VIIRS Atmospheric Correction Algorithms

Miami V6:

- $SST2b = a_0 + a_1 T_{11} + a_2(T_{11} - T_{12})\, T_{sfc} + a_3(T_{11}-T_{12})\, S_\theta$
- $SST3b = a_0 + a_1 T_{11} + a_2(T_{3.7} - T_{12})\, T_{sfc} + a_3\, S_\theta$

Miami V7:

- $SST2b = a_0 + a_1 T_{11} + a_2(T_{11} - T_{12})\, T_{sfc} + a_3(T_{11}-T_{12})\, S_\theta + a_4\, S_\theta + a_5\, S_\theta^{\chi}$

$$\chi = \text{fn(lat)}$$

- $SST3b = a_0 + a_1 T_{11} + a_2(T_{3.7} - T_{12})\, T_{sfc} + a_3\, S_\theta + a_4\, S_\theta^{\chi}$

$$\chi = 0.1 \text{ for } |\text{lat}| \leq 40°;\ 2.0 \text{ for } |\text{lat}| > 40°$$

$$S_\theta = \sec(\theta)-1$$

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Simple Global Statistics

Algorithm	N	Mean	Std Dev	Median	Median Abs Diff
Satellite zenith <55^o					
SST - day	92061	-0.089	0.510	-0.085	0.337
SST - night	126174	-0.160	0.436	-0.153	0.331
SST_3 - night	81155	-0.172	0.395	-0.152	0.230
Satellite zenith >55^o					
SST - day	34693	-0.105	0.647	-0.149	0.536
SST - night	29922	-0.193	0.519	-0.206	0.485
SST_3 - night	35982	-0.131	0.489	-0.161	0.355

Statistics of the differences between the VIIRS skin SST retrievals and the subsurface temperatures measured from drifting buoys.

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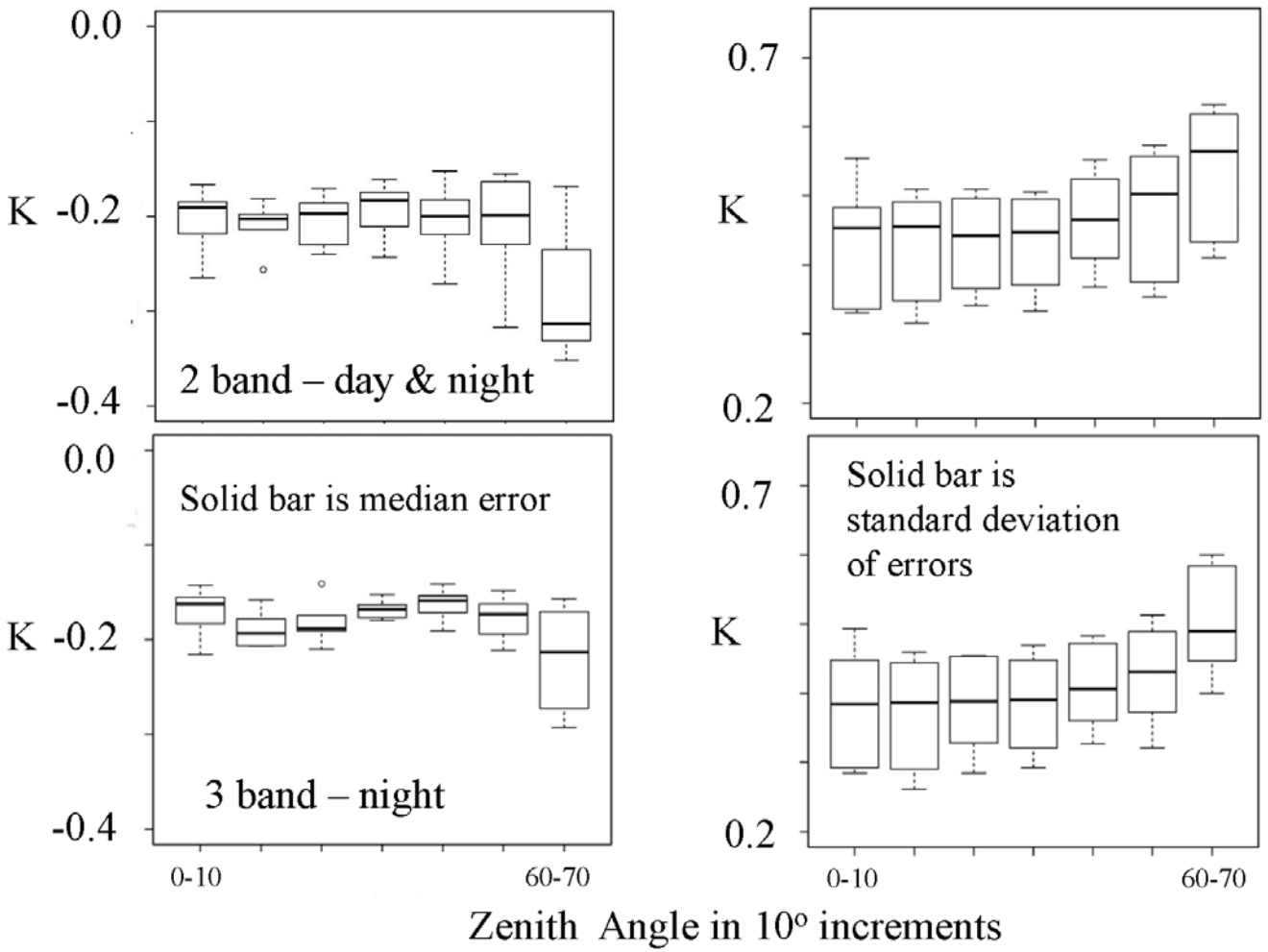
Zenith angle dependence



