# SWQT and the

# Amazon plume

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Exploring the processes controlling the nearsurface stratification of the western Atlantic

ASA MODIS



From Ffield (2007)

Balaguru et al. (2012)













Grodsky et al. (2014)

### Intense & variable currents

Composite of surface currents from drogued surface drifters



Fratantoni (2001)

#### Intense mesoscale processes!



#### Still missing the intense mesoscale variability!



MODIS/TERRA ocean true color 2-7-2014





## MODIS/TERRA diffusive attenuation coefficient at 490nm August 12, 2014



## AltiKa SSH' along the pass#764, AVISO, and Kd<sub>490</sub>



# Summary

The Amazon plume is the oceanic expression of an intense component of the earth's hydrologic cycle, driven by continental discharge, but advection and local mesoscale/submesoscale processes play a critical role. The plume impacts tropical cyclone activity and is affected by changes in the Amazon catchment basin (e.g. climate change).

- Need for detailed observations and dynamical analysis of mesoscale/submesoscale processes – SWOT is ideal to help complement and interpret color observations.
- Also need for submesoscale modeling to understand and interpret the resulting signals.