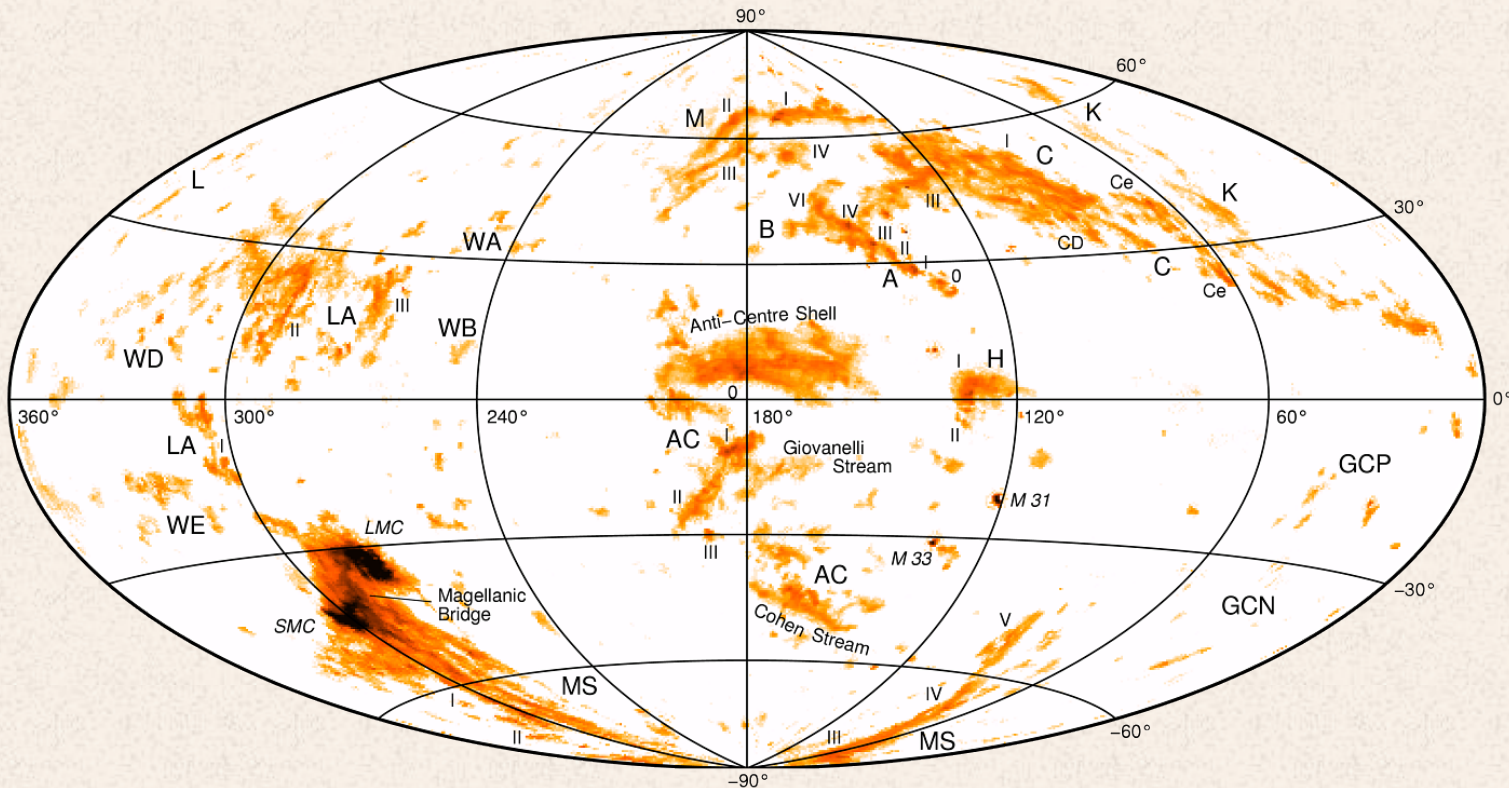


The Relics of Structure Formation

High-Velocity Clouds Around M31 and Other Galaxies



Tobias Westmeier (Australia Telescope National Facility, Marsfield)

Robert Braun (ATNF, Marsfield)

Jürgen Kerp (Uni Bonn)

