



Modeling of water isotopes in polar regions and application to ice core studies

J. Jouzel

LSCE/IPSL, CEA-CNRS-UVSQ, CEASaclay, Gif-sur-Yvette, France (jean.jouzel@cea.fr)

Willi Dansgaard spear-headed the use of the stable isotopes of water in climatology and palaeoclimatology especially as applied to deep ice cores for which measurements of the oxygen and hydrogen isotope ratios remain the key tools for reconstructing continuous palaeotemperature records. In the line of his pioneering work on "Stable isotopes in precipitation" published in *Tellus* in 1964, I will review how isotopic models, either Rayleigh type or based on the implementation of water isotopes in General Circulation Models, have developed and been used for applications in polar ice core studies. This will include a discussion of the conventional approach for interpreting water isotopes in ice cores and of additional information provided by measurements of the deuterium excess and more recently of the 17O -excess.