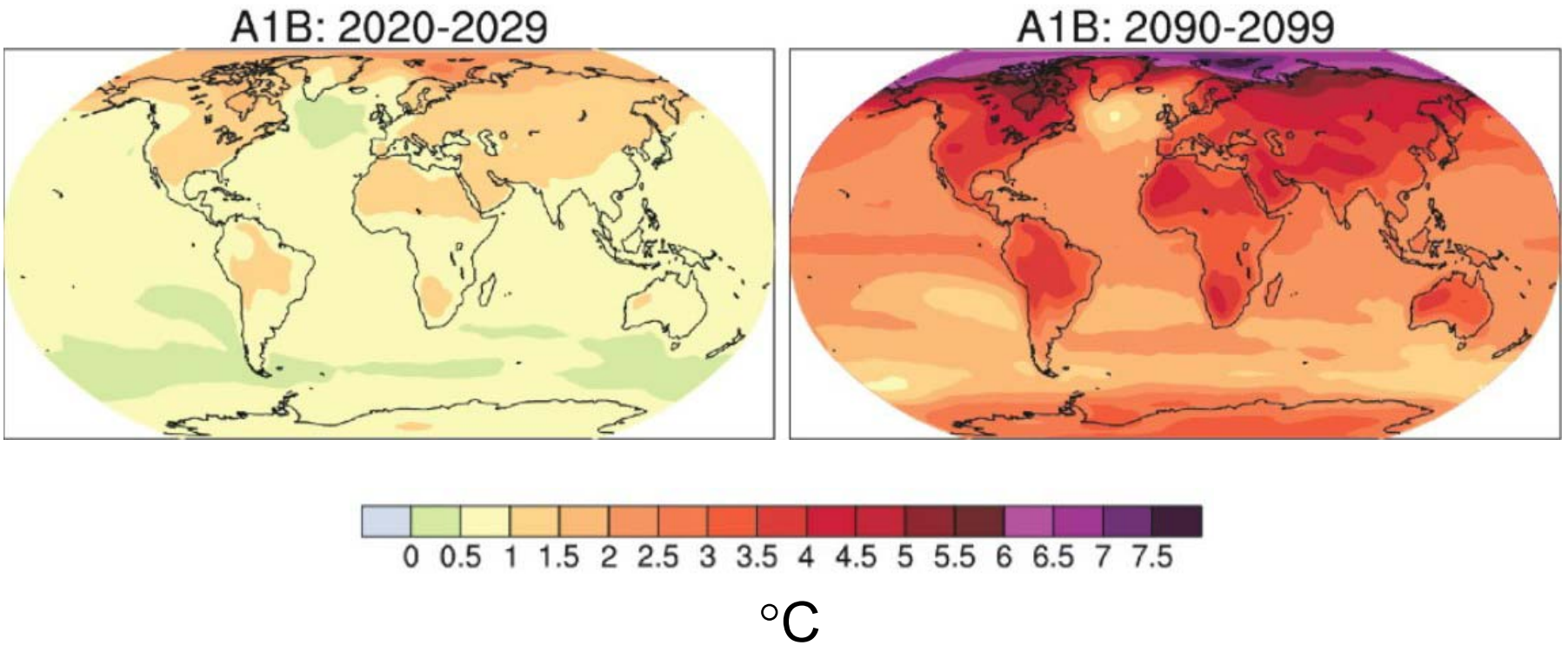
