2005	Igor V. Polyakov et al. (2005); **"One more step toward a warmer Arctic"** Geophysical Research Letters, Vol. 32, L17605; Co-authors see: Reference list

The ABSTRACT notes that the study was motivated by a strong warming signal in2004 in the Eurasian Basin of the Arctic Ocean, claiming, that the source of this and earlier Arctic Ocean changes lies in interactions between polar and sub-polar basins. Evidence suggest such changes are abrupt, or pulse-like, taking the form of propagating anomalies that can be traced to higher-latitudes. For example, an anomaly found in 2004 in the eastern Eurasian Basin took _1.5 years to propagate from the Norwegian Sea to the Fram Strait region, and additional _4.5–5 years to reach the Laptev Sea slope.

The paper furthermore states:

- This evolution of water temperature is related to the atmospheric processes: (p: 2)
- The abrupt nature of these warming events is striking. The first temperature increase at the EEB slope of about 0.4_C in February 2004 happened in a single day, after which the AW layer equilibrated at a new warmer state for almost seven months, when another abrupt warming occurred. (p: 3)
- Through analysis of a vast collection of observational data it was shown that over the 20th century multi-decadal AW fluctuations are a dominant mode of variability (Figure 3). Associated with this variability, the AW temperature record shows two warmer periods in the 1930–40s and in recent decades, and two colder periods early in the 20th century and in the 1960–70s. (Concluding Remark)

Subsequently Igor A. Dmitrenko, Igor V. Polyakov , et al (2008) acknowledged: "recent Atlantic Water (AW) warming along the Siberian continental margin due to several AW (Atlantic Water) warm impulses that penetrated into the Arctic Ocean through Fram Strait in 1999–2000". One year earlier The New York Times (2nd October 2007) – by Andrew C. Revkin - referred to Igor V. Polyakov, saying that he see a role in rising flows of warm water entering the Arctic Ocean through the Bering Strait between Alaska and Russia, and in deep currents running north from the Atlantic Ocean near Scandinavia.

Comment:

The stunning point is the statement that the "evolution of water temperature is related to the atmospheric process", despite the various other mentioned aspects whereby the sea water records indicate to propagate anomalies. Do I.V. Polyakov and colleagues really think that the branch of the Gulf Current, the warm Atlantic Water on its way to Spitsbergen, is depended on atmospheric processes? Have they ever evaluated their conclusion in conjunction with the winter sea ice? At least concerning the early Arctic warming? What else than the warm Norwegian- and Spitsbergen Current could suddenly have initiated and sustained the sudden warming of the Arctic winter seasons. Climate is the continuation of the oceans by other means, namely heat & vapor. One of the best scientist in this field some time ago would presumably have advised to read the following from his book: "Oceanography for Meteorologists" published in 1942:

> *It might appear, therefore, as if the oceanic circulation and the distribution of temperature and salinity in the oceans are caused by the atmospheric processes, but such a conclusion would be erroneous, because the energy that maintains the atmospheric circulation is to a great extent supplied by the ocean. It will be shown that this energy supply is very localized, owing to the character of the ocean currents, and that therefore the circulation of the atmosphere, which depends upon where energy is supplied, must be influenced by the oceanic circulation. The reasoning leads to the conclusion that one cannot deal independently with the atmosphere or the oceans, but must deal with the complete system, atmosphere-oceans. This fact has been recognized in oceanography, where one gets nowhere by neglecting the relation to the atmosphere, but in meteorology it has not yet received sufficient attention. (p. 223) It is reasoned that the heat content of the ocean water is very great compared to that of the atmosphere, and that therefore any change in ocean current will for a long time influence the air temperature and the circulation. (p. 234)*
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> H.U. Sverdrup, 1942, "Oceanography for Meteorologists", New York, 1942, Chapter X, p. 223