

Motivation

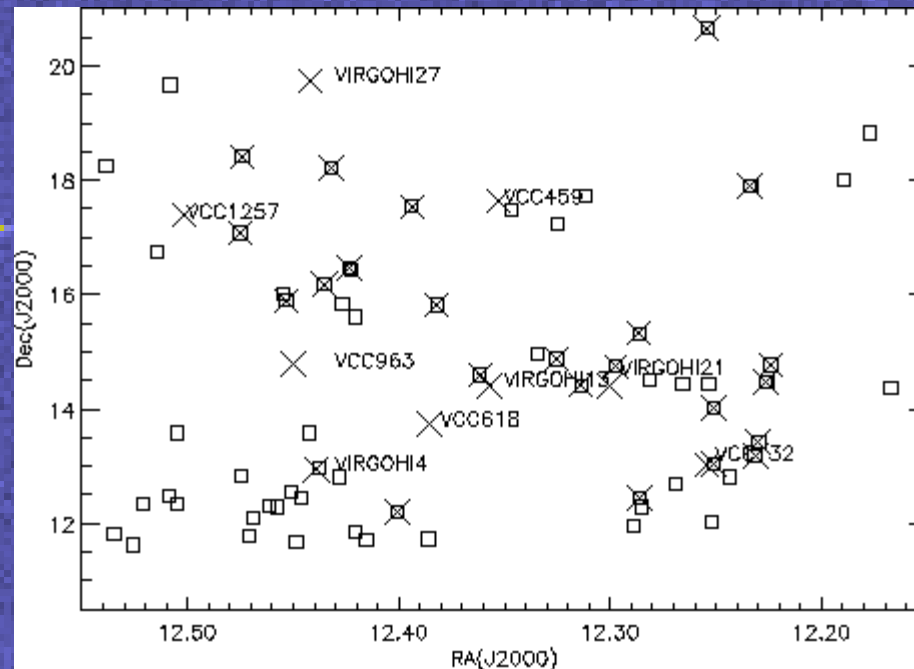
1. Nearest large grouping of galaxies.
2. A none 'typical' environment - evolutionary processes.
3. Luminosity function verse the HI mass function.
4. Isolated HI clouds - the efficiency of galaxy (star) formation.

Data

Part of HIJASS - 4 beams with $\approx 12'$ resolution, 64 MHz bandpass with 1024 channels ($\approx 12 \text{ km s}^{-1}$). Used data only between 500 and 2500 km s^{-1} . Scanned $4^\circ \times 8^\circ$ area (1/4 of cluster). Rms noise of $\approx 4 \text{ mJy beam}^{-1}$ compared to HIJASS and HIPASS standard surveys of $\approx 13 \text{ mJy beam}^{-1}$. Sensitivity is $\approx 5 \times 10^7 M_\odot$ at the distance of Virgo.

