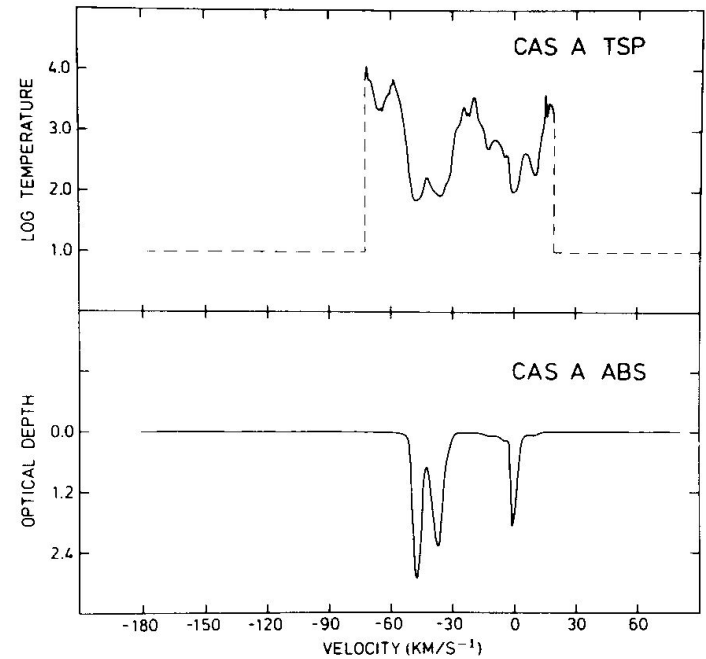
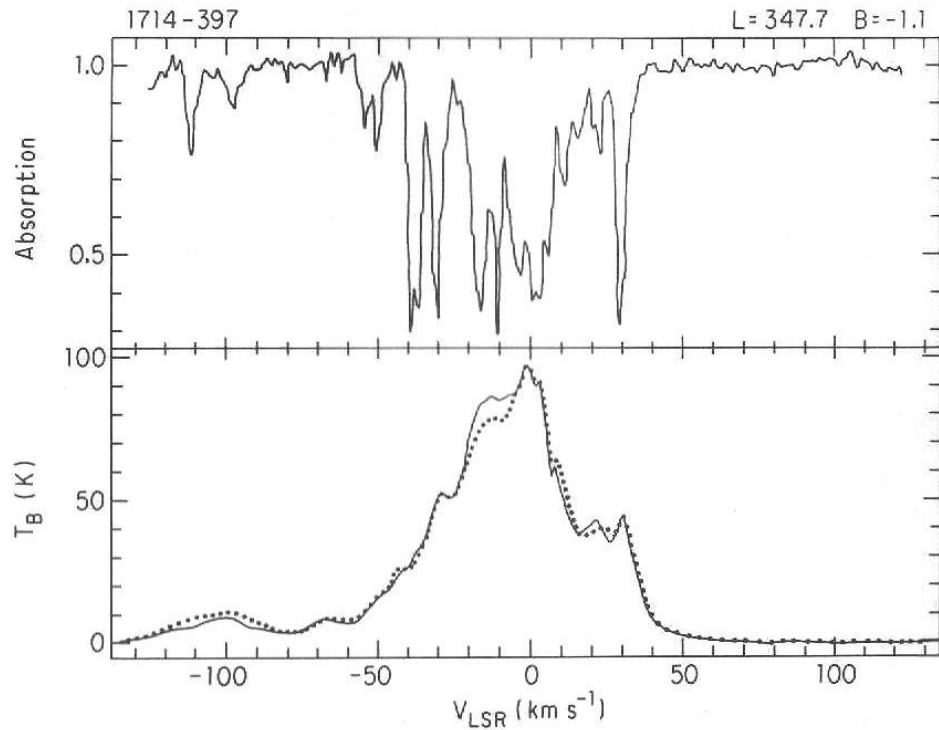


