Microbial Community Structure in the Amazon River Plume

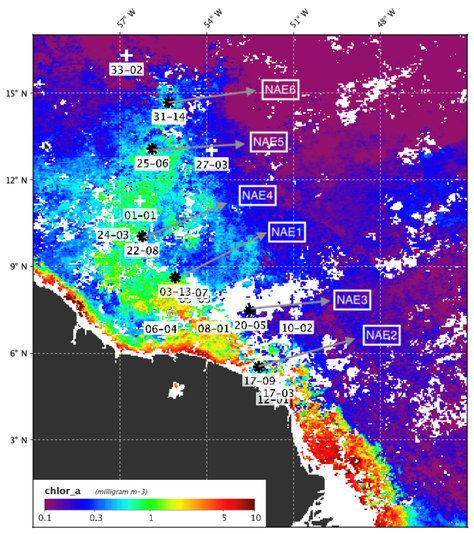
Benjamin Ramcharitar[1*], Solange Duhamel[1,2], Erica K. Strope[3], Joseph P. Montoya[3], Elana Ames[4], Richard N. Peterson[4], Ajit Subramaniam[1]

1. Lamont-Doherty Earth Observatory, Columbia University **2**. Department of Molecular and Cellular Biology, University of Arizona **3**. School of Biological Sciences, Georgia Tech
4. School of Coastal and Marine Systems Science Coastal Carolina University
*ramchar@ldeo.columbia.edu

Lamont-Doherty Earth Observatory
Columbia University | Earth Institute

Background

Amazon River Plume



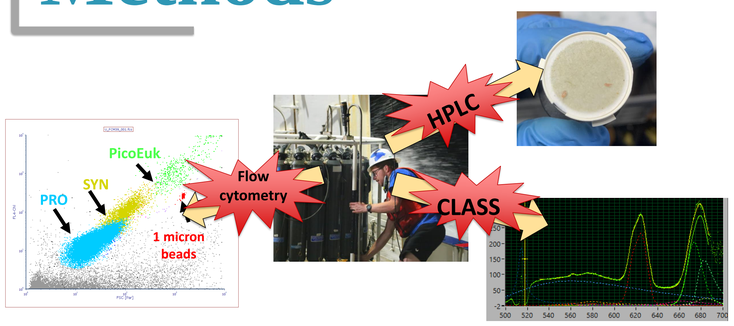
May-June:

-High-flow season

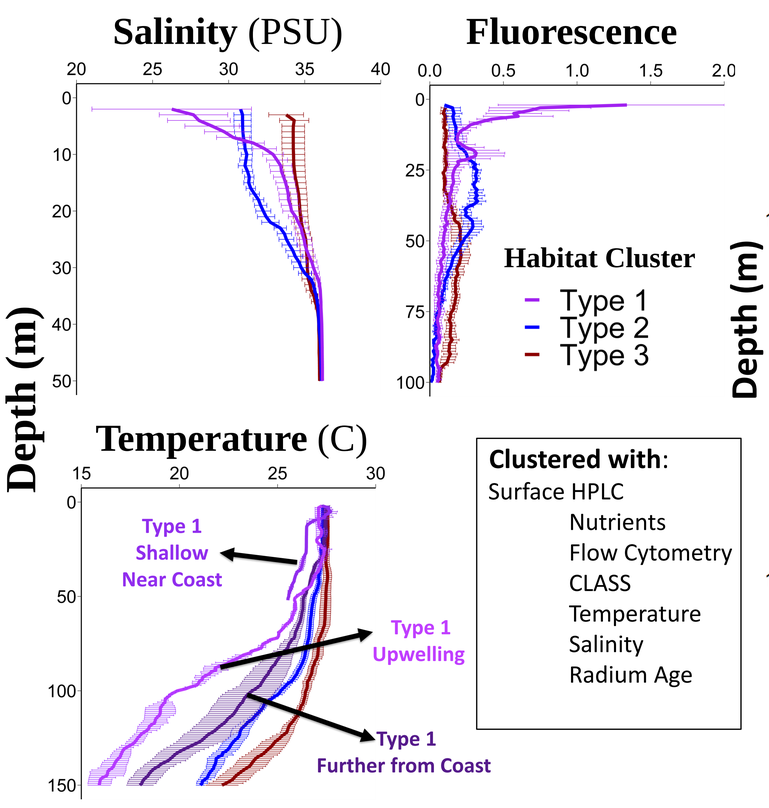
-Amazon River Plume extends to the north where it is then elongated

Patchy system, strong differences in various properties in places close to each other

Methods



Average Profiles

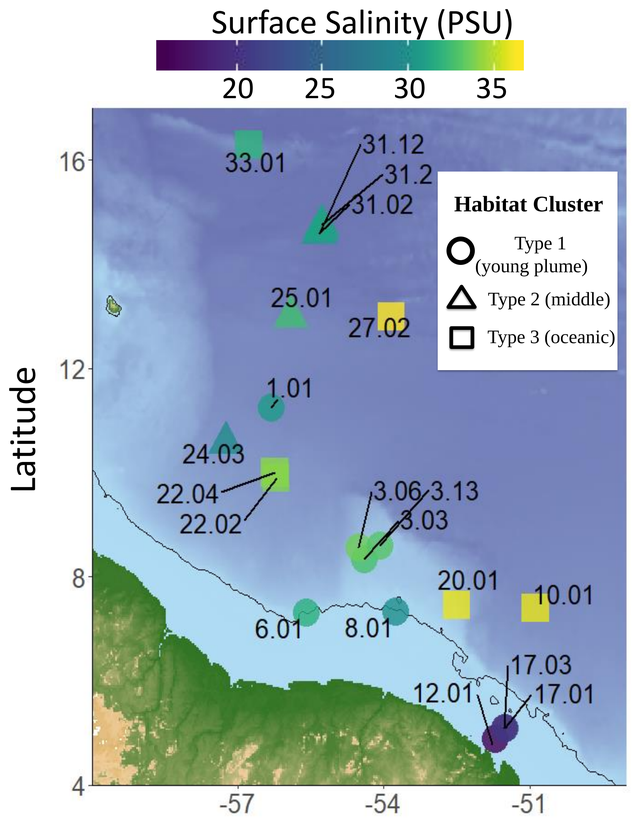


Clustered with:

