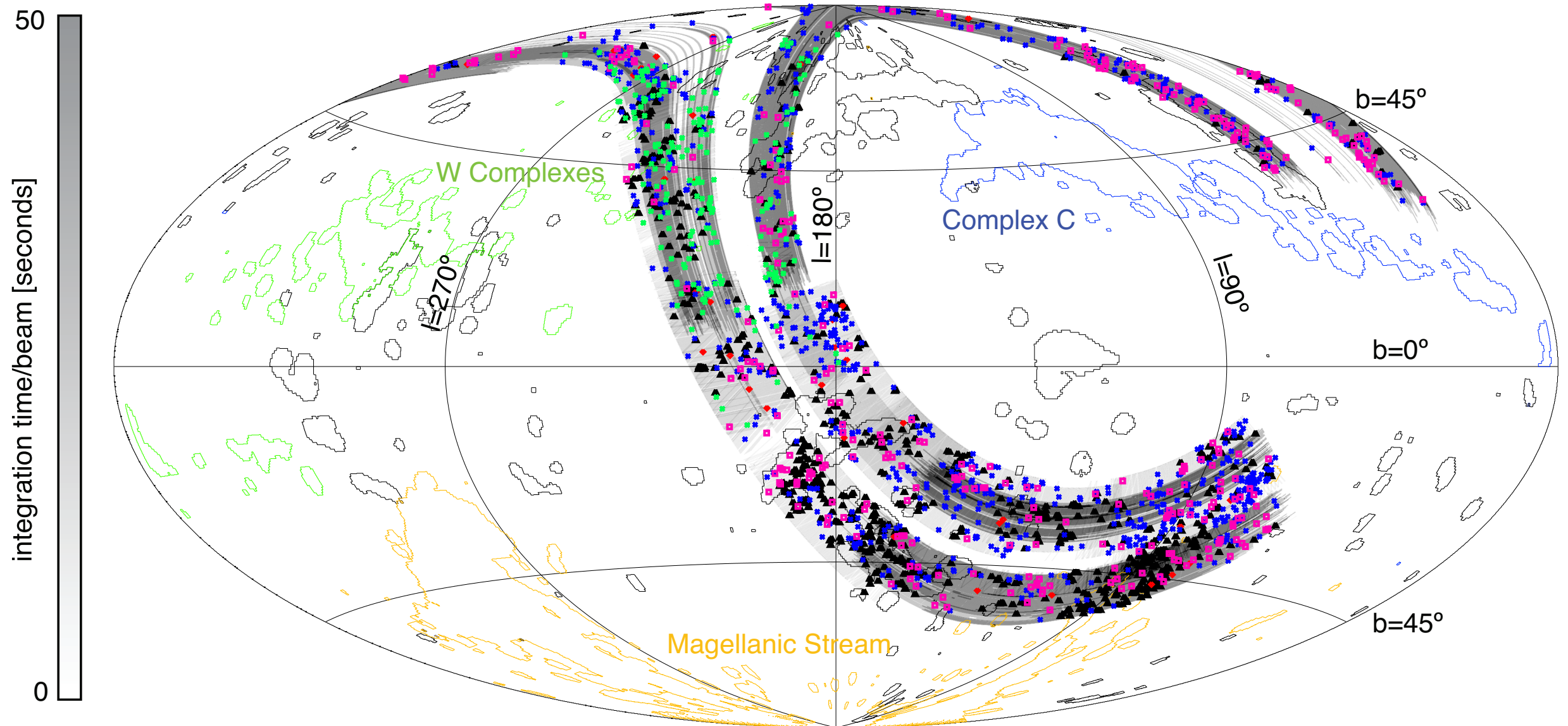


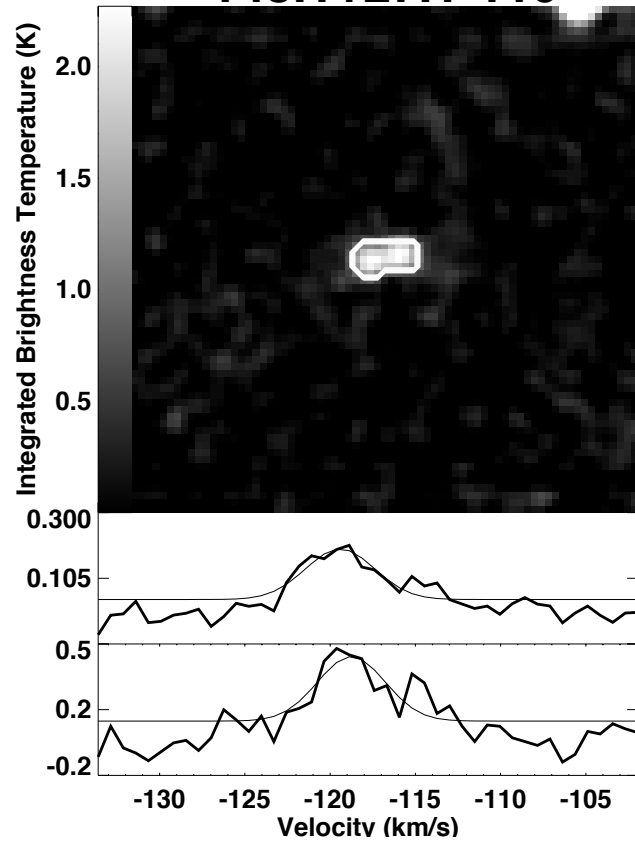
The GALFA-HI Compact Cloud Catalog: Isolated Clouds in Different Environments

