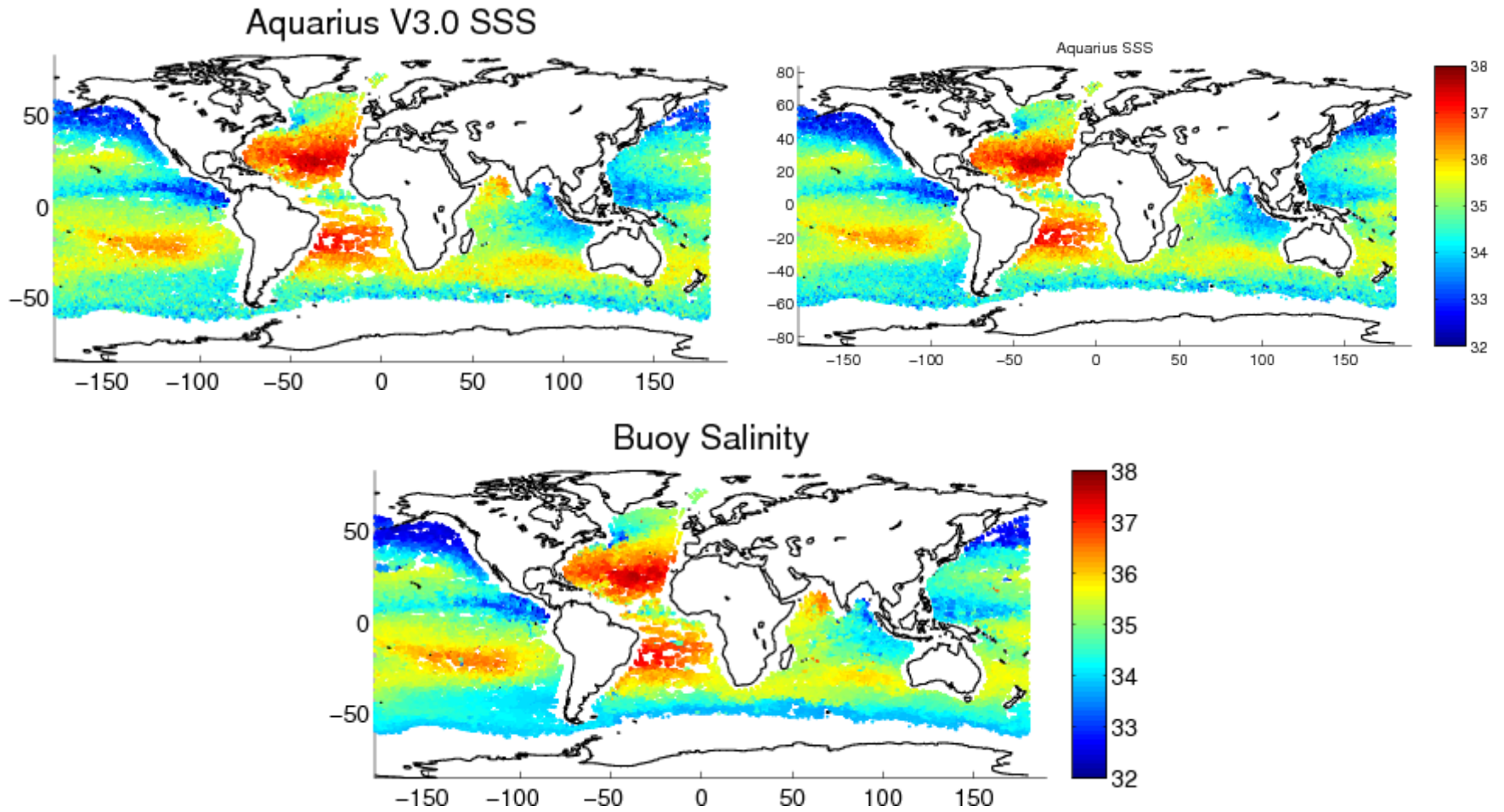


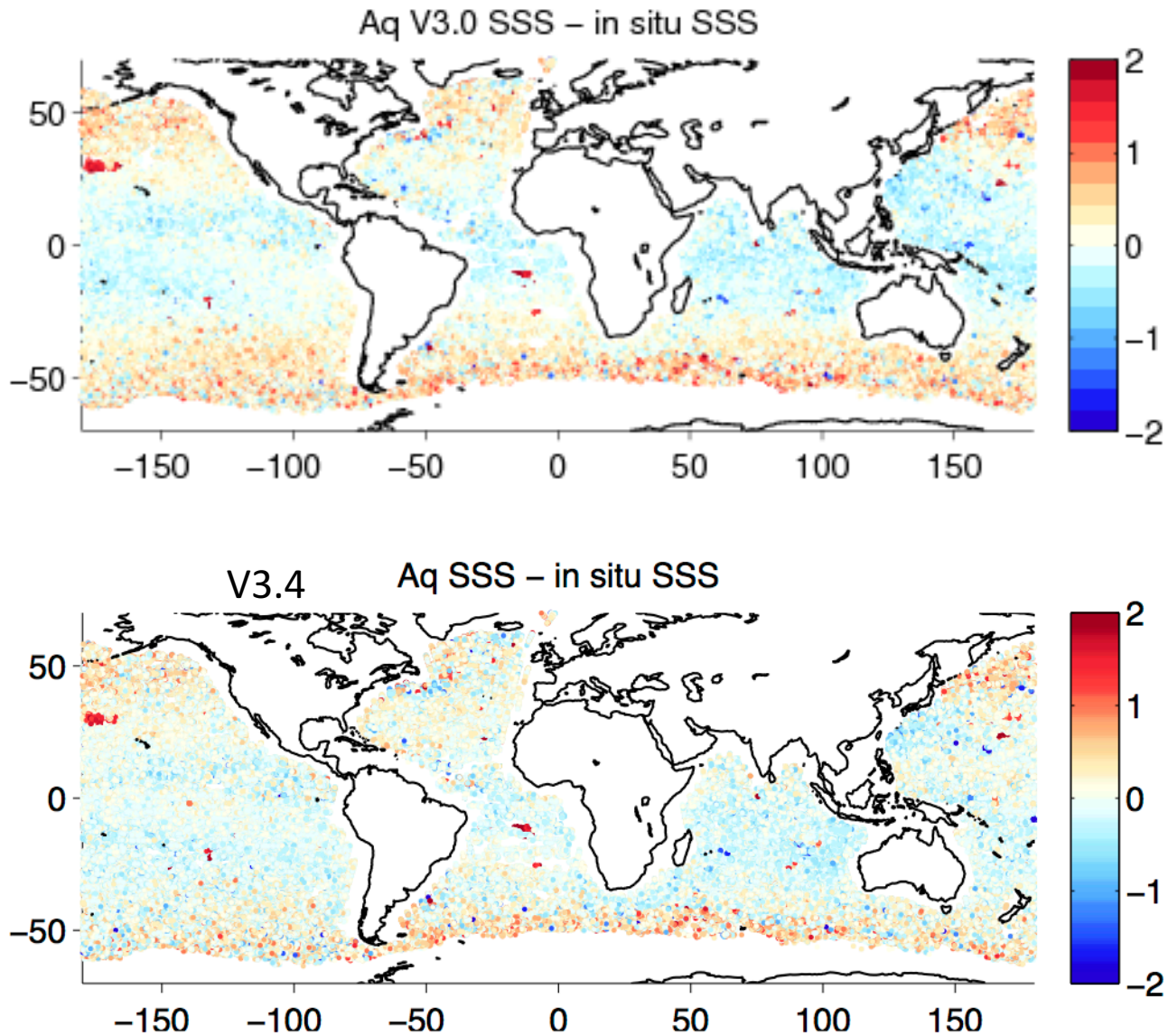
Aquarius validation
with Argo and HYCOM
V3.0 and V3.4

