Transition to Coherence: Finding the Edge of Coherent Cores

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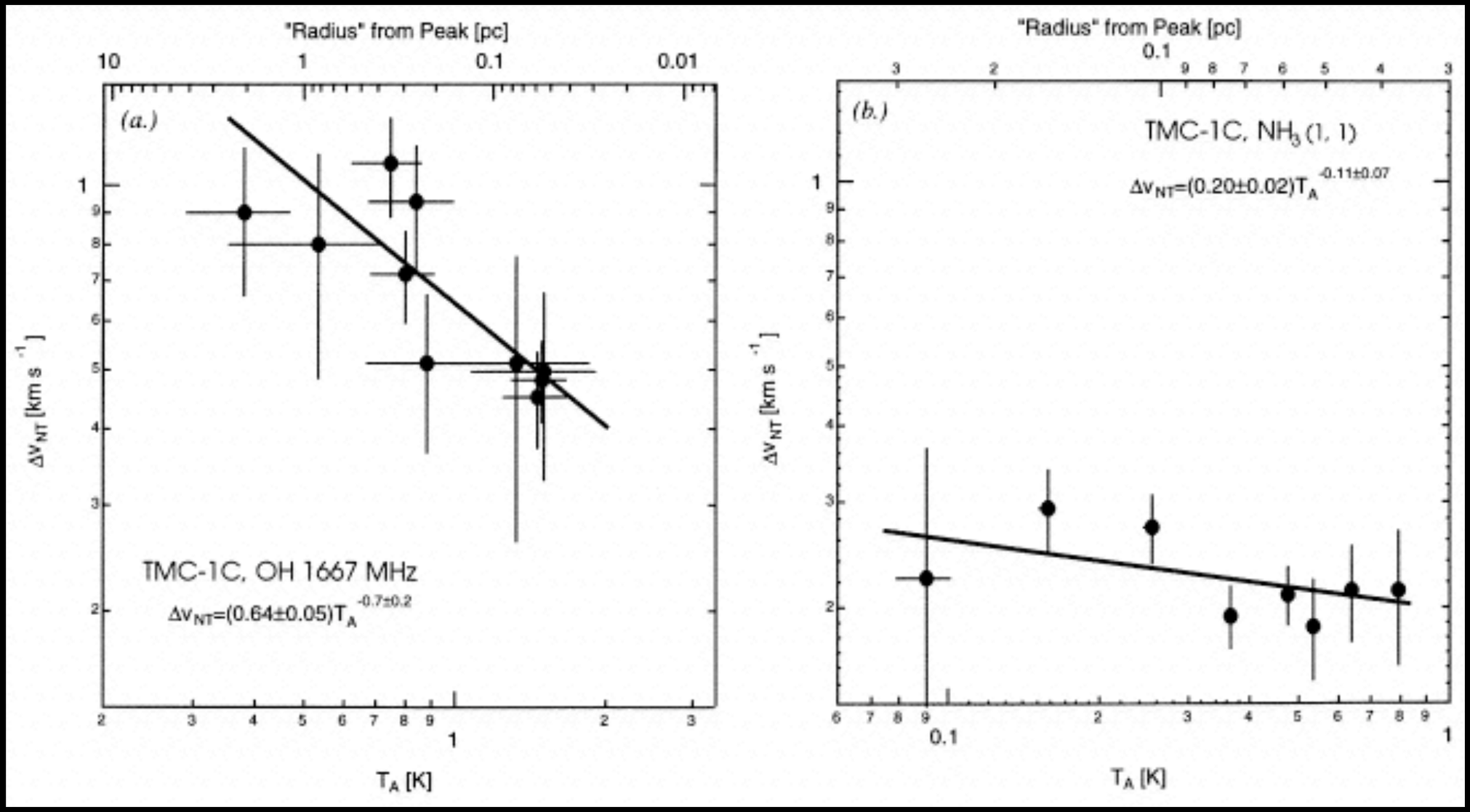