Destry R. Saul
Columbia University

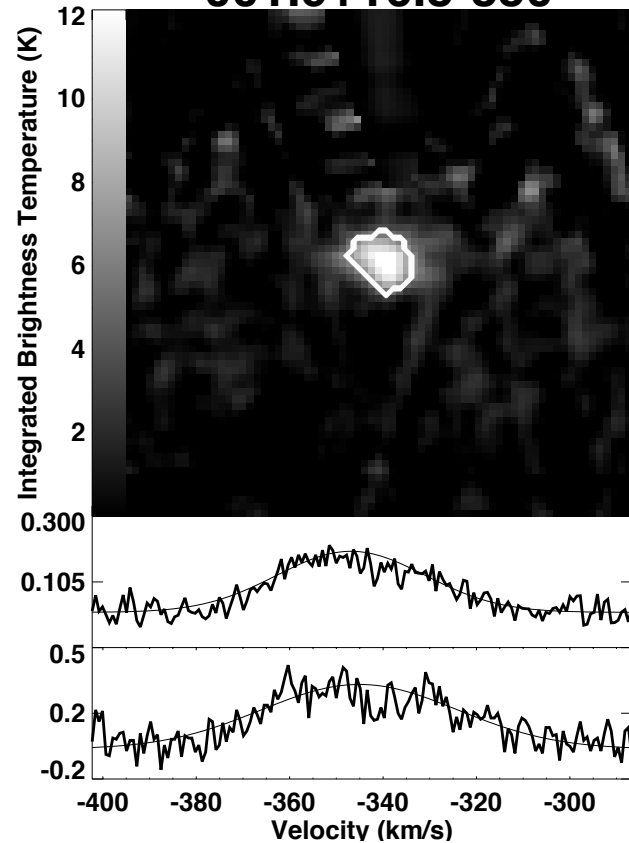


GALFA-HI Data Release 1:
purcell.ssl.berkeley.edu

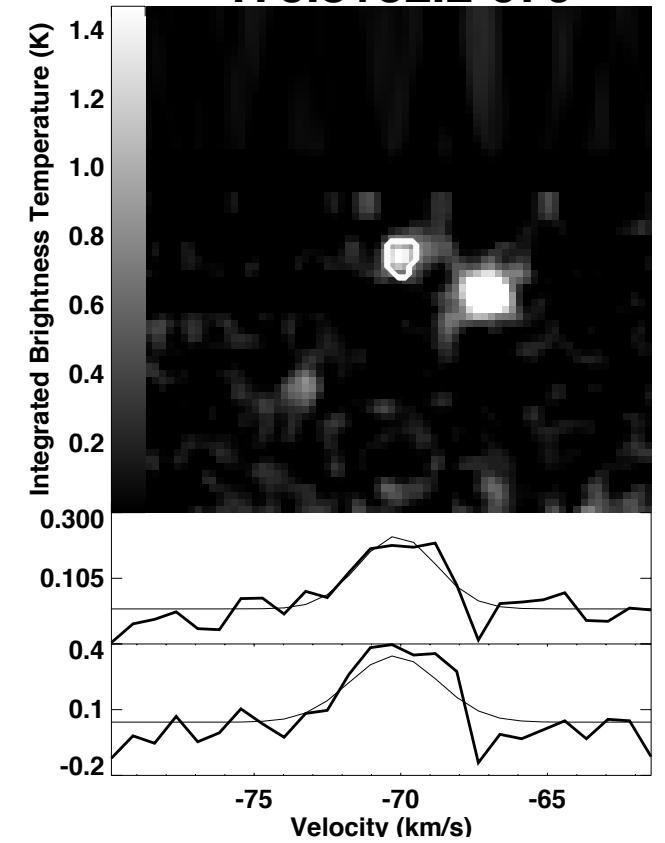
143.1+27.1-119



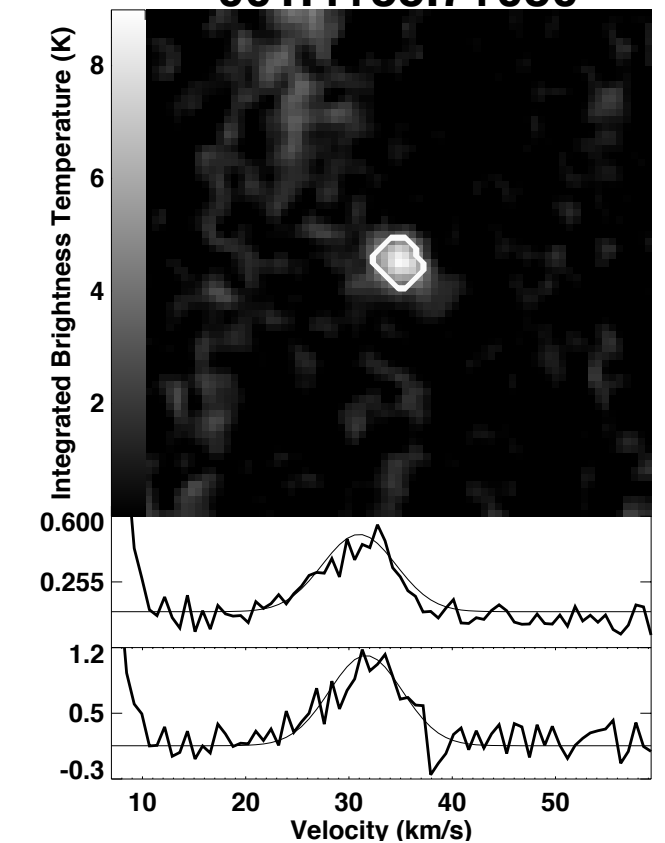
001.9+16.3-350



175.8+32.2-070



001.4+35.7+030

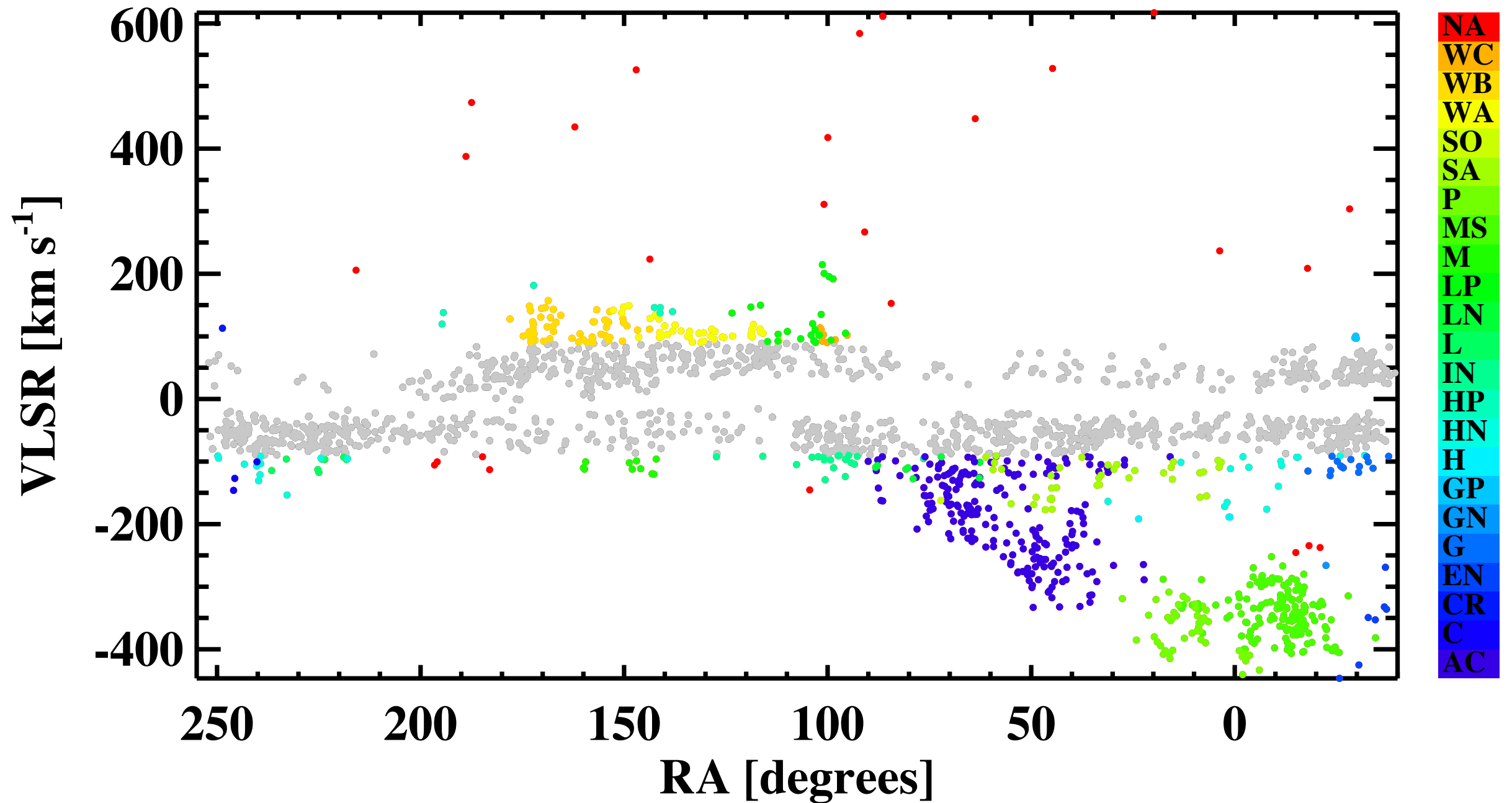


The GALFA-HI Compact Cloud Catalog

Destry R. Saul - Columbia University
J. E. G. Peek - Columbia University
J. Grcevich - Columbia University
M. E. Putman - Columbia University
K.A. Douglas - DRAO
E. J. Korpela - UC Berkeley/SSL
S. Stanimirović - UW Madison
C. Heiles - UC Berkeley
S. J. Gibson - Western Kentucky University
M. Lee - UW Madison
A. Begum - UW Madison
A. R. H. Brown - Columbia University
B. Burkhart - UW Madison
E. T. Hamden - Columbia University
N. M. Pingel - UW Madison
S. Tonnesen - Princeton University

