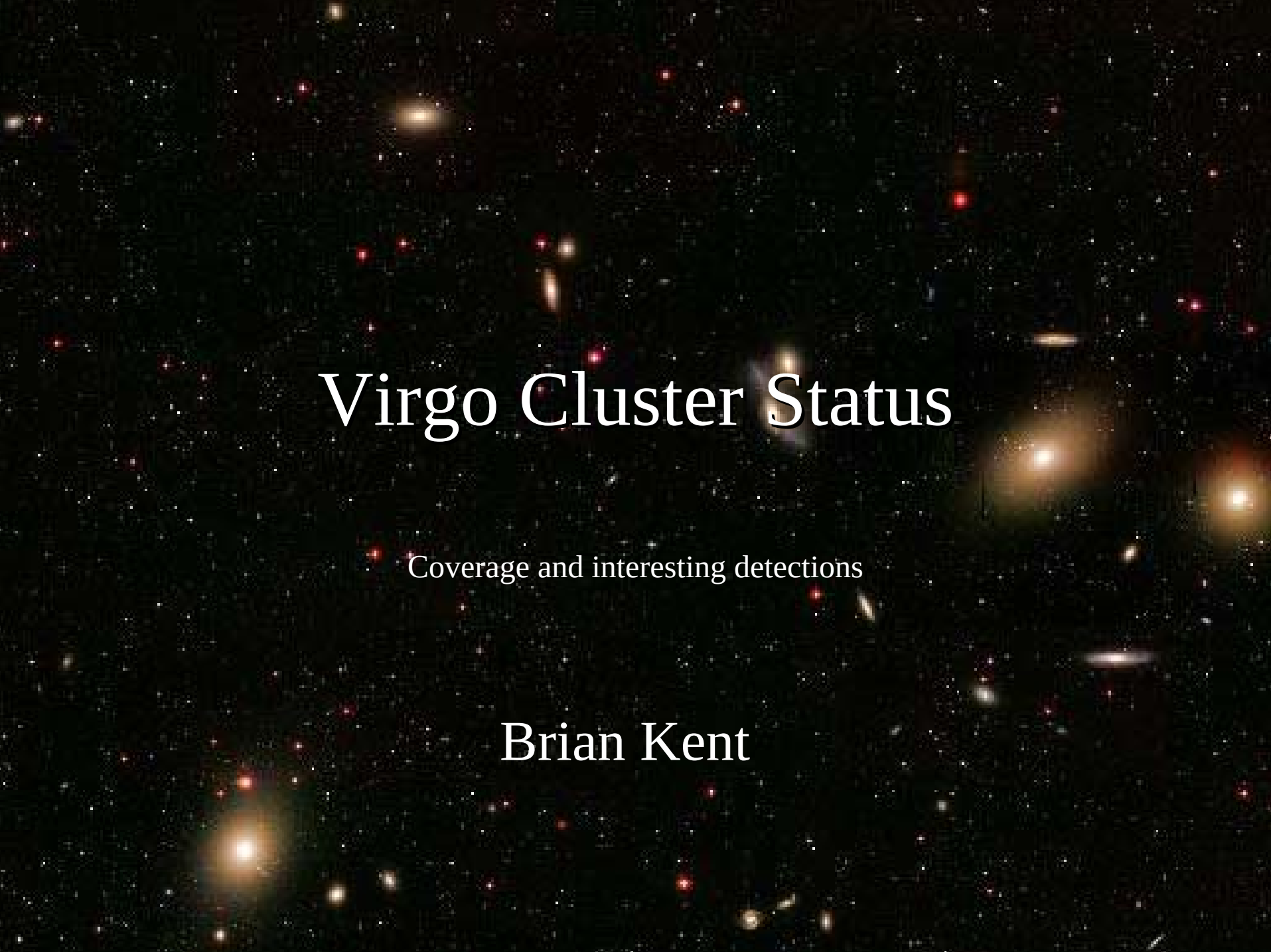


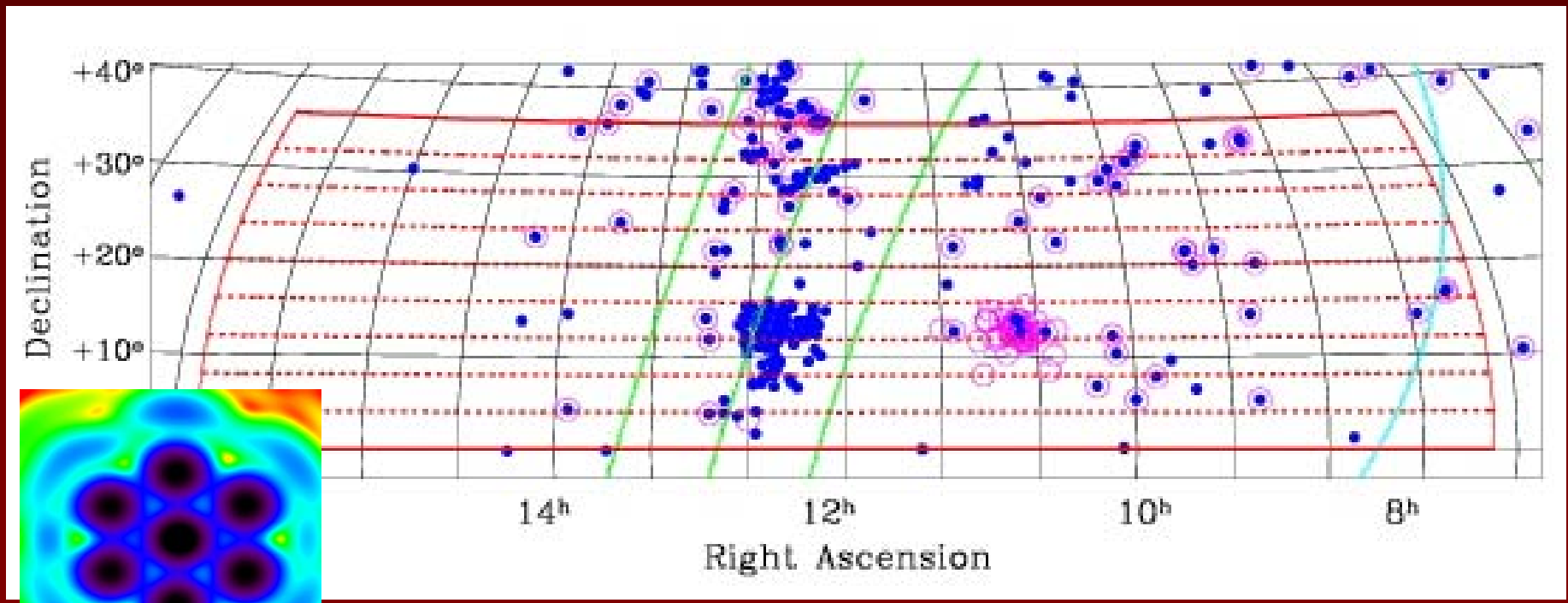
Virgo Cluster Status

Coverage and interesting detections

Brian Kent

ALFALFA: Brief Overview

- The extragalactic HI survey will cover 7000 square degrees of the high galactic latitude sky out to a distance of ~ 250 Mpc.
- Spring 2005 Observations have covered ~105 deg^2 towards Virgo region at 12^h 12^o ⌘ to the supergalactic plane.
- An extragalactic HI survey affords advantages over optical surveys, namely *detection of gas-rich extragalactic systems that may not have initiated star formation, as well as blind tidal interactions traced by HI.*