3/31/2015

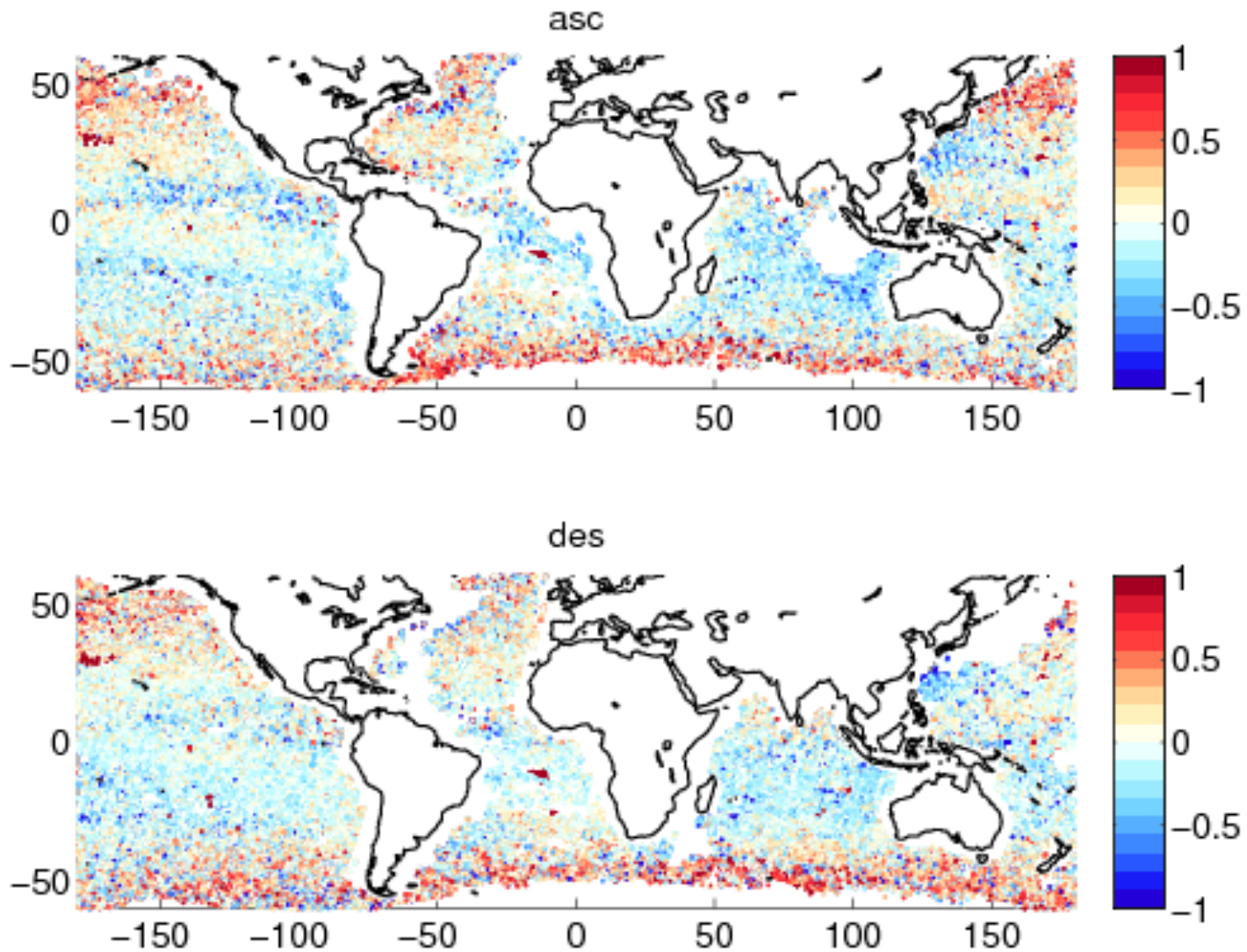
Figure 1.



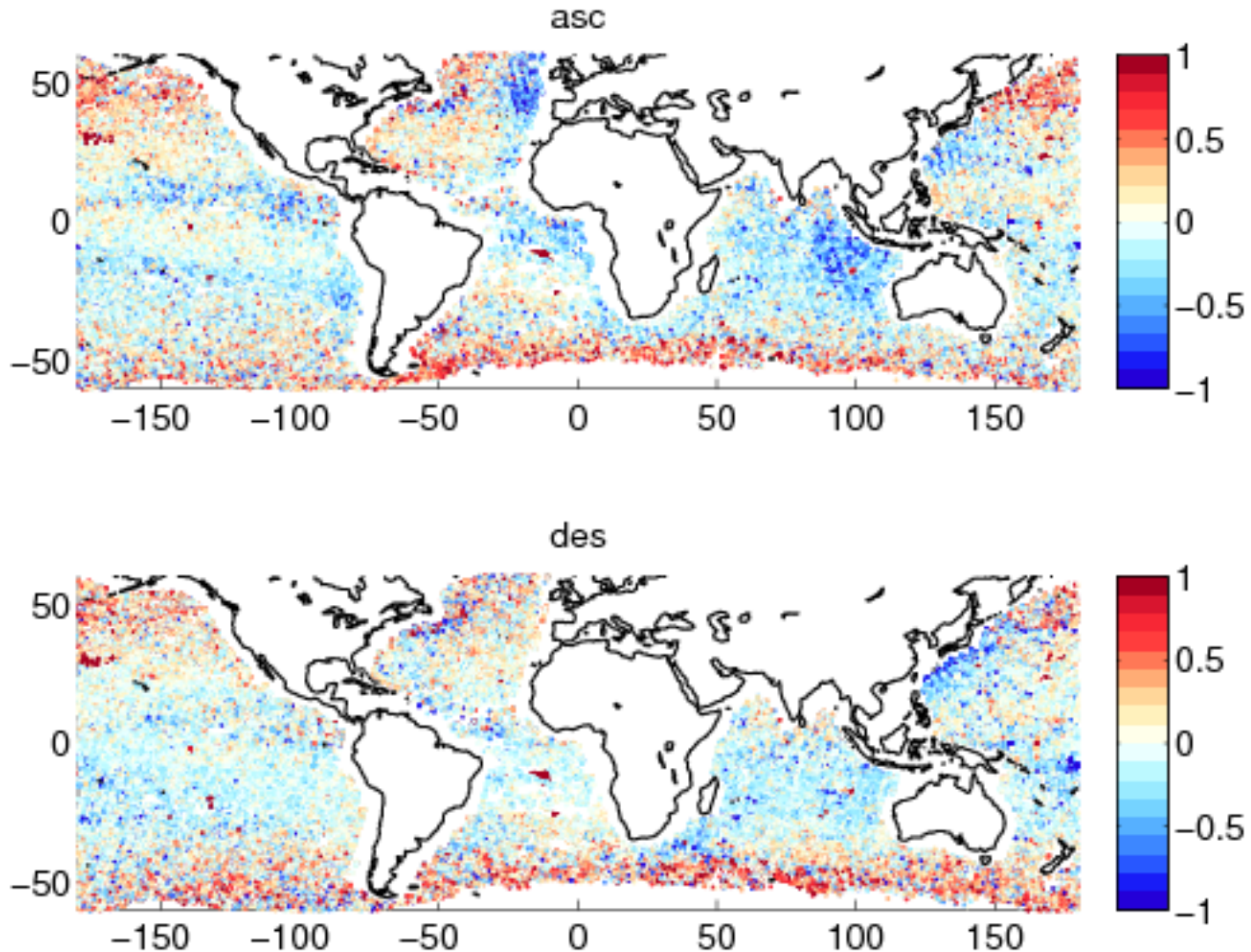
Global maps of SSS differences as defined by the Aquarius V3.0 (top) and V3.4 (bottom) data minus the co-located buoy data.