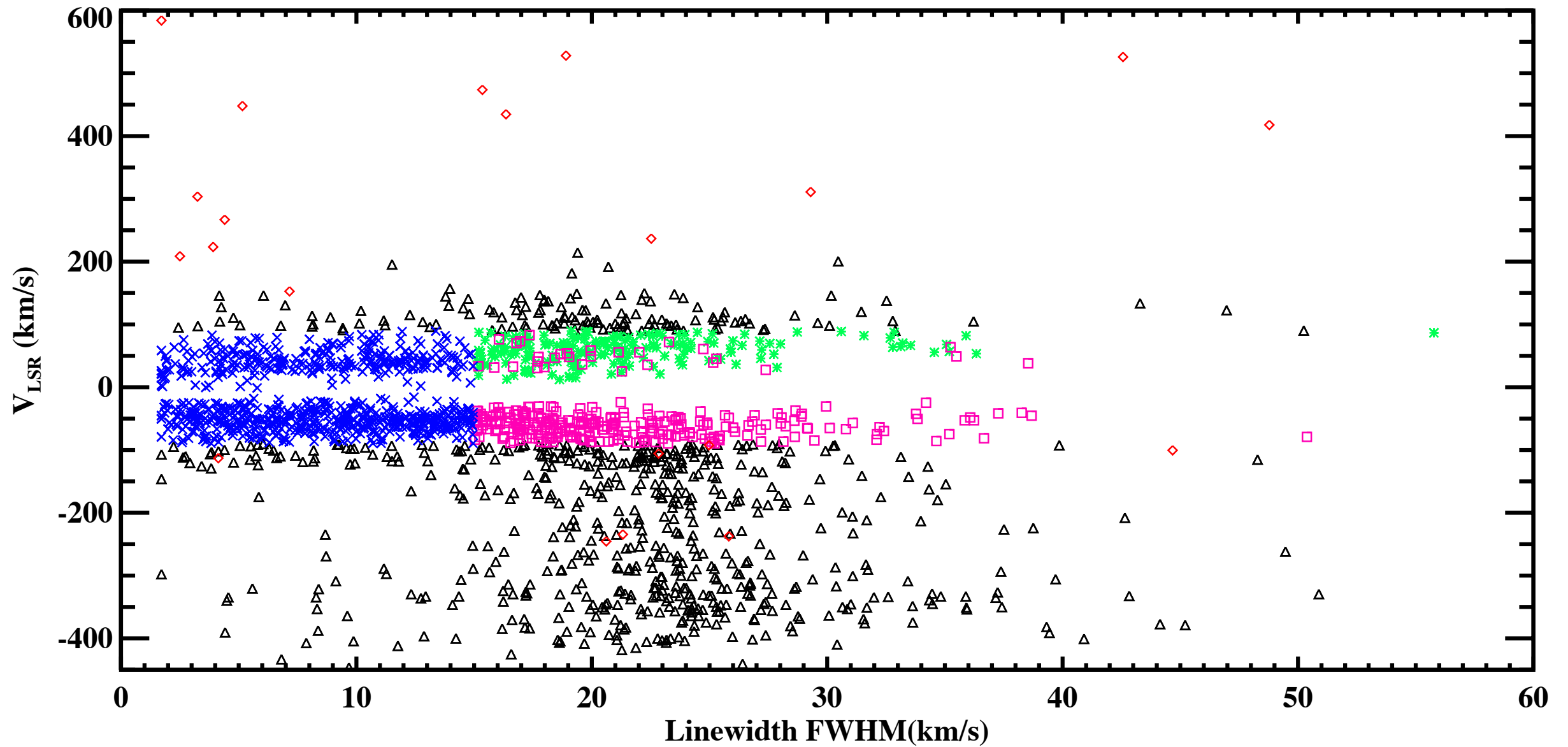
High Velocity Clouds are near complexes

Galaxy Candidates are at positive velocities

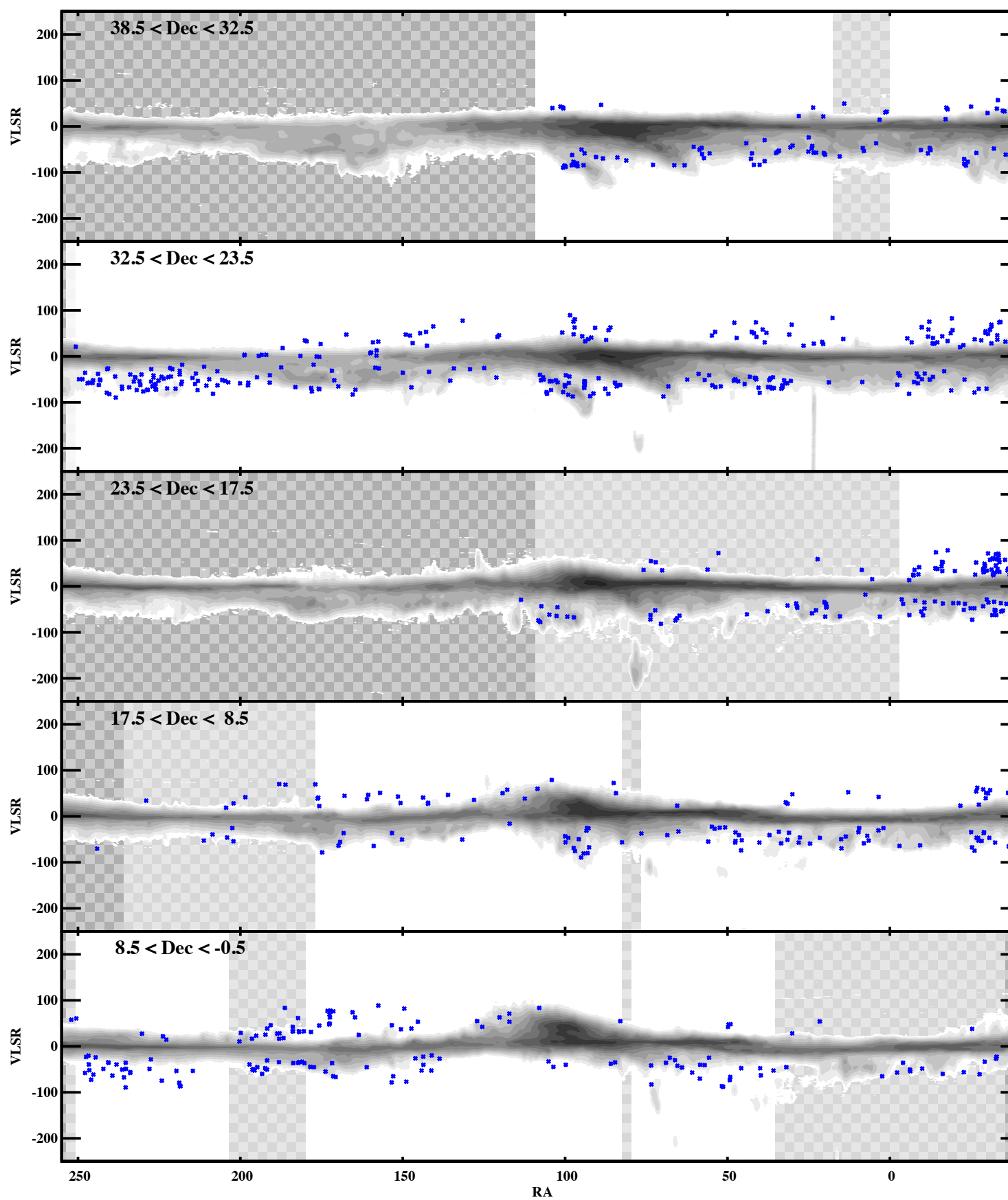