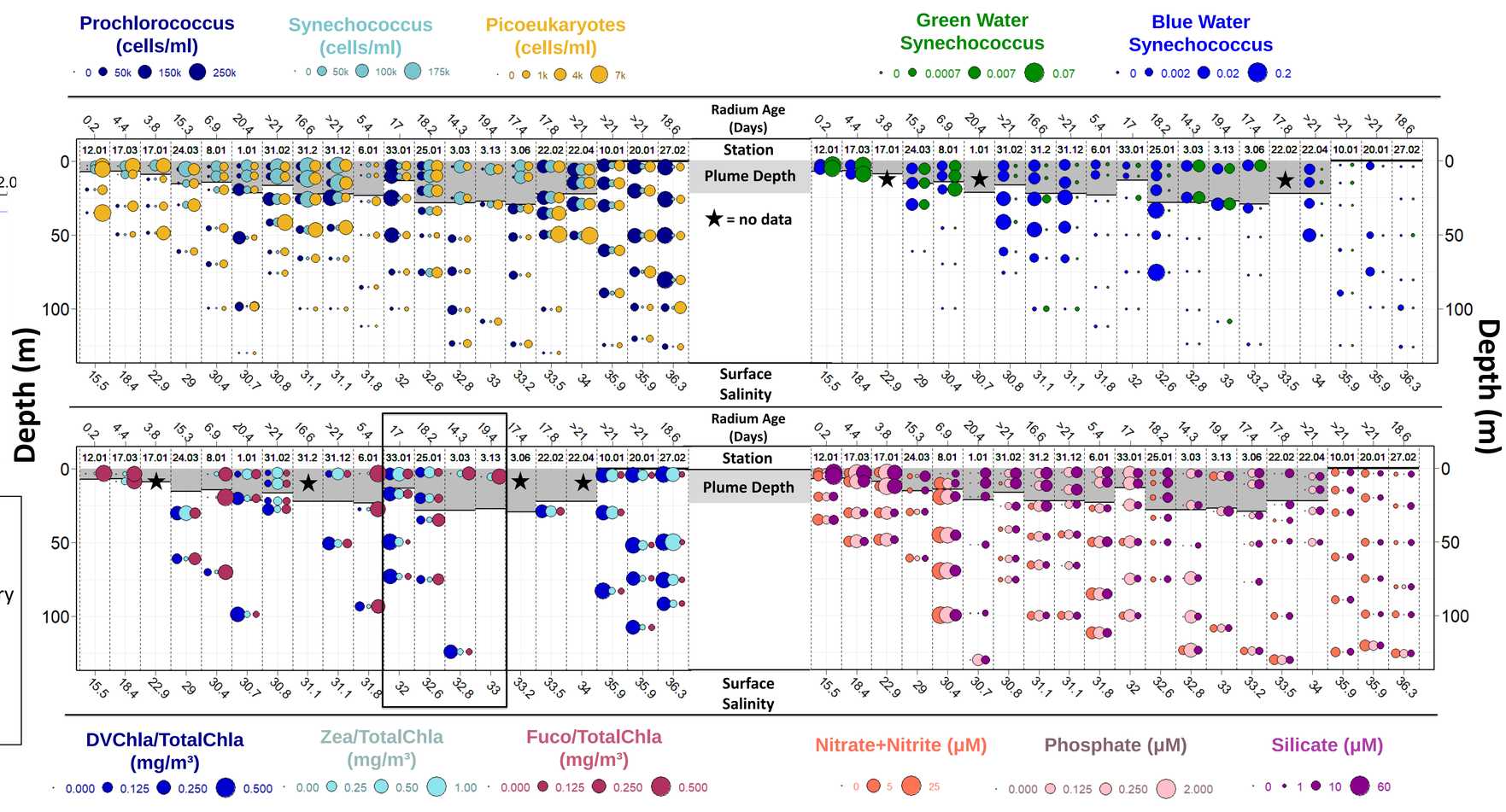
Surface HPLC
Nutrients
Flow Cytometry
CLASS
Temperature
Salinity
Radium Age

Results

Stations



Microbial Structure



Conclusions

Prochlorococcus:

Young Plume: Absent in water column until salinity of ~29 PSU
Middle Age Plume: High abundances 30-50m
Old Plume/Oceanic: Found in high abundances throughout upper 75m

Synechococcus:

Young Plume: Moderate abundances at surface in young plume stations
Middle Age Plume: Higher abundances in upper 50m as the surface plume ages
Old Plume/Oceanic: Abundances decline as surface waters reach oceanic salinity
Species composition potentially changes as we move from fresher waters close to coast to oceanic waters far offshore.

Picoeukaryotes:

Young Plume: High at surface and at ~50m, likely associated to high surface nutrients
Middle Age Plume: Abundances decline with nutrient concentrations at surface and vary from very high to low at ~50m
Oceanic: Abundances are moderate in upper 100m. Appear to contribute more to DCM.

Diatoms:

Particularly high abundances in young plume stations and in middle-aged plume stations with upwelling.

Acknowledgements

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References

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