

Assessing spatiotemporal variability in air pollution in urban coastal regions

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Urban nearshore regions are characterized by strong variability in atmospheric composition. This variability is associated with both anthropogenic emissions and meteorological processes that influence the circulation and accumulation of atmospheric pollutants at the land-ocean interface. Improving monitoring of coastal dynamics and assessing impacts of coastal pollution on coastal communities, economies, and ecosystems is among NOAA's key research priorities. This project will offer students an opportunity to learn about spatial and temporal patterns in nearshore atmospheric composition, transport of air pollution across urban-terrestrial-aquatic interfaces, and impacts on coastal ecosystems and human health. Students will have the opportunity to use satellite observations and measurements from past and ongoing air-quality and oceanographic field campaigns, gain experience in statistical and GIS software to quantify and map atmospheric pollutant concentrations along heavily urbanized coastlines, and develop new skills in satellite data analysis and remote sensing techniques fundamental to understanding and monitoring physical and biogeochemical processes in economically and ecologically important coastal environments.