



## **CO<sub>2</sub> rise amplified influence in the Arctic**

Erko Jakobson

Tartu Observatory, Tõravere, Estonia (erko.jakobson@ut.ee)

Kiehl and Trenberth estimated in their 1997 paper that the most important greenhouse gases are water vapour (60%) and CO<sub>2</sub> (26%). Kiehl and Trenberth used vertical profiles of temperature, water vapour, and ozone that were derived from the U.S. Standard Atmosphere from 1976. Actual conditions in the Arctic differ significantly from this standard case. Integrated water vapour in the U.S. Standard Atmosphere is 14 mm, but the values in the Arctic are averagely below 4 mm in winter and even in summer averagely about 12 mm. As in the Arctic is less water vapour but CO<sub>2</sub> is distributed quite evenly around the globe, then CO<sub>2</sub> rise affects Arctic region climate warming more than in lower latitudes, especially in winter. In the presentation is planned to analyse together water vapour and CO<sub>2</sub> absorption and scattering at different wavelengths. Main interest is to determine water vapour and CO<sub>2</sub> proportional importance's as greenhouse gases at different Arctical humidity levels.