High Velocity Clouds are near complexes

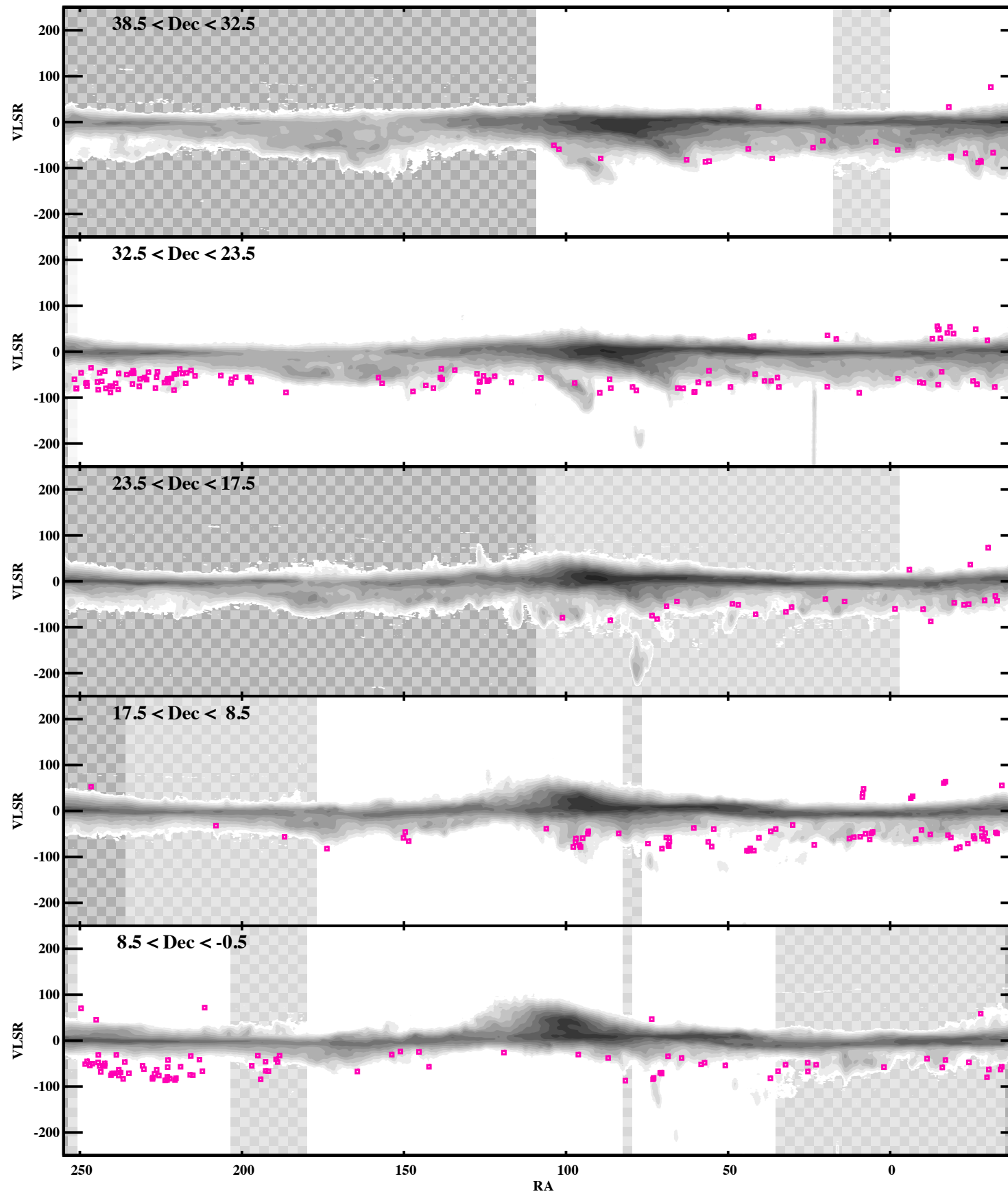
Galaxy Candidates are at positive velocities



