



Origin of air masses in the stratosphere deduced from Odin/SMR water isotopes measurements.

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The Swedish led research satellite Odin, launched in February 2001, carries onboard the Sub-Millimetre Radiometer which measures the thermal emission of water (H₂O-16) and its isotopes (HDO and H₂O-18) in the stratosphere. These measurements are made around 489GHz on an average basis of 4 days per month. Using a retrieval code based on the "Optimal Estimation Method", vertical profiles are obtained, allowing the study of water isotopic depletion in the altitude range 20-65km. Temporal and latitudinal variations of the so-called "Delta-D" and "Delta-O-18" are shown, as well as comparisons with the expected values from a 2D-model. Intrusion of air from tropical latitudes toward high latitudes in the lower stratosphere will be presented, as well as possible detection of dehydration due to the formation of polar stratospheric clouds.