Bärbel Koribalski (ATNF, Marsfield)

Philipp Richter (Uni Potsdam)

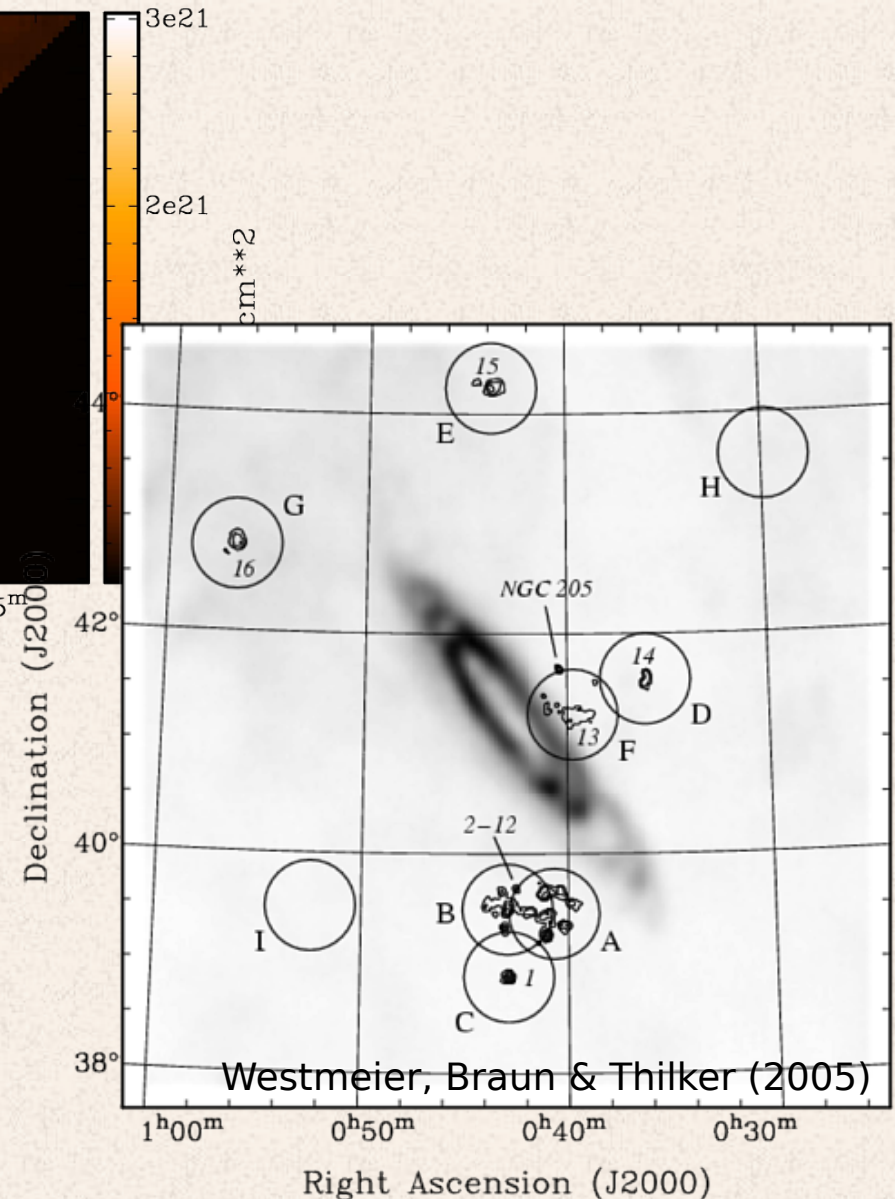
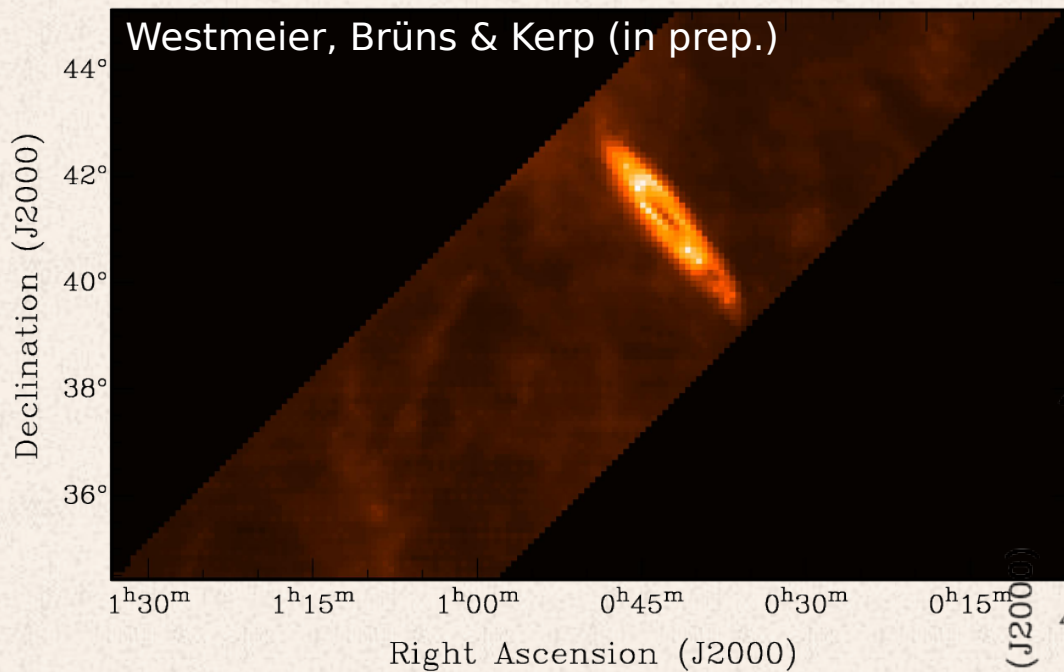
Christian Brüns (Uni Bonn)

