

# Hemispheric distributions of HCl above and below the Venus' clouds by ground-based 1.7 micro-meter spectroscopy

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The hemispheric distributions of HCl mixing ratio measured above the Venus' clouds show no significant structure except for a weak equatorial depression with a disc-averaged value of 0.76 +/- 0.10 ppm which is in the similar range as the previous report of 0.6 +/- 0.2 ppm. The representative height estimated is 61-67 km. The present results seem to contradict with a recent result of 0.1-0.2 ppm at 64-94 km by Venus Express/SPICAV/SOIR although the spatial and temporal conditions are different. The hemispheric distributions of the 35Cl/37Cl isotope ratio are found to show weak equatorial peaks with a disc-averaged value of 2.3 +/- 0.5 which is smaller than that of 3.1 in Earth. The HCl mixing ratios below the clouds are also found to show no significant structure with a disc-averaged mixing ratio of 0.40 +/- 0.05 ppm which is similar to the previous reports of 0.4 - 0.5 ppm. The larger HCl mixing ratio above the clouds than that below suggests production of HCl in the cloud region. Also, a uniform hemispherical distribution of H2O found below the clouds with a disc-averaged mixing ratio of 25 +/- 5 ppm is in the same range as the previous measurements.