Global maps of SSS differences as defined by the Aquarius V3.4 *ascending (top)* and *descending (bottom)* data minus the co-located buoy data.

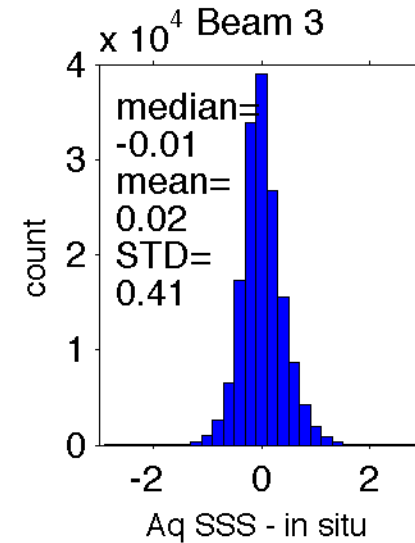
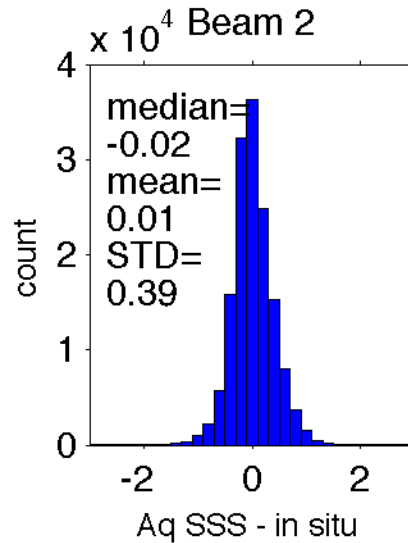
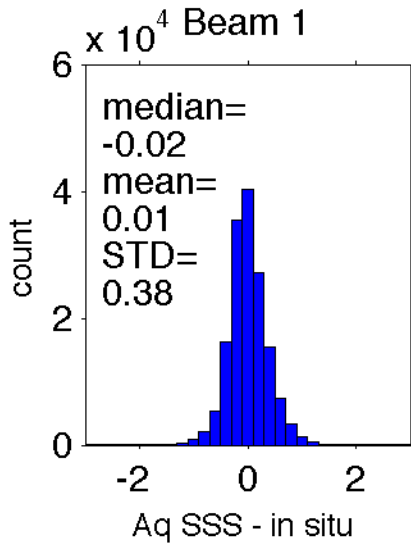


Global maps of SSS differences as defined by the Aquarius V3.4 *ascending (top)* and *descending (bottom)* data minus the co-located buoy data.

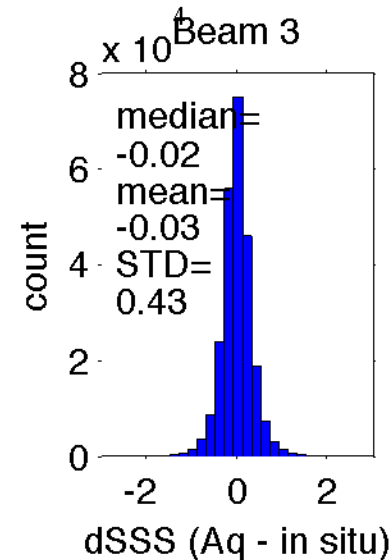
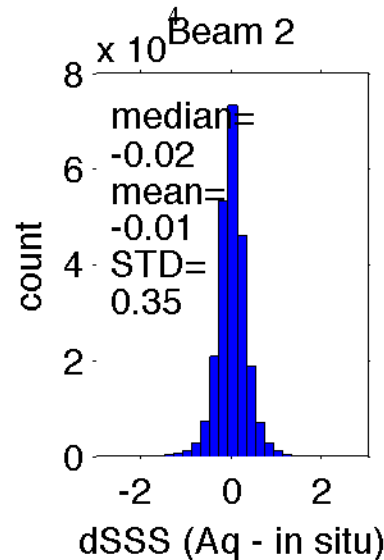
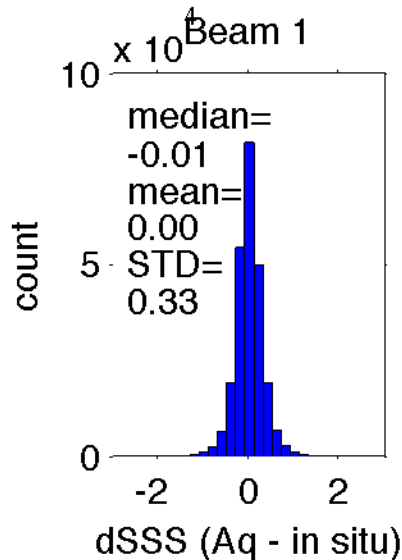


Histograms for Aquarius – buoy differences, V3.0 (top), V3.4 (bottom).

V3.0



V3.4



Co-located difference histograms for each beam and Aquarius V3.0 data. (top) Aquarius – *in situ*, (middle) HYCOM – *in situ*, (bottom) Aquarius – HYCOM.

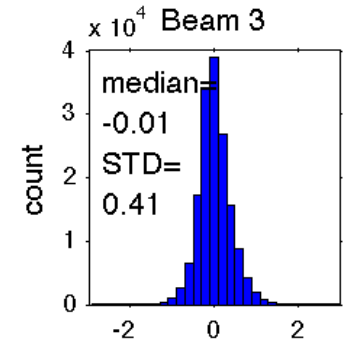
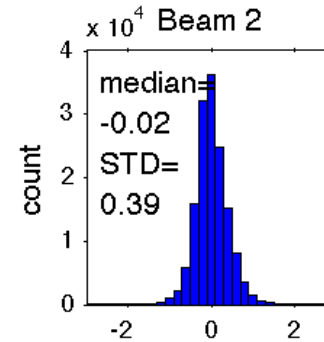
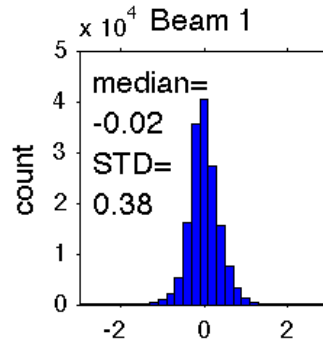
Aq – *in situ*

dSSS V3.0
9/1/2011 – 3/31/2014

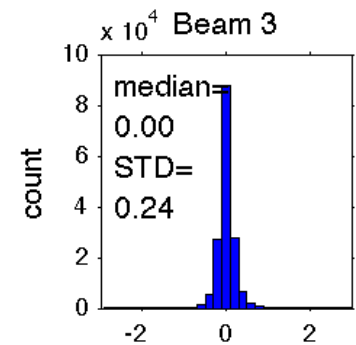
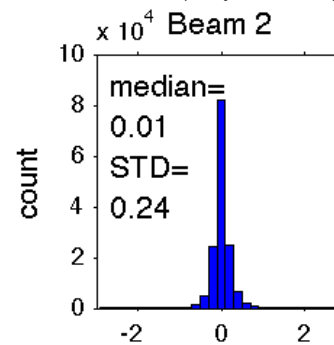
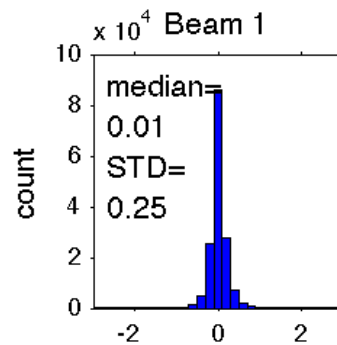
HYCOM – *in situ*