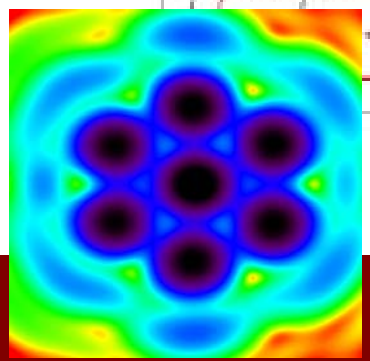
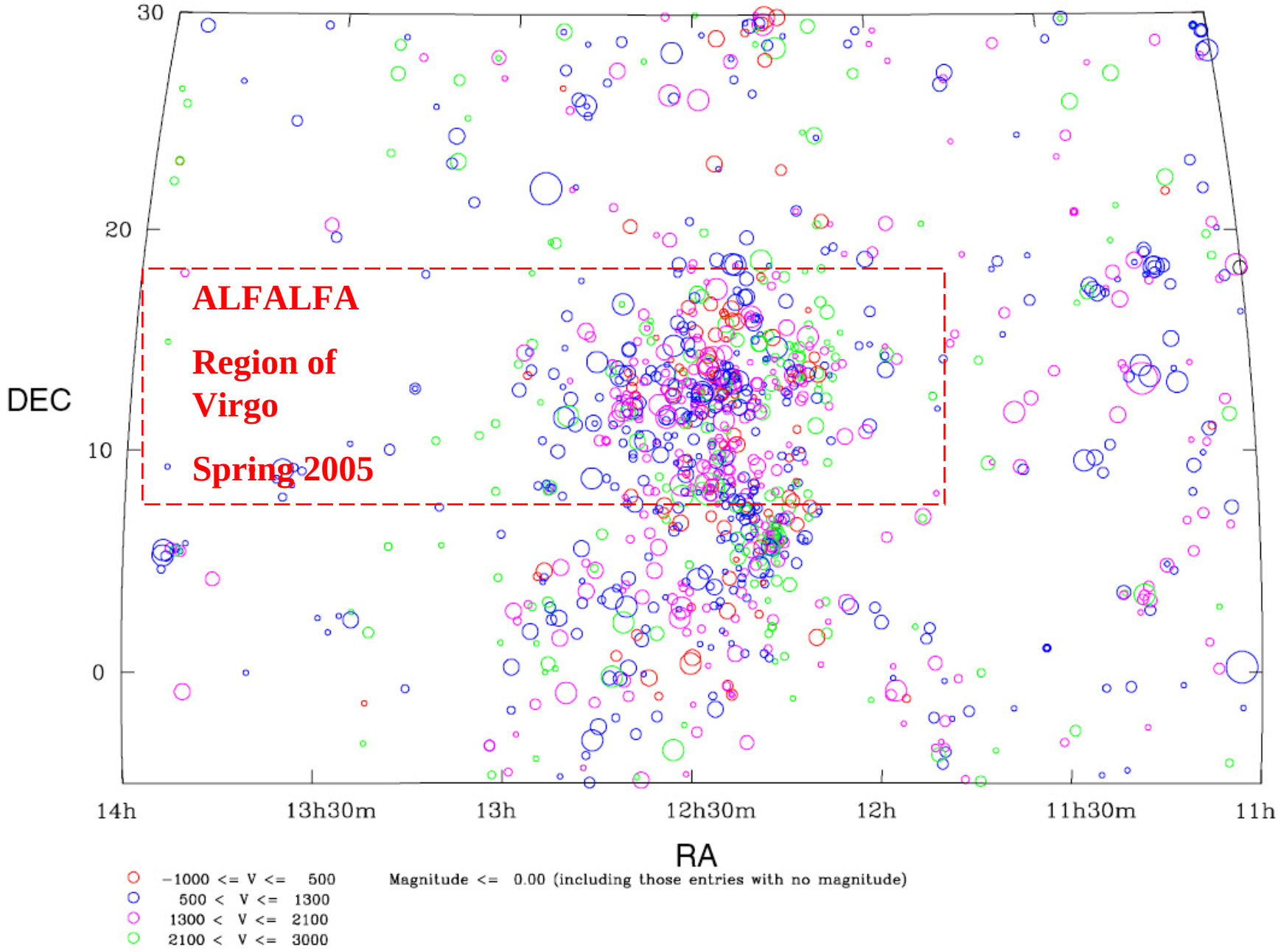