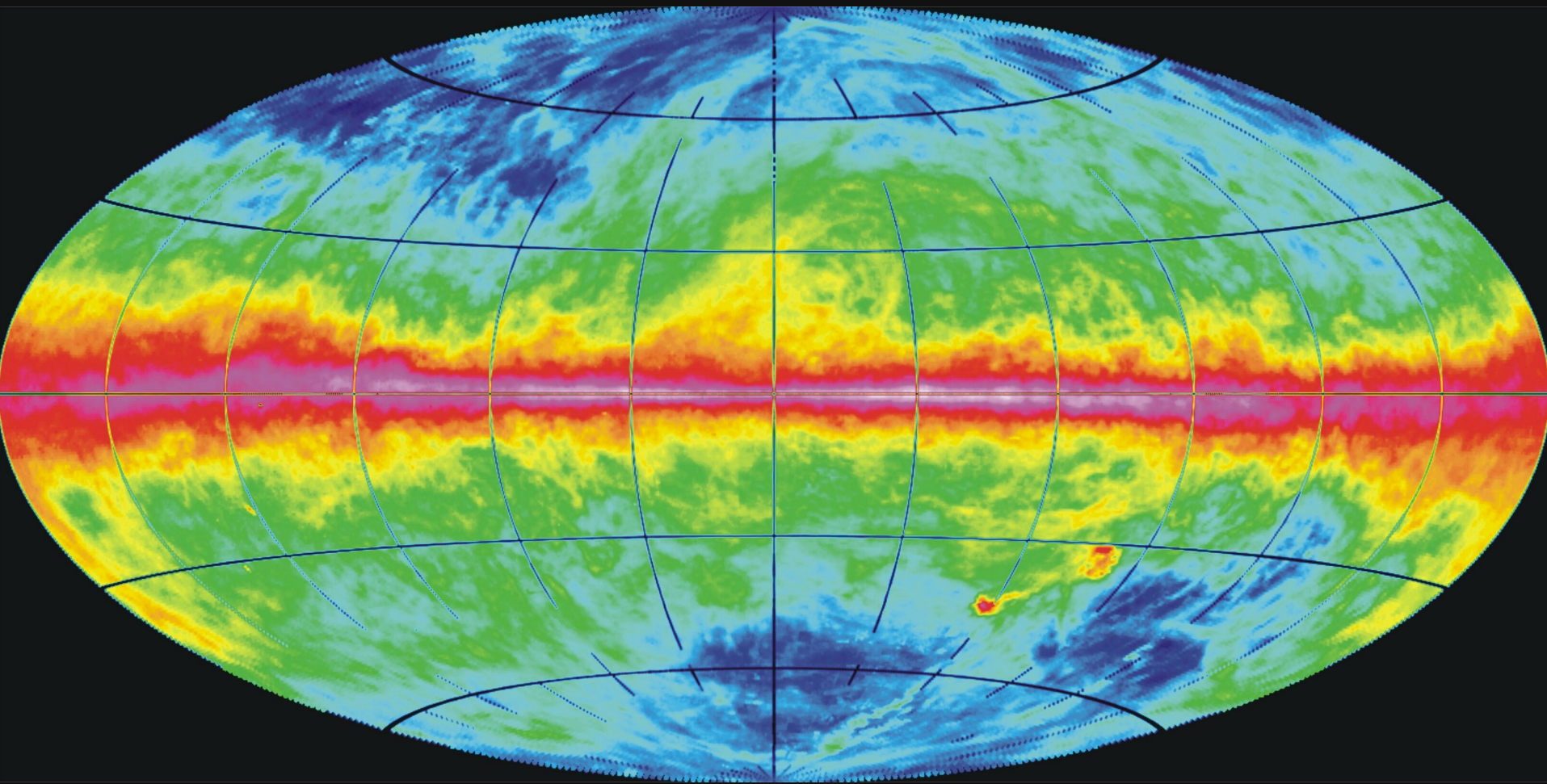
Neutral hydrogen

Absorption and emission spectra of the HI line