RMSD = sqrt(Bias² + STD²)

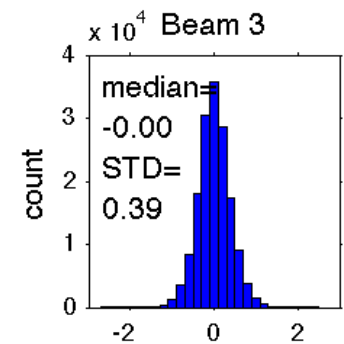
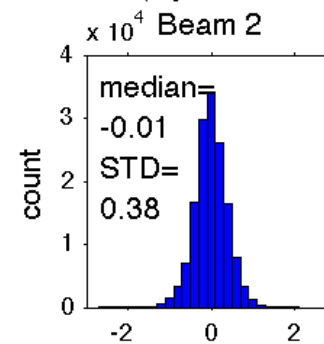
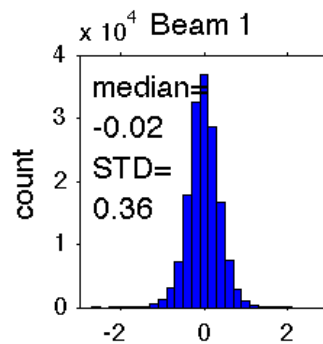
Aq – HYCOM



dSSS (Aq - in situ)



dSSS (Hycom - in situ)



dSSS (Aq - Hycom)

Co-located difference histograms for each beam and Aquarius V3.4 data. (top) Aquarius – *in situ*, (middle) HYCOM – *in situ*, (bottom) Aquarius – HYCOM.

