Seasonal to multi-year climate predictability in a climate model MIROC6

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Seasonal to multi-year climate predictability is examined in hindcast experiments using the latest version of a climate model MIROC (MIROC6). The model is initialized by assimilating observed ocean temperature and salinity anomaly fields and full-filed of sea ice concentration. In addition, the atmospheric initial conditions are replaced with variables from JRA55 reanalysis and the hindcasts are issued on November 1st. On seasonal timescales, the MIROC6 prediction system shows an improvement in Niño3.4 prediction skill from that of MIROC5, though the skill itself is still modest. SLP variability around Japan appears to have predictive skill up to second winter (lead time of about 15 month) and summer (lead time of about 21 month) possibly due to the improved ENSO prediction skill and the better representation of East Asian monsoon. On longer timescales, although the predictive component largely originates from the externally forced variability, MIROC6 shows predictive skills in the surface air temperature particularly in the North Pacific and the North Atlantic.

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