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Oxygen and hydrogen isotopic composition of precipitation at Concordia station, East Antarctica

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Precipitation collection at Dome C, East Antarctica



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The spatial relationship between temperature and snow isotopic composition have been used so far for temperature reconstructions

- Daily precipitation samples continuously collected and analyzed for δ^{18} O and δ D since 2008 (in progress)
- Meteorological parameters registerd by the PNRA Automatic Weather Station (AWS)
- Snow crystal characterization
- The longest series of isotopic composition of daily precipitation in Antarctica



The isotopic composition of precipitation at Dome C



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2008–2017 δ^{18} O/T linear relationship

Slope=0.52 Intercept=-28.65 R²=0.61



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What determines snow isotopic composition

Up to now, the spatial relationship between temperature and snow isotopic composition has been used to reconstruct past temperature from ice core isotopic records

Implementation of meteorological data Characterization of signifcant precipitation events using LiDAR, Ice **Camera and Back Trajectories**

Comparison of measured precipitation isotopic composition with simulations from GCMs implemented with isotope diagnostic ECHAM5-wiso and ECHAM6-wiso

Collaboration with French researchers at Concordia measuring oxygen and hydrogen isotopic composition in surface snow and water vapor

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Improving the comprehension of the physical processes determining the isotopic composition of precipitation

Gain a wider comprehension of the post-depositional processes modifying the pristine snow isotopic signal

Obtain more accurate past temperature reconstructions using the isotopic records from ice cores drilled in the low accumulation area of Antarctica, e.g., the upcoming Beyond EPICA drilling at Little Dome C





Thanks



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