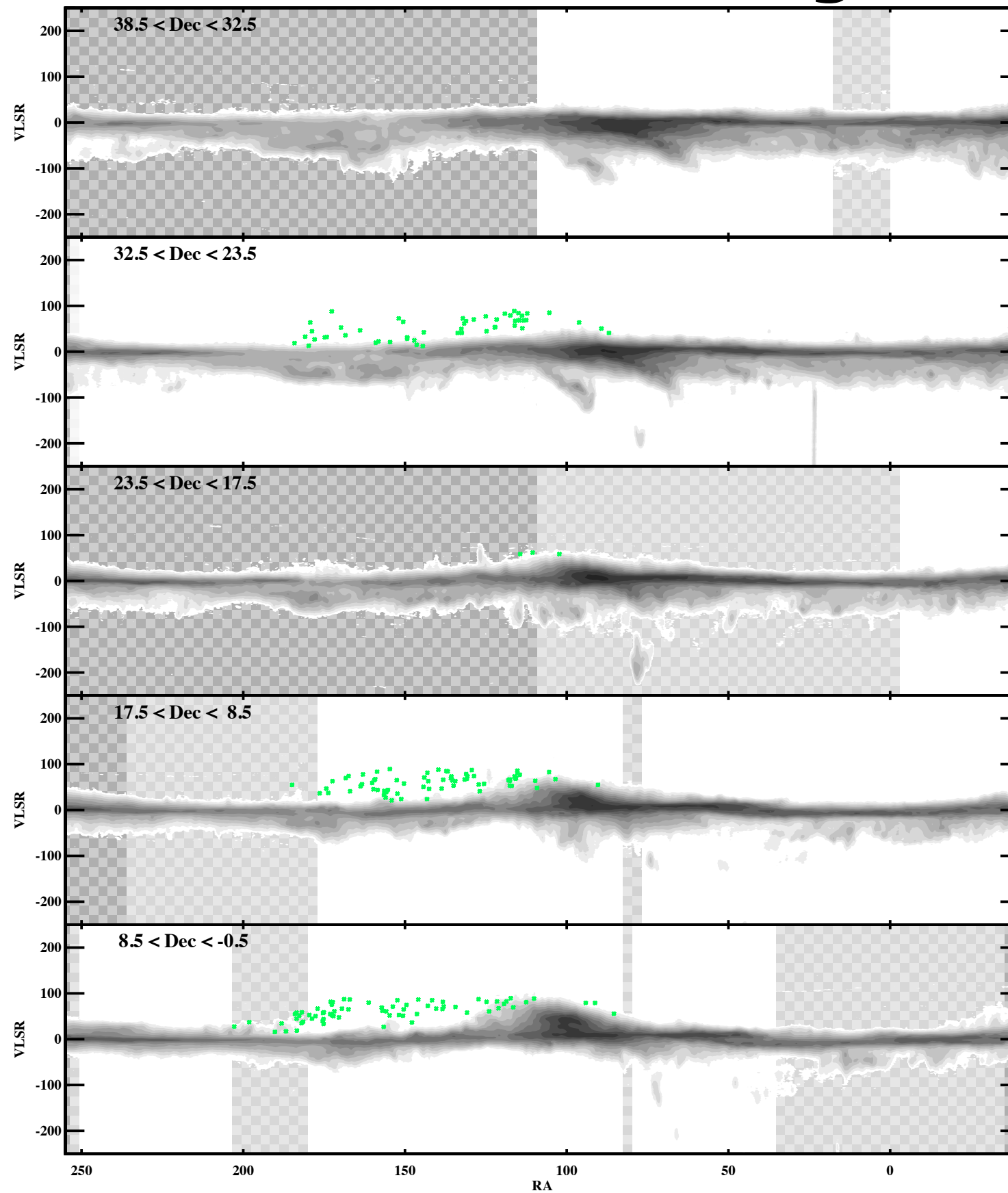
Cold Low Velocity Clouds are corotating



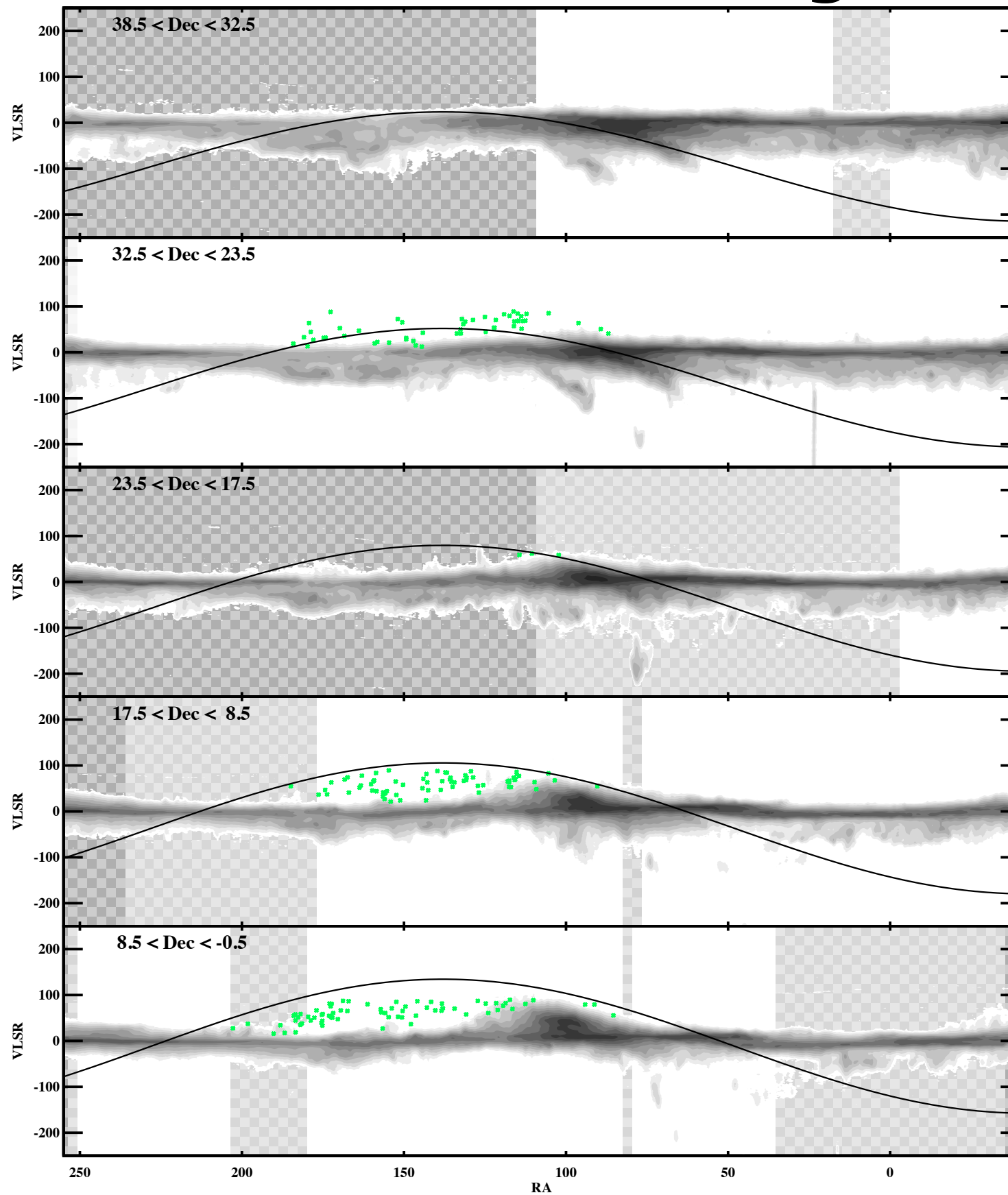
Warm Low Velocity Clouds are infalling



Warm, Low Positive Velocity Clouds in Q3 are not corotating



Warm, Low Positive Velocity Clouds in Q3 are not corotating



High Velocity Clouds are near complexes

Galaxy Candidates are at positive velocities

Cold Low Velocity Clouds are corotating

Warm Low Velocity Clouds are infalling

**Warm, Low Positive Velocity Clouds in Q3
are not corotating**

Local Group Dwarf Galaxy Candidates Project

- 54 promising Local Group dwarf galaxy candidates
- column densities greater than $5 \times 10^{19} \text{ cm}^{-2}$,
- peak brightness temperatures greater than 1.5 K,
- exceeding the 3 sigma variation in LSR velocity compared to catalog clouds within 0.5 deg, or having an LSR velocity exceeding 150 km/s.

