Coupling requirements for CICE6-MOM6-WW3

David A Bailey and Marika M Holland (NSF NCAR)
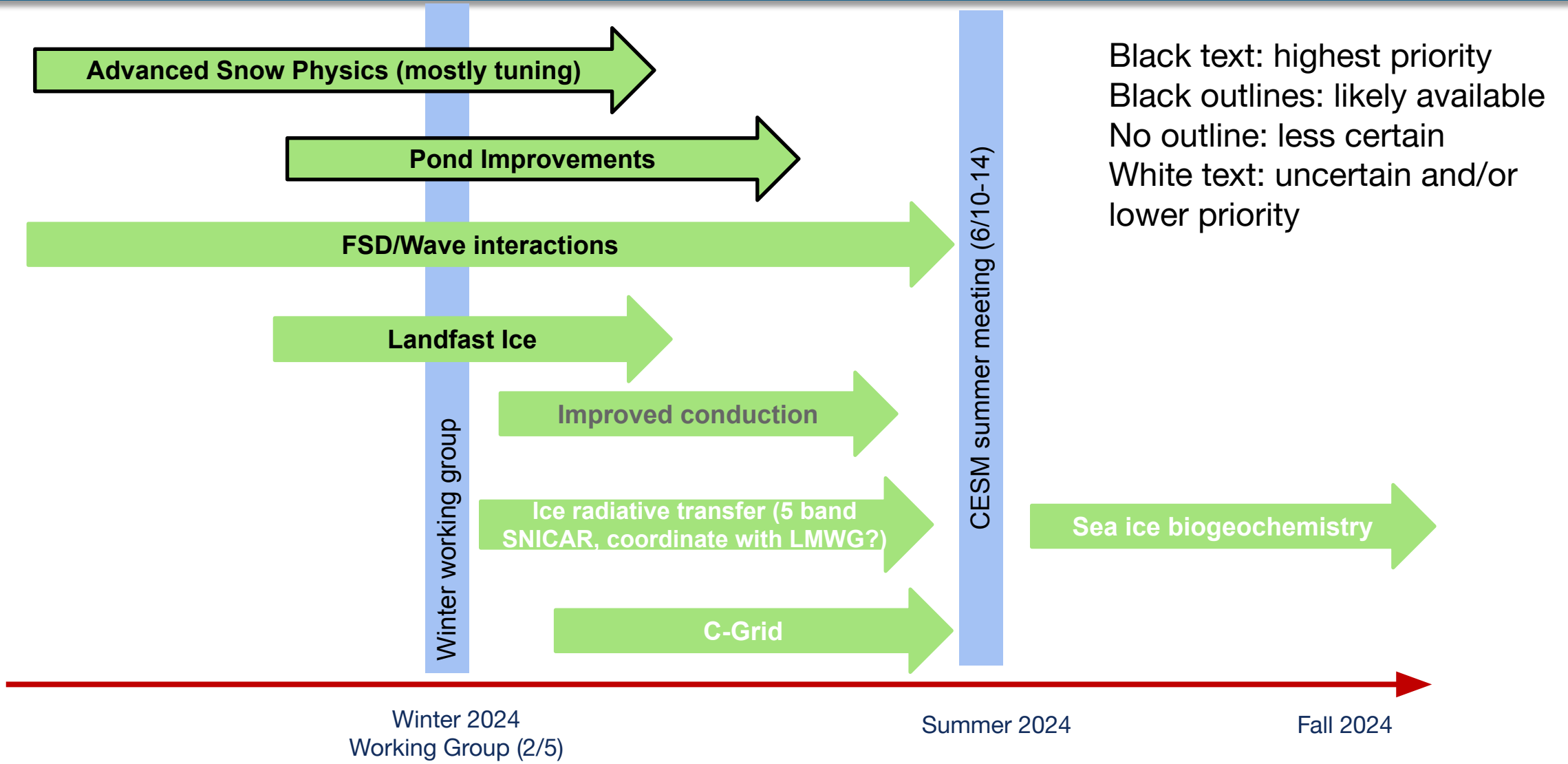
Why build a CICE Consortium?