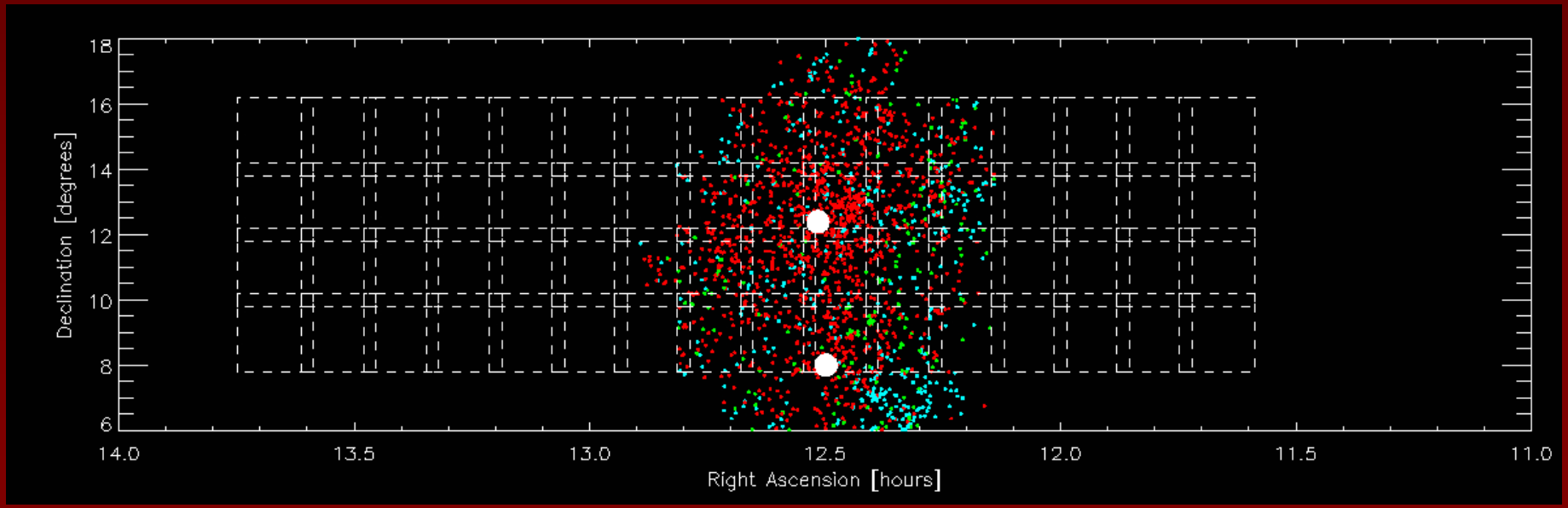
Figure from the AO ALFALFA proposal



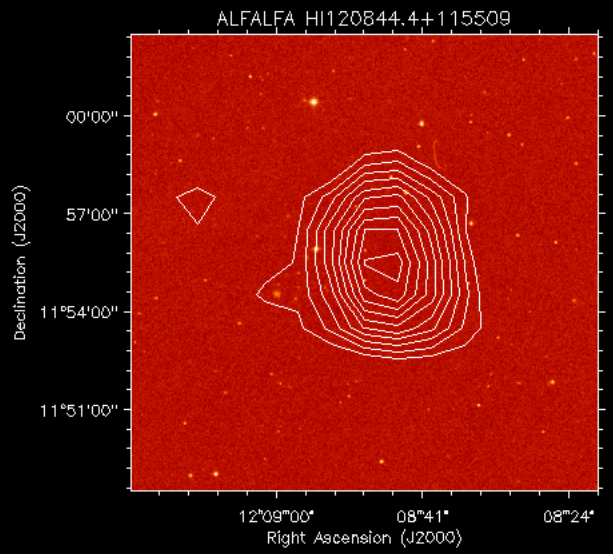
Binggeli & Huchra 2001

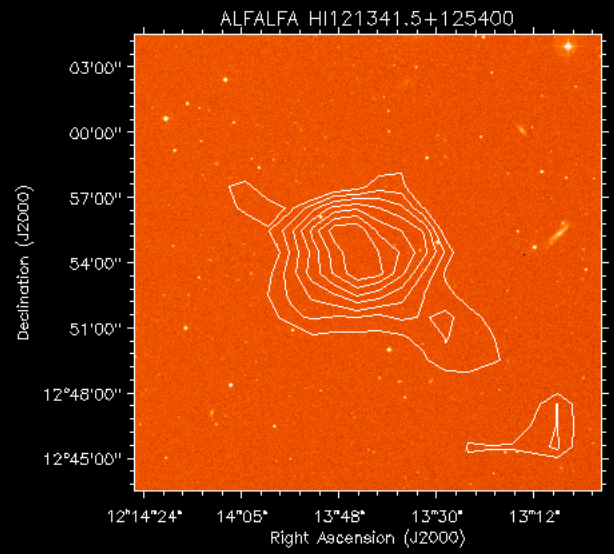
ALFALFA: Virgo Cluster coverage

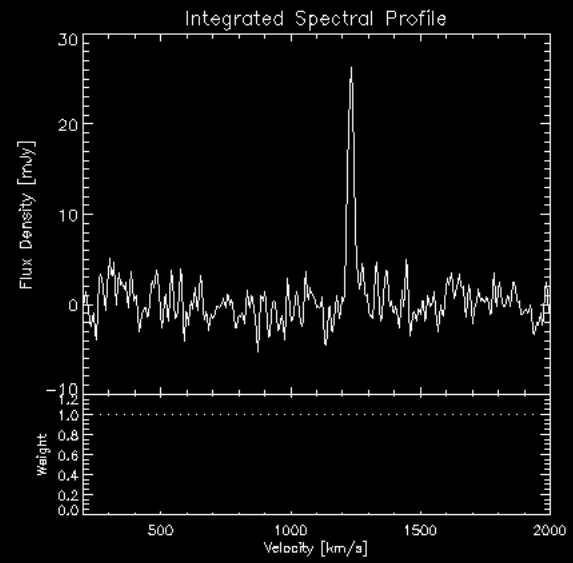
- Priority coverage of the Virgo cluster due to:
- Close proximity at $<cz_{\odot}>$ ~ 1035 km/s
- 64 grids, 4 *cz* quadrants, 2.4 x 2.4 degrees, covering ~ 5000 km/s each
- Total dataset of final grids will entail 400 GB of data
- Counterpart to the Anti-Virgo region for HIMF studies
- Expect ~400 galaxies in the Virgo Cluster sample (< 2700 km/s)
- Catalog extraction is in progress
- R. Giovanelli and B. Kent working on this region

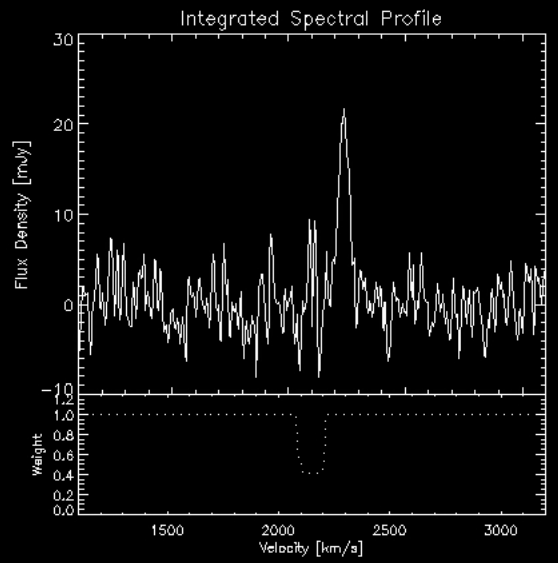


- Detected independently by two ALFALFA team members
- Double pass strategy has paid off! – detection exists in multiple scans.