Neutral hydrogen

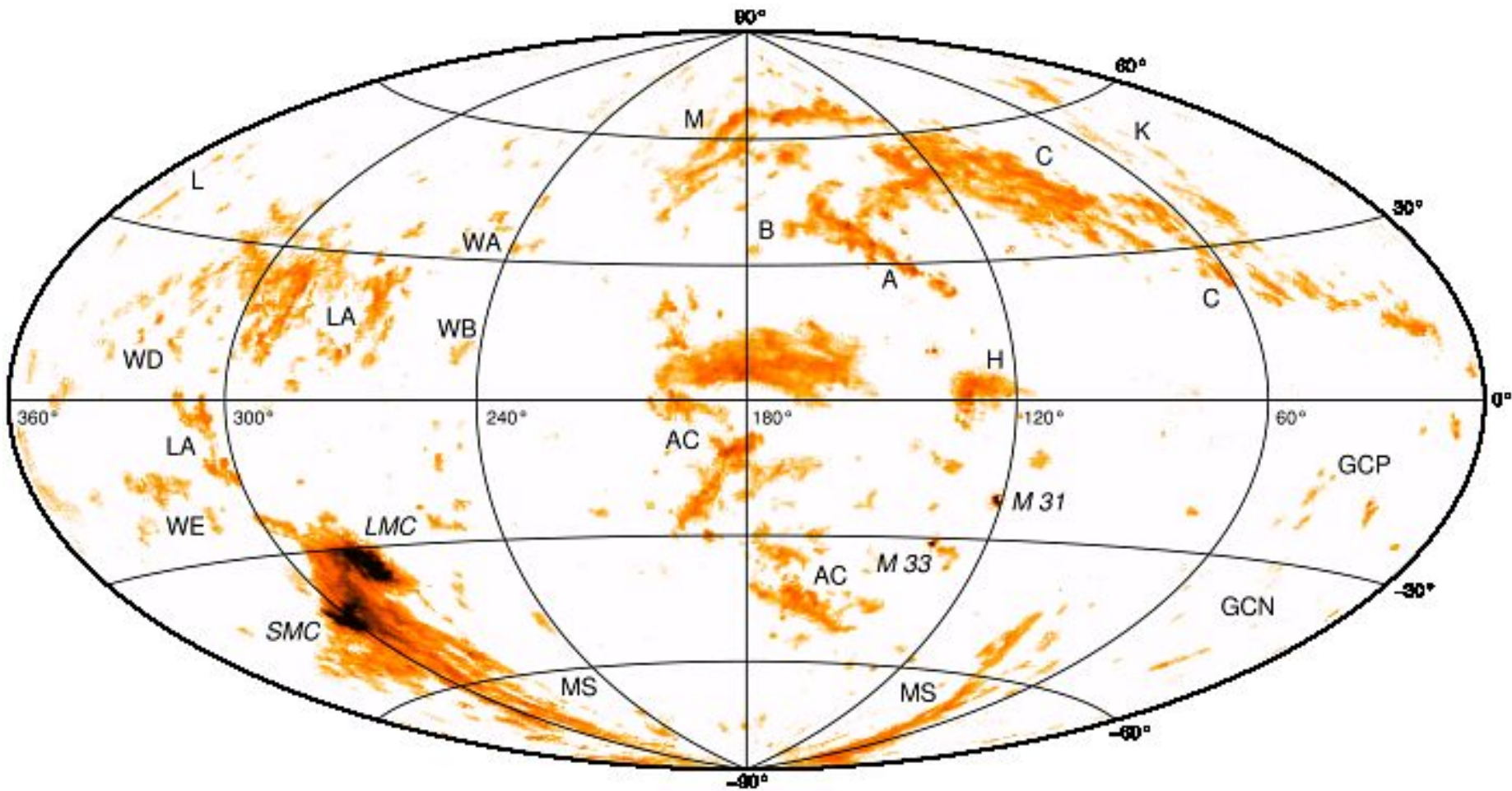
All-Sky Survey in the HI line (Leiden/Argentina/Bonn)



