2004 | **Questions to Bengtsson et al. paper 2004**
Concerning: Enhanced wind driven oceanic inflow into the Barents Sea

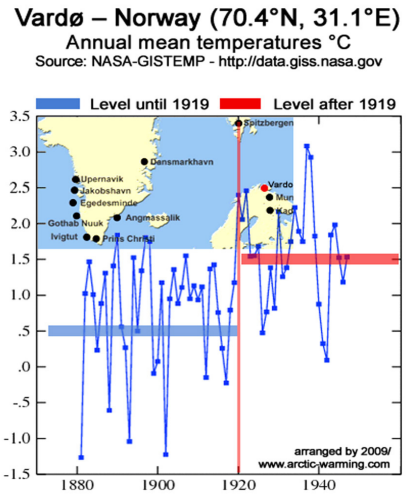
Bengtsson, Lennart (2004), Vladimir A. Semenov, Ola M. Johannessen, The Early Twentieth - Century Warming in the Arctic—A Possible Mechanism, Journal of Climate, page 4045-4057:

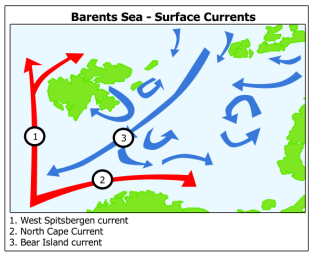
The authors assert that the temperature rise in the Arctic in the early 1920s was caused by enhanced wind driven oceanic inflow into the Barents Sea. The Abstract of the paper summarizes this aspect – inter alias – as follows:

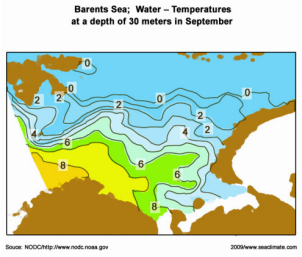
1. The huge warming of the Arctic that started in the early 1920s and lasted for almost two decades.
2. By analyzing similar climate anomalies in the model as occurred in the early 20th century, it was found that the simulated temperature increase in the Arctic was caused by enhanced wind driven oceanic inflow into the Barents Sea with an associated sea ice retreat.
3. Observational data suggest a similar series of events during the early 20th century Arctic warming including increase westerly winds between Spitsbergen and the northernmost Norwegian coast, reduced sea ice and enhanced cyclonic circulation over the Barents Sea.
4. It is interesting to note that the increasing high latitude westerly flow at this time was unrelated to the North Atlantic Oscillation, which at the same time was weakening.

The author's conclusion should be questioned, at least on reasons as follows:

- Was the jump of winter temperature at Spitsbergen from 1919-1923 not by far to high and sudden for having been caused by oceanic inflow to the Barents Sea.
- Is the Barents Sea with a mean depth of 230m not to shallow to 'receive' a substantial amount of warm Atlantic water. See figure on water temperature at 30m depth in August (right – below).
- How can it be explained that the temperature at Spitsbergen exploded, while the rise in Norway was moderate over the years until 1939.
- If the Barents Sea had indeed received a stronger inflow, should the temperature record at Vardø not be substantial higher? (see the Vardø graphic)
- Do the data from Vardø not clearly indicate that there had been a modest system shift around 1919 (see the Vardø-graph, annual mean, indicating the different levels) of about one degree?







Source: www.arctic-heats-up.com; The Arctic Warming 1919 to 1939; by: Arnd Bernaerts