

アイスコアから復元した近年（1724-2008）のアラスカの気候変動

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Recent climatic change of Alaska (1724-2008) record from Aurora Peak ice core, central Alaska

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A 180.17-m ice core was drilled at Aurora Peak in the central part of the Alaska Range, Alaska, in 2008 with the goal of reconstructing centennial-scale climate changes in the northern North Pacific. We analyzed stable hydrogen isotopes (δD) and chemical species in the ice core. The ice core age was determined by annual counting of δD seasonal cycles, and age control was provided by reference horizons of tritium peaks in 1963 and 1964, major volcanic eruptions of Mount Spurr in 1992 and Mount Katmai in 1912, and a large forest fire in 2004. The ice core record extends from 1734 to 2008. Our chemical analysis of the ice core indicated the followings: (1) Annual average values of δD shows variation trend similar to PDOI. (2) Annual accumulation rate increased slightly from the beginning of the 1900s and increased remarkably from the 1970s. (3) Annual accumulation rate profile shows an increase in the middle period of the Little Ice Age. We suggest that the variation of precipitation was caused by enhanced storm activity during winter in the Gulf of Alaska.

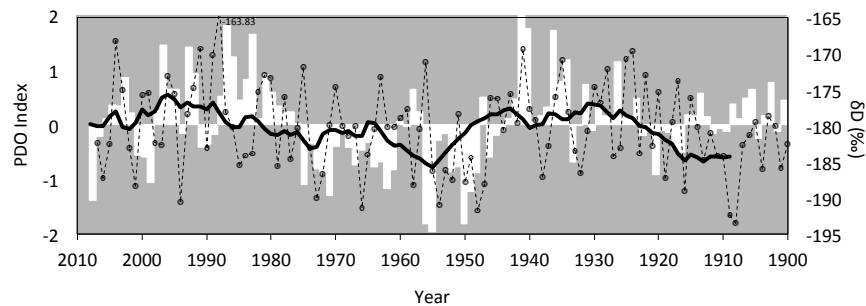


Figure 1. Compare temporal variation of δD (annual mean value-black dash line, Running decadal averages-heavy black line) with PDO-index (A white bar graph).

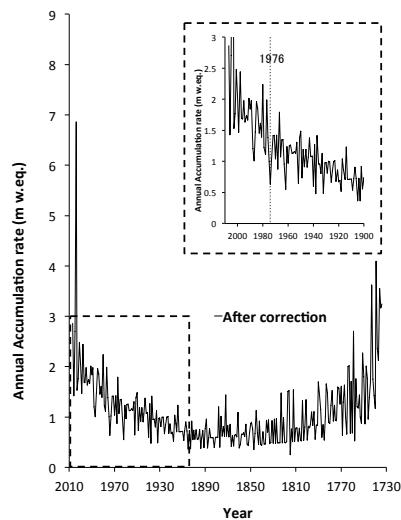


Figure 2. Annual accumulation rate corrected by the Dansgaard-Johnsen model.