

Two Filamentary structures in the Orion-Monoceros Molecular Cloud Complex

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We present 12CO and 13CO maps of the Northern and Southern filaments located in the Orion-Monoceros molecular cloud complex (OMC). We have observed J=1-0 lines of 12CO and 13CO with SRAO 6-m and FCRAO 14-m telescopes. We have mapped three regions of the Northern filament with a spatial resolution of 2 arcmin and one region of the Southern filament with a spatial resolution of 20 arcsec. The two filaments are very narrow ($\sim 0.5^\circ$) and significantly extended ($\sim 10^\circ$) on the sky. The shape and motion of these extraordinary filaments suggest the influence of a magnetic field that is highly ordered on a large scale, and the filaments appear to connect molecular clouds lying far below the galactic plane to the plane itself. We seek the evidence for flow along the filament, as well as for acceleration and rotation. The primary question we seek to answer is whether the filament is a channel along which molecular gas moves toward the Galactic plane from the OMC region.