What can snow accumulation from high elevation ice cores tell us about variability and trends in the Hadley Circulation?

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In this talk, the expression of the Hadley circulation contained in high elevation ice cores from Mount Logan in northwestern North America and Dasuopu in the Himalayas will be discussed. Such high elevation sites are ideally situated to sample the upper-level circulation patterns associated with the Hadley circulation. Their long length coupled with their annual resolution makes them important sources of proxy information on inter-annual and low frequency variability of the Hadley circulation. In the case of the Mount Logan time series, we will show that this expression is the result of a coupling with the Pacific North America teleconnection pattern. With respect to the Dasuopu time series, we will present evidence of a direct expression of the regional Hadley circulation. It will be argued that the recently observed increase in snow accumulation at the Mount Logan site and the reduction in snow accumulation at the Dasuopu site are both signatures of an intensification of the Hadley circulation.