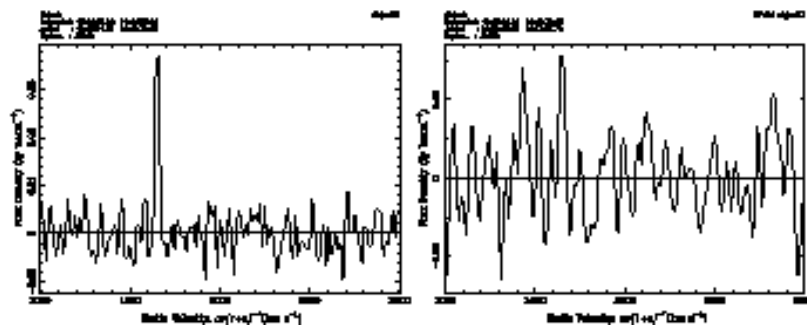
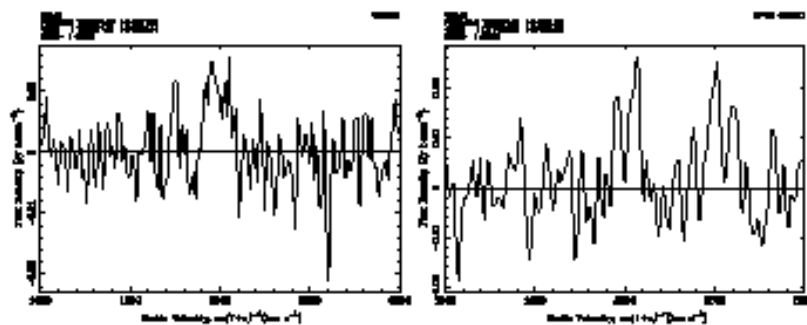
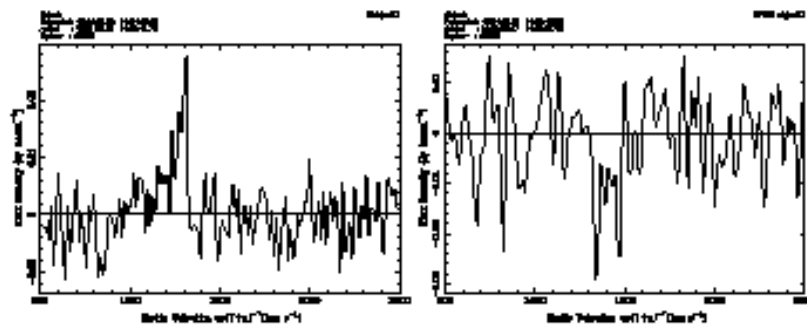
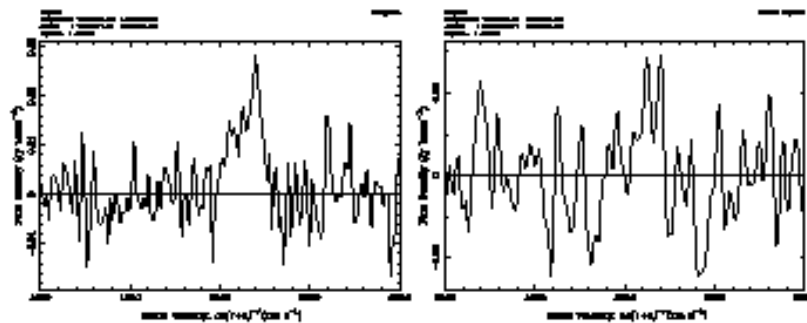
Object detection

Objects were detected using a combination of a by eye method and an automated routine.



Description of objects

To summarize - 28 detections of well known galaxies
4 new sources of which one is probably a normal galaxy
behind M86. Other 3 no **GOOD** optical counterparts.



