Q12a The Long Tails of the Pegasus-Pisces Arch Intermediate Velocity Cloud

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High and intermediate velocity clouds (HVCs and IVCs) are characterized by their relative velocity of more than 100 km s^{-1} and 50 km s^{-1} with respect to the Galactic rotation, respectively. As indicated by the fact that they tend to have negative velocities, HVCs and IVCs are suggested to be falling down to the Galactic disk. The Pegasus-Pisces Arch is an IVC with a cometary shape and unusually long tails. It was identified in HI 21 cm data. Typical neutral hydrogen column densities of $\sim 10^{20}$ cm^{-2} were observed by Arecibo, yet only an upper limit on the dust continuum was observed by Planck. Its small dust-to-gas ratio implies that this IVC has a halo or extragalactic origin. We performed numerical simulations using various initial conditions and succeeded in reproducing the IVC's long tails and velocity structure. The simulations start with low-density ($n < 1$ cm^{-3}) clouds of $\sim 10^4$ $M_\odot$ located ~ 1000 pc from the midplane. The clouds begin with initial velocities of 70 km s^{-1} in both the transverse and vertical directions, and fall supersonically through the Galaxy's thick disk. The clouds quickly begin to grow tails. They are protected by the cloud's bowshock and evolve to become somewhat similar to those of the actual IVC. Later, the clouds collide with dense gas in the Galactic midplane. In this talk, we consider the possibility that this IVC is a decelerated HVC that originated in the halo or circumgalactic space. The simulational results are presented in R.L. Shelton, M. Elliott Williams, M.C. Parker, J.E. Galyardt, Y. Fukui, and K. Tachihara in the ApJ (in press).