Input from MPAS-Ocean

Input from E3SM

Comparison with observations

INPs in the sea surface microlayer

Sea-air transport of INPs

Marine INPs in the atmospheric boundary layer

- **Heterotrophic bacteria** and **marine polymeric particles** as proxies for biogenic high-temperature INPs in remote ocean regions
- **Enrichment** between bulk and surface microlayer

- **Concentration of jet drops** ($d_{wet} > 1$ µm) derived from E3SM model runs
- **Entrainment of marine particles** assumed to follow Poisson statistics

- **High ice nucleation activity (n_s)** of simulated episodic INPs required to match observations