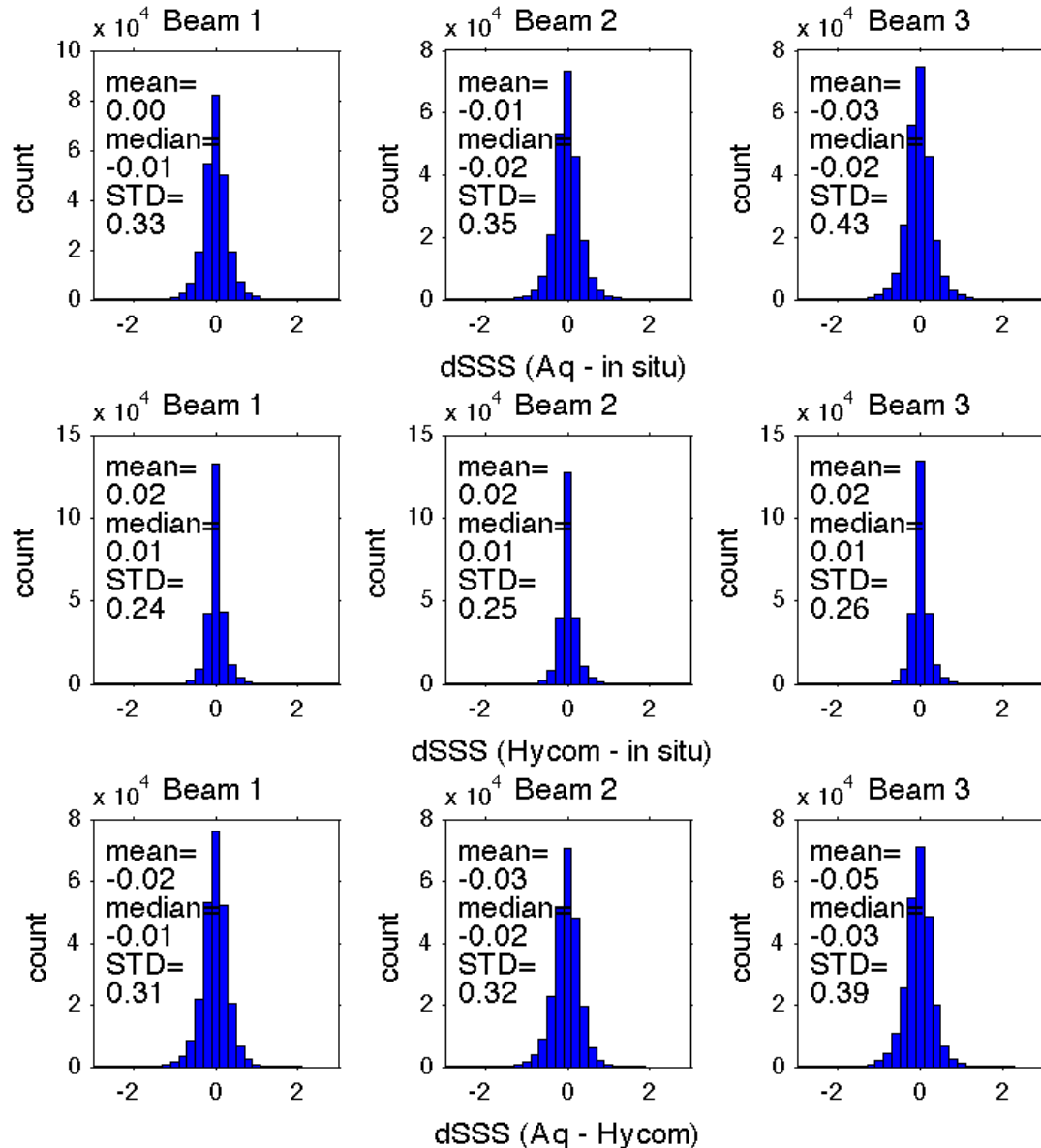
Aq – *in situ*

dSSS V3.4
9/1/2011 – 1/31/2015

HYCOM – *in situ*

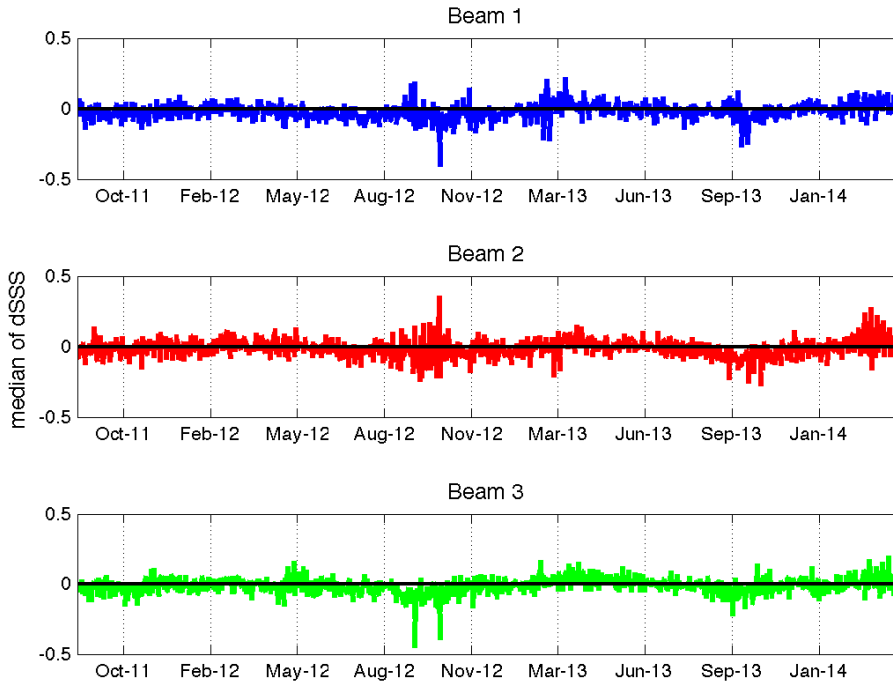
RMSD = $\sqrt{\text{Bias}^2 + \text{STD}^2}$

Aq – HYCOM

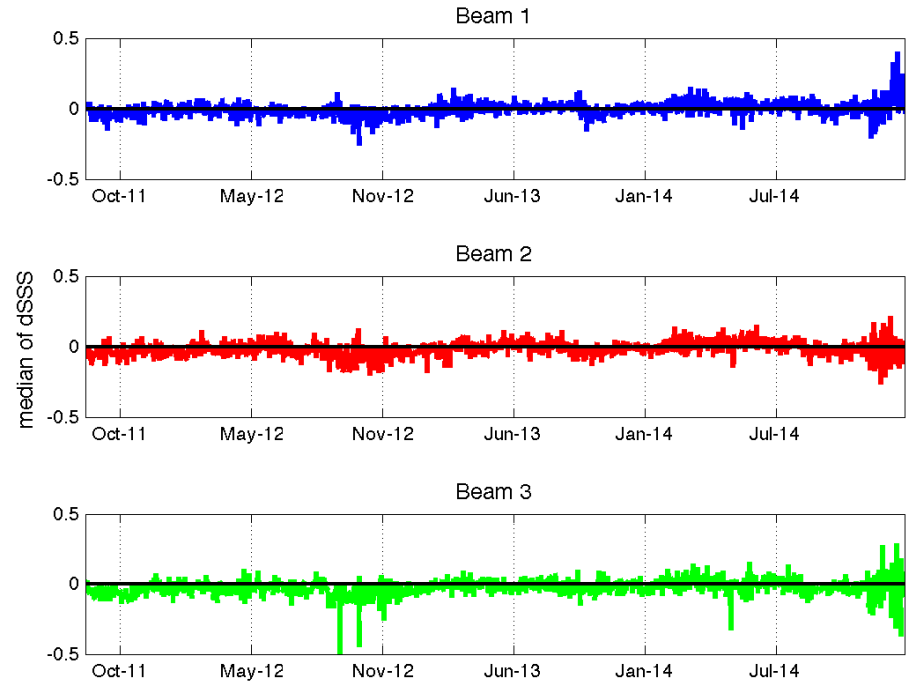


Daily global average Aquarius-buoy difference time series, V3.0 (left) and V3.4 (right).

