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Change of heat in the Eurasian Basin of the Arctic Ocean in the last two decades

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The early 2000s showed warming with respect to the late 1990s of the Atlantic Water which is advected into the Arctic Ocean through Fram Strait. Here we investigate if the associated increase in oceanic heat transport by 30% led to a change in the heat content of the Eurasian Basin between the 1990s and the 2000s. Observations in the 1990s are from cruises and manned ice stations and in the 2000s data come also from drifting ice-tethered profilers augmenting data coverage considerably during the International Polar Year. A problem in such kind of comparison arises from the different regional coverage between as well as within the two periods such that spatial variations can be expected to conceal temporal variation. To respect a possible bias both data sets are referred to the EWG Atlas which bases on Arctic-wide data between 1950 and 1980. The comparison shows that the Atlantic layer was much warmer in the 1990s and 2000s than in the EWG atlas period while there is no significant difference in the Atlantic layer heat content between the 1990s and the 2000s. Recent warming was only found in the layer below 1000 m and this heat content difference compares only to 25% of the additional heat input through Fram Strait.