

## A DEEP SURVEY FOR HIGH-VELOCITY CLOUDS

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The deep Dwingeloo survey for high-velocity clouds is now nearing completion. This survey consists of more than 28 000 positions in a  $1^\circ$  grid for  $\delta > -18^\circ$ . The velocity coverage is  $-1000$  to  $+1000$  km/s and the detection limit ( $4\sigma$ ) in  $T_b$  about  $0.05$  K, corresponding to  $\int T_a dv = 1.0$  K km/s or  $10$  Jy km/s or  $2.2 r^2 M_\odot$  ( $r$  the distance in kpc) if we assume an average profile width of  $25$  km/s.

The preliminary results now available for  $0^\circ < l < 200^\circ$ ,  $-70^\circ < b < +70^\circ$  are presented in the figure. Shown are the outer contours of all the larger features with velocities in excess of  $100$  km/s, as well as most of the small features which are observed at only one or two grid positions.

There is a clear difference between the northern and southern galactic hemisphere. In the northern hemisphere we can see an extended low-latitude feature at all longitudes, having velocities down to about  $-125$  km/s around  $l=115^\circ$ , which presumably originates in the Outer Arm. This feature has a rather sharp upper boundary at  $b=+25^\circ$ , except near  $l=70^\circ$  where a spur rises up and continues to  $l, b=140^\circ, +55^\circ$ . Embedded in this spur we find a complicated composition of features with velocities down to  $-200$  km/s. At  $l, b=142^\circ, +46^\circ$  the spur contacts the upper region of the well-known string A which, at higher  $b$ , appears to be much more extended than was previously recognized. A few new complexes at  $l, b = 180^\circ, +55^\circ$  are also shown.

At negative latitudes the picture is dominated by the Magellanic Stream ( $l=90^\circ$ ,  $b < -35^\circ$ ). Furthermore, we find a complicated string running from  $l, b=155^\circ, -45^\circ$  to  $185^\circ, -10^\circ$  (velocities  $-100$  to  $-330$  km/s), a complex around  $l, b=130^\circ, 0^\circ$ , and a large number of small very-high-velocity clouds with velocities down to  $-465$  km/s. Of these HVC 128-32-385 is the most extended one, but in general they are no larger than one or two grid points. The objects around  $l, b=38^\circ, +6^\circ$  also belong to this group.

The only positive velocities in the field shown are those at  $l, b = 20^\circ, +5^\circ$ , at  $40^\circ, -20^\circ$ , and around  $l=195^\circ$ . At greater longitudes (not included in the figure) many more positive-velocity features are found, mainly at declinations not much above  $-18^\circ$ , but their total mass is at least an order of magnitude less than of the negative-velocity gas.

More detailed maps and a catalogue of all components found are in preparation.

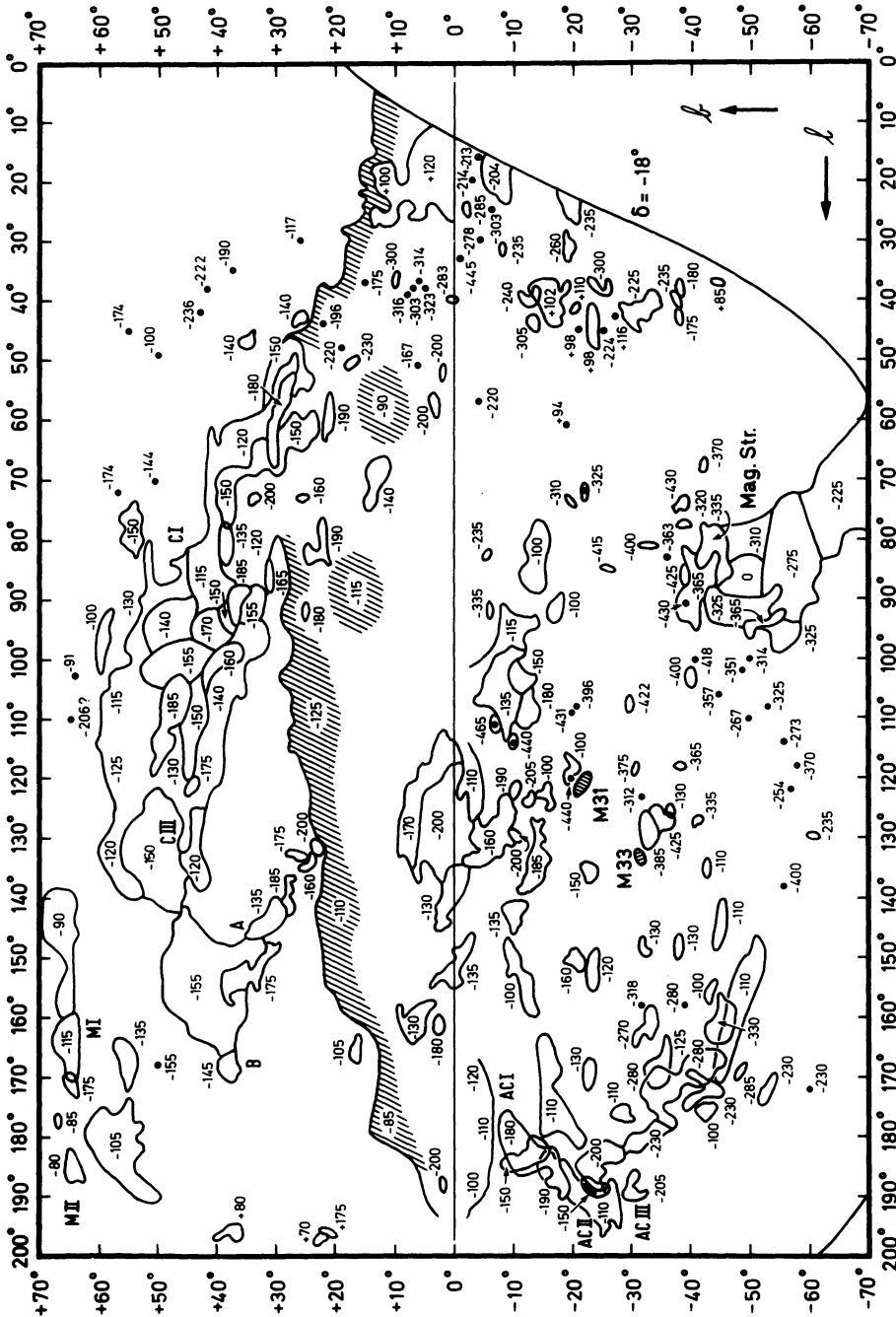


Figure 1. Preliminary results of a deep HVC survey (June 1983). Shown are outer contours of  $T_b = 0.05$  K. Numbers give radial velocities (km s<sup>-1</sup>) with respect to l.s.r.