David Thilker (JHU, Baltimore)

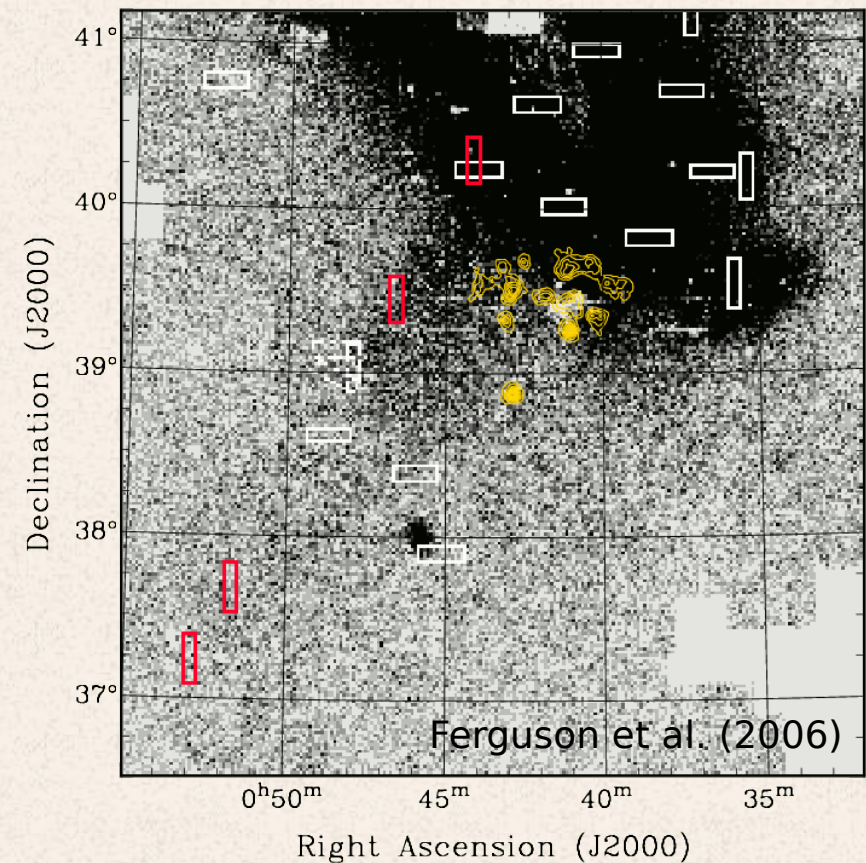
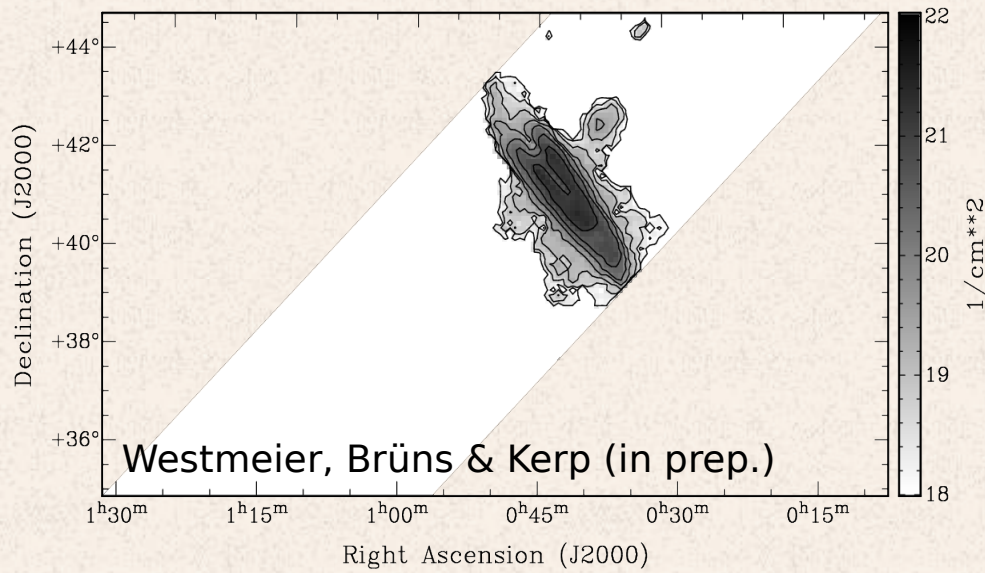
Ángel Lopez-Sanchez (ATNF, Marsfield)