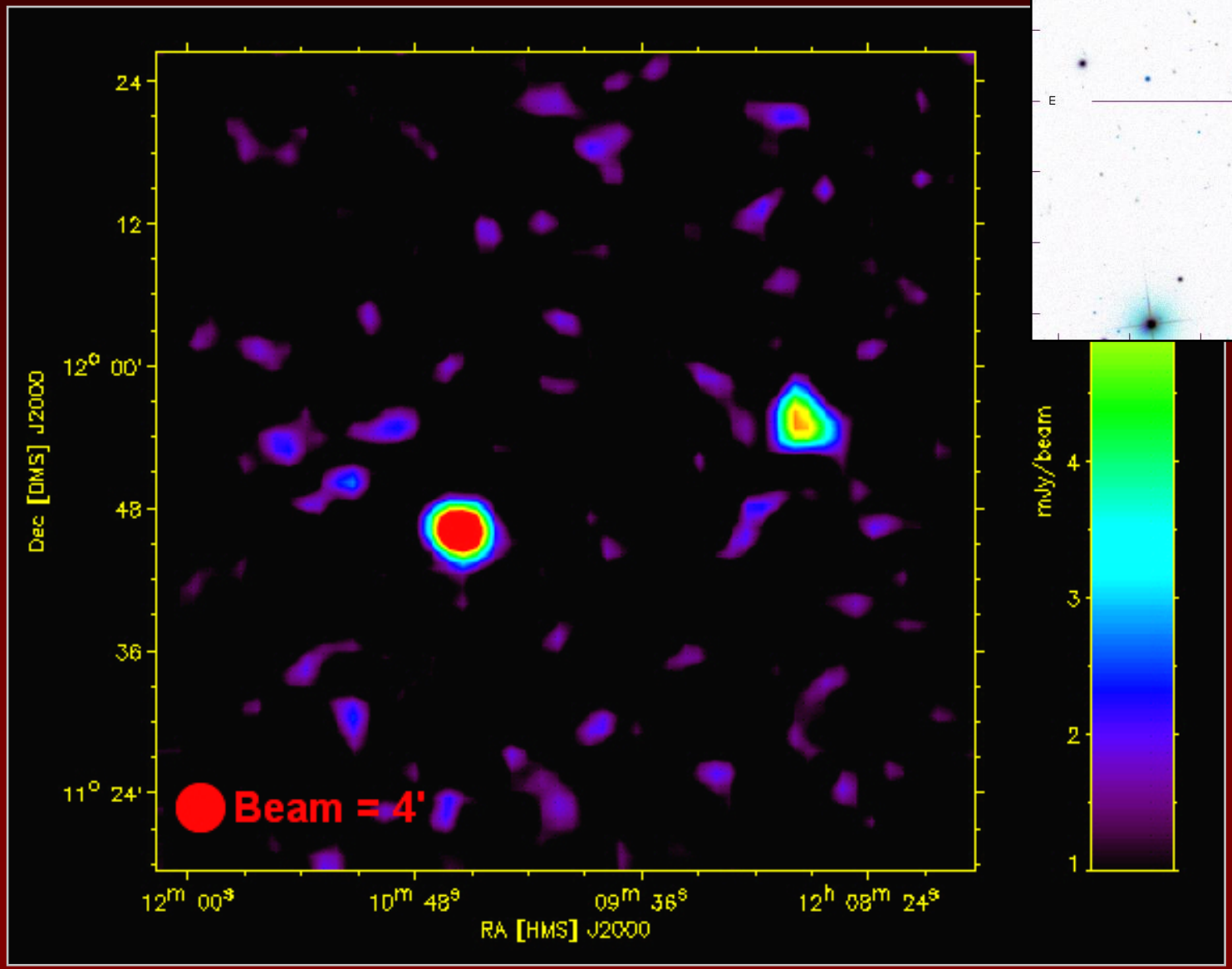


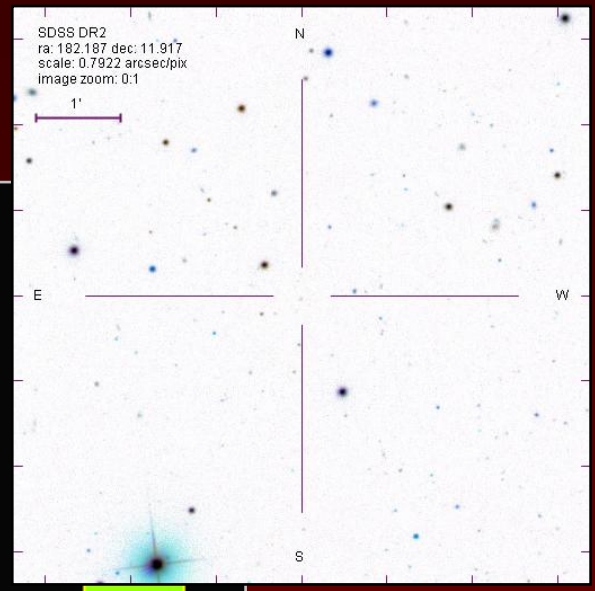




$4.76 \times 10^7 M_\odot$

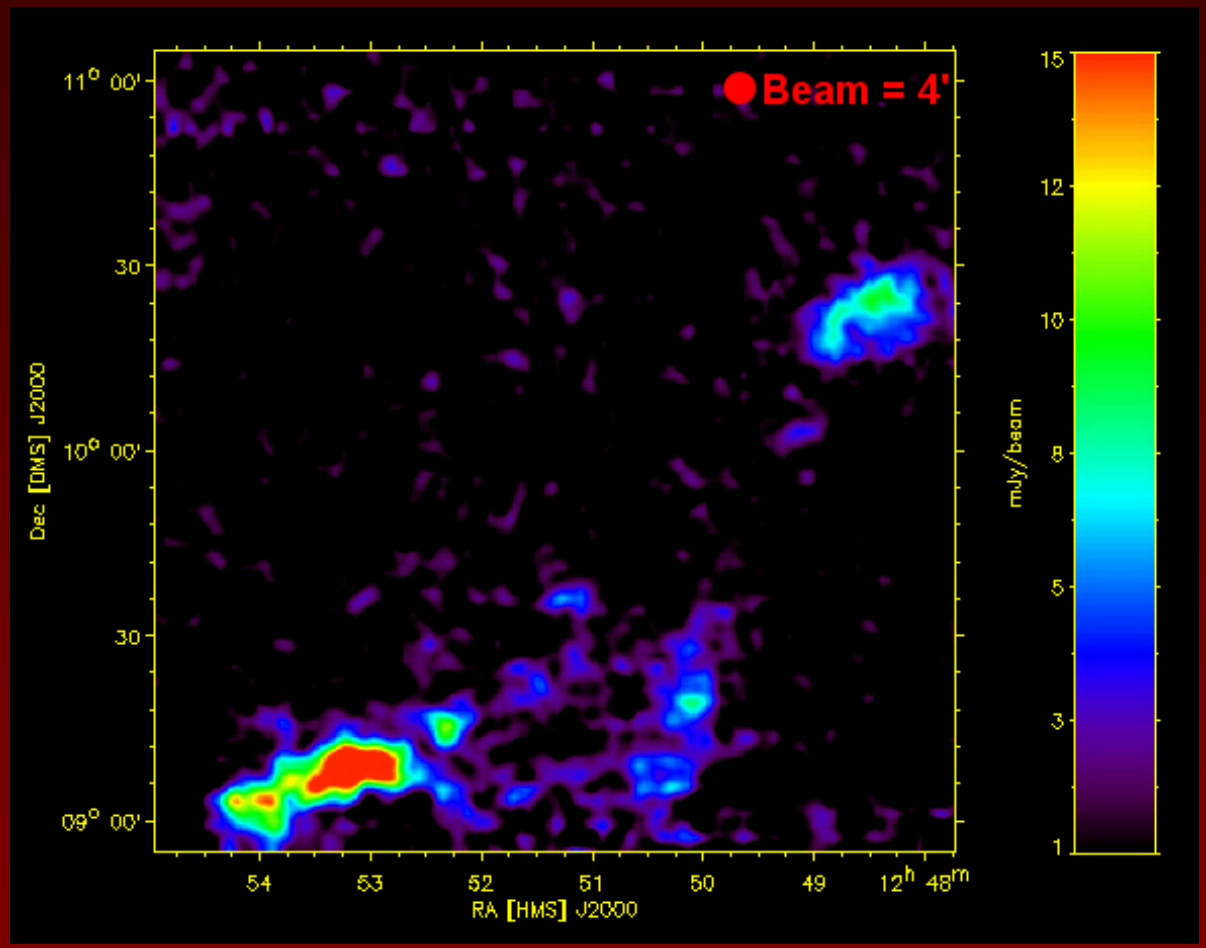
$7.29 \times 10^7 M_\odot$


24
12
12° 00'
48
36
11° 24'
Dec [DMS] J2000
Beam = 4'
12m 00s
10m 48s
09m 36s
12h 08m 24s
RA [HMS] J2000
mJy/beam
4
3
2
1

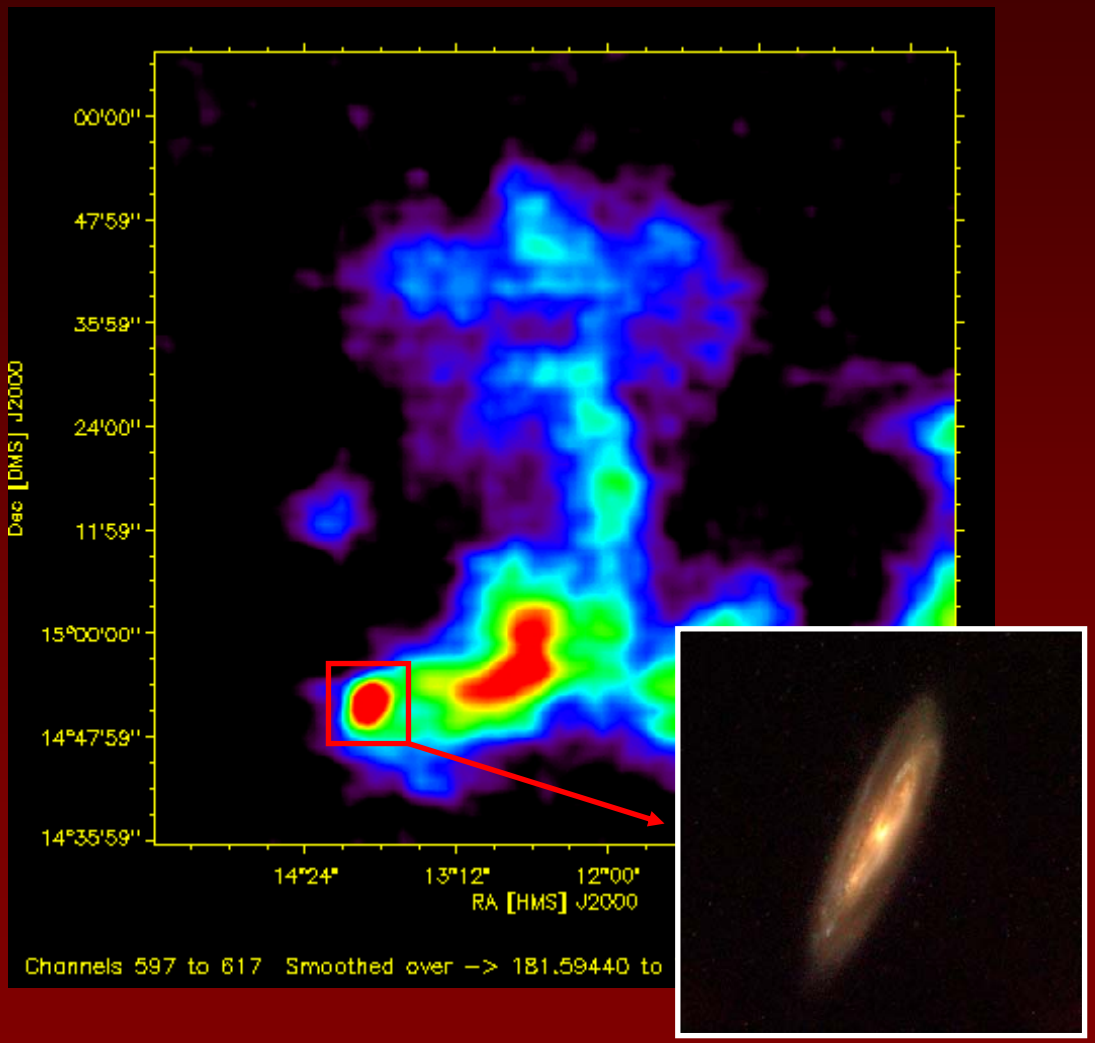

SDSS DR2
ra: 182.187 dec: 11.917
scale: 0.7922 arcsec/pix
image zoom: 0:1
1'
N
E
W
S