To enhance sea ice model development for and by the community

- Acceleration of scientific development
- Acceleration of R&D transfer to operational use
- Vehicle for collaboration and sharing

https://github.com/CICE-Consortium

PCWG Sea Ice Plans

To CICE:

- wave spectrum (25 bands)
- ocean velocities (C-grid)
- sea surface tilt terms (C-grid)
- scalars: temperature, salinity, frzmlt

From CICE:

- sea ice thickness
- maximum floe diameter
- sea ice concentration (fraction)
- ice-ocean stresses (C-grid)
- shortwave, heat, salt, freshwater

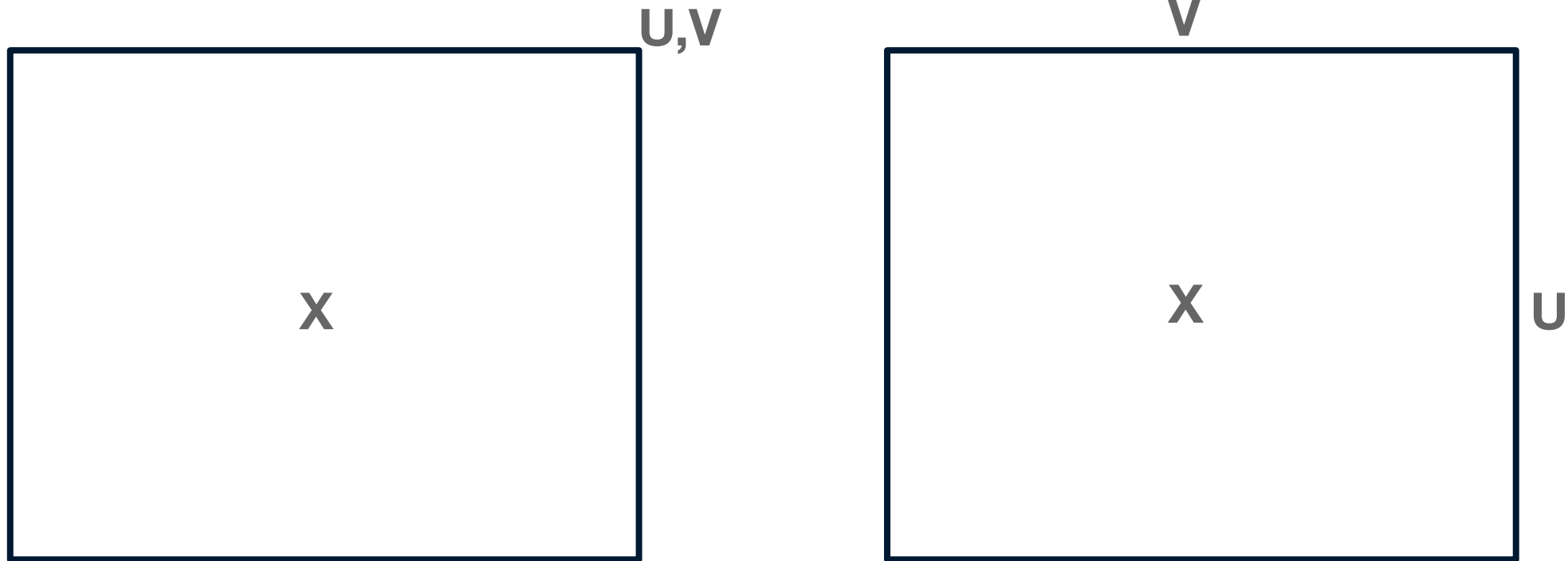NCAR
UCAR

Floe Size Distribution (FSD)

- **Lettie Roach and Cecilia Bitz (Roach et al. 2017)**

- **Joint floe-size (12) and ice thickness distribution (5)**

- **WW3 on gx3v7 grid.**

- **Compute wave-**

  fracturing of floes using:

  – **significant wave height**

  – **amplitude**

  – **peak frequency**
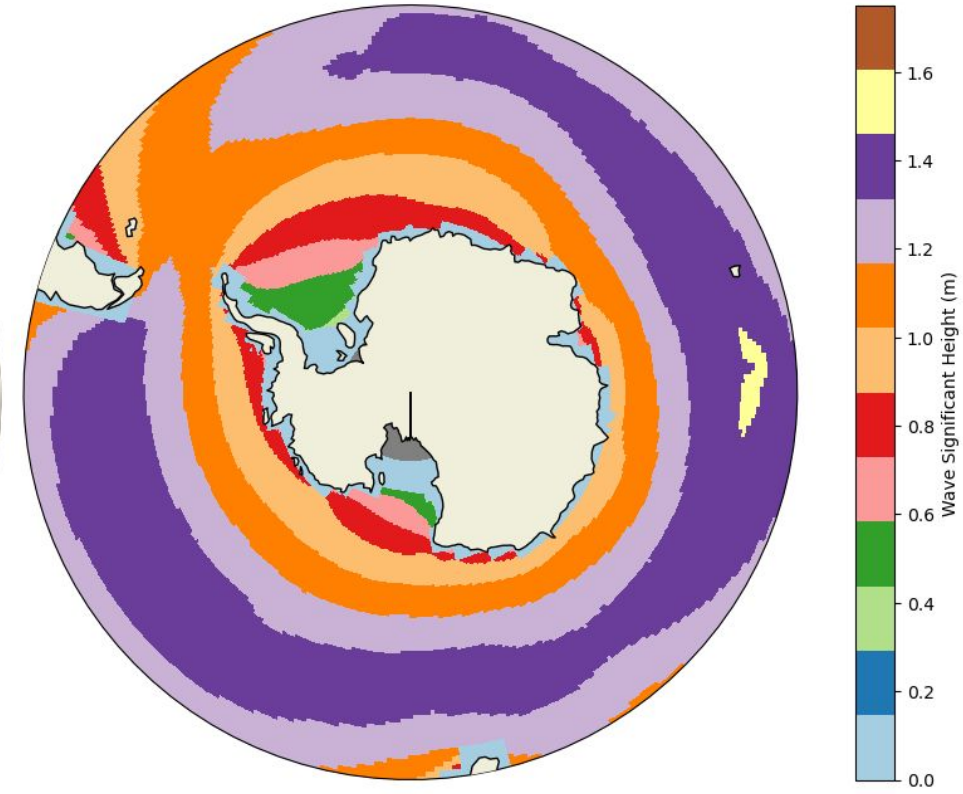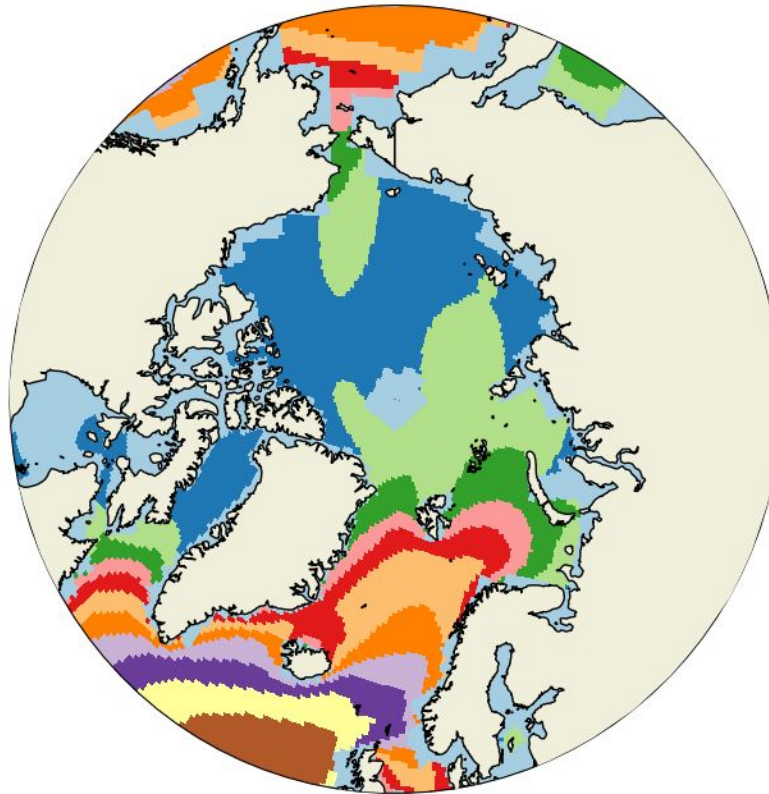
B-grid versus C-grid

U,V

V

X X U

- **Currently passing everything through coupler at A-grid points (X)**
- **Potentially use exchange grids?**
- **Still requires some interpolation.**