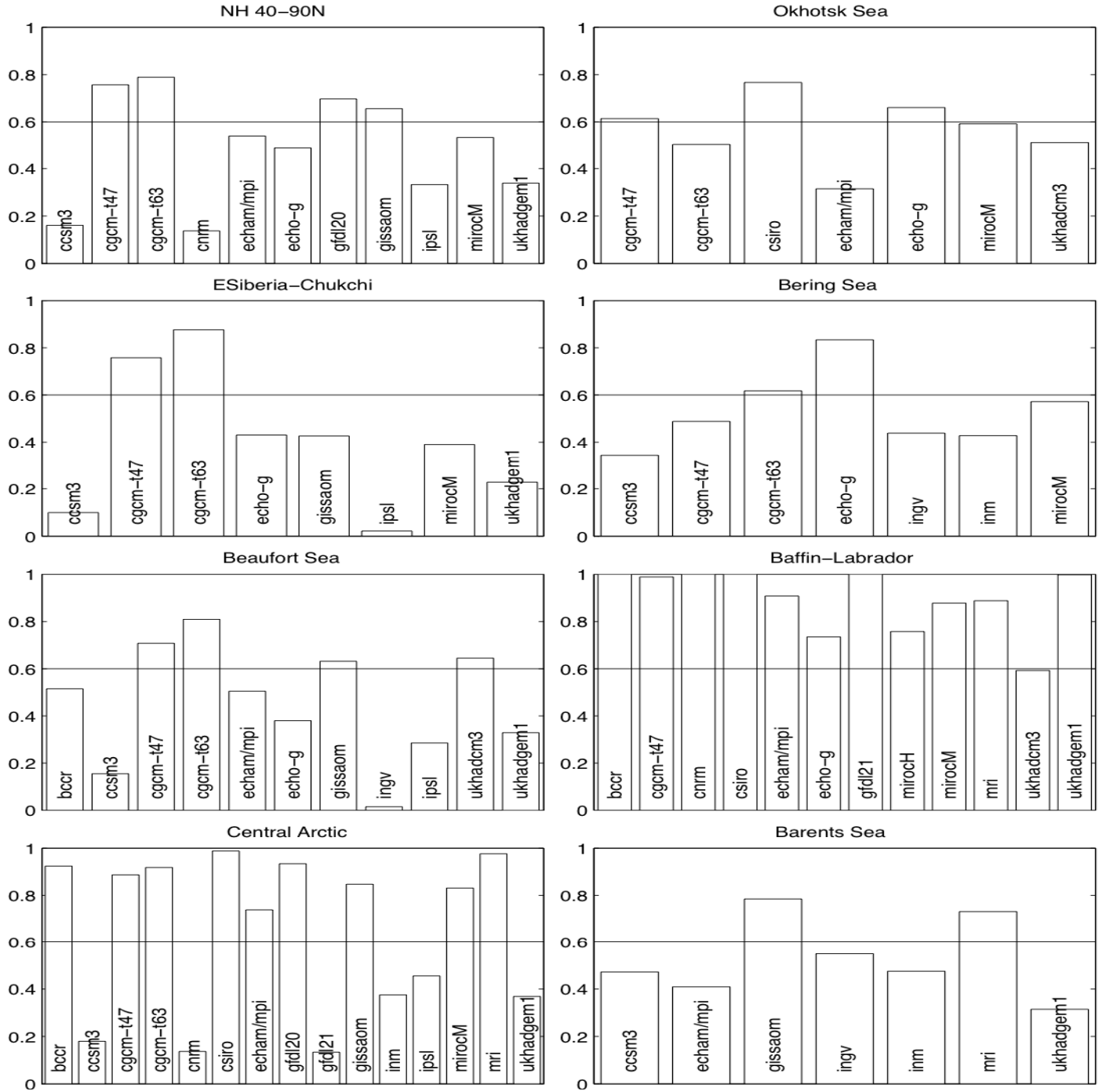
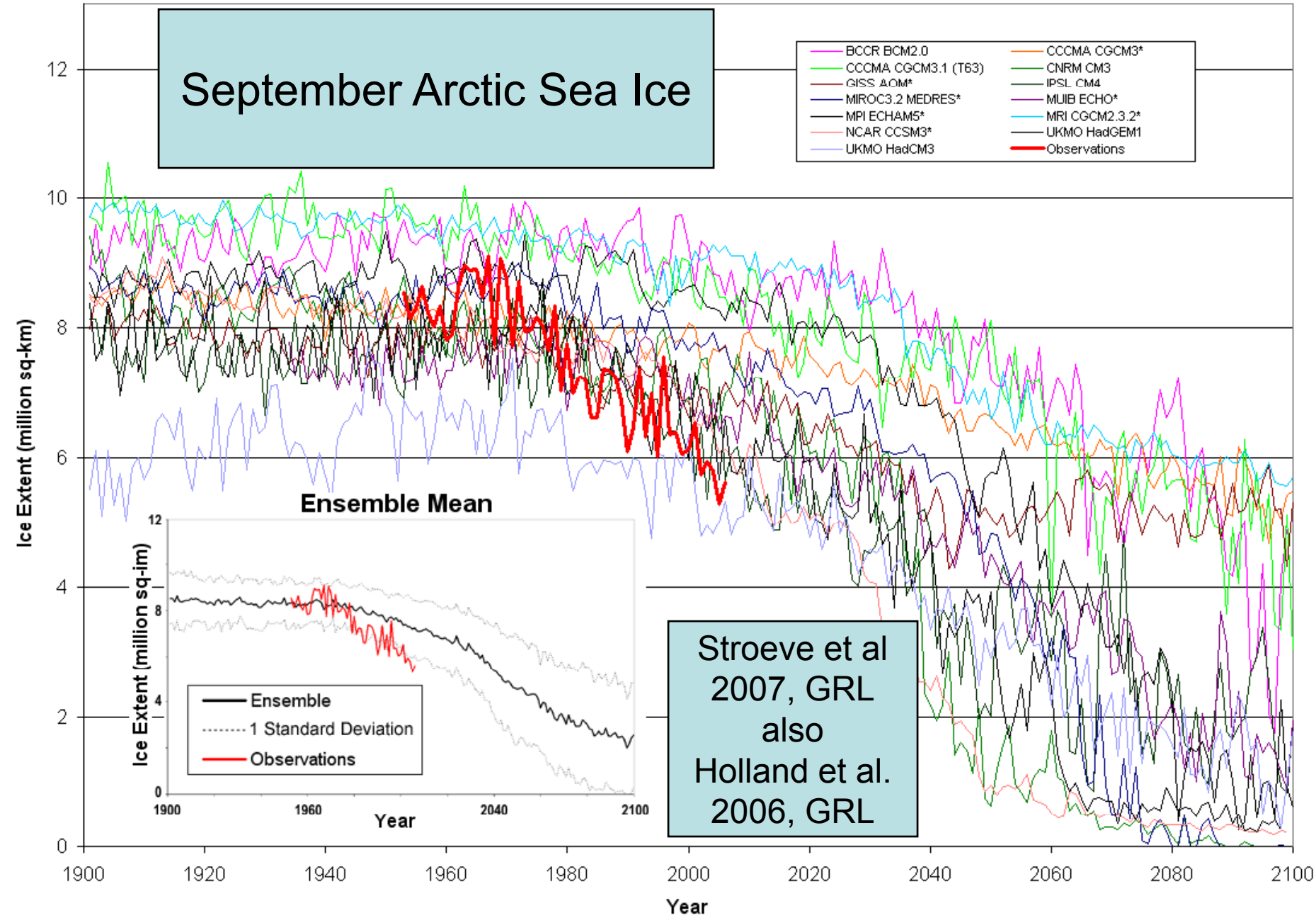
IPCC AR4 Future Temperatures



