SUMMARY

NAAMES

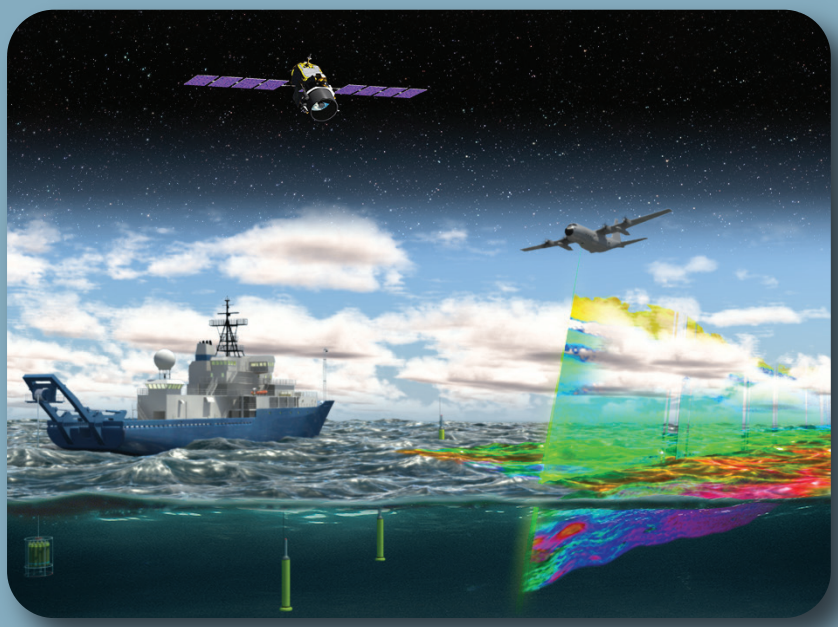
What is NAAMES?

The North Atlantic Aerosols and Marine Ecosystems Study (NAAMES) is a five-year investigation to resolve key processes controlling ocean ecosystem function, their influences on atmospheric aerosols and clouds and their implications for climate.

Observations obtained during four, targeted ship and aircraft measurement campaigns, combined with the continuous satellite and in situ ocean sensor records, will enable improved predictive capabilities of Earth system processes and will inform ocean management and assessment of ecosystem change.

A Campaign for Each Season:

NAAMES campaigns target the minimum of the plankton cycle (November, 2015), the climax of the plankton bloom (May, 2016), and the interleaving phases of decreasing and increasing biomass (Autumn 2017 and Spring 2018, respectively). Thus, each campaign is aligned to a specific annual event in the plankton cycle, allowing us to resolve scientific controversies on when the actual bloom begins, how it is recreated each year, and how it impacts aerosols and clouds in the atmosphere.



"The pressing question is, 'how will future climate changes alter plankton production, species composition, and aerosol emissions?'

Combined Ship and Airborne Measurements:

Ship-based measurements provide detailed characterization of plankton stocks, rate processes and community composition. Ship measurements also characterize sea water volatile organic compounds, their processing by ocean ecosystems, and the concentrations and properties of gases and particles in the overlying atmosphere.

Aircraft-based measurements characterize the properties of atmospheric particles, gases, and clouds. Aircraft remote sensing instruments also capture broad-scale ocean properties around the ship. These airborne data provide the crucial link between the processes and properties measured at the local-scale of the ship to related properties measured at much larger scales by satellites.