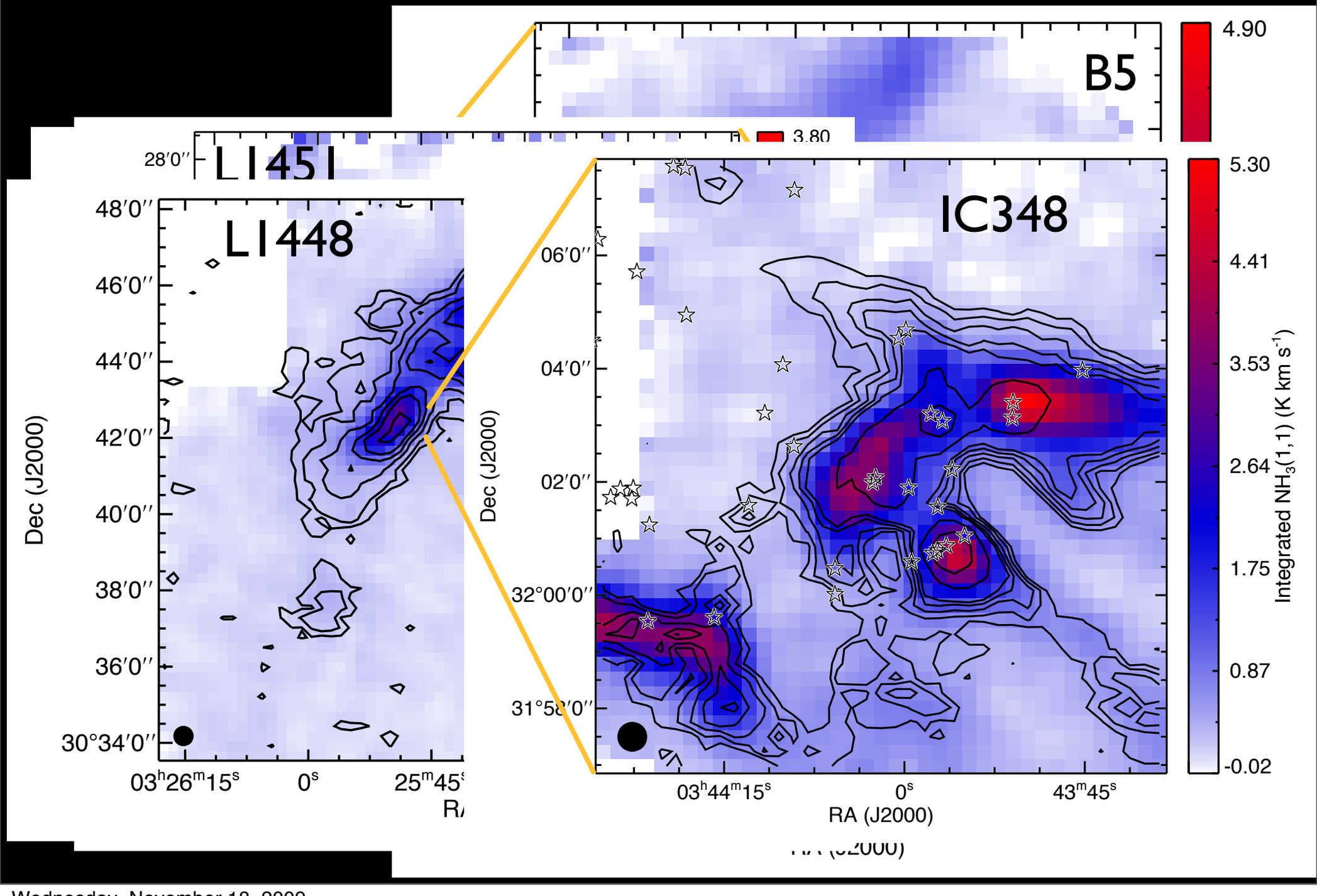
DCDC LXV, Newport, RI Oct 21-23

Dense Cores



Goodman et al. (1998)



Wednesday, November 18, 2009