Fractional Ice Area in 2050 Relative to 1990

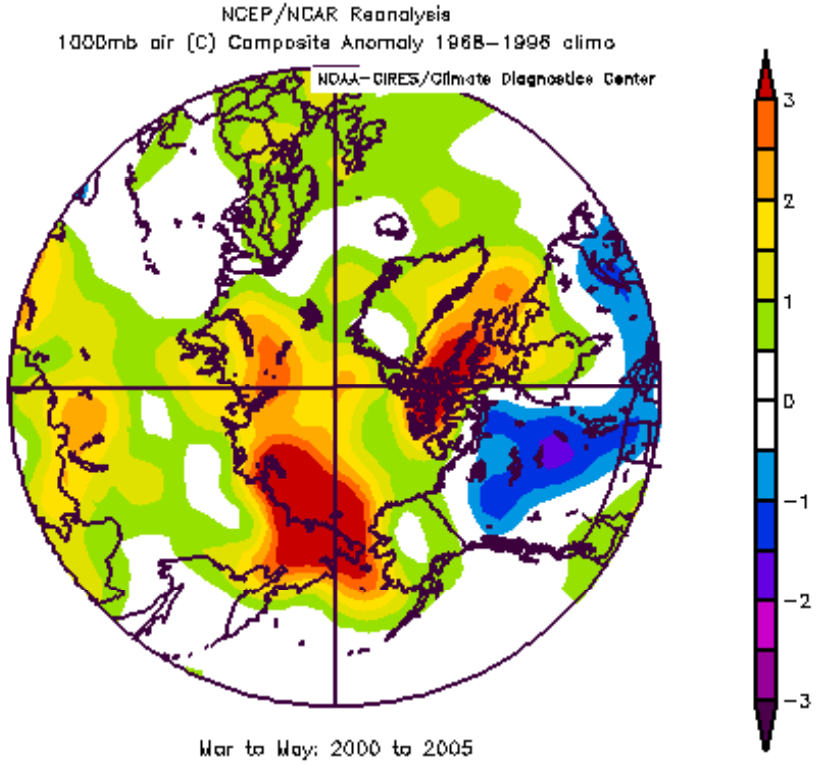


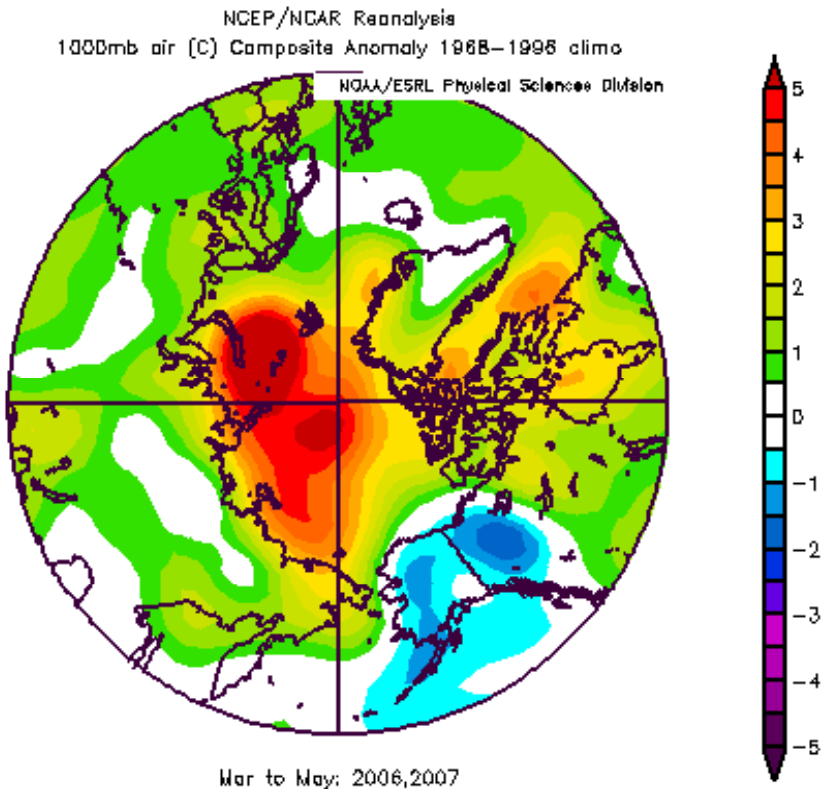
Overland and Wang
GRL
In review


September Arctic Sea Ice
BCCR BCM2.0
CCCMA CGCM3*
CCCMA CGCM3.1 (T63)
CNRM CM3
GISS AOM*
IPSL CM4
MIROC3.2 MEDRES*
MUIB ECHO*
MPI ECHAM5*
MRI CGCM2.3.2*
NCAR CCSM3*
UKMO HadGEM1
UKMO HadCM3
Observations
Ice Extent (million sq-km)
Year
Ensemble Mean
Ice Extent (million sq-im)
Ensemble
1 Standard Deviation
Observations
Year
Stroeve et al 2007, GRL also Holland et al. 2006, GRL