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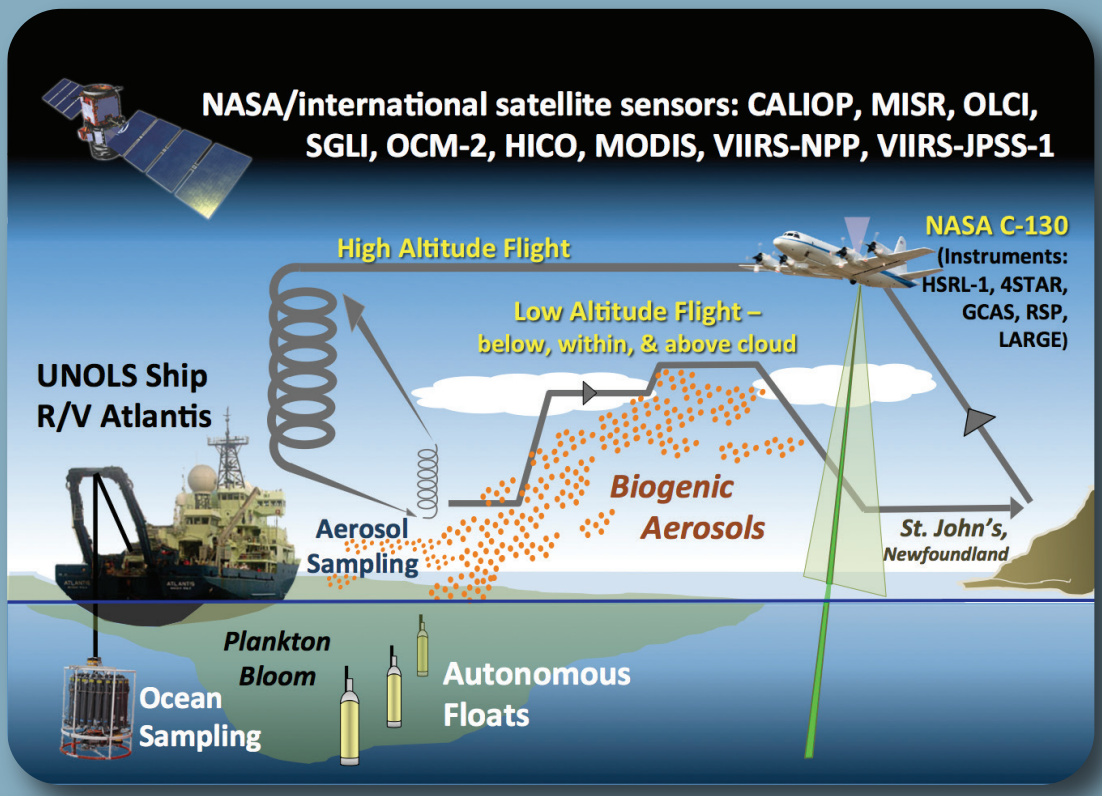
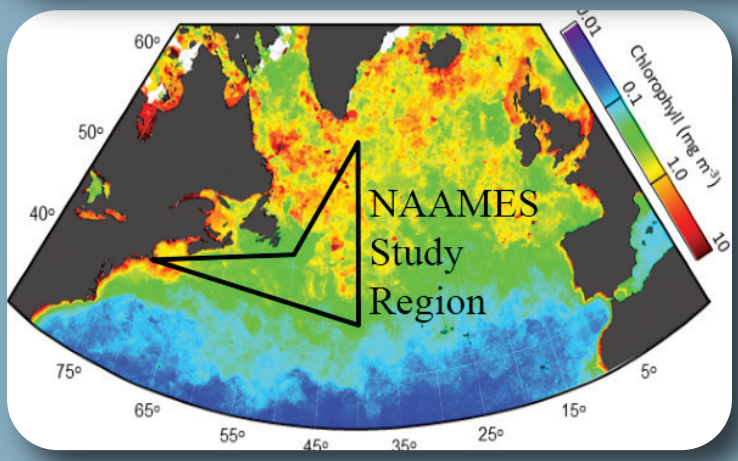
Satellite, Float, and Drifter Observations Span the Entire 5-Year Study:

Measurements sustained over multiple years by satellites and NAAMES-deployed ocean floats and drifters provide important context for the comprehensive measurements aboard the NAAMES ship and aircraft during each campaign. These autonomous assets tie together data from the four campaigns conducted months apart from each other to ultimately tell a comprehensive and compelling narrative on the fascinating North Atlantic phytoplankton bloom cycle and its important implications on aerosols, clouds, and climate.



NAAMES combines ship, aircraft, satellite, autonomous sensor, and modeling data to address knowledge gaps on ocean plankton and their biogenic aerosol emissions.



NAAMES measurements span the range of North Atlantic ocean biological activity.

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