



Extreme ship's icing in the Black sea

S.I. Sukhanov, V.V.Panov and **I.V.Lavrenov**

Arctic and Antarctic Research Institute, Russia

Extreme ships' icing happened on 9 Dec. 2002 in the harbor of Novorossiysk. It caused accidents and two ships' sinking. The synoptic situation is described as follows. On 6-9 Dec., 2002, a cold-air intrusion above eastern part of the Black sea happened due to fast changing of atmospheric circulation. Air temperature was dropped from +10 C to -18C during 24 hours. A cold upcoming air flux so called "bora" was arisen. Wind was directed from surrounding mountains to the coastal area of the Black sea. Coastal wind speed reached value up to 35 m/sec. It caused a fast icing of the ship titled "Arctic". In spite of the crew's safety measures the ice thickness covering the ship deck has been being increased. The total ice cover mass reached 15 ton value. As a results ships' stability was collapsed and it was overturned and sank. Numerical estimation of ship's icing is carried out. The results are in an agreement with observation data. The investigations are supported by the RFBR Grant-04-05-64306