Colder in Bering Sea in 2006 and 2007
Europe Warm
Arctic still warm overall

Surface Air Temperature Anomalies





2000-2005

2006-2007

SUMMARY

Greater than 40 % sea ice loss in summer Arctic seas and winter marginal seas by 2050 (except Baffin Bay)

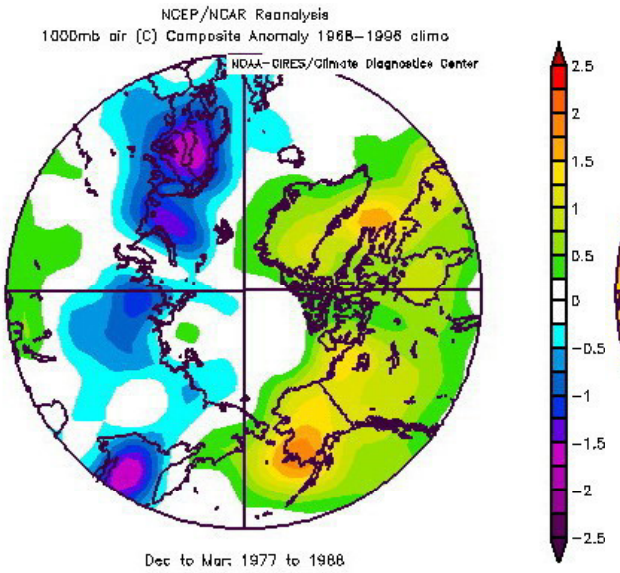
Arctic: 3 degree temperature increase by 2050

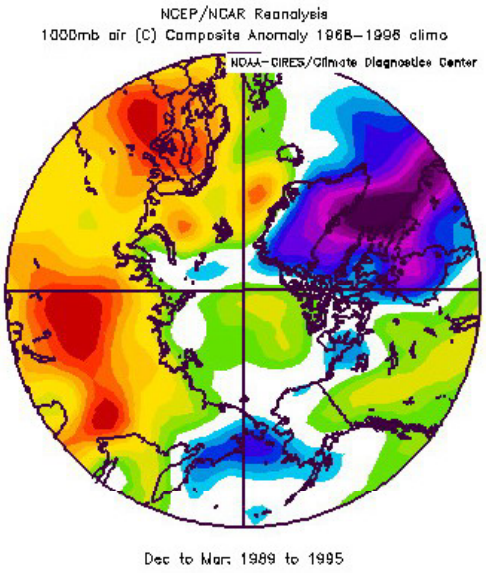
Must consider large natural variability in near term climate projections

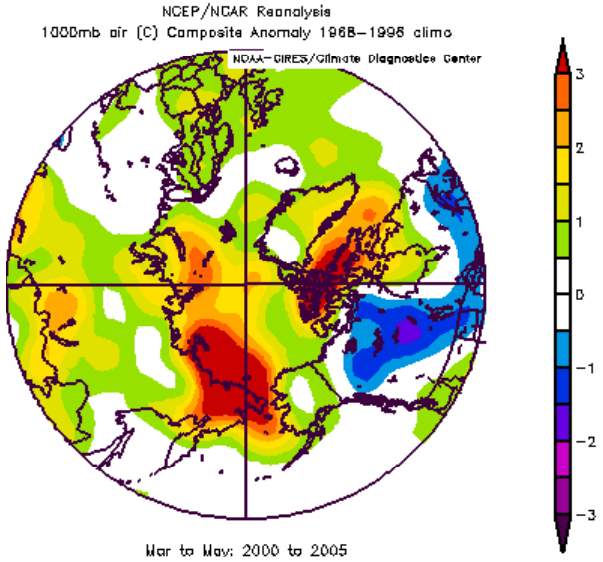
More confidence in Arctic Basin summer (multiple models)

Climate Patterns

Temperature Anomalies







1977-1988 (NP-)
North Pacific

1989-1995 (AO+)
Arctic Oscillation

2000-2005 (Arctic Warm)

Overland and Wang 2005