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A new pulse of warm North Atlantic water observed in the Arctic Ocean

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Recent mooring observations in the eastern Eurasian Basin show an abrupt temperature increase of 0.8C in the core of the intermediate Atlantic Water of the Arctic Ocean. This warming started in February 2004 and is associated with substantial increase in the thickness and heat content of the Atlantic Water layer. The intensity of this anomaly is comparable with another anomaly first seen in the Eurasian Basin in the early 1990s, which later spread over much of the central Arctic Ocean. Oceanographic surveys suggest a larger (1deg) increase in intermediate Atlantic Water temperatures along the margins of the Nansen Basin between 2003 and 2004. However, observations at the North Pole do not (yet) show the arrival of anomalously warm water. Inspection of available long-term temperature records from moorings deployed at Svinoy and Fram Strait allows us to track several pulses of warm water seen in recent decades, and we are currently attempting to relate these changes to the warming observed in the Nansen Basin in 2004 using available observational data and modeling results. In order to address unresolved issues we have proposed a mooring-based Arctic Ocean observational system (MAOOS) under the stimulus of the International Polar Year.