see http://www.astro.uni-bonn.de/~webraai/german/tools_labsurvey.php

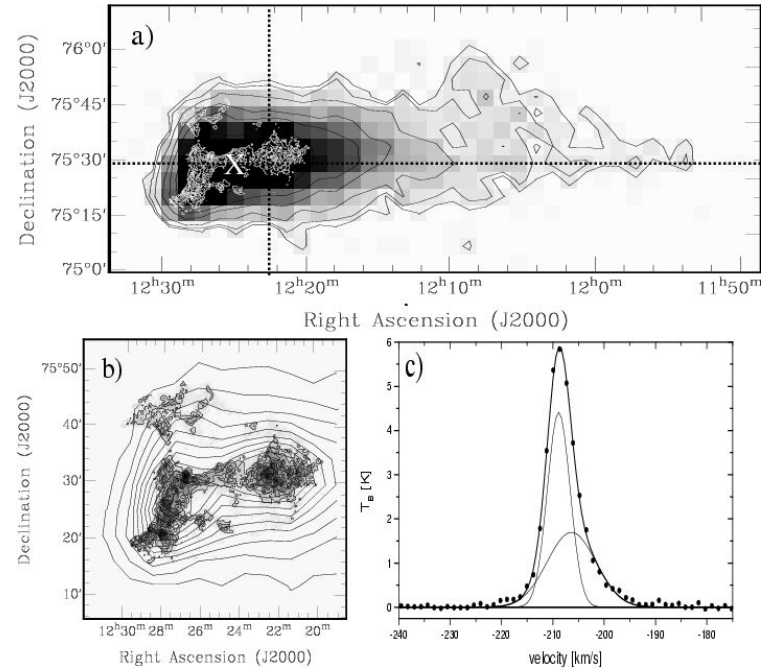
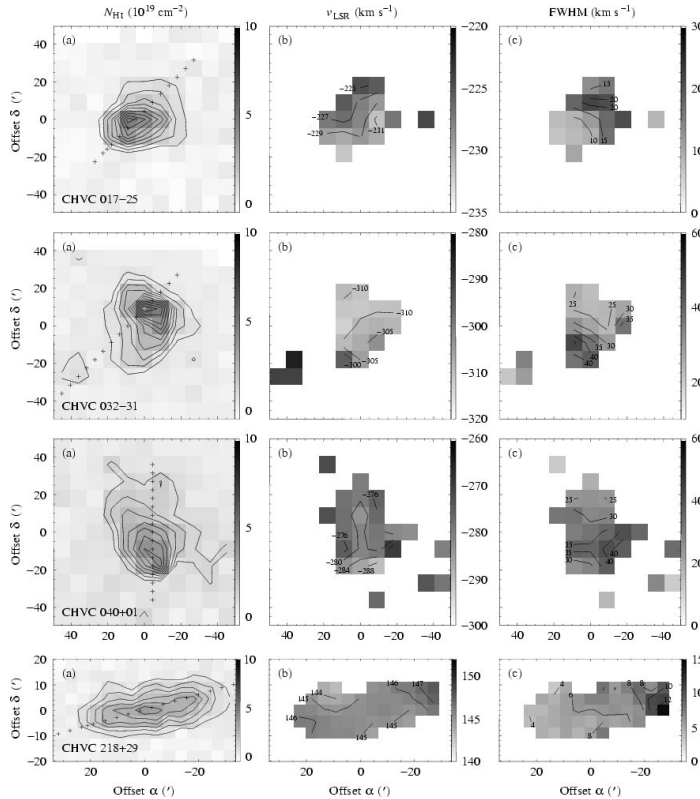
Neutral hydrogen

High-velocity sky: structures / clouds with $|v - v_{\text{rot}}| > 50 \text{ km s}^{-1}$



