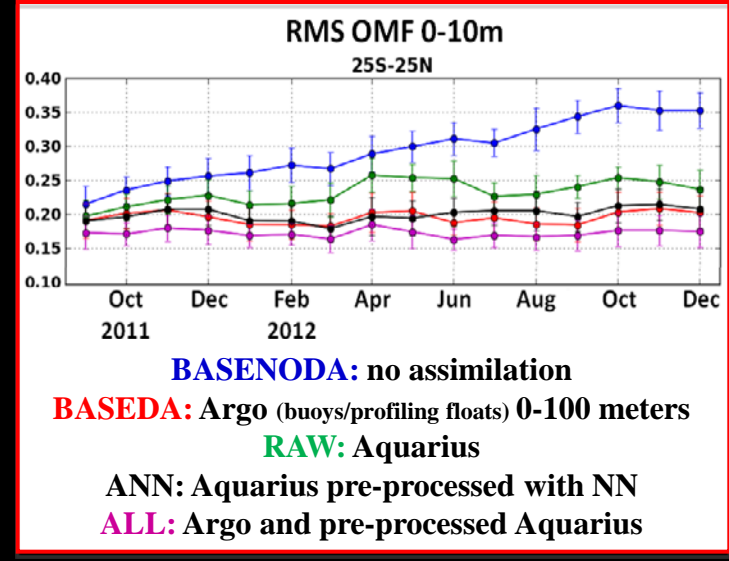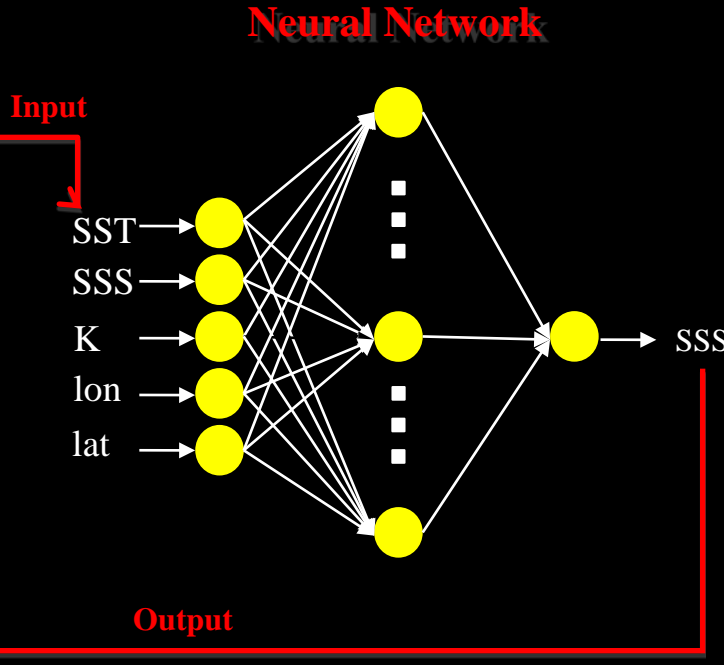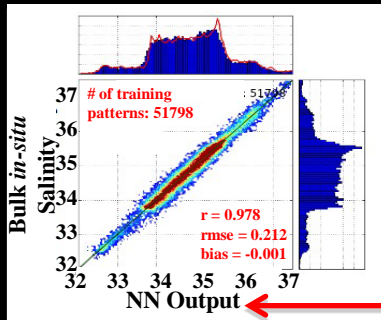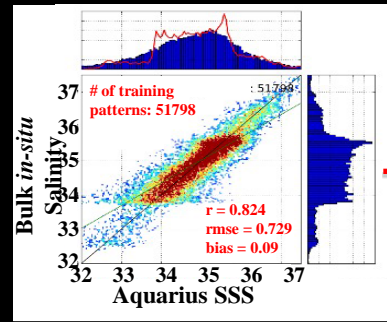# A Neural-Network-Based Bias Correction Enhances the Value of Aquarius Sea Surface Salinity (SSS) Data

Global Modeling and Assimilation Office

A Neural Network (NN) is used to map the Aquarius Sea-Surface Salinity (SSS) to bulk salinity measurements. This removes biases between the satellite observations and the in-situ data at high latitudes, enhancing their value for science.

RMS OMF 0-10m
25S-25N

BASENODA: no assimilation
BASEDA: **Argo** (buoys/profiling floats) **0-100 meters**
RAW: **Aquarius**
ANN: Aquarius pre-processed with NN
ALL: **Argo and pre-processed Aquarius**

Neural Network

Input

SST
SSS
K
lon
lat

SSS

Output

Assimilating combinations of SSS data shows that errors are smallest when the in-situ data are used with the corrected Aquarius data are used.
The NN-corrected Aquarius SSS and *in-situ* measurements are both consistent and complimentary.