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Coastal Halogen Atmospheric Research on Mercury Deposition (CHARMeD)

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Mercury is recognized as a highly toxic global pollutant. Measurements of mercury wet deposition by the Mercury Deposition Network (MDN) across the contiguous United States (US) often show elevated wet deposition across large areas in Southern regions of the US, while most mercury sources are located more towards the Northern regions. The reasons for this spatial mismatch between mercury sources and atmospheric deposition are currently not understood. As part of the project "Coastal Halogen Atmospheric Research on Mercury Deposition (CHARMeD)" we will investigate the hypothesis whether halogen chemistry could, in part, explain the mercury deposition along the US Gulf Coast. As part of CHARMED, direct measurements of BrO, IO and O4, using Multi Axis Differential Optical Absorption Spectroscopy (MAX-DOAS) will be conducted at one of the coastal SouthEastern Aerosol Research and CHaracterization experiment (SEARCH) sites. SEARCH is an eight-station network located in the following States: Alabama, Florida, Georgia and Mississippi. It provides continuous measurements of, for example, speciated mercury, ozone, and other air constituents, as well as meteorological parameters such as wind speed and direction, temperature, etc. This poster presents an overview over the CHARMED project, introduces prevailing meteorological conditions at the chosen SEARCH site, and their seasonal and annual variability, and defines the science questions that are to be investigated.