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Spatial and temporal variability of the atmospheric water vapour isotopic composition around Antarctica. Implications for ice cores data interpretation

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It is well-known that the isotopic composition of the ice cores is a proxy for the temperature change at the drilling site. However, several studies showed that there are many other factors influencing the ice cores data. One of these factors is the isotopic composition of water and water vapour at the site of the air mass formation.
In order to separate these factors we carried out continuous measurements of the isotopic composition of water vapor over the ocean surface during the Antarctic Circumnavigation Expedition 2016/17 (http://spi-ace-expedition.ch/).
For the measurements on board of the ship, two water vapor isotope analyzers (Picarro L2120-i and Picarro L2130-i) were used equipped with two types of calibration devices. This helped to obtain robust and accurate results. As a by-product result we present comparative characteristics of different types of equipment.
This data is also combined with the previously published results (see review in Galewsky et al., 2016). Here we present the results of these data analysis combined with the meteorological observations and air mass trajectories calculations.
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