HI characteristics of candidate with possible stellar population:

$$v_{\text{LSR}} = -232 \text{ km/s}$$

$$N_{\text{HI}} = 6.03 \times 10^{19} \text{ cm}^{-2}$$

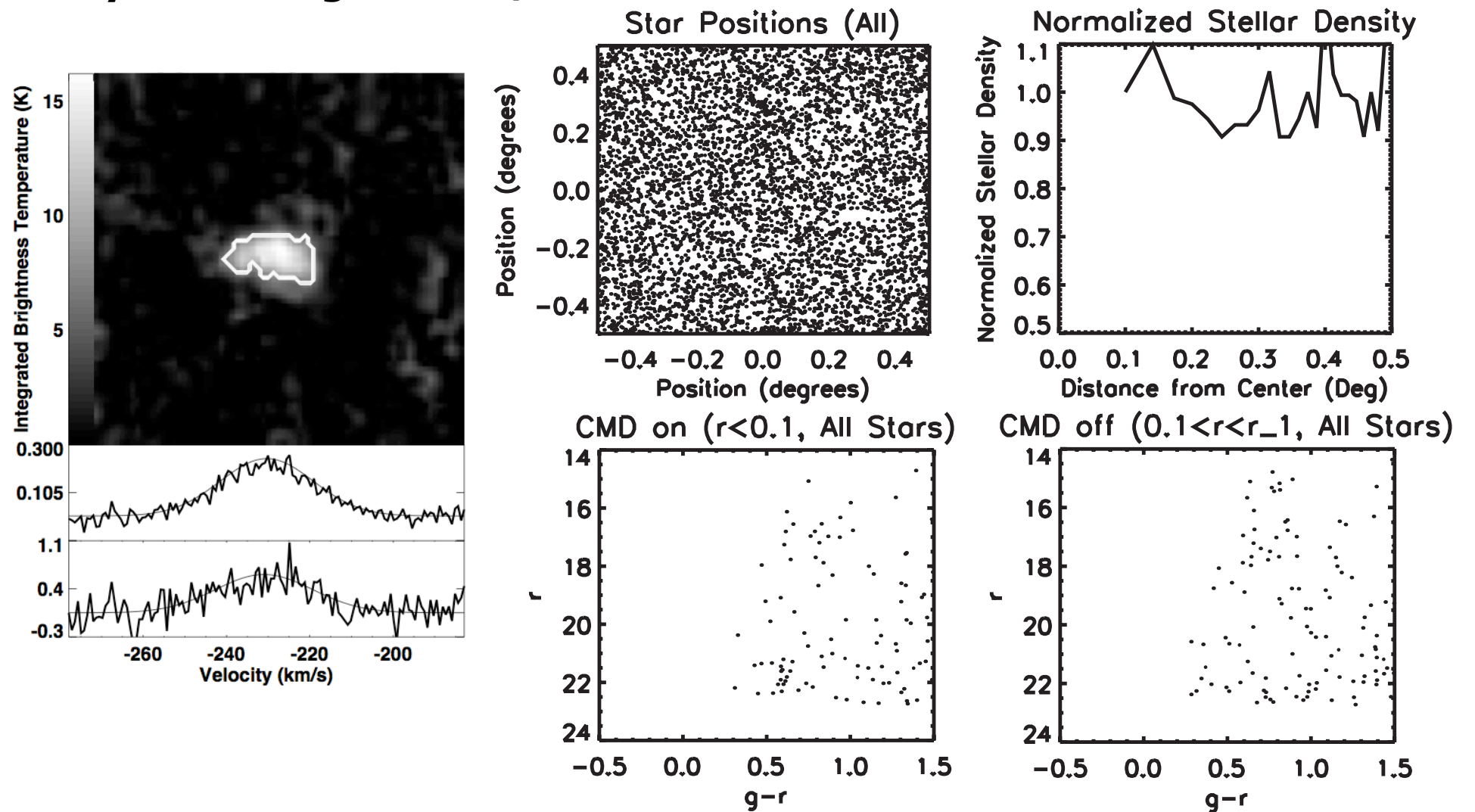
$$M_{\text{HI}} (\text{dist}=300\text{kpc}) = 2.76 \times 10^4 M_{\odot}$$

$$M_{\text{HI}} (\text{dist}=1\text{Mpc}) = 3.07 \times 10^5 M_{\odot}$$

$$\text{linewidth} = 26 \text{ km/s}$$

$$M_{\text{HI, LeoT}} = 2.8 \times 10^5 M_{\odot}$$

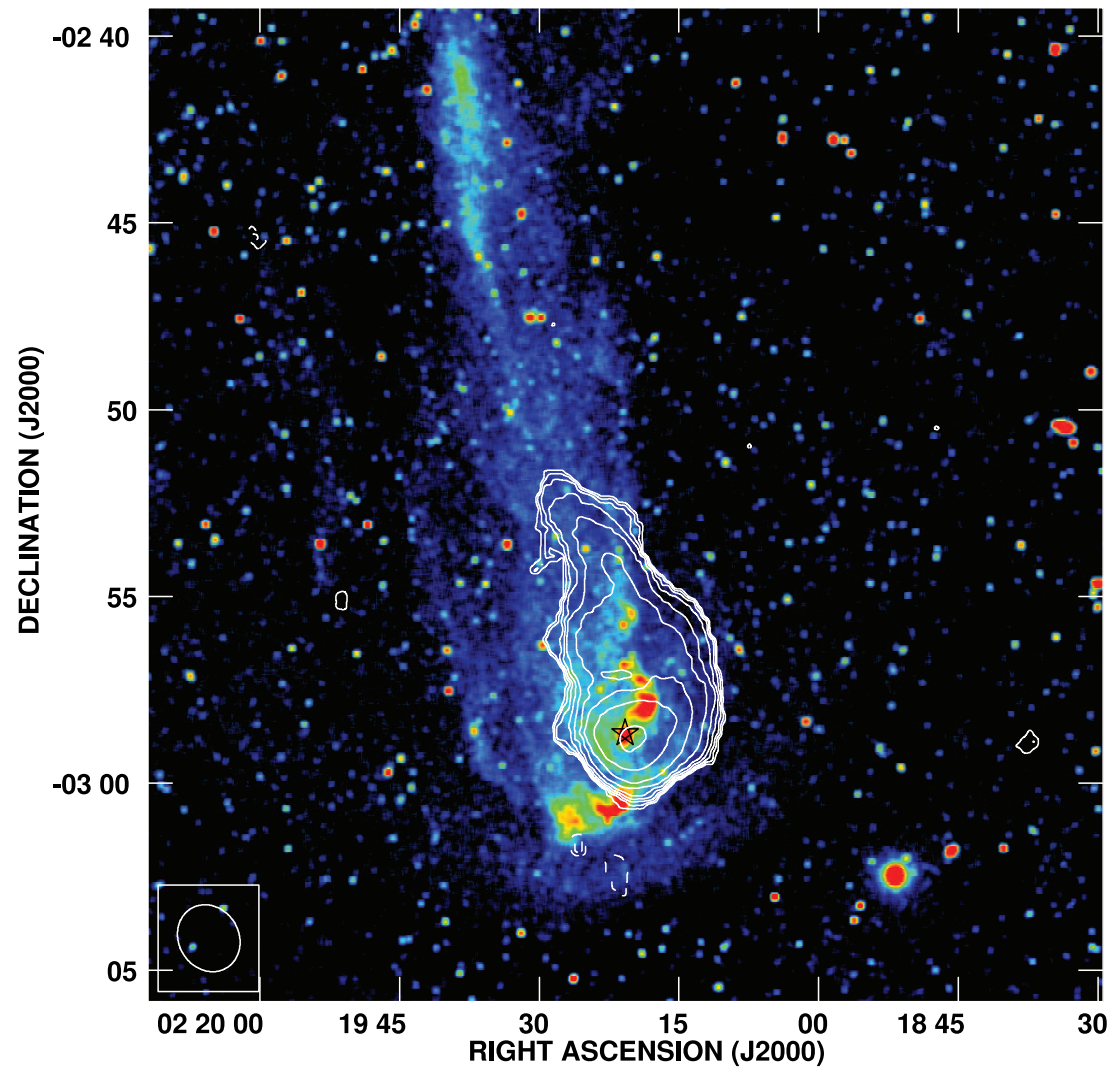
$$\text{linewidth}_{\text{LeoT}} = 16.2 \text{ km/s}$$



