

ABSTRACT

The Little Ice Age is a term describing a period of significant cooling compared to the long-term average of the current interglacial. During this period, there was a significant expansion of mountain glaciation worldwide. This study deals the retreat of mountains glaciers from the Little Ice Age maxima in western Canada. A total of 60 glaciers were mapped in three study areas in the mountains of northern British Columbia along the west-east climate transect. The study areas are located in the northern Coast Mountains, the northern Interior Mountains and the northern Canadian Rocky Mountains. The monitored glaciers were manually mapped using Landsat satellite imagery from 1977, 1987, 1997, 2007 a 2017. The glacier extent during the Little Ice Age maxima was mapped using PlanetScope satellite imagery with a resolution of 3 m, where it was possible to trace moraines from this maxima. The decline of the glacial area in the northern Coast Mountains from the Little Ice Age maxima to 2017 was 22,1 %, in the northern Interior Mountains 41,3 % and in the northern Canadian Rocky mountains 41,0 %. High variability was found for the relative glacier retreat among smaller glaciers in all study areas. This suggests that glacier response to climate change is not only conditioned by climatic factors, but also by glacier attributes such as altitude, slope and orientation. No glacier with a positive change in glacier area was recorded.

Key words: Little Ice Age, retreat of mountain glaciation, Canadian Cordillera, remote sensing