Comparison of
Virgo HIJASS
and HIPASS
data

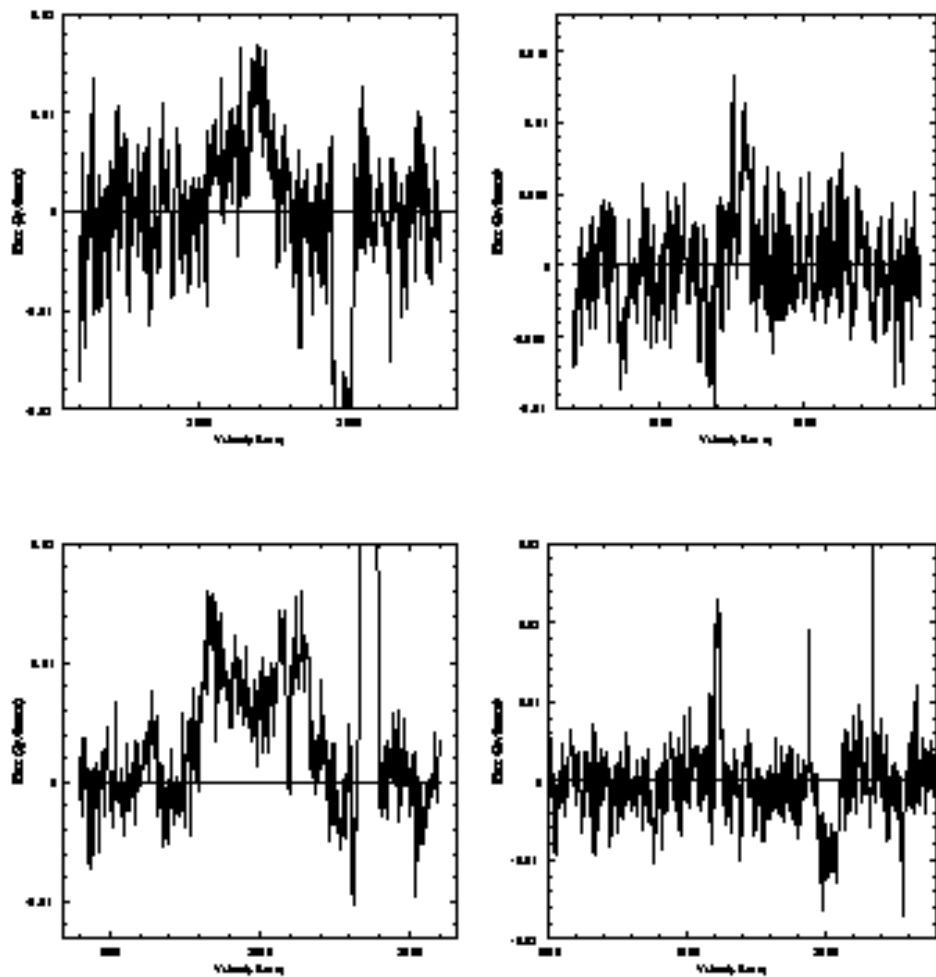
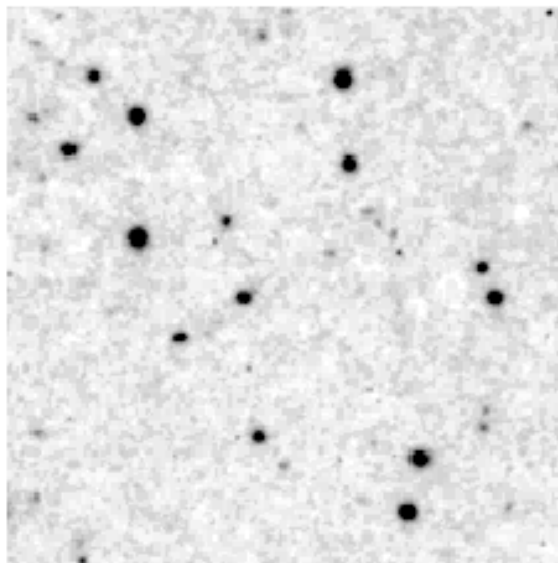
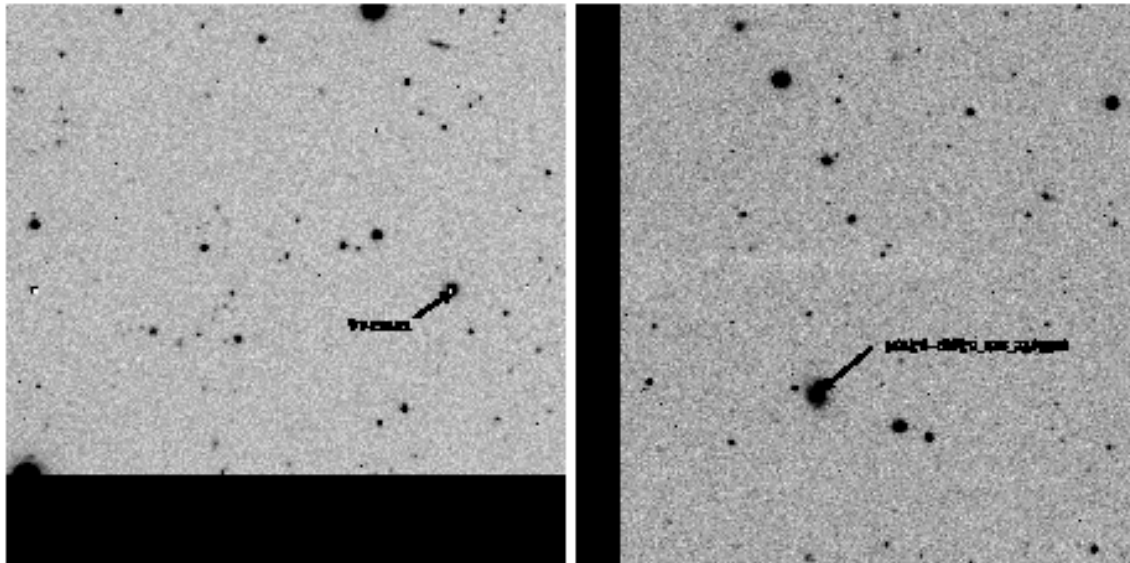


Figure 1. Jodrell Bank follow up spectra of the four sources with no obvious optical identification. From left to right VTRGORT4, VTRGORT3a, VTRGORT3b and VTRGORT7.

