Benjamin
Green
CIRES/CU and NOAA/GSL
Shan Sun: NOAA/GSL
Oral
NOAA is in the process of developing a new UFS-based fully coupled modeling system – the Seasonal Forecast System (SFS) – for seasonal predictions out to 1 year in advance. A necessary component of model development for any timescale, including S2S, is to minimize model biases. In fact, because SFS is in early stages of development, it is critically important to understand how yet- to-be-finalized aspects of model configuration (such as vertical/horizontal model resolution and subgrid-scale physical parameterization schemes) impact mean-state biases, and their temporal evolution. Here, two sets of SFS-like simulations (each set has different representations of atmospheric physics) are examined; each set consists of 5 time-lagged ensemble members initialized every May from 1991 through 2022 integrated forward in a coarse-resolution (1° atmosphere and ocean) setting. These comprehensive sets of simulations allow for a robust interrogation of model climatology and biases. In comparing the two sets of runs it is of no surprise that the bias patterns (in fields such as sea-surface temperature) can be quite different, presenting difficulty for model tuning given the computational expense of year-long simulations. Previous work on subseasonal (35-day) coupled UFS simulations found that mean-state biases in weeks 3-5 usually manifested themselves within the first week; on seasonal timescales, there appears to be a mix of bias patterns that are influenced by the annual cycle (e.g. boreal summer vs. boreal winter) and those that are persistent year-round. Further testing is currently underway to examine the impact of vertical atmospheric resolution on these seasonal-length UFS simulations.
Presentation file
Green-Benjamin.pdf
Meeting homepage
S2S Community Workshop
Download to PDF