Nadya Ben Bekhti (Uni Bonn)

The HVCs of M31

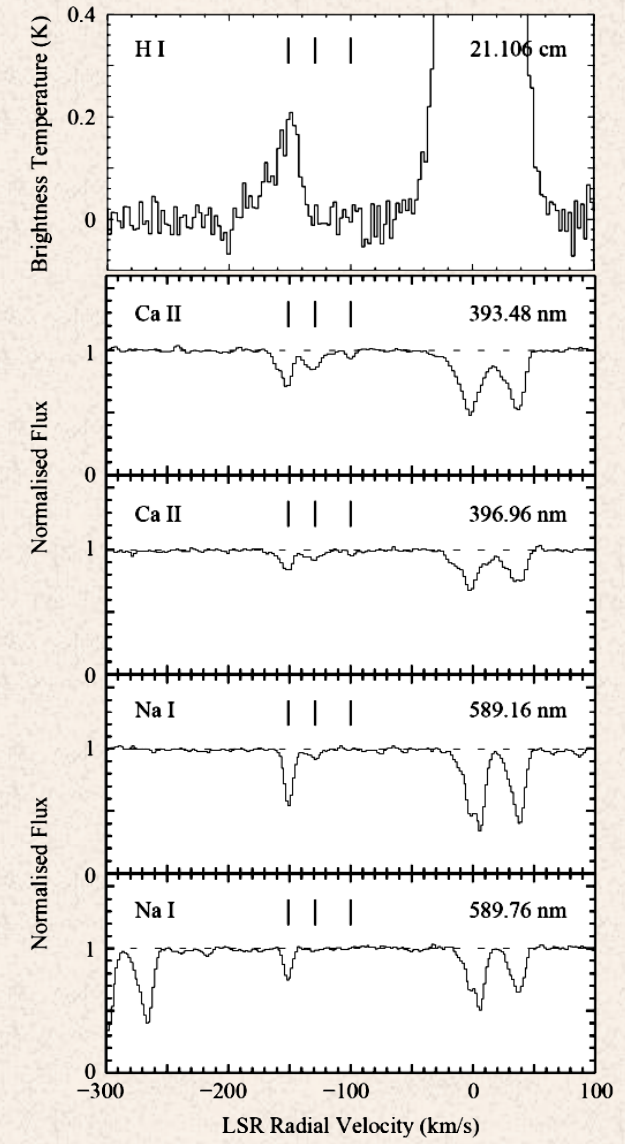
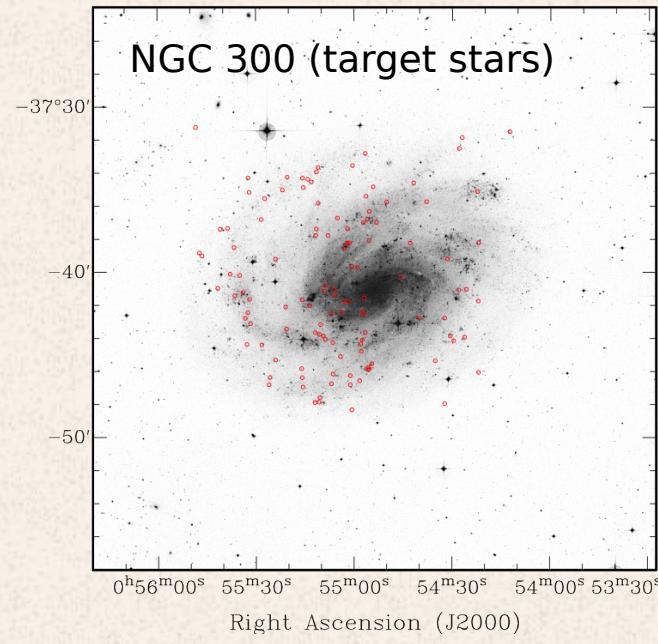
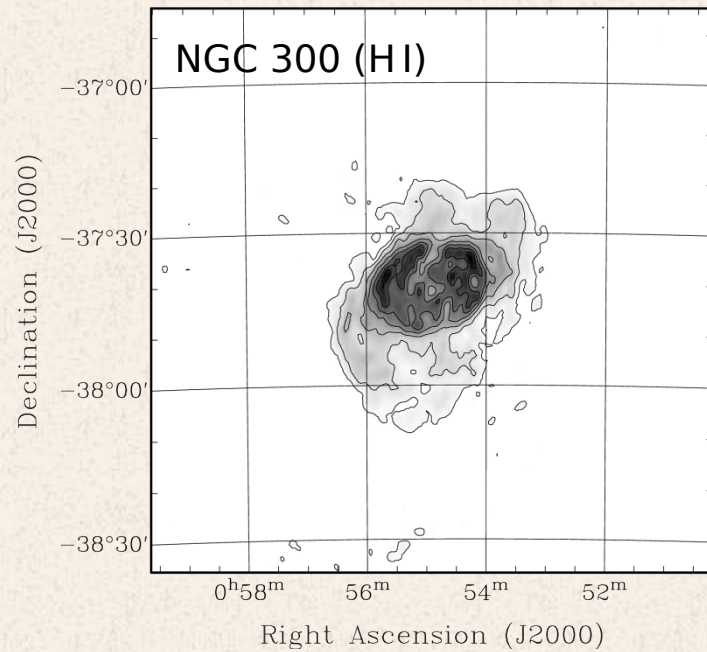


- Effelsberg HI survey of a large area around M31 to search for HVCs out to $d_{\text{proj}} > 100$ kpc
- WSRT high-resolution follow-up observations of individual HVCs near M31



- About 15 to 20 HVCs close to M31.
No HVCs at $d_{\text{proj}} > 50$ kpc!
- $M_{\text{HI}} \approx 10^5 M_{\odot}$, $D \approx 1$ kpc
- Several HVCs most likely of **tidal origin** (e.g., giant stellar stream)
- Other HVCs isolated, candidates for **primordial** dark matter halos
- Consistent with CDM simulations if DM halos at $d > 50$ kpc mainly ionised

