

HI Pilot projects in the ZOA

the GA / Shapley controversy – and what about Vela?

Renée C. Kraan-Korteweg
Dept. of Astronomy, UCT

- **Pilot projects versus large surveys**
- **Use for commissioning – but select area/projects for “killer-projects”**

HI workshop SKA Pathfinders
Bunkerbay workshop, 16-18.11.2009

Who is pulling in the ZOA

the GA / Shapley controversy

Renée C. Kraan-Korteweg & Kurt van der Heyden
Dept. of Astronomy, UCT

- **I. Introduction: the GA/Shapley Controversy**
 - Some recent all-sky dipole results

- **II. Current Census of the Great Attractor:**
 - the Norma Wall from deep optical and HI surveys (ZOA plus GB extension)
 - ➔ is the GA more massive than previously thought?
 - CIZA overdensity at 15'000 km/s (and ~5000km/s)
 - ➔ does the Shapley Concentration extend across the ZOA

- **III. MeerKAT survey scenarios**

What is a good int. time / survey duration?

| # Dishes | Int / pointing | Duration for 200 sq deg | GA | GA Mass Limit | SH | SH Mass limit |
|-----------|----------------|-------------------------|-----------------------|------------------------|-----------------------|------------------------|
| | (hrs) | (Days) | (#/deg ²) | Log(M _{sun}) | (#/deg ²) | Log(M _{sun}) |
| 7 | 9 | 188 | 5.0 | 8.2 | 14.9 | 9.4 |
| 7 | 8 | 166 | 4.6 | 8.2 | 14.2 | 9.4 |
| 7 | 7 | 145 | 4.4 | 8.3 | 13.4 | 9.5 |
| 7 | 6 | 125 | 4.2 | 8.3 | 12.4 | 9.5 |
| 30 | 9 | 188 | 15.4 | 7.5 | 89.4 | 8.6 |
| 30 | 4 | 83 | 12.6 | 7.7 | 60.0 | 8.8 |
| 30 | 2 | 42 | 9.5 | 7.8 | 31.1 | 9.0 |
| 30 | 1 | 21 | 6.9 | 8.0 | 19.7 | 9.2 |
| 80 | 4 | 83 | 21.2 | 7.1 | 121.8 | 8.3 |
| 80 | 2 | 42 | 17.3 | 7.3 | 104.0 | 8.5 |
| 80 | 1 | 21 | 14.7 | 7.5 | 82.3 | 8.7 |
| 80 | 0.5 | 10 | 12.2 | 7.7 | 56.3 | 8.8 |

Predicted detections per square degree

for various redshift bins out to $z = 0.1$

detections at 5σ

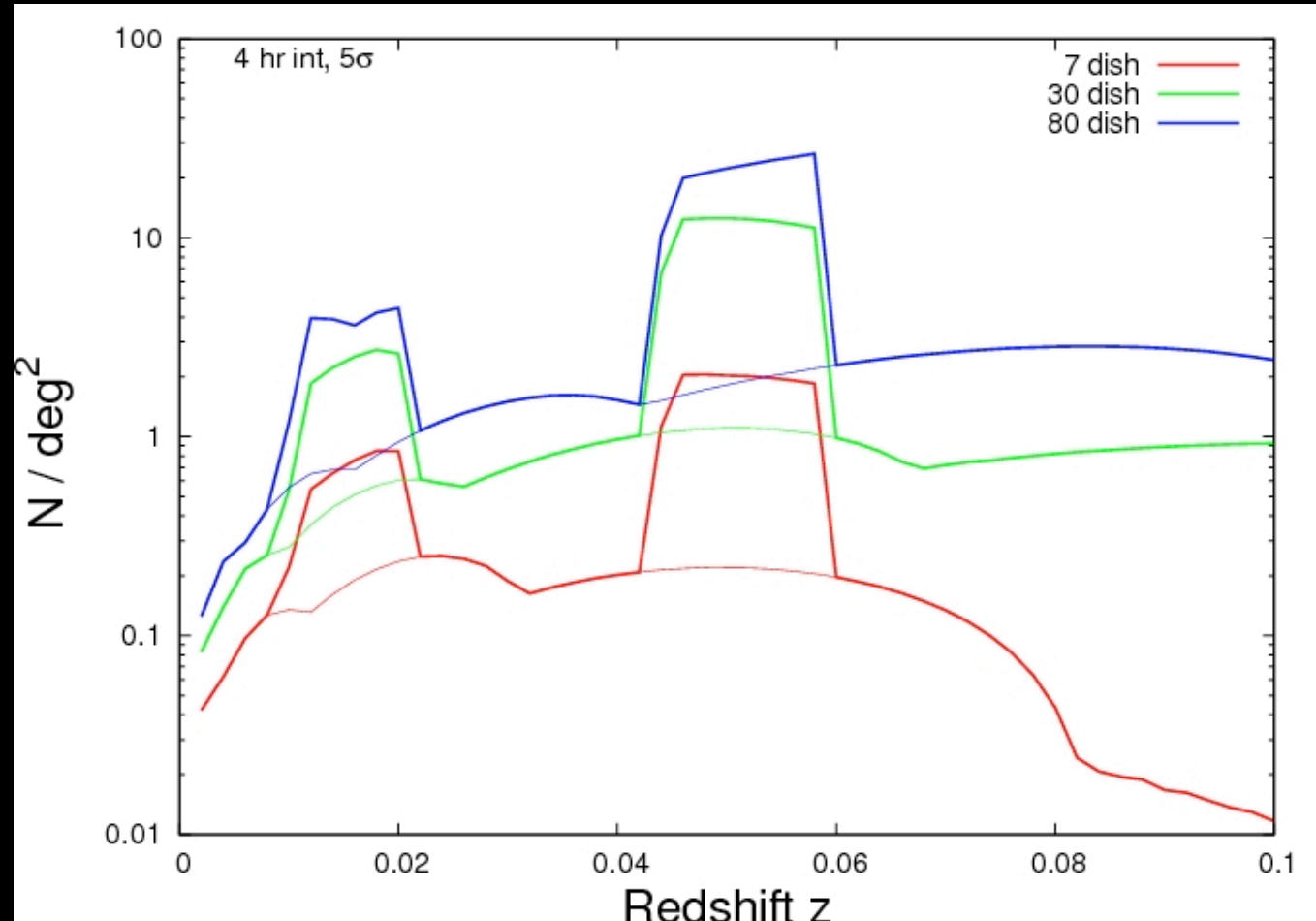
assume $\Delta V(M_{\text{HI}}) = 0.105M_{\text{HI}}^{1/3}$

Note:

-The overdensities are very obvious

- the predictions are in close agreement with Parkes ZOA HI detections in GA,

i.e. 0.8 gal/sq deg for 25 min integration



**detections are plotted as total number per Δz interval:
 $\Delta z = 0.002$; ($\Delta v \sim 600$ km/s)**