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## Attribution of hydrological trends and change points in the discharge of Mackenzie River during 1972-2020

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Due to the amplification of climate change in the polar regions, the changes in discharge are more pronounced for the Arctic rivers, which are relevant to other hydro-climatic indicators (e.g., precipitation, snowmelt, groundwater, and permafrost) in the river basin. To investigate the recent changes of river discharge in the Mackenzie River Basin (MRB) responding to climate change, this study used the Mann-Kendall trend test and correlation coefficient approach to examine the long-term variability in discharge at three gauges along the watercourses of MRB between 1972 and 2020, focusing on the inter-decadal trends and the occurrence of hydrological extremes. From the 1970s to 2000s, the discharge in the MRB has increased significantly. However, a reverse trend was shown in the 2010s that is more pronounced in winter and spring. Moreover, the analyses in annual discharge have revealed that the extremely low discharge in 1994/1995 is highly associated with the changes in snowfall, while the extremely high discharge events in 2012/13 and 2019/2020 are more influenced by the reduced sea ice extent and peatland burning over the last decades.