



Palynology as an age-control tool for ice cores. First results of PAMOGIS - Pollen Analyses of the Mt. Ortles Glacier Ice Samples

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Glacier ice cores from the mid latitude are capable of retaining essential information on past climate, environmental and human activities on a seasonal/annual time resolution. However, for a correct interpretation of the ice record a good chronological control is essential. Absolute time markers such as ^3H peaks and Sahara dust horizons, together with radiometric methods such as ^{210}Pb , radiocarbon from carbonaceous aerosol particles and AMS-dating are commonly used to obtain the age depth model of ice cores. In this frame we present the first pollen-based chronology from the Eastern Alps. Results of pollen analyses performed on a 10 m firn core taken on the top of Alto dell'Ortles Glacier (3905 m a.s.l.) will be discussed. Palynological data are compared and complemented with stable isotopes, major ions and trace elements analyses. Based on the single species flowering periods, our results show that the pollen spectrum presents seasonal and inter-annual variability that enables to distinguish snow accumulated in the three different flowering seasons and winter snow. According to these four components a seasonal and annual chronology was established, proving that the 10 m firn core encompasses four years of snow accumulation and presents a clear seasonal palynological signal. These first results reveal the potential of pollen content of glacier snow and ice as a chronological tool that can contribute to the construction of a robust chronological model with a seasonal to annual resolution. This study is the first step and the base for future research on deeper ice cores on the Alto dell'Ortles Glacier (Ortles project: www.ortles.org).