

# 2026: Polar 1-year Roadmap

Major Goal	Epics	Start Date	Due Date
BluePulse S2S2D Marine Cryosphere Signatures Experiment	<ol style="list-style-type: none"> <li>1. BluePulse Experiment 1: V3.0 Large ensemble global S2S2D sea ice signatures</li> <li>2. BluePulse Experiment 2: V3.2 SORRM Large ensemble global S2S2D sea ice and ice shelf thermal signatures with ice shelf cavities</li> <li>3. BluePulse Experiment 3: V3.2 Large ensemble global S2S2D sea ice signatures with fully coupled waves</li> </ol>	Jan 2026	Dec 2026
Ice and Snow Advances for E3SMv4	<ol style="list-style-type: none"> <li>1. Sea ice model stewardship and cross-group collaboration in preparation for v4, including improvements to infrastructure and output.</li> <li>2. New sea ice physics for OMEGA coupling including variable salinity exchange, Kuramoto synchronization, and enhanced melt ponds</li> <li>3. Snow-on-sea-ice analysis in E3SM v3.0 with expected parameter refinement for v4.0</li> <li>4. Global deep firn testing and spinup regimen finalization.</li> <li>5. MALI Stewardship and cross-group collaboration for a dynamic Greenland ice sheet to enhance land-ocean fluxes in E3SMv4</li> <li>6. Fully coupled dynamic Greenland Ice Sheet S2S2D delivery</li> </ol>	Jan 2026	Dec 2026
Polar Coupling Advances for E3SMv4.x	<ol style="list-style-type: none"> <li>1. Feasibility testing and cross-group implementation of 8-band shortwave coupling in E3SM v4.x</li> <li>2. Improved longwave radiation coupling between the surface and atmosphere for E3SM v4.x</li> <li>3. Introduction of global iceberg spreading, including surrounding Greenland for E3SMv4.0</li> </ol>	Jan 2026	Dec 2026
Polar AI	<ol style="list-style-type: none"> <li>1. Broadscale adoption of agentic AI, including to solve problems associated with Snowcapping and WaveWatchIII initialization</li> <li>2. Experimentation with neural networks for sea ice analysis and emulation</li> </ol>	Jan 2026	Dec 2026