

## **THE EFFECT OF ATMOSPHERIC RIVERS ON WINTER ACCUMULATION RATES IN SOUTHWESTERN YUKON, CANADA ICE CORE DATA**

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The main goal of this study is to test the hypothesis that the winter accumulation rate measured in an ice core from southwestern Yukon Territory, Canada varies with the magnitude and frequency of atmospheric rivers impacting this region. Atmospheric rivers are long, narrow regions in the atmosphere, which transport extraordinary volumes of water vapor out of the tropics and they are usually associated with extreme precipitation events in the middle and subpolar latitudes. Winter (October-March) accumulation rate data is from the Eclipse ice core (60.85°N 139.78°W, 3017m asl; 345 long), which was extracted in 2002 and dates back to ~1000 A.D. Lower tropospheric wind and specific humidity data were obtained from the 20<sup>th</sup> Century Reanalysis gridded dataset from 1871-2010 to calculate daily mean values of northward moisture flux into southwestern Yukon for each winter. Statistical relationships between the daily moisture flux values and winter Eclipse accumulation were explored. The expected result of this research is that high accumulation winters are associated with a large number of atmospheric rivers (i.e., high magnitude moisture flux events), while the low accumulation winters are associated with relatively few atmospheric river events. Further, meteorological variables will be plotted on a map of the north Pacific to identify the types of atmospheric patterns that are responsible for the atmospheric rivers that impact the Eclipse ice field.