SSES & L4

Andy Harris Simon Good

OSTIA experimental results

MEAN DIFFERENCES	Control	No_SSES	No_SD	No_bias	VIIRS_bias_only	Double_SD	Half_SD	Range of values
Global_Ocean	0.083	0.099	0.087	0.094	0.087	0.082	0.082	0.017
Arctic_Ocean	0.047	0.038	0.035	0.044	0.037	0.053	0.036	0.018
Mediterranean_Sea	0.074	0.159	0.078	0.15	0.082	0.074	0.075	0.085
North_Atlantic	0.083	0.126	0.085	0.121	0.085	0.083	0.082	0.044
Tropical_Atlantic	0.189	0.226	0.197	0.215	0.19	0.188	0.188	0.038
South_Atlantic	0.091	0.099	0.098	0.088	0.097	0.089	0.09	0.011
North_Pacific	0.068	0.115	0.074	0.108	0.071	0.067	0.068	0.048
Tropical_Pacific	0.069	0.098	0.076	0.09	0.071	0.069	0.07	0.029
South_Pacific	0.069	0.103	0.075	0.097	0.072	0.068	0.068	0.035
Indian_Ocean	0.093	0.109	0.1	0.1	0.094	0.092	0.093	0.017
Southern_Ocean	0.115	0.09	0.117	0.089	0.121	0.115	0.114	0.032
ST DEV DIFFERENCES	Control	No_SSES	No_SD	No_bias	VIIRS_bias_only	Double_SD	Half_SD	Range of values
Global_Ocean	0.373	0.402	0.392	0.385	0.374	0.37	0.376	0.032
Arctic_Ocean	0.305	0.41	0.397	0.32	0.313	0.293	0.315	0.117
Mediterranean_Sea	0.253	0.301	0.282	0.271	0.259	0.25	0.252	0.051
North_Atlantic	0.563	0.602	0.591	0.575	0.565	0.567	0.571	0.039
Tropical_Atlantic	0.366	0.396	0.382	0.378	0.366	0.362	0.367	0.034
South_Atlantic	0.388	0.414	0.404	0.4	0.385	0.379	0.391	0.035
North_Pacific	0.364	0.385	0.391	0.36	0.363	0.36	0.367	0.031
Tropical_Pacific	0.243	0.258	0.251	0.251	0.25	0.24	0.245	0.018
South_Pacific	0.272	0.292	0.28	0.284	0.276	0.269	0.275	0.023
Indian_Ocean	0.287	0.296	0.295	0.288	0.284	0.286	0.289	0.012
Southern_Ocean	0.35	0.391	0.364	0.38	0.352	0.343	0.352	0.048

Preliminary conclusions

 The summary is that in the experiments I ran the No SSES case (SSES bias set to 0 for all sensors and SSES set to 0.4) has the worse stats (both for mean and standard deviations of differences to Argo data) followed by the No bias (bias set to 0) and No SD (SSES SD set to 0.4) cases for the mean and standard deviation of differences respectively. Having only VIIRS reference SSES bias available causes a moderate worsening of the stats. Doubling and halving the SSES SD also only has moderate impact with doubling giving an improvement and halving degrading the analyses. So I think we can say for sure that both the SSES bias and SSES SD are useful to OSTIA. It would be interesting to know if other systems see the same effect from doubling and halving the SSES SD.