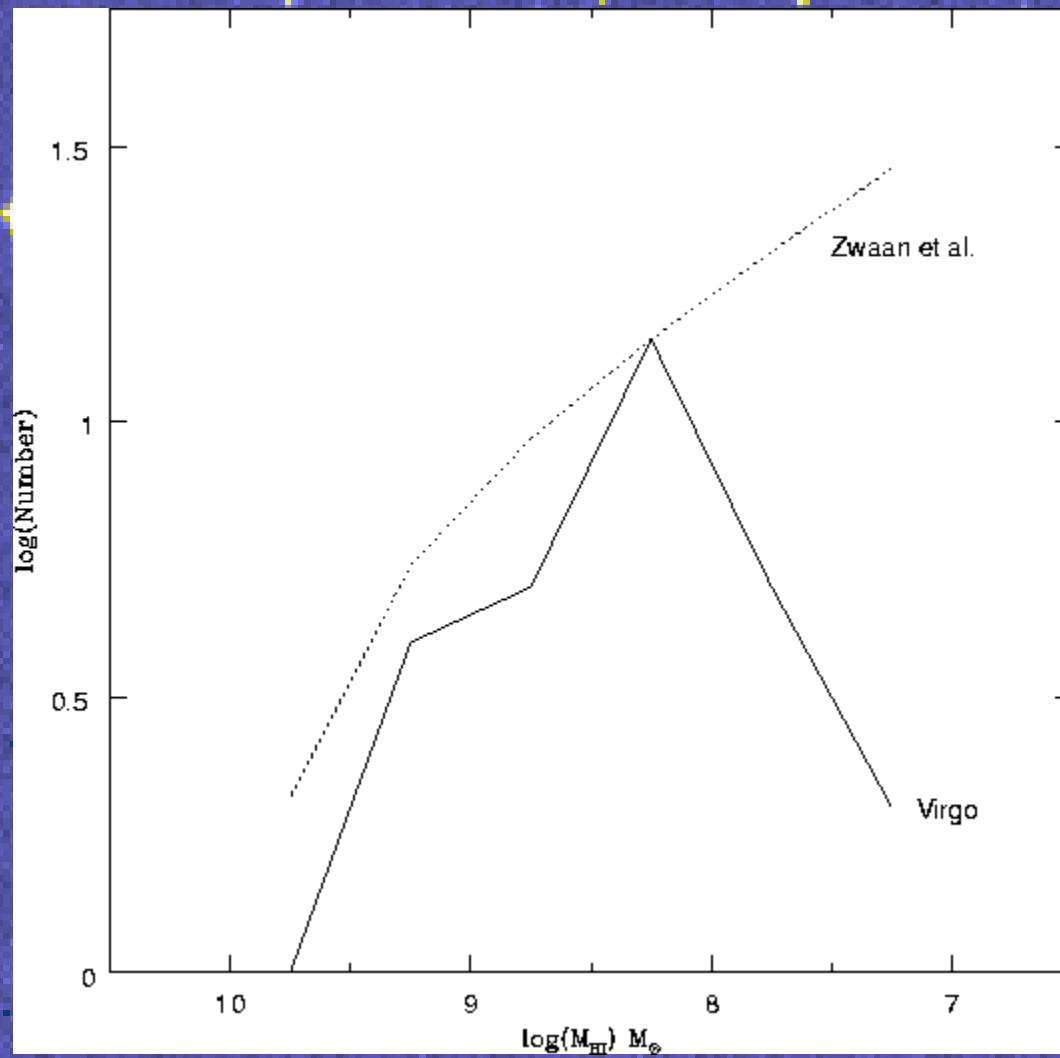
Jodrell pointed
observations



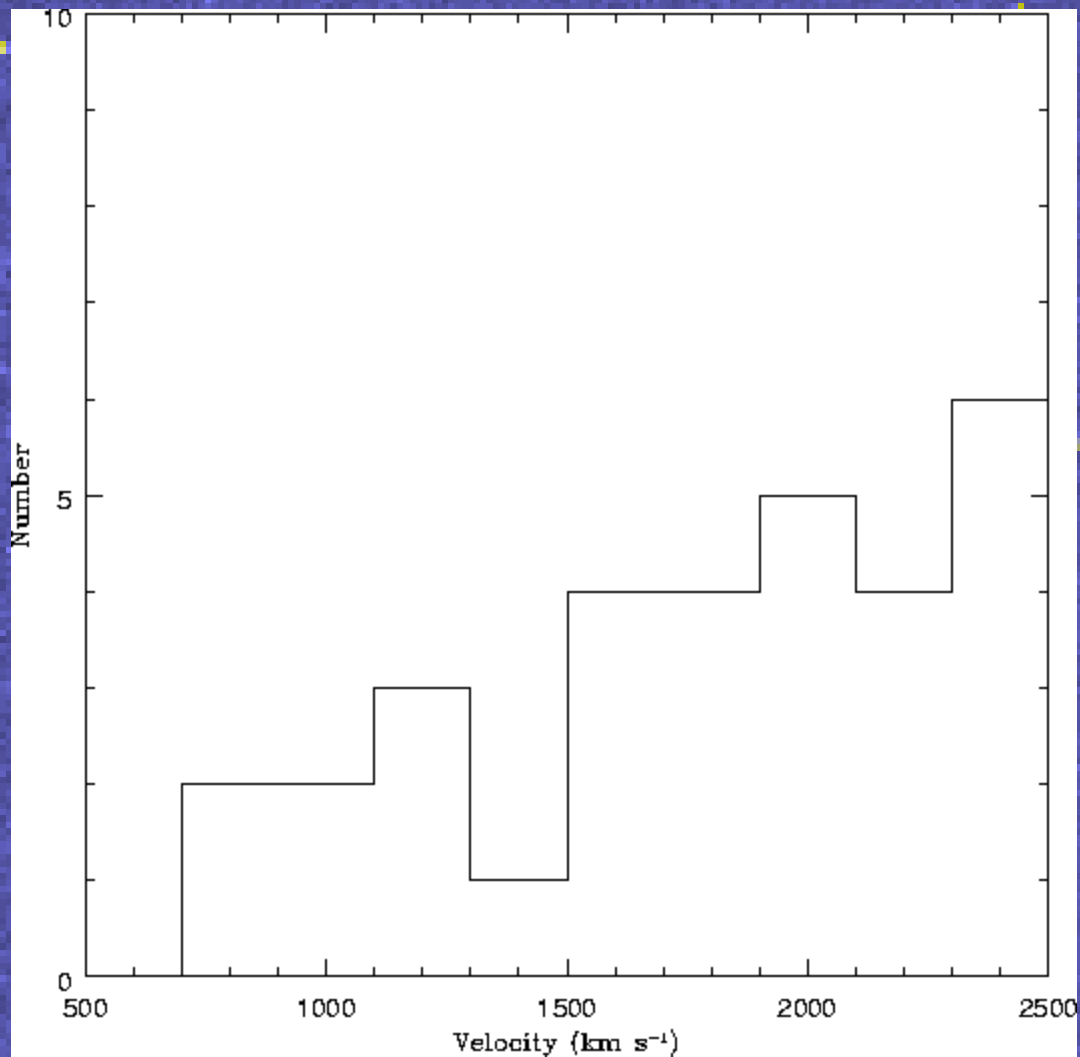
Optical data

Figure 1. R-band images of 6 arc min fields centered on the RT detections. From left to right, VTRG011a, VTRG0121 and VTRG0127. The positions of VTRG012 and VTRG0127 coincided with CCD fields from our Virgo cluster survey, so this is CCD data. The image centered on VTRG0127 is from the digital sky survey. The closest galaxy listed in NED is indicated.

HI mass function



Distribution of velocities



Conclusions

1. ($M_{\text{HI}}/L_{\text{B}}$) much lower than HI selected field galaxies - anaemic spirals.
2. Velocity distribution - in-falling population ?
3. Mean column density $\approx 10^{20}$ atoms cm^{-2} .
4. What is the relation between the cluster/field luminosity function and HI mass function ?
5. What debris from the galaxy formation process has or is assembling itself into the cluster ? Need to get below $10^7 M_{\odot}$ to see if the mass function really turns over and to see if proposed high mass HVC exist in the cluster.
6. Reduce the ambiguity in optical identification, particularly important in the Virgo cluster.