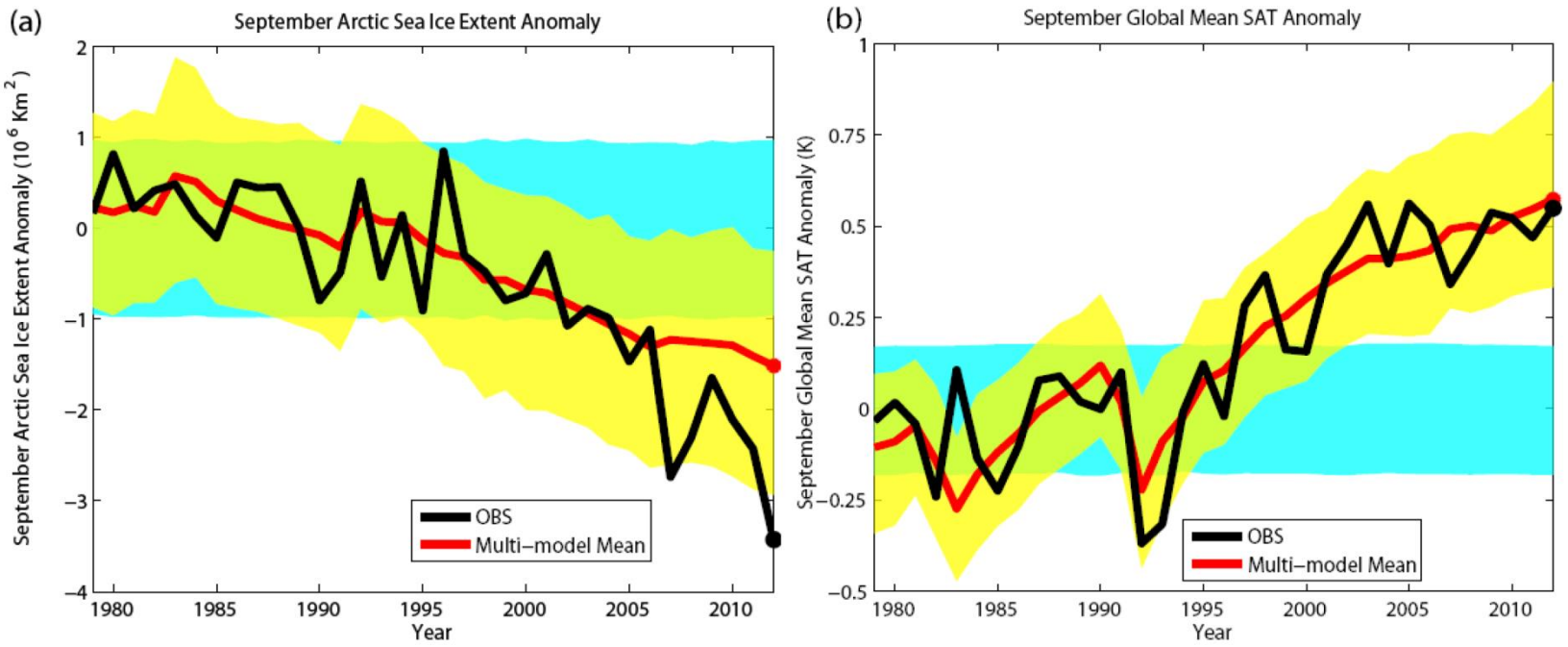
The Role of Global Climate Change in the Extreme Low Summer Arctic Sea Ice Extent in 2012 (Rong Zhang and Tom Knutson, GFDL/NOAA)



The observed summer Arctic sea ice extent anomaly in 2012 is detectable and significantly stronger than the multi-model ensemble mean All-Forcing response from 19 CMIP5 models. The observed global mean surface air temperature (SAT) anomaly in 2012 is detectable and consistent with the models' All-Forcing response.

Zhang, R., and T. R. Knutson, 2013: The role of global climate change in the extreme low summer Arctic sea ice extent in 2012 [in "Explaining Extreme Events of 2012 from a Climate Perspective"]. Bull. Amer. Meteor. Soc., 94 (9).

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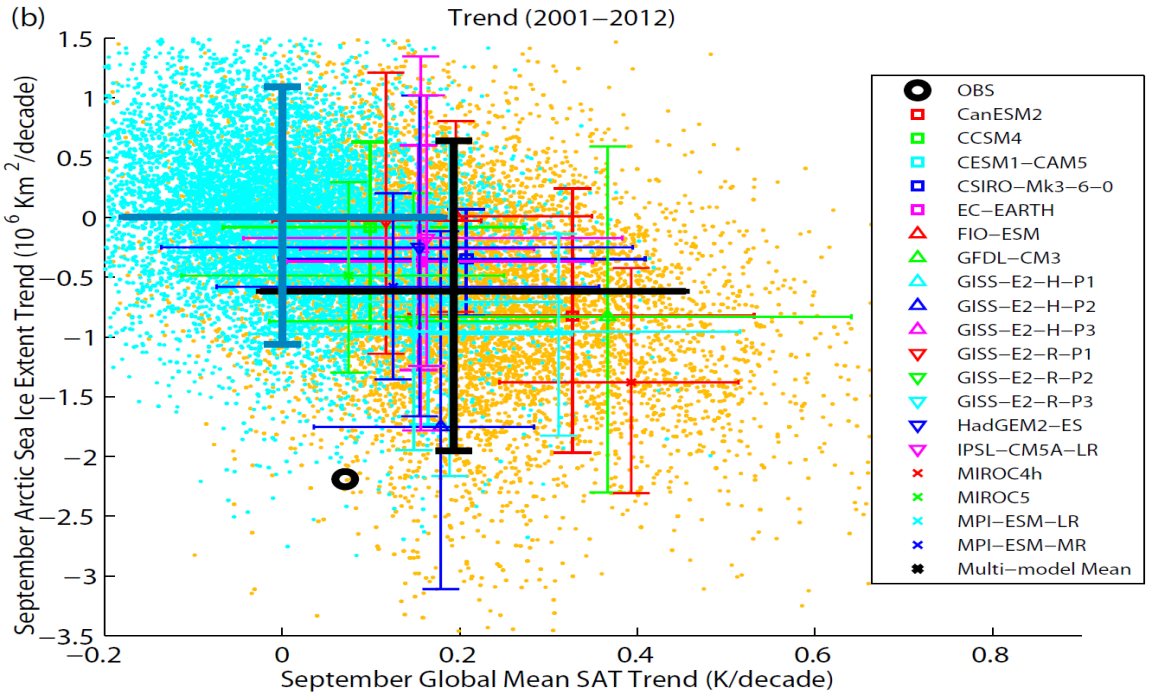
Trends for the Early 21st Century (2001-2012)



The observed September Arctic sea ice extent decline trend for 2001-2012 is so rapid that it lies outside the 5th to 95th percentile range of multi-model All-Forcing runs, but the observed September global mean SAT warming trend for the same period is so small that it is not detectable.

The observed summer Arctic sea ice extent trend in the early 21st century can be explained as an extreme rare scenario in either the "pure internal variability" case (cyan dots) or the "forced plus internal variability" case (orange dots) .

Zhang, R., and T. R. Knutson, 2013: The role of global climate change in the extreme low summer Arctic sea ice extent in 2012 [in "Explaining Extreme Events of 2012 from a Climate Perspective"]. Bull. Amer. Meteor. Soc., 94 (9).