224

THE POTENTIAL ROLE OF CHLORINE AS A PROXY RECORD OF PALEOSTORMS AT ANTARCTIC PENINSULA

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Several studies have been recognized the Antarctic Continent as a complex climate system that plays an important role in the global atmospheric circulation. Recently, the West side of Antarctic Peninsula has been the focus of large climatic attention. Since the 50´s, employing aerial photograph, satellite data and instrumental record, several authors has documented a warming trend and considerable regional glacier retrieve. However, this short period of instrumental and observational record do not allow a satisfactory understanding of the complex climate dynamics associated. Therefore, the search of consistent proxies to investigate the paleo-climate changes is required. Here we have used 2 database of chlorine concentrations obtained at King George Island (KGI), one from the 19m upper part of an ice core drilled at Lange Glacier and other derived from atmospheric sampling. The values of chlorine flux were calculated from chlorine concentration data and density. The 1963 ^{3}H peak from the nuclear tests and seasonal variation of δD were used to ice core dating. The local wind and pressure data bases were provided by the Brazilian and Polish Antarctic Stations located at KGI. While, the regional wind structure for the period of 1979 to 1990 was obtained from NCEP/NCAR Reanalysis project. Correlations were performed between chlorine data from the ice core and both regional and local wind data and with sea ice extend and area data to the analyzed region. A statistically significant correlation coefficient ($r = -0.69$, $p < 0.05$) was found between chlorine flux and local wind for the analyzed period. Additionally, the data bases of fine and course modes of chlorine in aerosols from KGI also indicate the influence of wind stress intensity despite the annual variability in Bellingshausen-Amundsen Sea.