A SEARCH FOR LOW-VELOCITY NEUTRAL HYDROGEN IN THE MAGELLANIC STREAM

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The large velocity range of the HI clouds belonging to the Magellanic Stream, as found by Haynes (1979), makes it reasonable to search for some low LSR velocity neutral hydrogen possibly belonging to the Stream. This gas, if any, would be severely blended by the local galactic gas.

In an attempt to resolve this blending the Pulkovo low velocity HI survey (Bystrova and Rakhimov, 1977) was used. Made with the large Pulkovo radiotelescope (beam 7' x 5°, bandwidth 20 kc/s), this survey contains the sky between declinations -29° and +40°. Therefore more than 1/3 of the Stream's great circle is accessible. The LSR velocity interval is from -21.8 to +25.6 km/sec.

To improve the contrast especially in the middle galactic latitudes the "structureless" component of the HI emission was extracted from the signals (Bystrova, 1980) and the contour maps in the galactic coordinate system were generated and published separately for the two components of HI radio emission. This division in two components was retained, and the contour maps were regenerated in the Magellanic coordinate system.

The position of the pole of this system, as well of its origin, were taken from Wannier and Wrixon (1972). One of the other poles, for example that used by Cohen (1982), puts the Stream rather outside its main plane.

The maps drawn for 10 LSR velocities contain the equal antenna temperature contours and give the regions projected on the Stream without distortions. The full extent of the maps is $\pm$ 70° in "latitude" and 420° in "longitude". For the "structural" component there are two sheets by 210°. The antenna temperature of the lowest contour is 0.75 K or approximately 1.7 K in T_B.

The inspection of the "structural" maps shows how difficult the task is. Three types of details are near the main plain. For positive velocities there are only small spots of several degrees in size, with-

S. van den Bergh and K. S. de Boer (eds.), Structure and Evolution of the Magellanic Clouds, 139–140.

out any extended details. On the maps for negative velocities there are parts of larger structures which extend far beyond the Stream's region and to distinguish there between the far and near gas is very difficult. But also at negative velocities there are some isolated details extending along the plane. They may be suspected to belong to the Stream. A list of such details will be published elsewhere.

As far as the maps for the "structureless" component is concerned it must be mentioned here that the corrections for the seasonal spill-over effects were done only approximately when the data were prepared for the plotter. But just this component of the HI emission is mainly affected by the seasonal false signals. Then the details running almost perpendicular to the plane (along the declination circles) at the velocities from +9.7 to +25.6 km/s may be parts of these uncorrected signals. But for the velocities from +4.5 to -16 km/s there is a distinct area of emission with the coordinates +15 - +95 degrees in longitude and almost $\pm$ 40 or 50 degrees in latitude. Less certainly such broad emission is present for the longitudes 185 - 265°.

The emission for the longitude range 15 - 95° around the Stream's main plane needs special study with the exact correction for the seasonal spill-over effects.

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https://doi.org/10.1017/S0074180900040110 Published online by Cambridge University Press