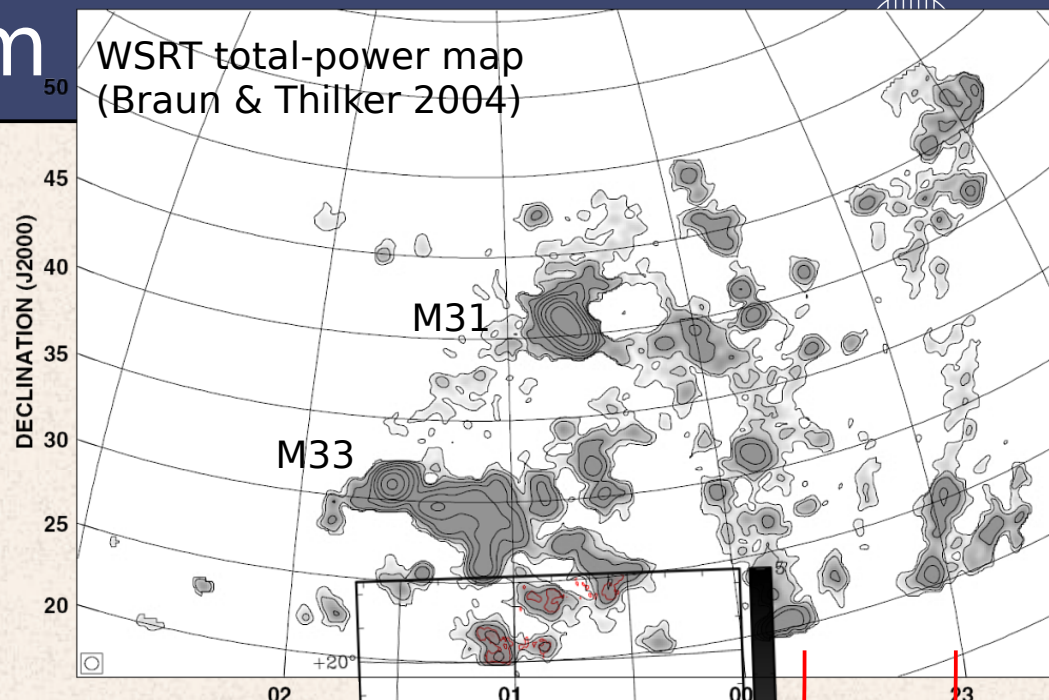
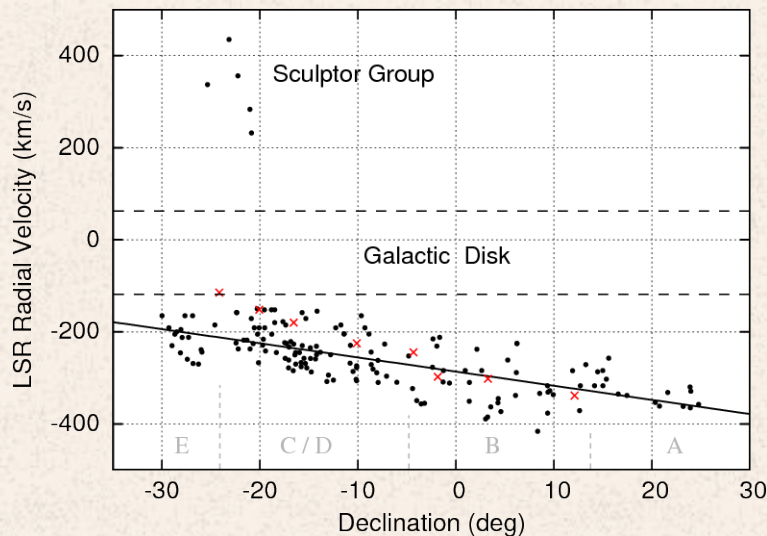
NGC 55 & 300 in HI and Ca II / Na I



- ATCA HI survey of nearby Sculptor Group galaxies (**NGC 55**, **NGC 300**) to search for HVCs and extra-planar gas
- Optical absorption spectroscopy of **stars** in NGC 300 to trace halo gas in Ca II / Na I absorption (observing time allocated for AAOmega at the Anglo-Australian Telescope)

Richter, Westmeier & Brüns (2005)

Magellanic Stream



- Discovery of extended filaments of HI clumps associated with the Magellanic Stream
- 153 clumps with $v_{\text{GSR}} = -200 \text{ km s}^{-1}$ and $\sigma = 43.5 \text{ km s}^{-1}$ out to 20° from main stream
- Most likely condensations in very extended, mainly ionised MS filaments
- The Magellanic Stream is **much more extended** than previously believed!

