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**A hindcast simulation of the Arctic and Antarctic sea-ice variability,
1955-2001**

Thierry Fichefet ¹, Hugues Goosse¹, Guy Schayes¹ & Miguel Angel Morales
Maqueda ²

1 Institut d'Astronomie et de Géophysique Georges Lemaître, Université catholique
de Louvain, Louvain-la-Neuve, Belgium

2 Potsdam-Institut für Klimafolgenforschung, Potsdam, Germany

E-mail: hgs@astr.ucl.ac.be

A hindcast simulation of the Arctic and Antarctic sea-ice variability has been performed with a global, coarse-resolution iceocean model driven by the National Centers for Environmental Prediction (NCEP) National Center for Atmospheric Research (NCAR) reanalysis daily surface air temperatures and winds. Both the mean state and variability of the ice packs over the satellite observing period are reasonably well reproduced by the model. Over the 47-year period, the simulated ice area (defined as the total ice-covered oceanic area) experiences in each hemisphere large decadal variability together with a decreasing trend of ~1% per decade. In the Southern Hemisphere (SH), this trend is mostly caused by an abrupt retreat of the ice cover during the second half of the 1970s and the beginning of the 1980s. The modelled ice volume also exhibits pronounced decadal variability, especially in the Northern Hemisphere (NH). Besides these fluctuations, we detected a downward trend in Arctic ice volume of 1.8 % per decade and an upward trend in Antarctic ice volume of 1.5% per decade.