Neutral hydrogen

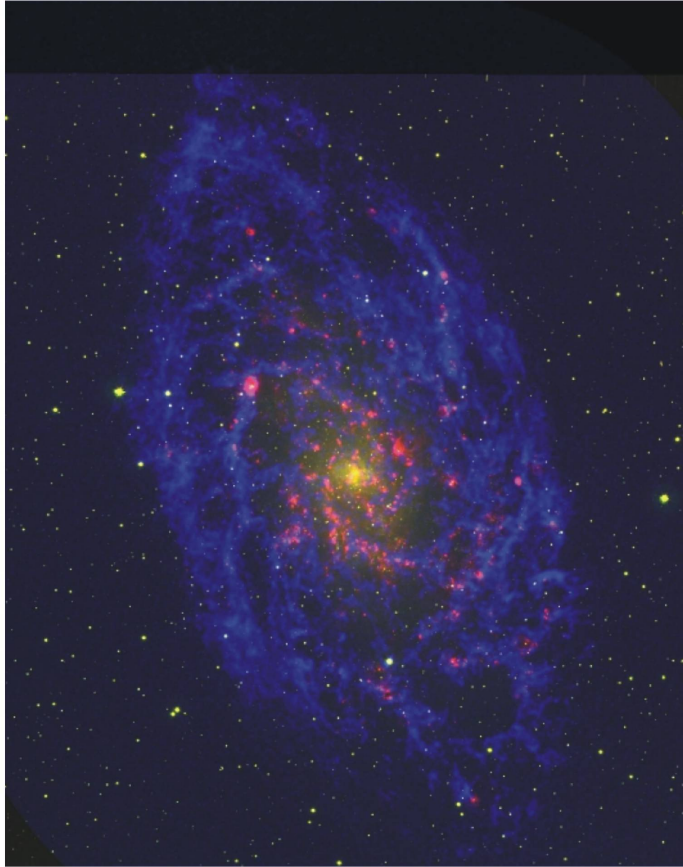
High-velocity clouds



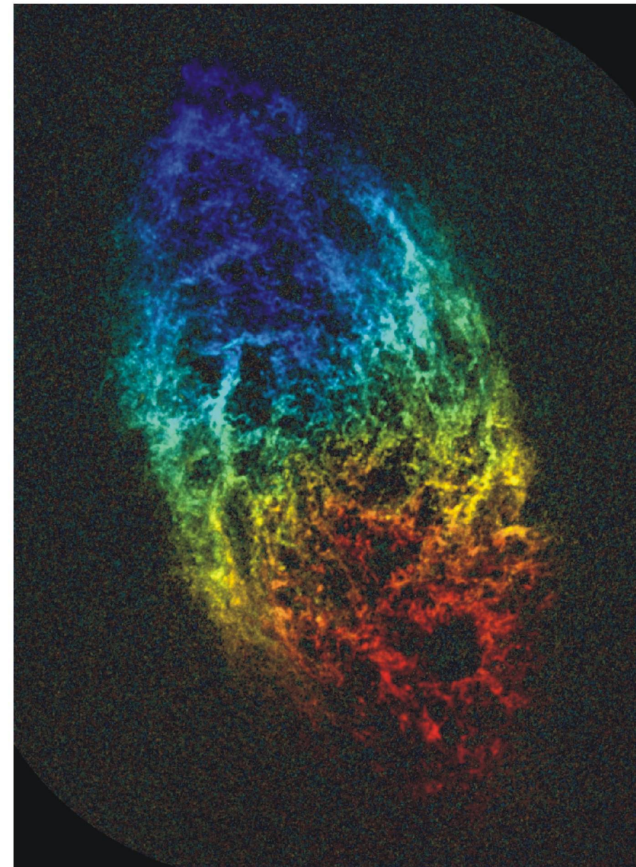
HVC with head-tail structure
observation with 100-m and
WSRT

Neutral hydrogen

HI in M 33



column density (blue) on $H\alpha$ (pink) and NIR (yellow)



