A number of aerosol particles relative humidity; internal external mixture. 3) R. Sandu, G. Iorga, E. Bacalum, V. Paun, (2007) “Cloud reflectivity and forcing on DRF is investigated for all sampling sites. As expected, the single-scattering albedo was found to have lower values that for Vienna (2.4). At the mountain stations the change in forcing with increasing humidity is much less pronounced that for Linz (3.8) and about 5 times greater than for Graz. At all stations the estimated forcing gets more negative with increasing humidity. When humidity changes from 50% to 90%, the factor of forcing change for Graz is about 3 times larger than that for Linz (3.8) and about 5 times greater than that for Vienna (2.4). The presence of absorbing species (BC) was found to reduce the cooling effect of the aerosols. The water-soluble substances dominate radiative forcing at the urban sites, while on Rax and Sonnblick BC plays the most important role. This result can be explained by the effect of the surface albedo, which is much lower in the urban regions (0.16) than at the ice and snow-covered mountain sites. Shortwave (below 4 μm) and longwave surface albedo values for ice were 0.35 and 0.5, while for snow surface albedo, values of 0.8 (shortwave) and 0.5 (longwave) were used. In the case of dry aerosol, especially for urban sites, the unidentified material may contribute a large part to the forcing. Depending on the sampling site the estimated forcing gets more negative with increasing humidity. When humidity changes from 50% to 90%, the factor of forcing change for Graz is about 3 times larger than that for Linz (3.8) and about 5 times greater than that for Vienna (2.4). At the mountain stations the change in forcing with increasing humidity is much less pronounced because of the high surface albedo. The influence of the aerosol mixing state on the single-scattering albedo as well as on DRF is investigated for all sampling sites. As expected, the single-scattering albedo was found to have lower values for internal mixture than for external mixture. 4) R. Sandu, G. Iorga, E. Bacalum, V. Paun, (2007) “Cloud reflectivity and autoconversion rate: sensitivity to organic compounds for different aerosol types”. Revista de Chimie-Bucharest, 58 (2), 171-178. http://www.revistadechimie.ro/article_ro.asp?lim=ro&rev=mp&ID=1298A Abstract A number of aerosol particles
released by human activities has the potential to cool the climate system by modifying the cloud radiative properties via the cloud formation process. Although the aerosols are mostly composed of inorganic species, measurements show organic compounds (OC) could also contribute to cloud condensation nuclei concentration and this depends on aerosol type. Our approach involves estimations of the cloud properties and autoconversion rate taking into account measured aerosol number size distributions and current observations of chemical composition for three types of aerosols: marine, rural, urban. We provide a measure of the ability of organics to change these parameters by calculating relative differences in cloud albedo and autoconversion rate when OC is included with respect to the case when only inorganic aerosol species are considered. The presence of organic compounds may enhance the cloud reflectivity by 1-5% and autoconversion rate changes with 2 orders of magnitude when we move from marine to polluted urban case, with respect to the base-case cloud droplet number. Keywords: aerosol physical and chemical properties, organic aerosol, cloud albedo, autoconversion rate.}

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V. Paun, G. Iorga (2006) "Humidity calibration system used for calibration of the hygrometers which measure the dew point between (-50.0°C to 20.0) 0°Celsius", Revista de Chimie-Bucharest, 10, 1007-1009; http://www.revistadechimie.ro/Article_ro.asp?lim=ro&rev=mp&ID=1145

Abstract
The paper describes the principle of generation, procedure of handling, as well as stability and uniformity of the temperature and humidity, in the test chamber. The theory of the two-pressure humidity atmosphere producer is reviewed. A humidity generator was designed and constructed in order to establish humidity standard and to calibrate humidity sensors. Normal operating limits are within the range (-50.0°...+20.0) 0C with an uncertainty of 0.44 0C. The system was assured by dew point hygrometer.

For characterizing the quality of a measured result, the uncertainty must be expressed and evaluated. This paper also describes the modelling of the measurements of the relative humidity Y. The relative humidity is not directly measured, being estimated from N other quantities (X1, X2... XN) through a functional relationship. The temperature of the gas, pressure and flow represent the input quantities whose values and uncertainties are directly determined in the current measurement.

Keywords: humidity of gases, reference standards, measurement uncertainty, evaluation method

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