Grcevich et al. 2012, in prep.

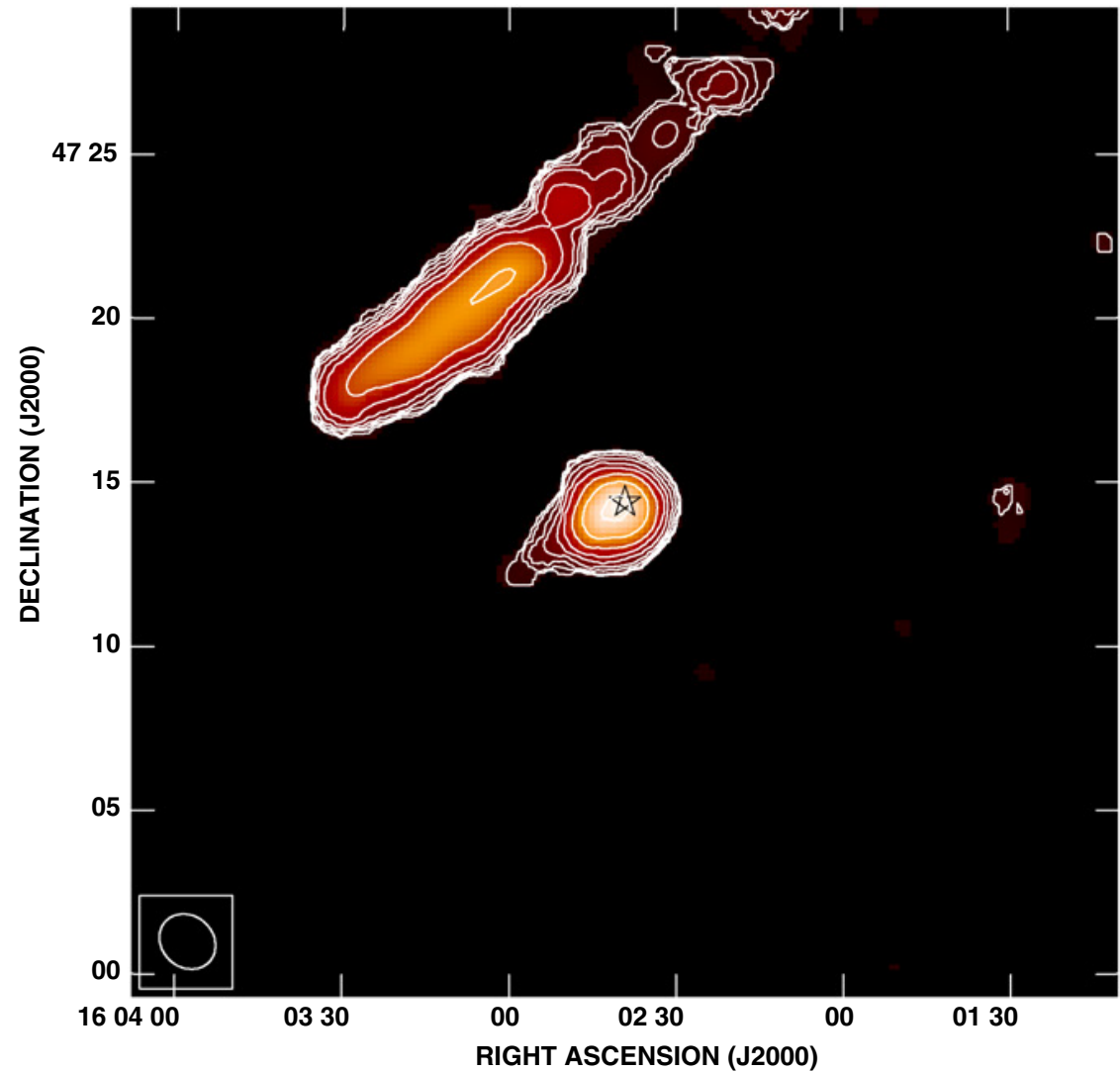
'StarPuffs' - HI Clouds Ejected From Stars

Mira



Matthews et al. 2008

X Herculis



Matthews et al. 2011

Radio Discovered Dwarf Satellites

'StarPuffs' - HI Clouds Ejected From Stars

Dust - Detections and Limits

A Multi-Wavelength Study of a Cold Cloud