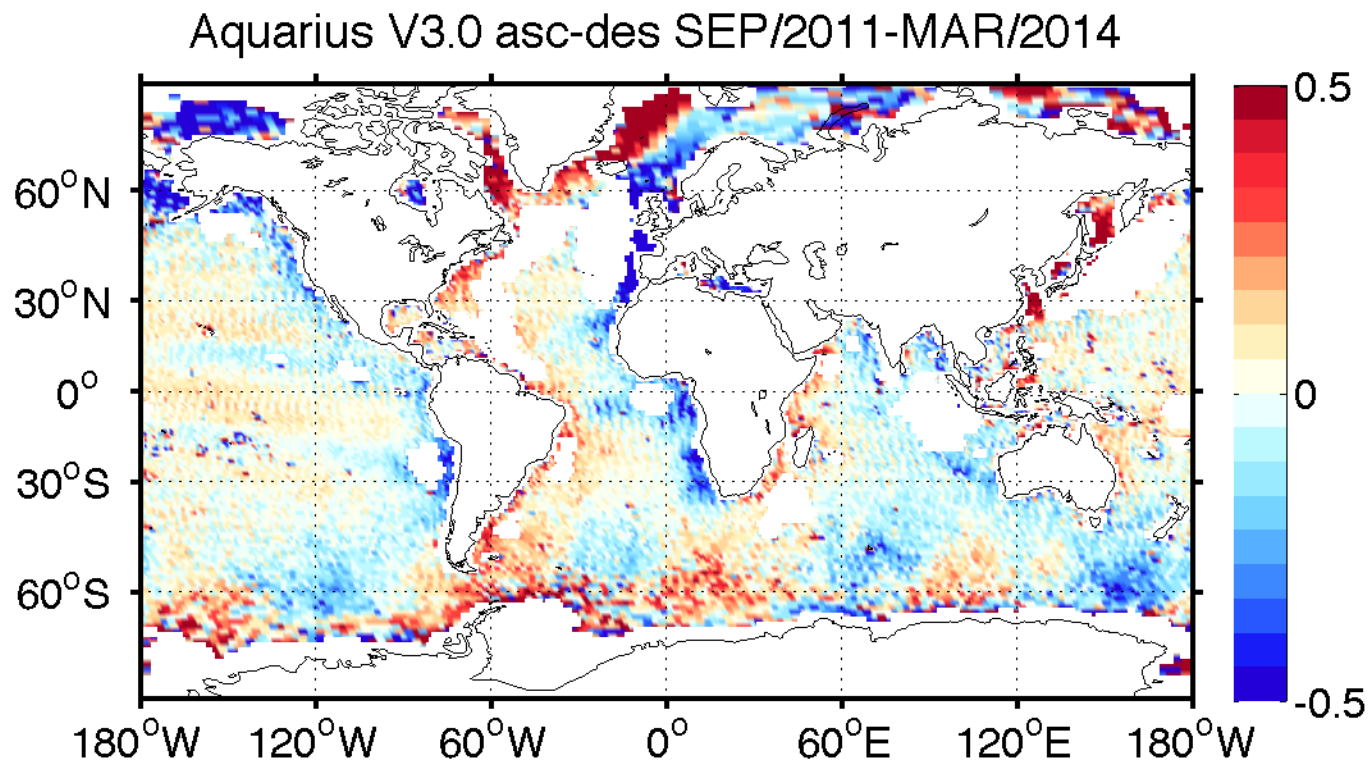
V3.0



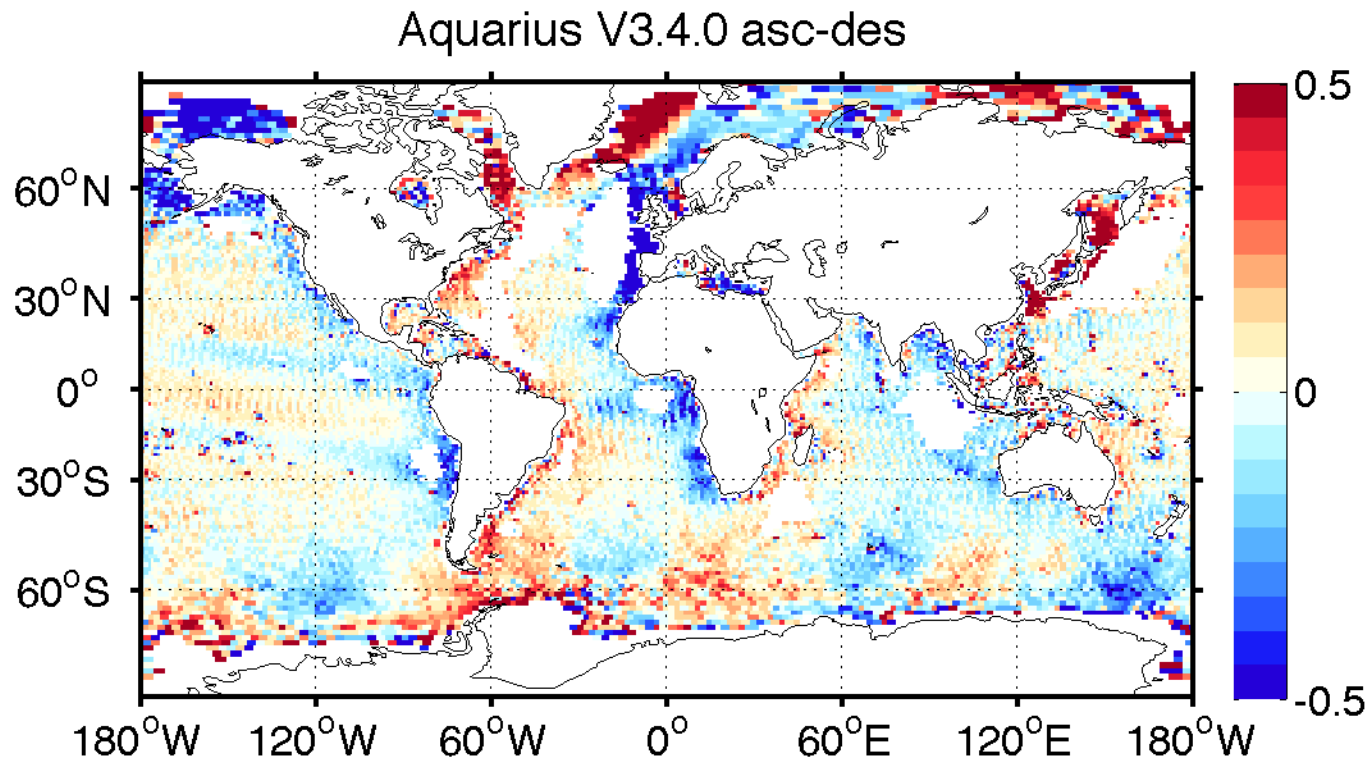
V3.4



36-month average Ascending – Descending V3.0 data.

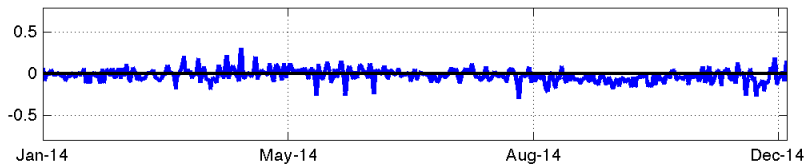


41-month average Ascending – Descending V3.4.0 data. SEP/2011-Jan/2015

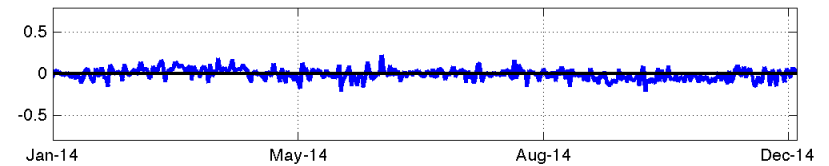


Daily average ascending and descending Aquarius – buoy difference time series, V3.0 data.

