Inter-comparison of BASS and observation-based Salinity Products

Li Ren^{1,2}, Pingping Xie¹, Arun Kumar¹ ¹NOAA/NCEP/Climate Prediction Center, ² INNOVIM, LLC,

Data

Products	Spatial Resolution	Temporal Resolution	Temporal Coverage	Sources
IPRC	1 degree	Monthly	2005.1.1 to 2020.4	Argo only
RG (Scripps)	1 degree	monthly	2001.01.01 to present	Argo only
ISAS (LPO)	0.5 degree	Monthly	2015.10 to present	Argo + other in-situ
EN4 (Met)	1 degree	Monthly	1900.01.01 to present	Argo + other in-situ
OISSS	0.25 degree	7 days	2010.08 to 2021.03	SMOS, Aquarius and SMAP
BASS (NOAA/CPC)	1 degree	Monthly	2010.1. to present	In-situ, SMOS, Aquarius, and SMAP

Outline

- Annual Mean differences, RMS differences, correlations, and annual mean zonal mean differences between BASS and other products
- Mean SSS departures to WOD climatology

Annual Mean Differences between BASS and Other Products



EN4 - BASS IPRC - BASS 60N 40N 20N ΕQ FC 205 205 40S 40S 60S 603 60E 120E 120W 120E 180 120W 6ÓE 180 6ÓW 6ÓW Û. -0.6 -0.4 -0.2 -0.1 0.1 0.2 0.4 0.6 -0.6 -0.4 -0.2 -0.1 0.1 0.2 0.4 0.6



RMS Differences between BASS and Other Products



IPRC and BASS EN4 and BASS 60N - S 40N 20N EQ 205 203 40S 40S 605 60S 120E 60E 180 120W 6ÓW 60E 180 120W 60W 120E 0

0.10.150.20.250.30.350.40.450.50.550.6

0.10.150.20.250.30.350.40.450.50.550.6



Correlations

botwoon RASS and Other Products





0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9

0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9



Zonal Mean Annual Mean SSS and Differences between BASS and Other Products



Mean SSS Departure from WOD Climatology RG - WOD BASS - WOD 60N - 555 40N 4ON 20N ΕQ EQ 20S 20S 40S 40S 60S 60S 6ÖE 180 6ÓW 6ÓE 120E 180 120W 120E 120W 6Ó₩ Û 0

-0.5 -0.3 -0.2 -0.1 0.1 0.2 0.3 0.5



201

EN4 - WOD

-0.5 -0.3 -0.2 -0.1 0.1 0.2 0.3 0.5





Summary

- The salinity products can capture large scale monthly SSS characters well.
- The salinity products suggest similar mean SSS departures from WOD climatology.
- The salinity products show regional disagreements at Gulf Stream, eastern Equatorial Pacific Ocean, Amazon river mouth, and Southern Ocean.
 - OISSS likely has the most similarity with BASS