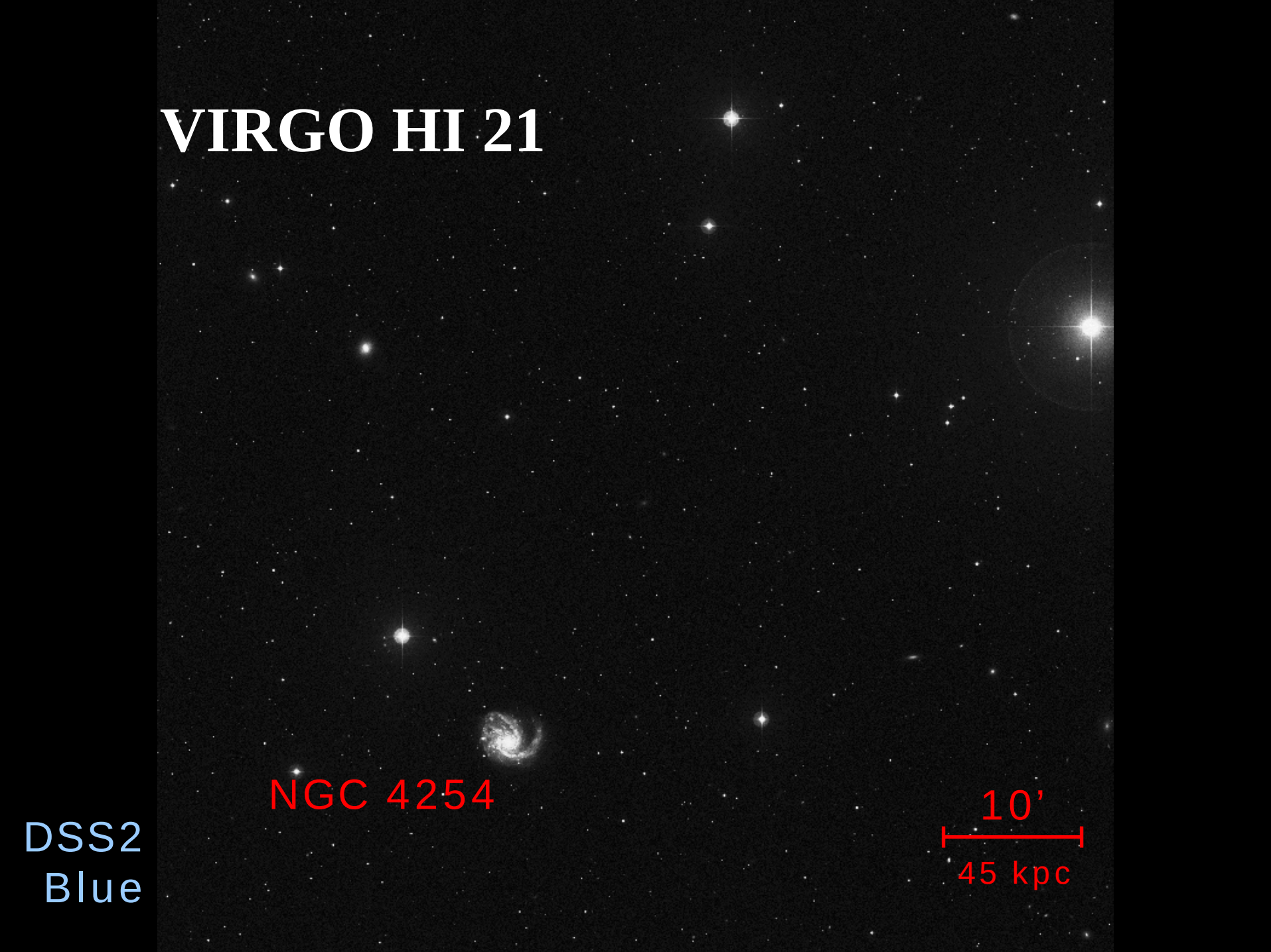
New HVC candidates

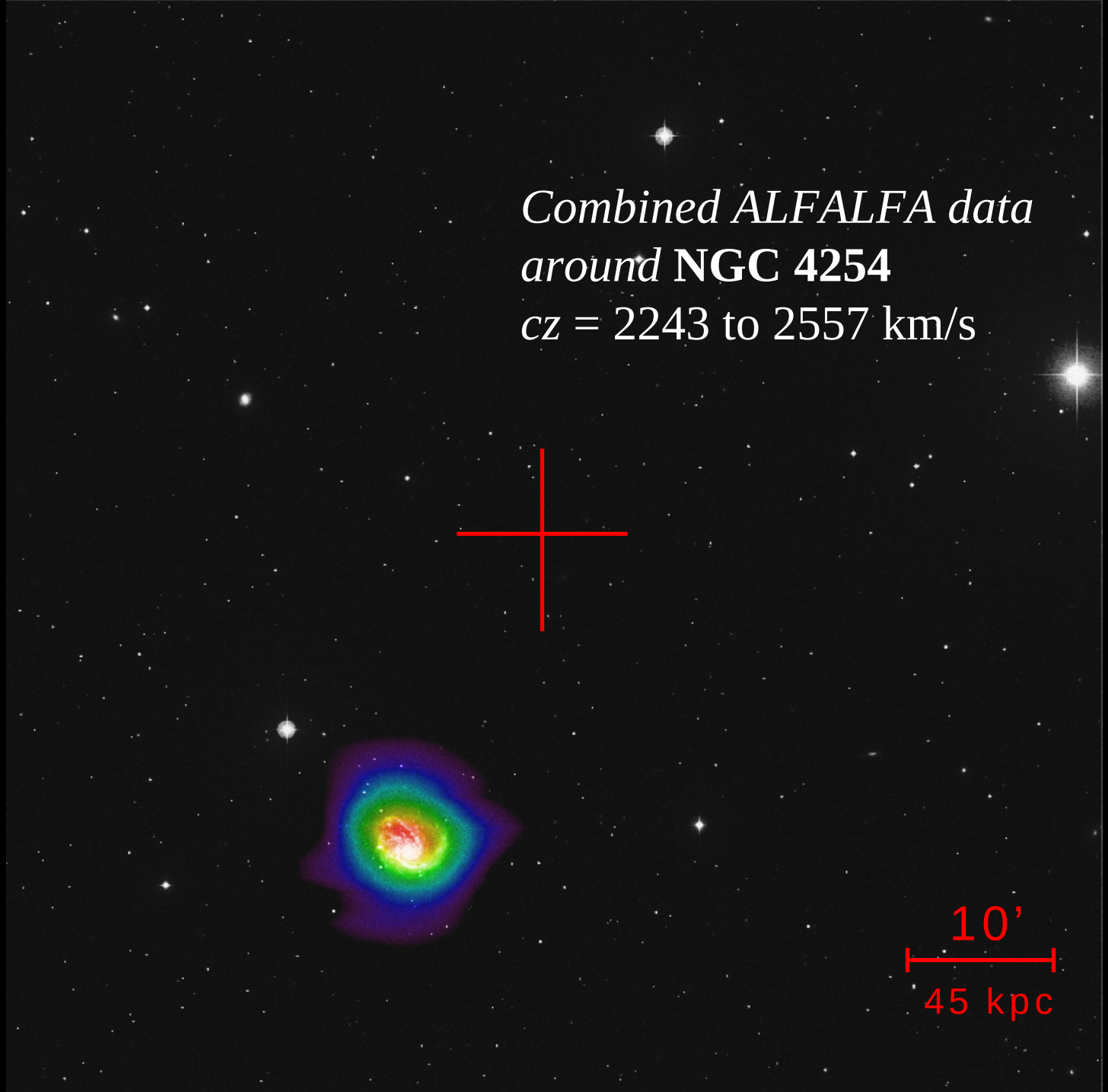
- Detected in Spring 2005 ALFALFA dataset