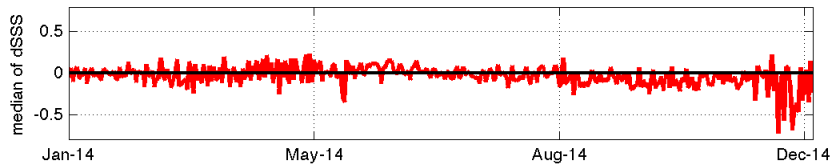
asc
Beam 1



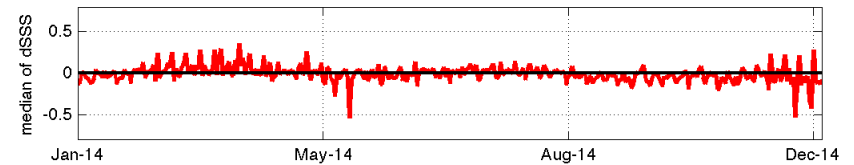
des
Beam 1



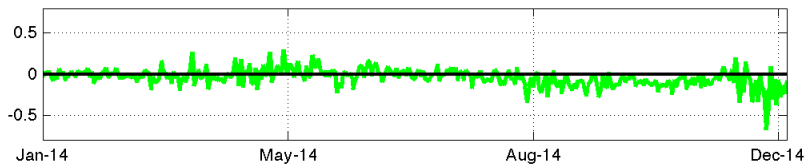
Beam 2



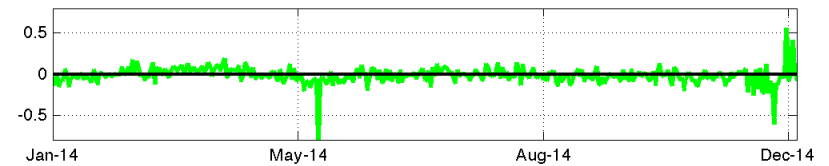
Beam 2



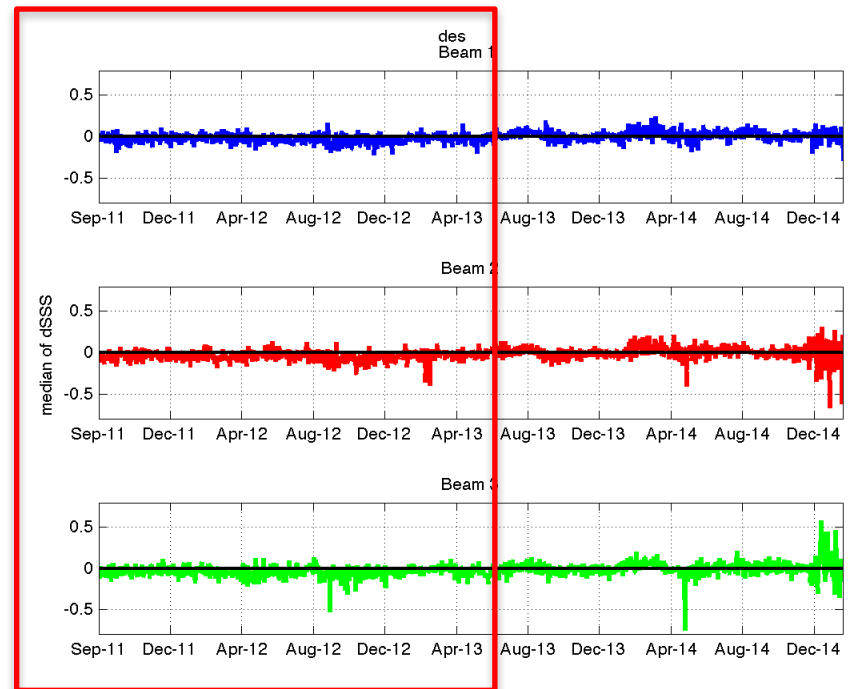
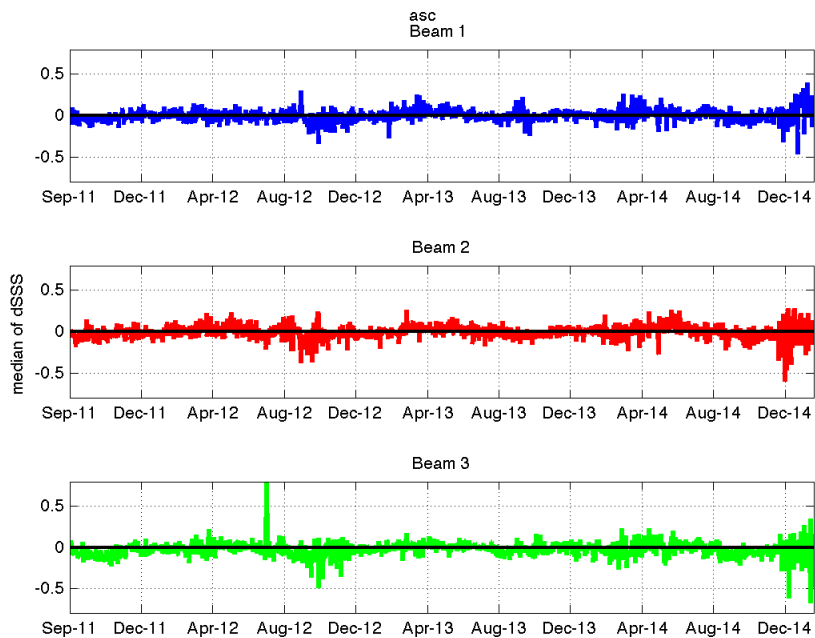
Beam 3



Beam 3



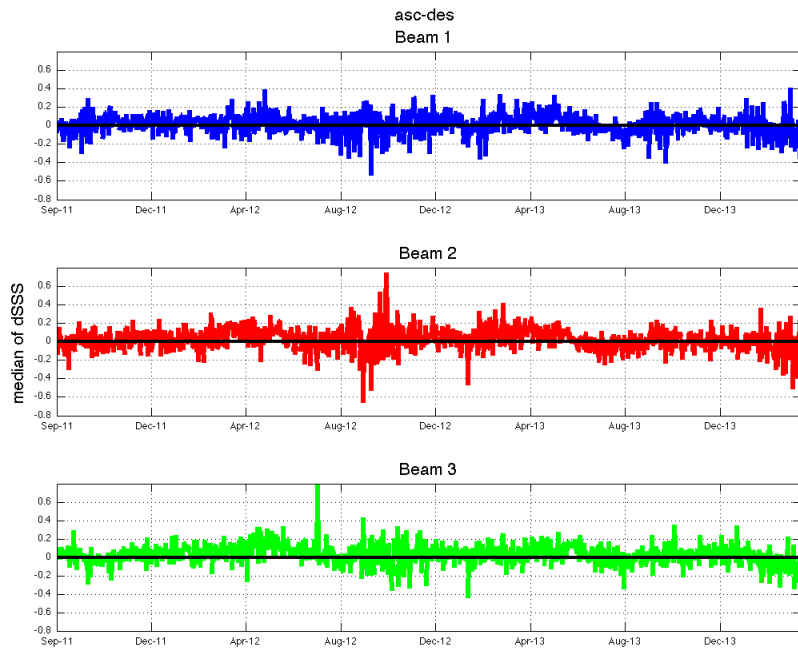
Daily average ascending and descending Aquarius – buoy difference time series, V3.4 data.



