

Title: Interpretation of Pioneer 10 and Voyager 2 Ly α data: first results
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Abstract

There is a lot of diagnostic data available for the study of the very local interstellar medium (VLISM) due to the existence of a number of experiments on-board deep space spacecraft, Pioneers 10 and 11 (P10 and P11) and Voyagers 1 and 2 (V1 and V2). Two such data sets, the P10 Ly α data obtained between 20 and 45 AU and the V2 data obtained between 39 and 55 AU, have been used to estimate the local interstellar neutral hydrogen and proton densities. State of the art neutral-plasma and radiative transfer models have been used to interpret the extreme ultraviolet (EUV) data. It has been found that the VLISM neutral hydrogen density of 0.15 cm^{-3} and an ionization ratio of about 0.3 best fits the spacecraft data. The present calculation suggests that for the best fit density model, the P10 photometer derived intensities (Rayleighs) need to be increased by a factor of about 2 and the V2 spectrometer intensities (Rayleigh) need to be scaled down by a factor of 0.5.