SURVEY OF GALACTIC HI EMISSION AT $|b| \leq 20^{o}$

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We have used the NRAO 140-ft telescope to survey galactic HI near the galactic equator. The observations cover the part of the sky north of $\delta = -40^{o}$ in the latitude range $b = -20^{o}$ to at least $+20^{o}$; in some regions the survey extends to $b = +33^{o}$. The longitude coverage in the equator ranges from $\ell = 340^{o}$ to 270^{o}. The data represent an improvement over existing large-scale HI surveys in terms of velocity coverage (± 250 km s^{-1}), velocity resolution (1 km s^{-1}), sensitivity ($3\sigma = 0.2$ K), and extent of sky coverage, but not in density ($\Delta\ell \times \Delta b = 1^{o} \times 1^{o}$) of coverage.

The data are amenable to a wide variety of studies pertaining to galactic structure and the interstellar medium. In Leiden we are directing our attention to (i) the parameters specifying the galactic warp and flare, (ii) the integrated HI properties, especially those which reveal optical-depth characteristics, (iii) the identification of the phenomenon of HI supershells as proposed by Heiles, and (iv) the extent of asymmetries in the galactic velocity field.

The survey is being published as a series of ℓ,v maps at integral values of b from $b = -20^{o}$ to $+20^{o}$; b,v maps at integral values of ℓ from $\ell = 0^{o}$ to 359^{o}; and ℓ,b maps representing intensities integrated over 2.5 km s^{-1} velocity intervals centered every 2.5 km s^{-1} from v = -150 km s^{-1} to $+150$ km s^{-1}. An example of an ℓ,v map and one of an ℓ,b map are given on the following page. The profiles will be made available on request in FITS or NRAO T-POWER format.

Figure 1. Arrangement on the plane of the sky of the HI emission integrated over the range $+30.0 < v < +32.5$ km s^{-1}. The contours represent levels 0.8, 1.6, 3.0, 5, 8, 14, 20, 30, 40, 50, 60, 80, 100, 120, 150, ... K km s^{-1}; the lowest grey levels are at 0.2, 0.3, and 0.4 K km s^{-1}.

Figure 2. HI intensities in ℓ,v coordinates at $b = +11^{o}$. The contours represent antenna temperatures at levels 0.2, 0.4, 0.8, 1.5, 2.5, 4.0, 7, 10, 15, 20, 25, 35, ... K.

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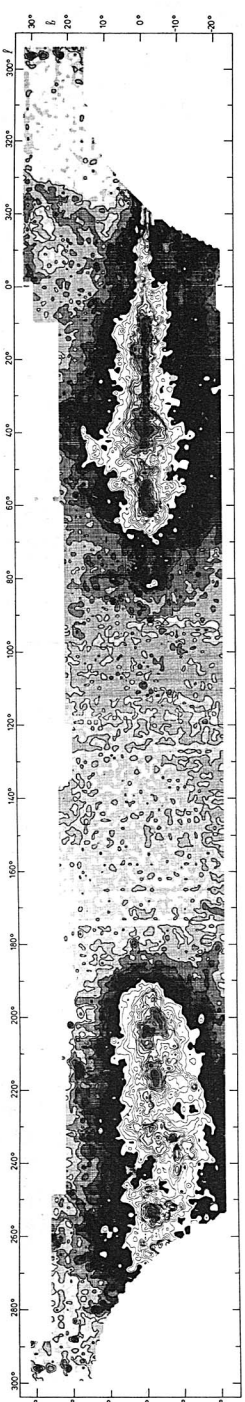

Figure 1

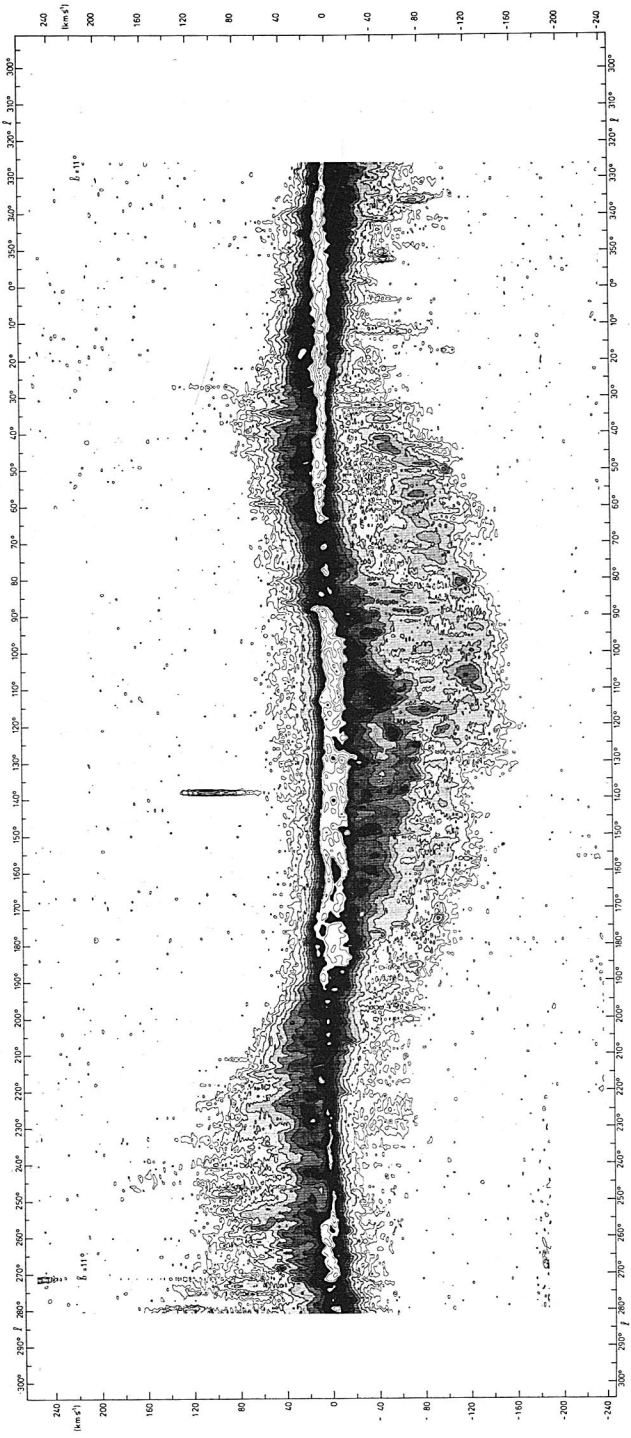

Figure 2

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