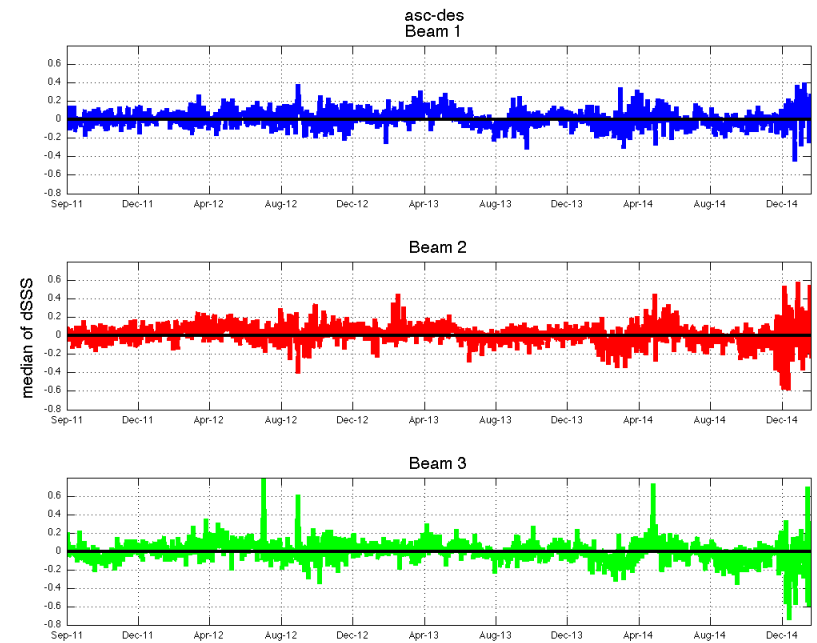
Negative bias

Daily median of global ascending minus descending SSS

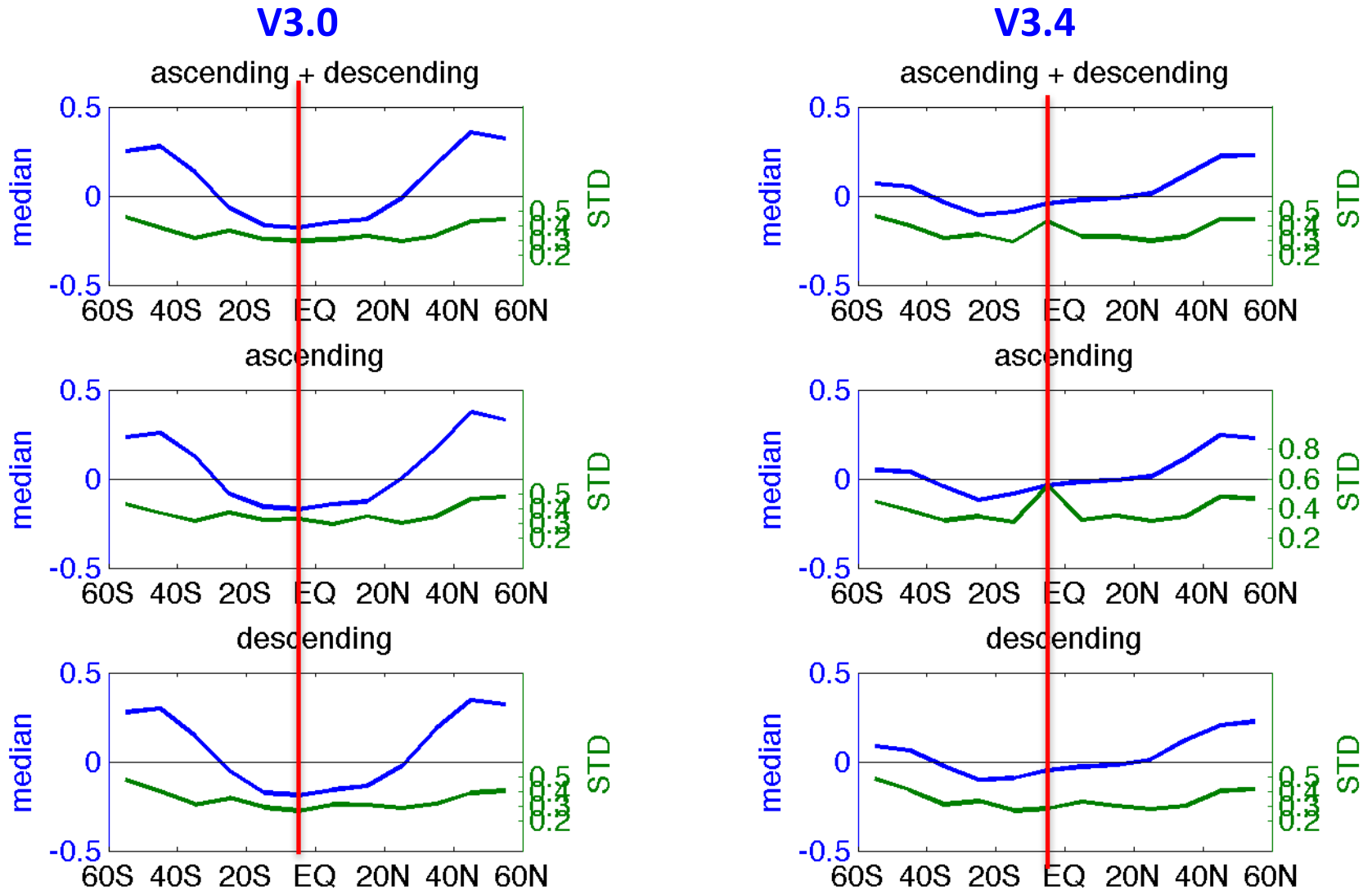
V3.0



V3.4



Aquarius co-located buoy differences by latitude bands

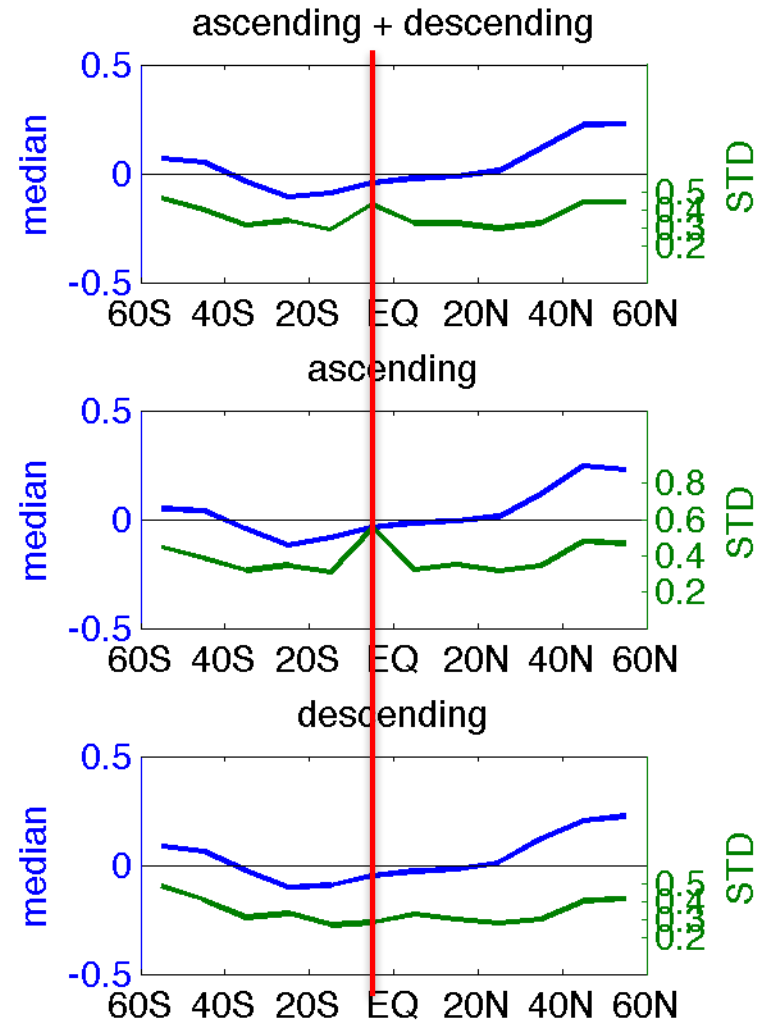
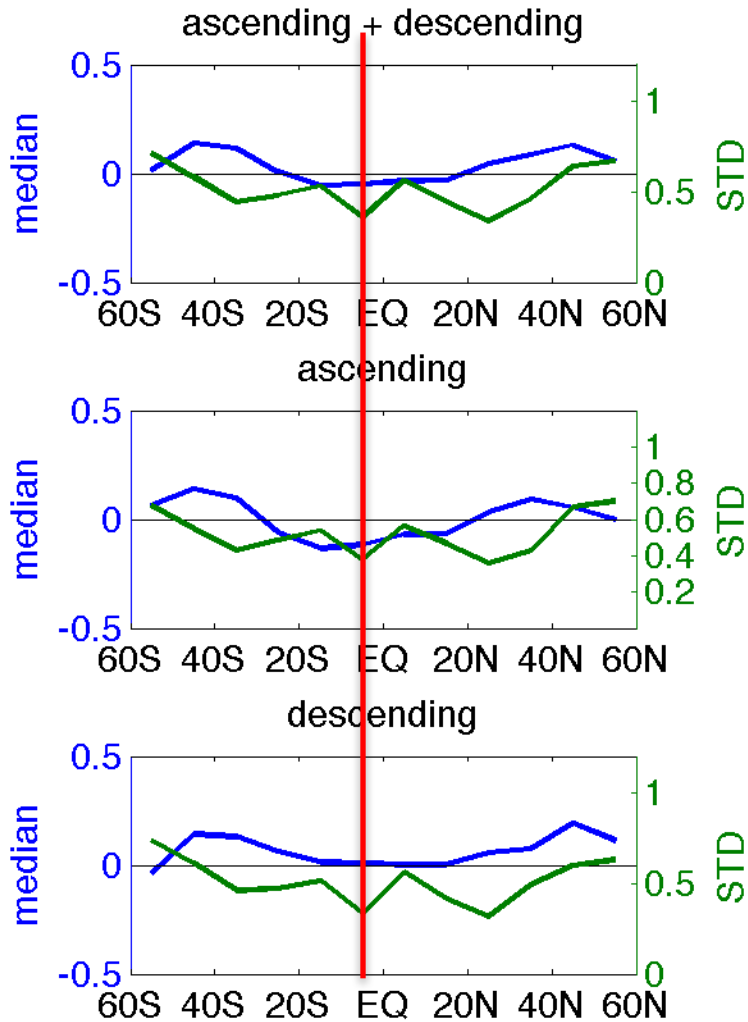


The latitudinal biases have been reduced, but the STD is increased around 5S.

Aquarius co-located buoy differences by latitude bands

V2.0

V3.4



Backup

Co-located salinity differences between HYCOM and buoys for ascending (top) and descending (bottom) passes.