HI velocity field; blue: approaching gas; red: receding gas

Neutral hydrogen

HI in NGC 6946: note the huge extent of the gaseous disk

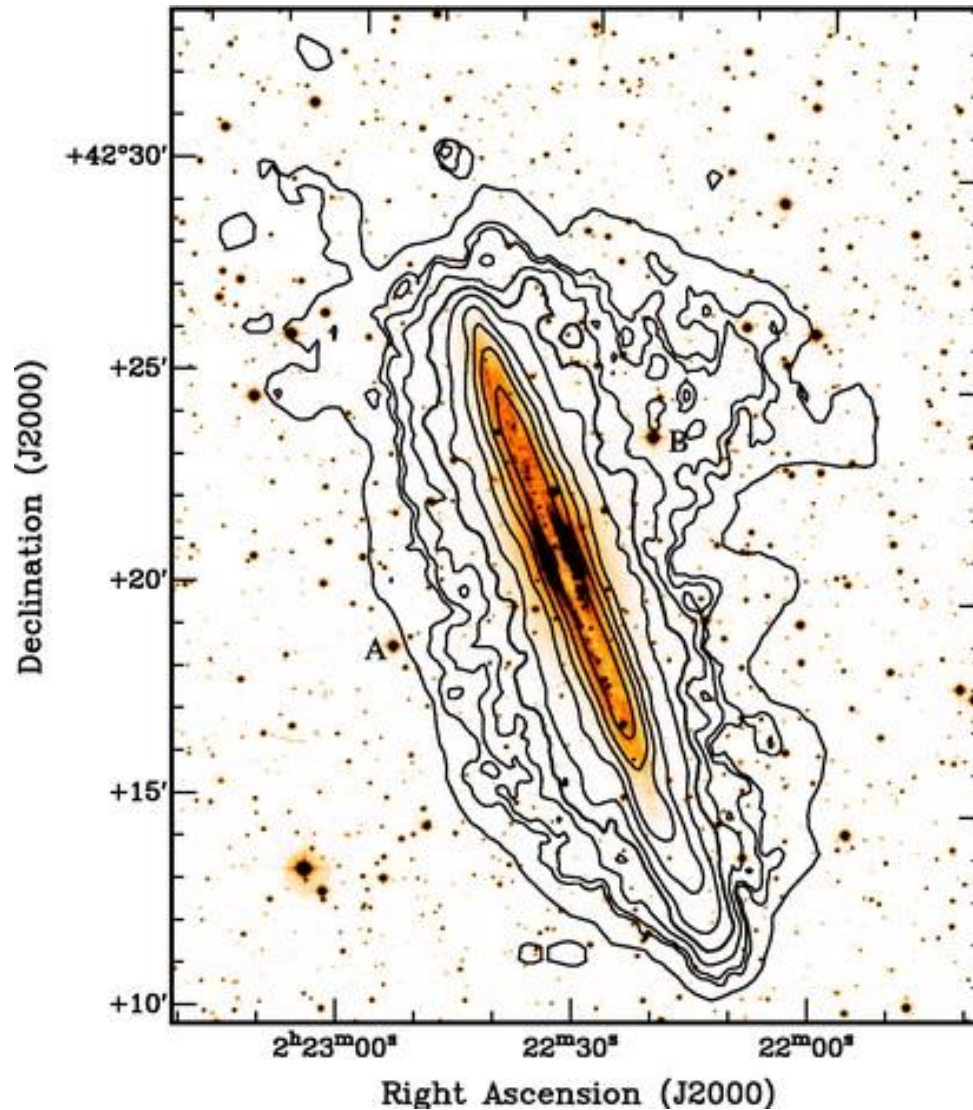


optical

neutral hydrogen

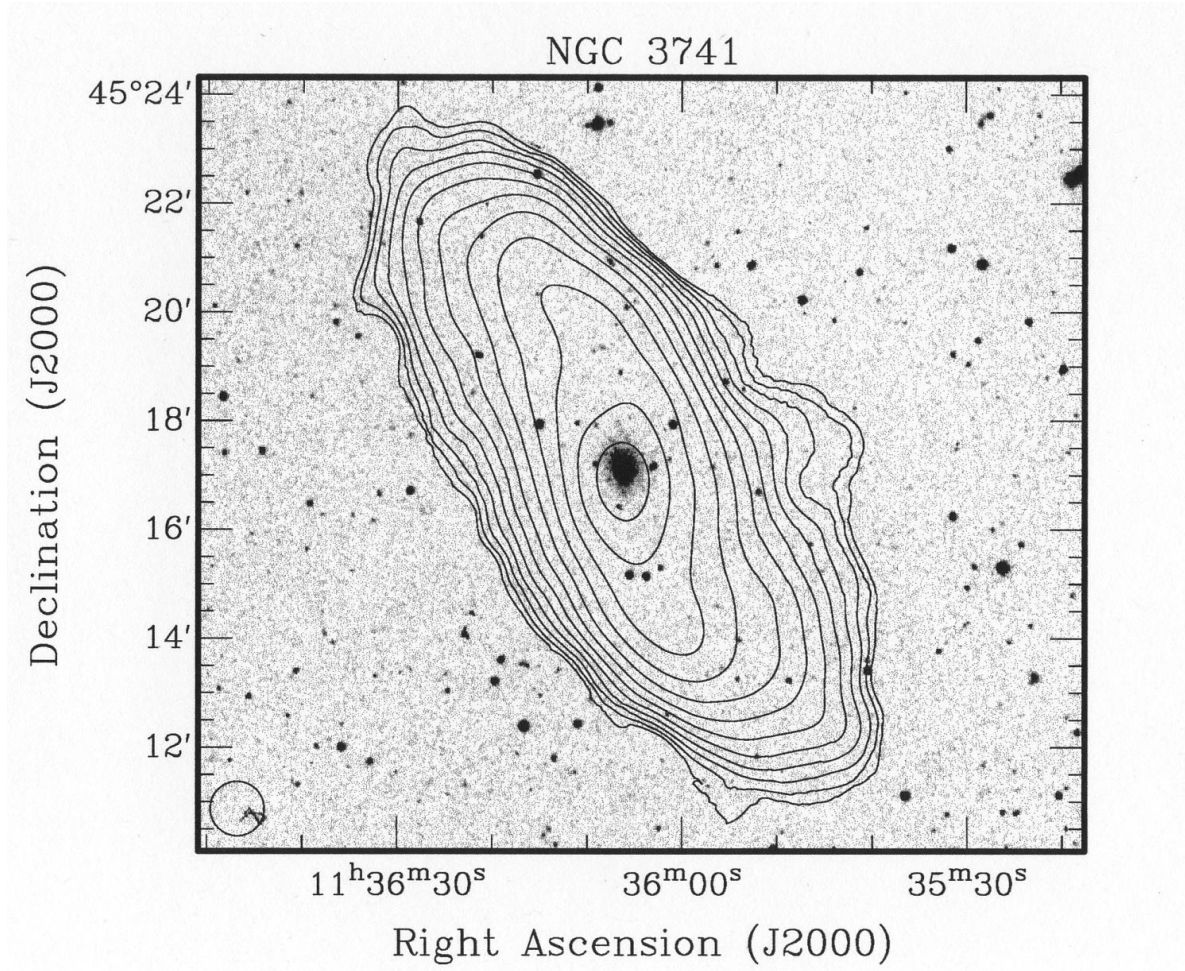
Neutral hydrogen

HI in NGC 891: note the large extensions into the halo regime



Neutral hydrogen

HI in NGC 3741: the largest HI disk in terms of optical size, viz. 43 optical scale lengths!



Neutral hydrogen

Constituents of the gaseous ISM

	MM	CNM	WNM	WIM	HIM
n [cm^{-3}]	$10^2 \dots 10^5$	4...80	0.1...0.6	~ 0.2	$10^{-3} \dots 10^{-2}$
T [K]	10...50	50...200	5500...8500	~ 8000	$10^5 \dots 10^7$
h [pc]	~ 70	~ 140	~ 400	~ 900	$\geq 1 \text{ Kpc}$
f_{vol}	$< 1\%$	$\sim 2 \dots 4\%$	$\sim 30\%$	$\sim 20\%$	$\sim 50\%$
f_{mass}	$\sim 20\%$	$\sim 40\%$	$\sim 30\%$	$\sim 10\%$	$\sim 1\%$

MM : molecular medium

CNM : cold neutral medium

WNM : warm neutral medium

WIM : warm ionised medium

HIM : hot ionised medium