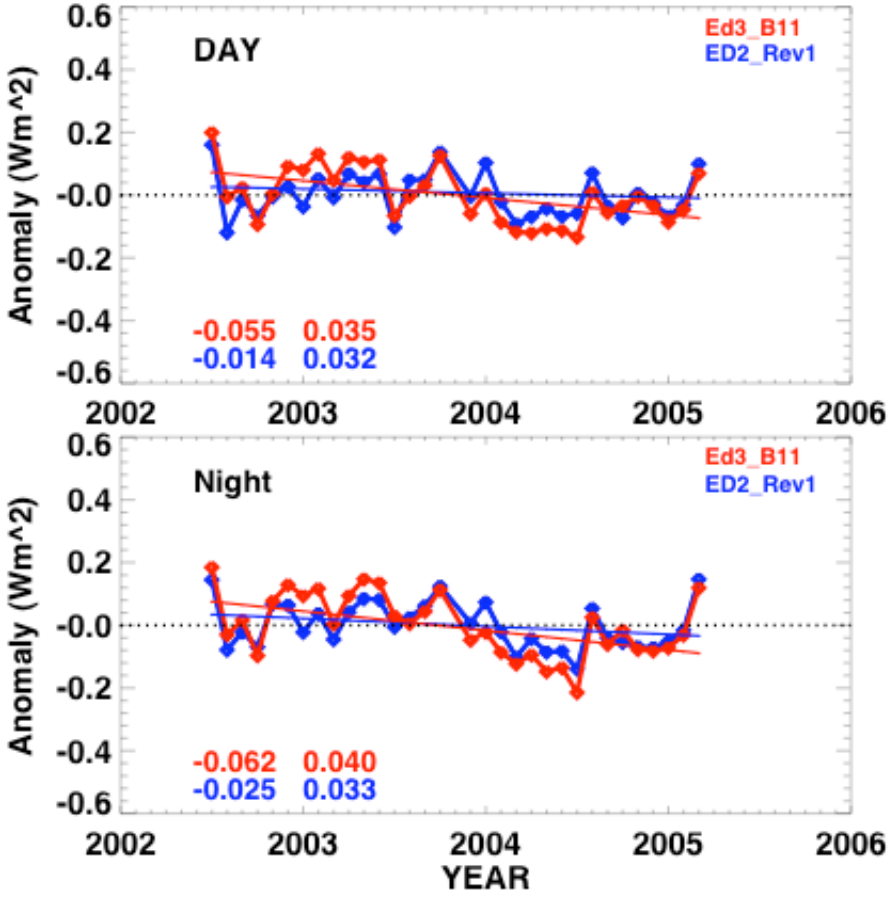


Daytime-Nighttime Anomaly Difference in WN TOA Flux
(FM3: 30S - 30N)



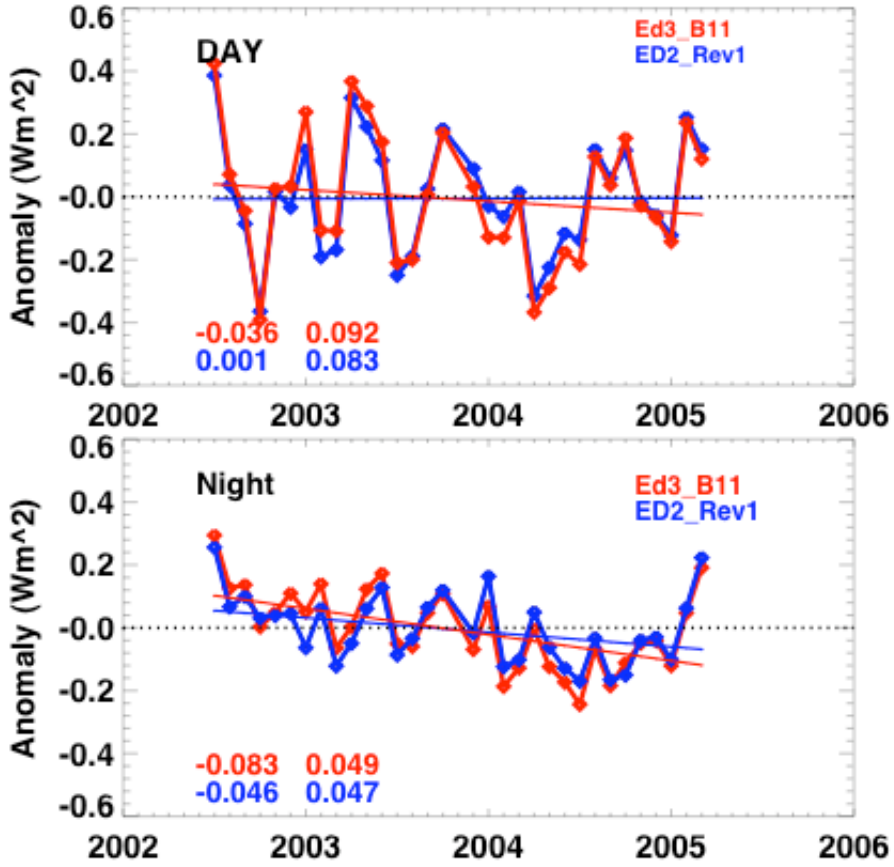
Deseasonalized Anomalies in WN TOA Flux for Clear Sky (Ocean)