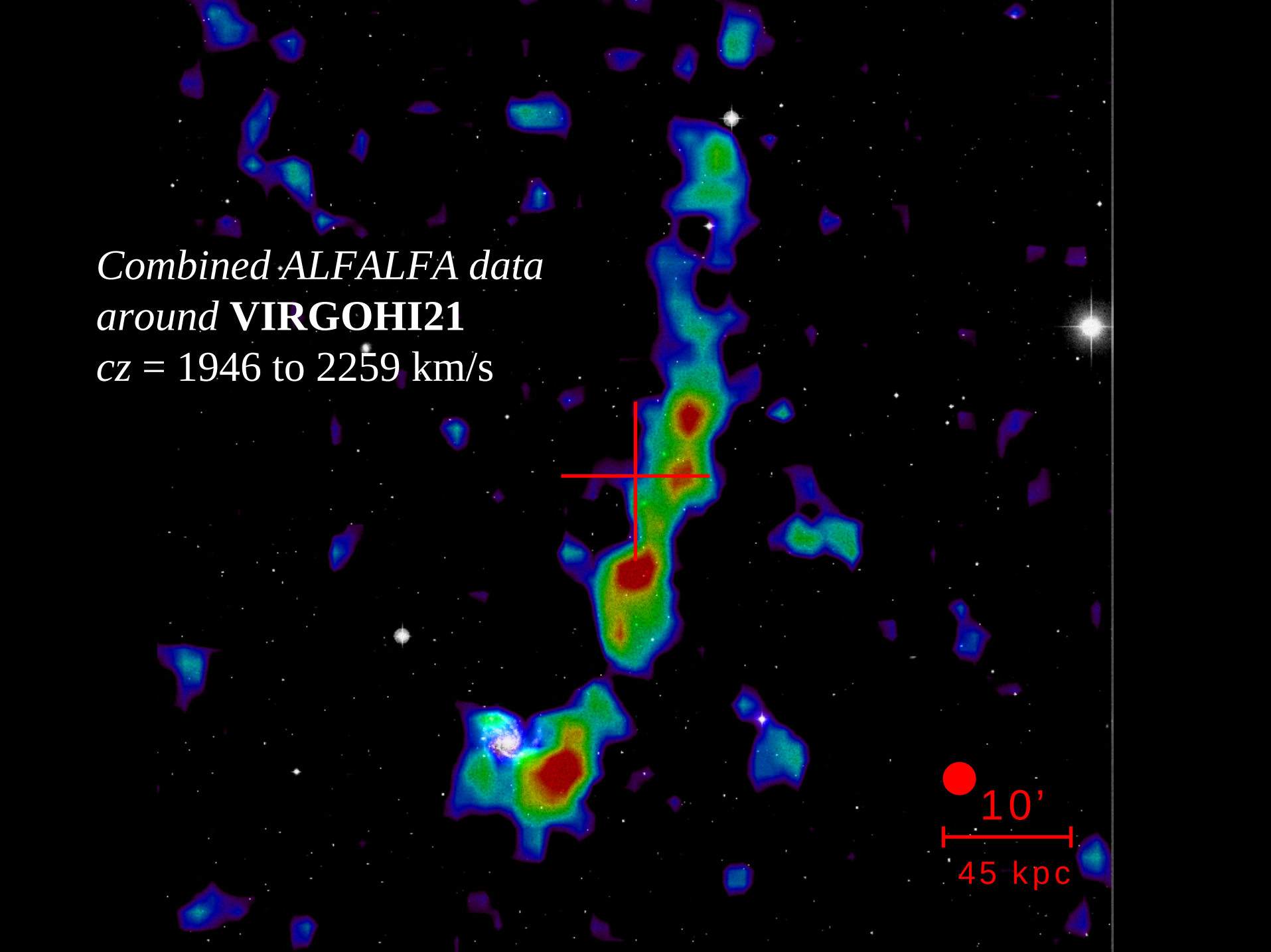


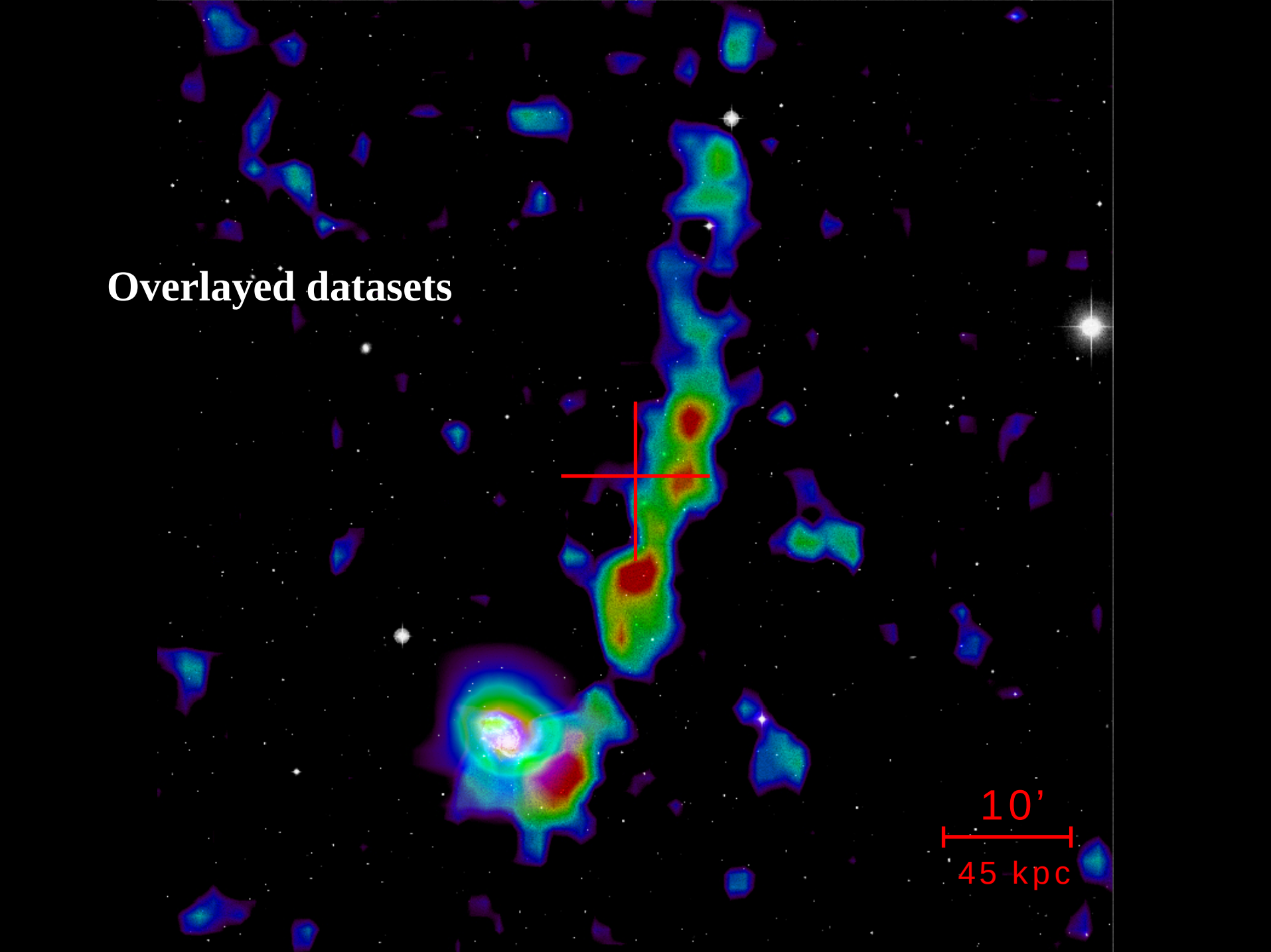
HVC detection towrads NGC 4192?

