

**Abstract:** The study analysed long-term changes and the variability of the Icelandic Low and the Azores High in January and their influence on thermal, precipitation and nival conditions in Poland in the period 1901–2000. There were no statistically significant (0.05) trends of analysed centres of action in January in the 20th century. However, in the second half of the century the center of the Icelandic Low in January moved northwards and the sea-level pressure in the center of the Azores High increased significantly. The latter change was the reason for the significant increasing difference between the Azores High and the Icelandic Low. This change caused the intensification of western advection over Europe. Changes in sea-level pressure in the Icelandic Low and the longitude of the Azores High in January explain about 40% of temperature and snow cover variability in Poland. The variability of some features of the centres of action describes the changes of precipitation and snow cover in Poland better than the NAO index.

**Key words:** climate change, atmospheric circulation, Icelandic Low, Azores High, Poland, winter