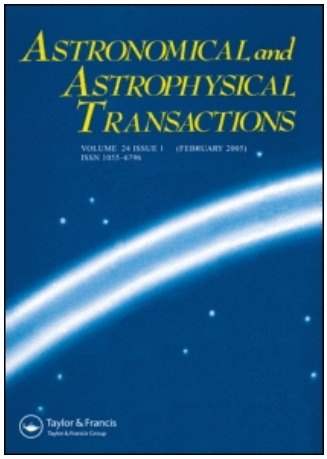

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A POSSIBLE DEFORMATION OF THE MAGELLANIC STREAM

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The existance of a low LSR-velocity neutral hydrogen in the Magellanic Stream is possibly confirmed with RATAN-600 observations. The displacement of these broad signals with the growing negative velocity occurs in the same manner as the *N*-warp in our Galaxy, but the scale of the event is approximately 3 times large.

KEY WORDS Magellanic Stream, HI regions, 21 cm line, Warp-like HI behaviour

1 INTRODUCTION

Just before the IAU Symposium No. 108 "The Structure and Evolution of the Magellanic System" in Tübingen, Germany, in September 1983, the polar ring galaxies were detected.

Neutral hydrogen observations of them (Schechter *et al.*, 1984) revealed the HI density in the rings to be close to that in the solar neighbourhood of our Galaxy. If the Magellanic System has some resemblance to the polar rings in other galaxies then it seemed to be worth while to look for some extended areas of neutral hydrogen emission around the Magellanic System's great circle.

In our paper presented at Symposium No. 108 (Bystrova, 1984) such large emission fields were possibly found at rather negative LSR velocities. For this conclusion the data were used from the Pulkovo Sky Survey in the interstellar HI radio line (Bystrova & Rachimov, 1977) and form the atlas "Contour maps to the Pulkovo Sky Survey..." (Bystrova, 1980), where the two components of the HI emission were given. These emission fields were found on the maps for the "structureless" component of the HI gas emission. Previously all the maps were transformed from the galactic coordinate system into special Magellanic coordinates to avoid distorsions in the Magellanic System images.

2 RATAN-600 OBSERVATIONS

We used observations at the RATAN-600 telescope in order to check the existence of the above extended neutral hydrogen regions. The telescope has a faw beam of 2.5 arcmin x 2.5 deg its 40 channels cover the velocity range of about 250 km/s, the bandwidth and spacing are 30 kHz. This series of observations was intended to provide 6 or 7 hours long drift scans north from declination −40 deg, in 5 deg intervals for several special declinations.

Some precautions were planned during observations in order to reveal the reality of low-intensity in the records, but not all of them could be realized because of the telescope reconstruction.

3 PRELIMINARY RESULTS

Apart from details the "structured" component of neutral hydrogen emission, broad signals with halfwidths of more than two hours and amplitude of several K are also seen at least in 5–6 channels in the RATAN-600 cuts across the Magellanic Stream zone. This yields the velocity dispersion for the broad emission areas as 30–40 km/s.

As seen in the records, these broad signals displace themselves for more negative velocities in the RA direction as does the galactic emission forming the N-warp of the neutral hydrogen gas layer. But the displacement in the case of the Magellanic Stream is several times more than is seen in the Galaxy.

For example at 1 about 60 deg the galactic displacement is close to 20 min and our Magellanic Stream drift scan at declinaton −20 deg gives the analogous displacement about 1 hour. Analysis of the RATAN-600 results is under way now.

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