Global decadal climate variability and the Interdecadal Pacific Oscillation

Abstract:
The Interdecadal Pacific Oscillation (IPO) is a prominent feature of decadal and multi-decadal climate variability in the global climate system. The degree to which the IPO contributes to decadal fluctuations of globally averaged surface air temperature is quantified, particularly to the early-2000s hiatus of global warming when the trend of surface warming was greatly reduced. The “warming hole”, defined as little warming or even slight cooling over the second half of the 20th century over the southeastern U.S., is shown to be connected to the IPO. The transition of the IPO phase from positive to negative in the late 1990s was associated with the subsequent disappearance of the warming hole in the 2000s. Decadal variability associated with the IPO also is shown to have contributed to the trend of increasing Antarctic sea ice area since about 2000. Hindcasts with initialized climate models have shown some skill in simulating decadal climate variability associated with the IPO, thus providing an indication of a source of future decadal predictive skill.