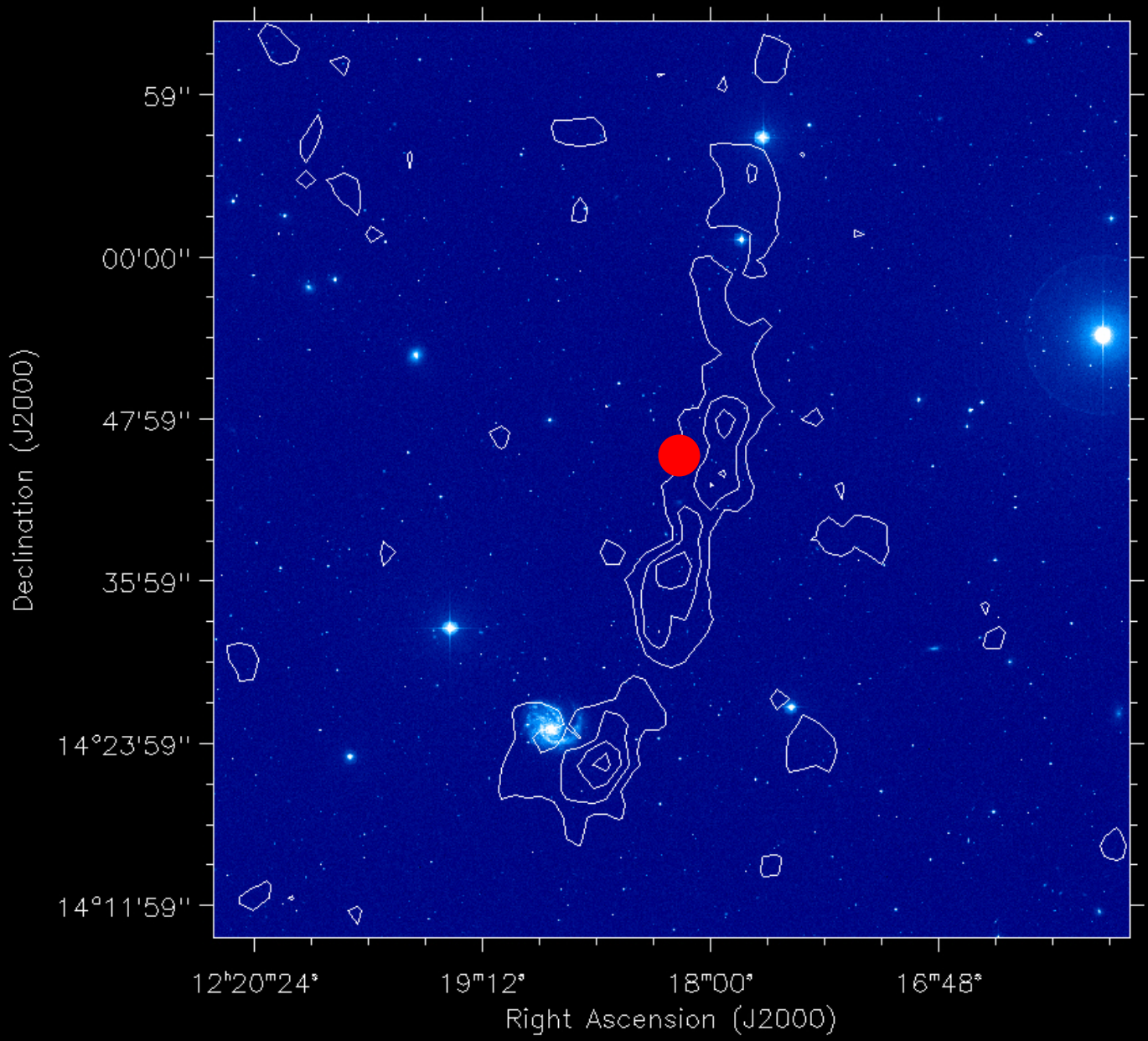



VIRGO HI 21
NGC 4254
10’
45 kpc
DSS2
Blue

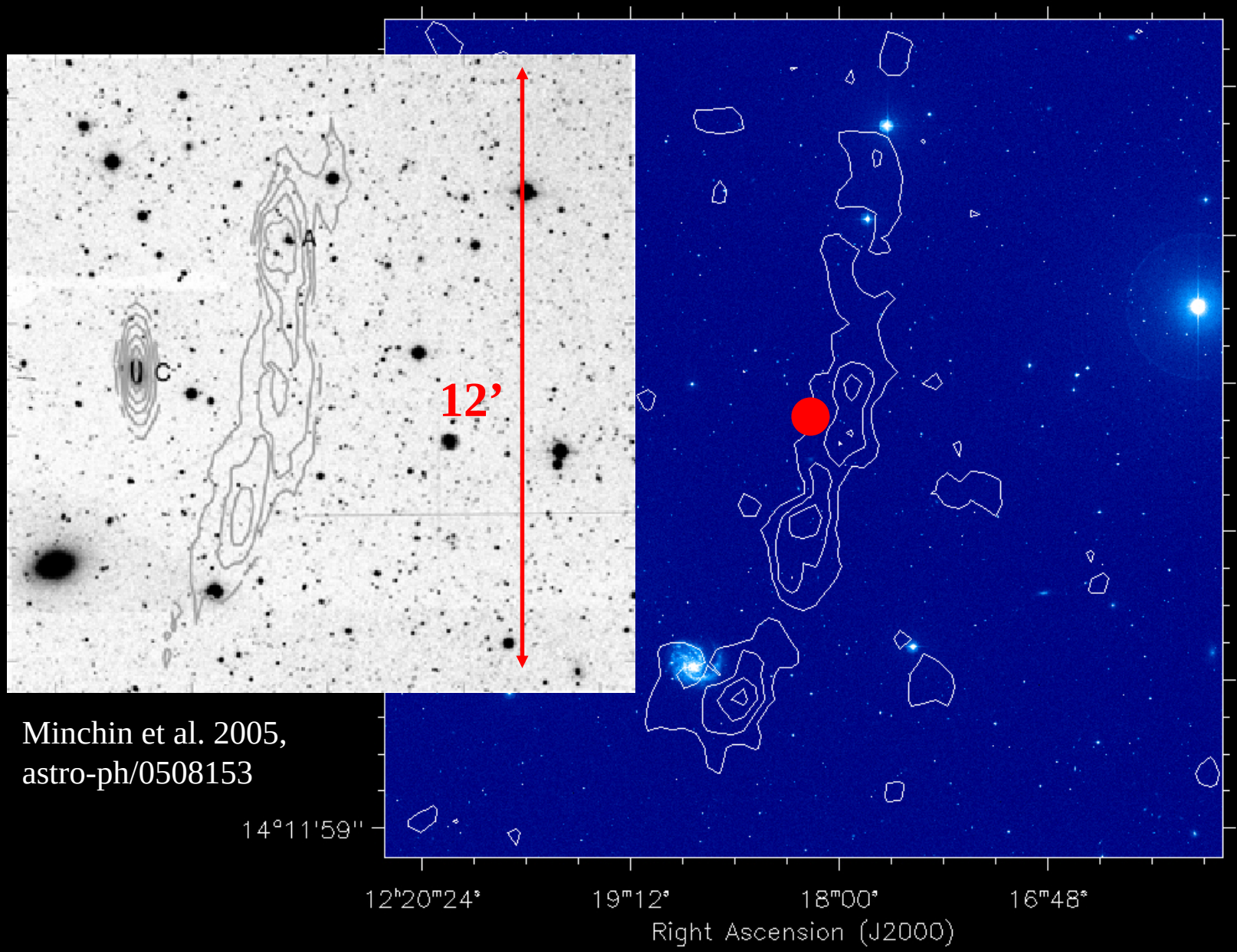

Combined ALFALFA data around **NGC 4254**
cz = 2243 to 2557 km/s
10’
45 kpc


Combined ALFALFA data around **VIRGOHI21**
cz = 1946 to 2259 km/s
10’
45 kpc

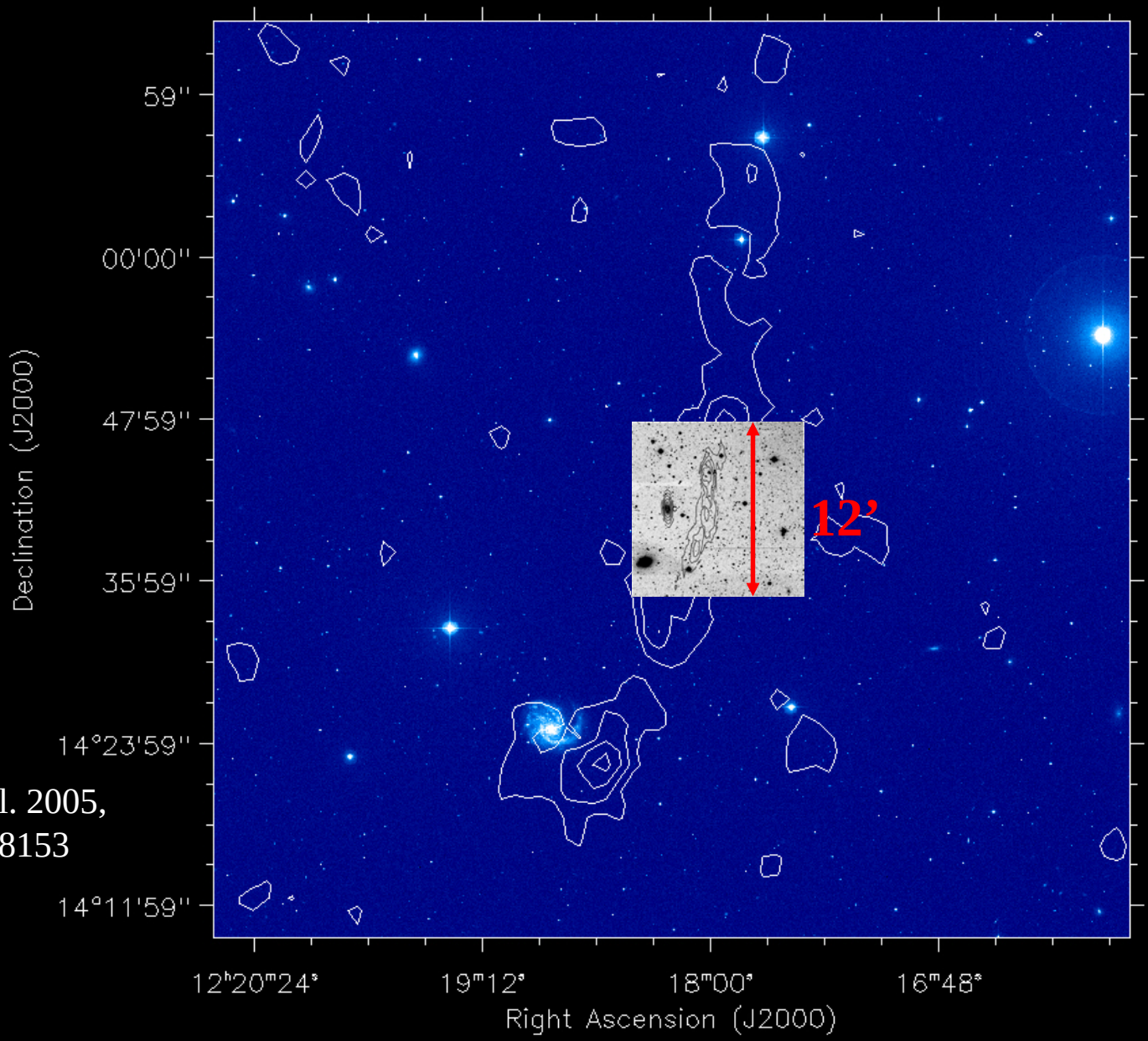

Overlayed datasets
10’
45 kpc