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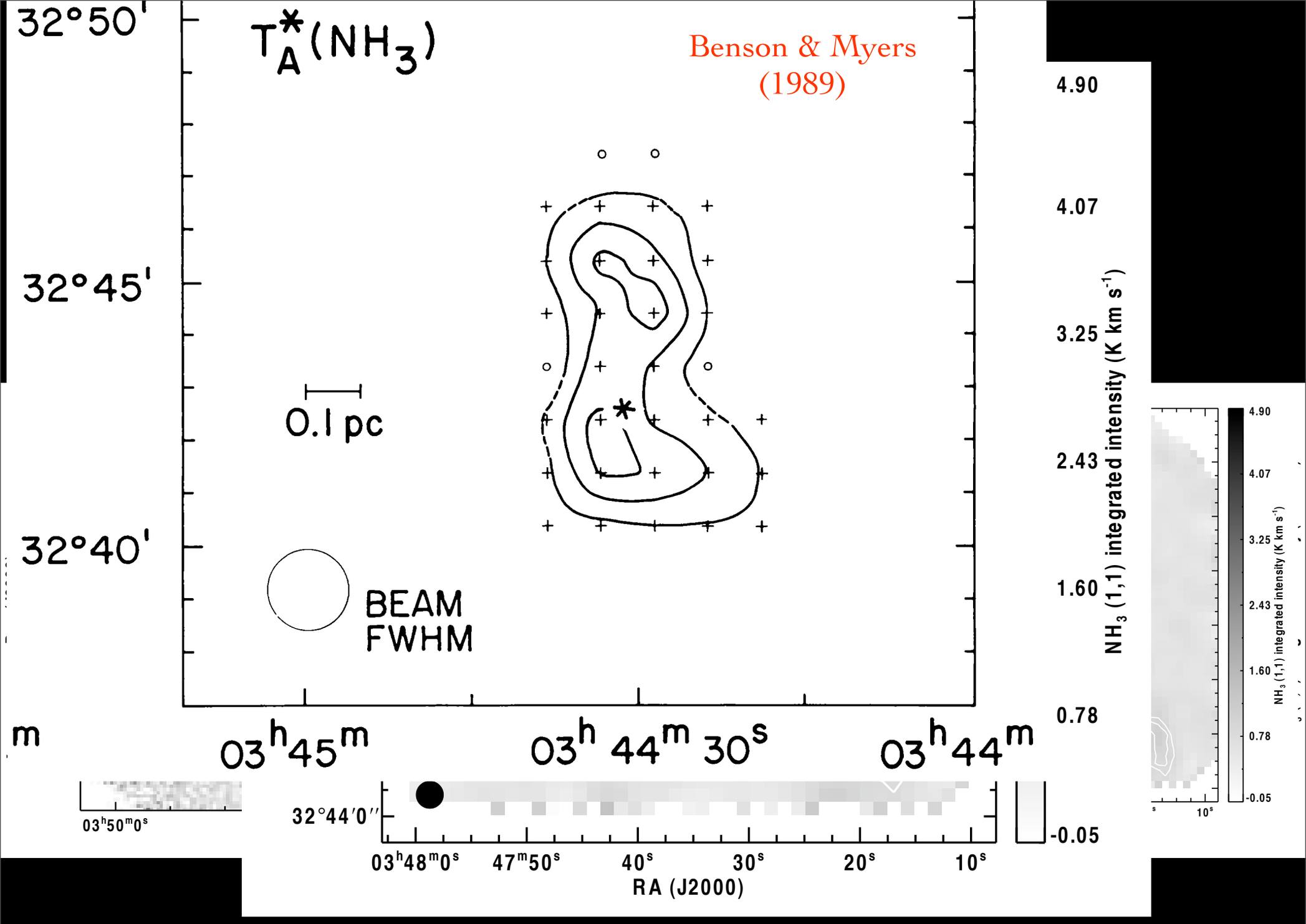
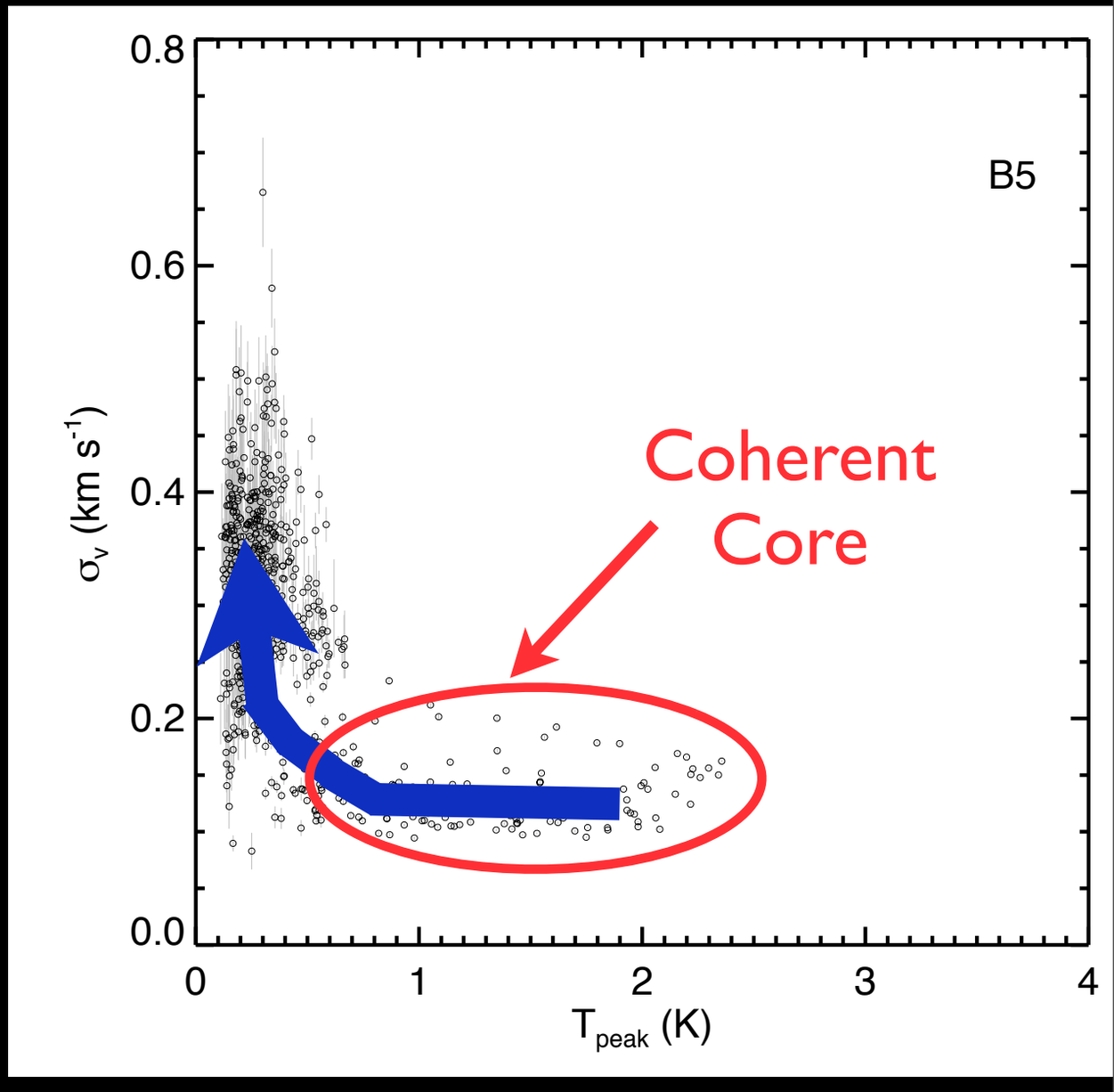