(FM4: 30S - 30N)

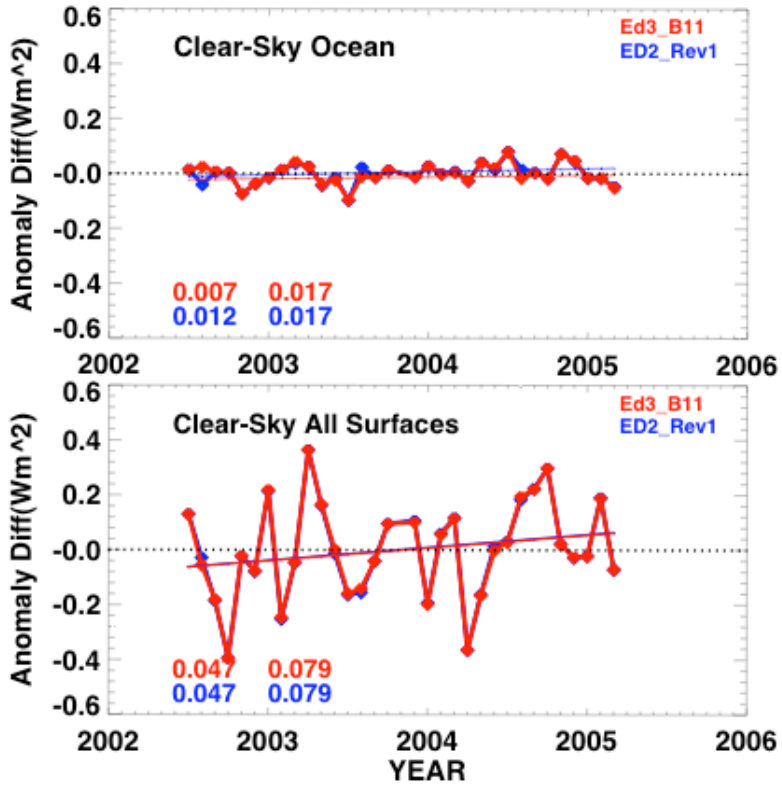


Deseasonalized Anomalies in WN TOA Flux for Clear Sky (All Surfaces)

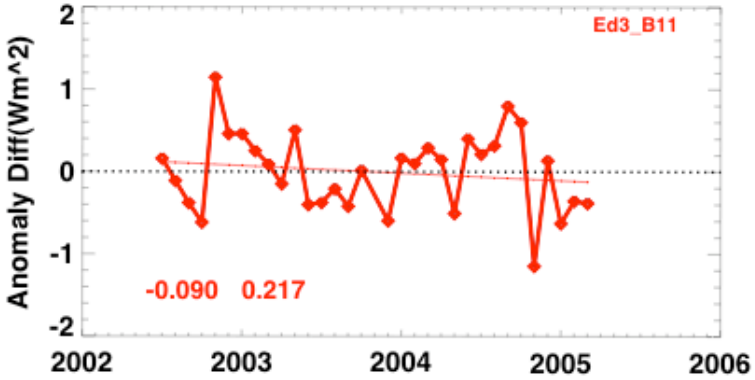
(FM4: 30S - 30N)