Contours at the 1,2,3,4,5,6 mJy/beam level



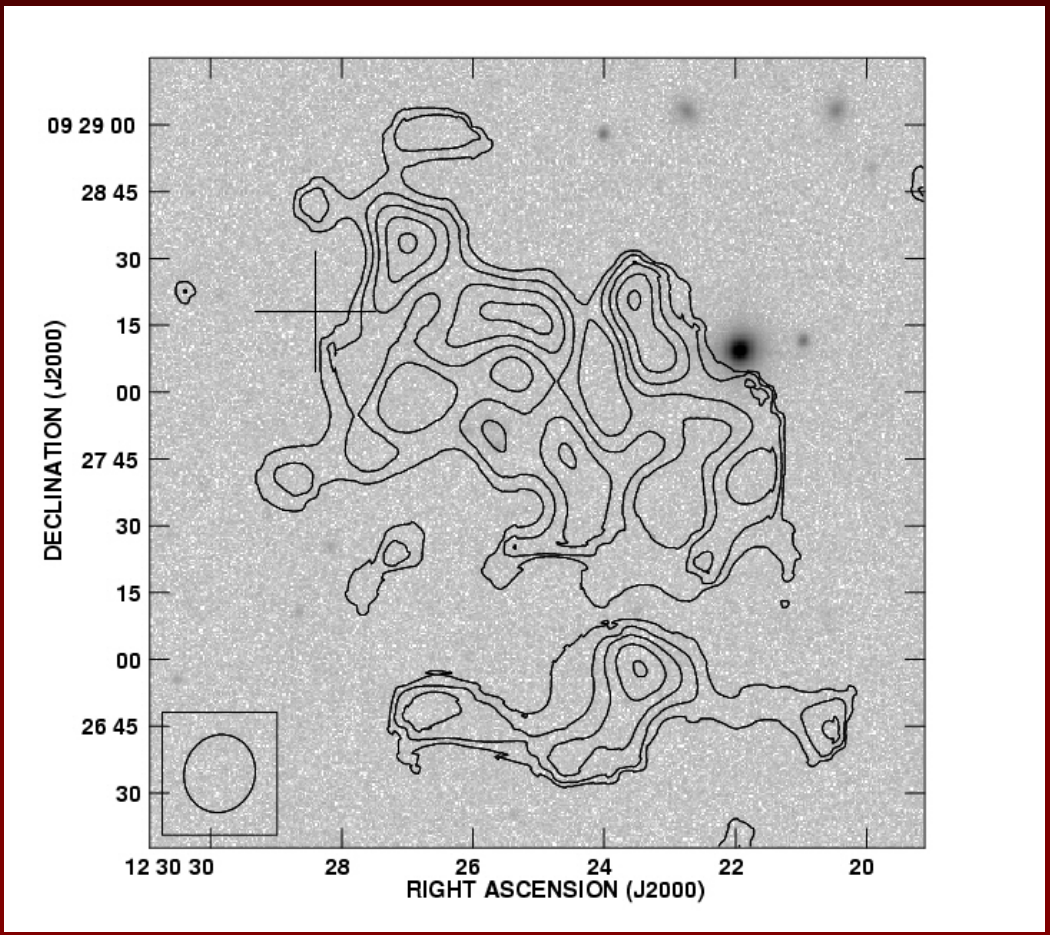
Minchin et al. 2005,
astro-ph/0508153



Minchin et al. 2005,
astro-ph/0508153

Various Virgo detections

- Virgo Cloud with AO (discussion with R. Giovanelli) – details of ALFALFA detection and processing
- Virgo Cloud with VLA (discussion with K. Spekkens)



K. Spekkens