



Can Arctic warm the Earth?

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The strongest multidecadal temperature changes for the last 150 years have been observed in the northern high latitudes. The pattern and seasonality of Arctic temperature variations suggest a major role of the sea ice modulated wintertime heat losses in the marginal Arctic seas. Energy balance model estimates show that this anomalous heating may result in significant hemispheric warming with equator-polar temperature contrast similar to what was observed. Simulations with coupled atmospheric GCM/mixed layer ocean model reproduce this effect. It is proposed that the temperature variability in the Northern Hemisphere related to the North Atlantic meridional overturning changes is further (by about a factor of three) amplified by a positive feedback due to sea ice reduction in the marginal Arctic seas.