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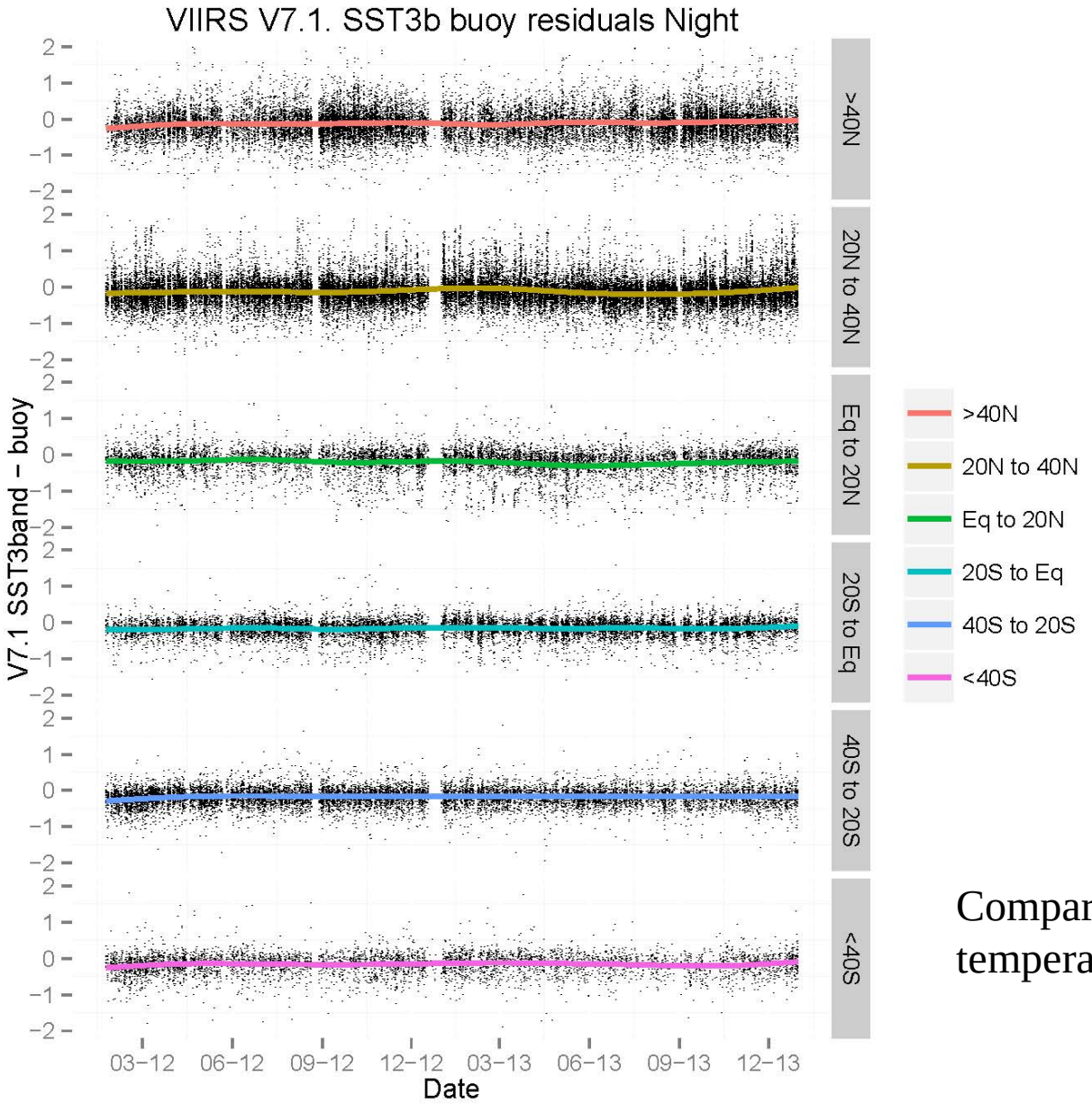
Time dependences – in latitude bands



Comparisons to buoy temperatures

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