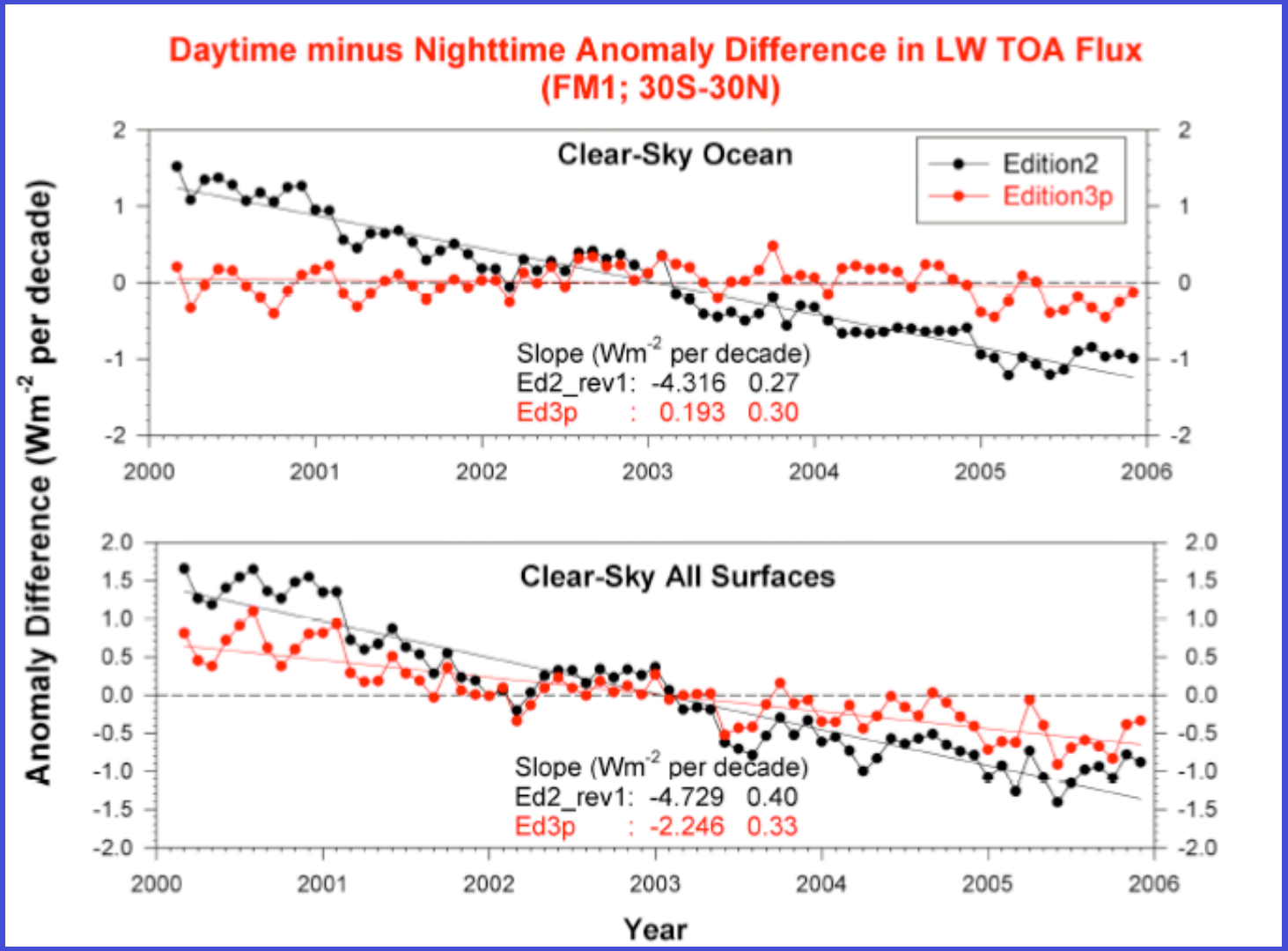


Daytime-Nighttime Anomaly Difference in WN TOA Flux
(FM4: 30S - 30N)



