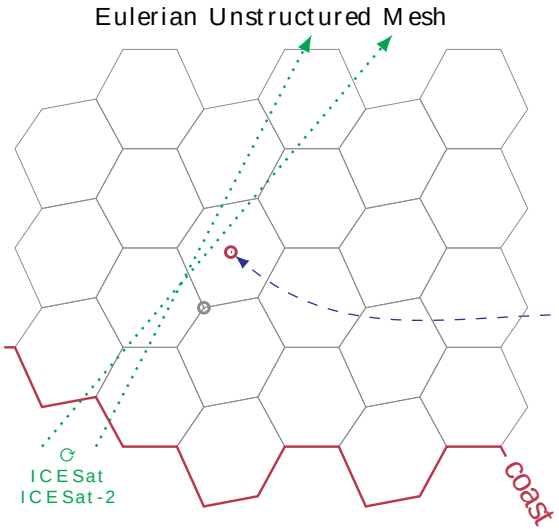
Toward Sea Ice in E3SM Version 4

Andrew Roberts, Los Alamos National Laboratory | E3SM, InteRFACE, MPM

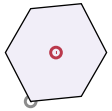
Dycores



1. MPAS-Seaice EVP (B,C-grids)
2. MPAS-Seaice MPM EDR V4

E3SM Energy Exascale Earth System Model

Column



Icepack

CICE Consortium

- Morphology
  - Thickness Distribution ↔ ◦
  - Floe Size Distribution ↔ ◦
  - Snow Distribution ↔ ◦
  - Ridged Ice Distribution ↔ ◦ V4
  - Melt Pond Fraction ↔ ◦
  - Brine & Enthalpy Distribution ↔ ◦
- Geophysics
  - Radiative Transfer ↓↑ ◦
  - Ice-Atmosphere Turbulent Fluxes ↓↑ ◦
  - Ice-Ocean Turbulent Fluxes ↓↑ ◦ ◦
  - Mushy Thermodynamics ↓↑ ◦
  - Lateral Mass Change ↓↑ ◦
  - Precipitation Hydrology ↓↑ ◦
- Biogeochemistry
  - Aerosols ↓↑ ↔ ◦
  - Vertical BGC ↓↑ ↔ ◦
  - Sediments ↓↑ ↔ ◦ V4
- Data Fusion
  - Altimetric Emulator ↻ ◦ V4