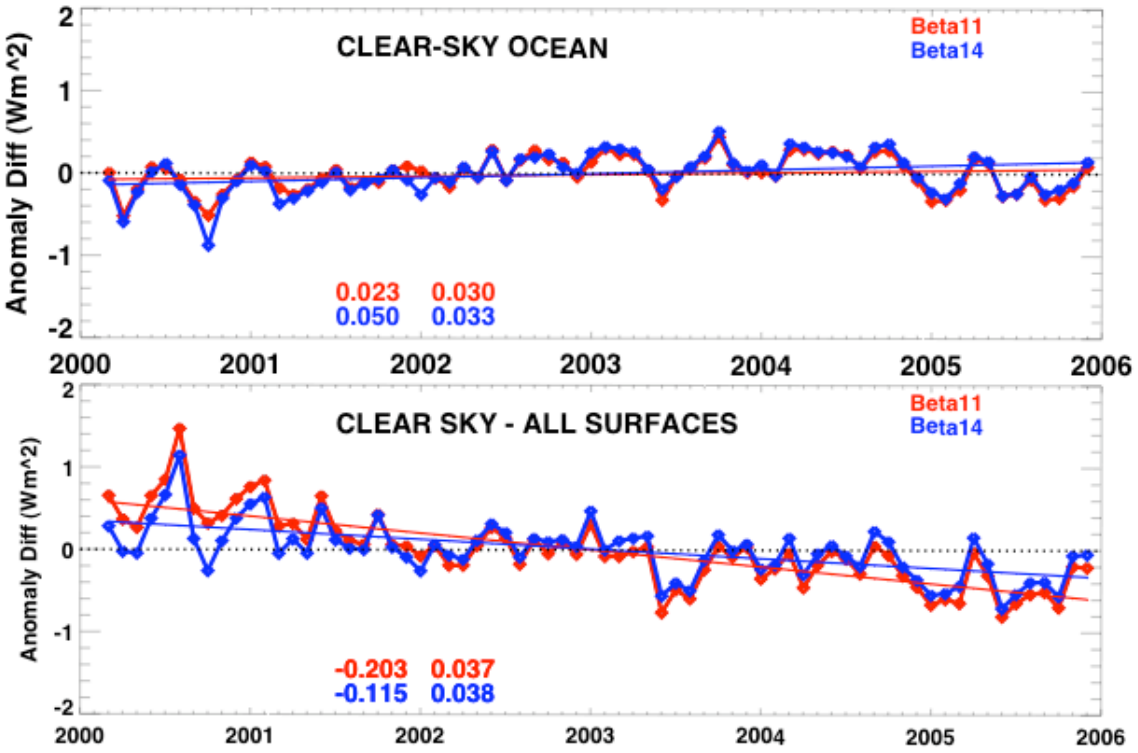
Daytime-Nighttime Anomaly Difference in WN TOA Flux
(FM3: Sahara)




Daytime minus Nighttime Anomaly Difference in LW TOA Flux
(FM1; 30S-30N)
Clear-Sky Ocean
Edition2
Edition3p
Slope (Wm-2 per decade)
Ed2_rev1: -4.316 0.27
Ed3p : 0.193 0.30
Clear-Sky All Surfaces
Slope (Wm-2 per decade)
Ed2_rev1: -4.729 0.40
Ed3p : -2.246 0.33
Anomaly Difference (Wm-2 per decade)
Year

Daytime-Nighttime Anomaly Difference in LW TOA Flux

(FM1: 30S - 30N)



Summary

- Under clear sky conditions, Aqua TOA flux day-night anomaly differences for clear-sky over all surfaces are significantly larger than for clear-sky ocean only as observed in Terra.
- Aqua shows a positive trend in anomaly difference whereas a negative change is observed in Terra.
- Future work: Day/Night anomaly differences over different surface (IGBP) types.

BACK-UP SLIDES

Daytime-Nighttime Anomaly Difference in WN TOA Flux
(FM1: 30S - 30N)