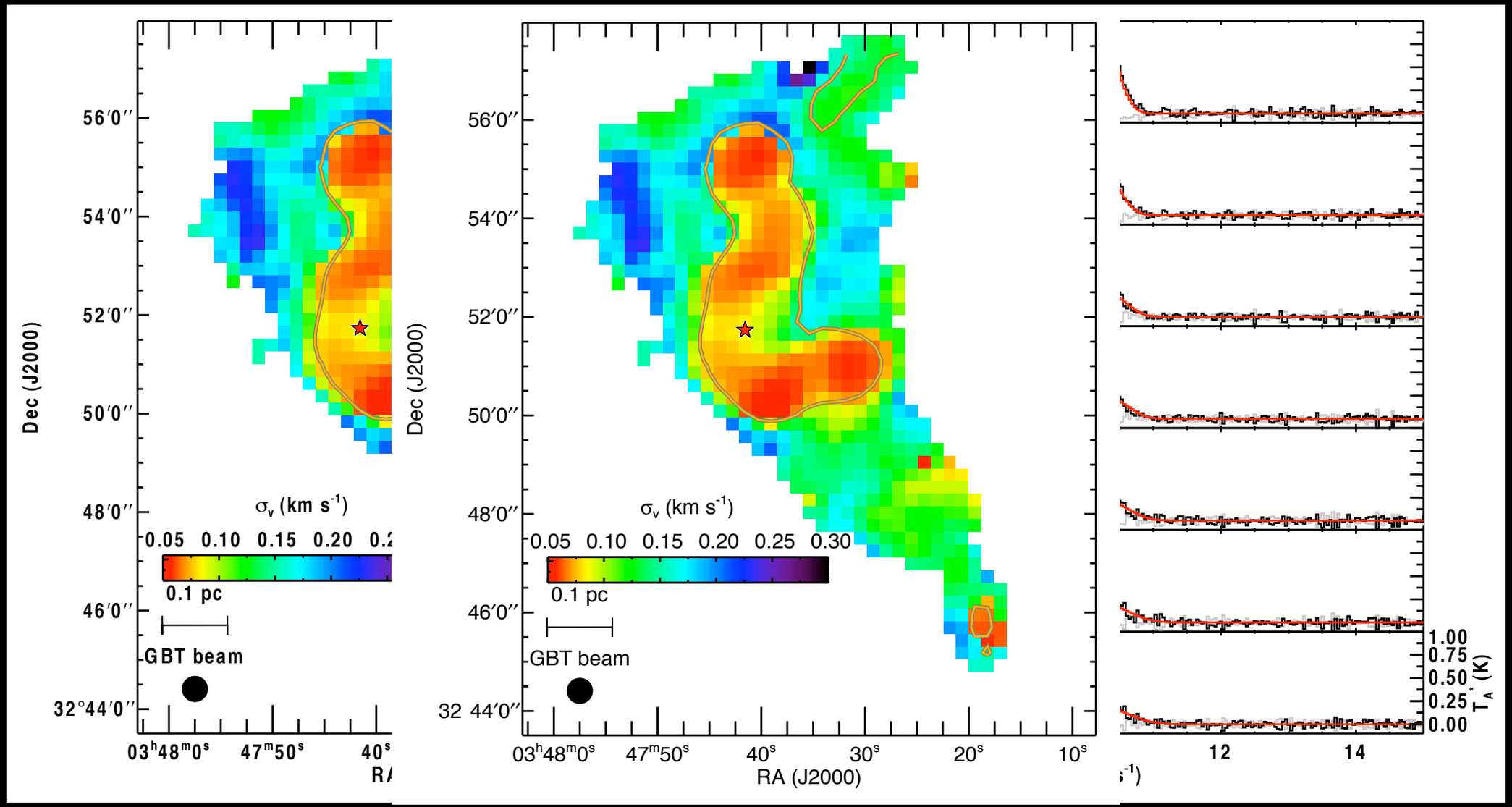

$T_A^*(NH_3)$
Benson & Myers (1989)
32°50'
32°45'
32°40'
0.1 pc
BEAM FWHM
03h45m
03h 44m 30s
03h44m
4.90
4.07
3.25
2.43
1.60
0.78
-0.05
NH_3 (1,1) integrated intensity (K km s^{-1})
32°44'0''
03h48m0s
47m50s
40s
30s
20s
10s
RA (J2000)

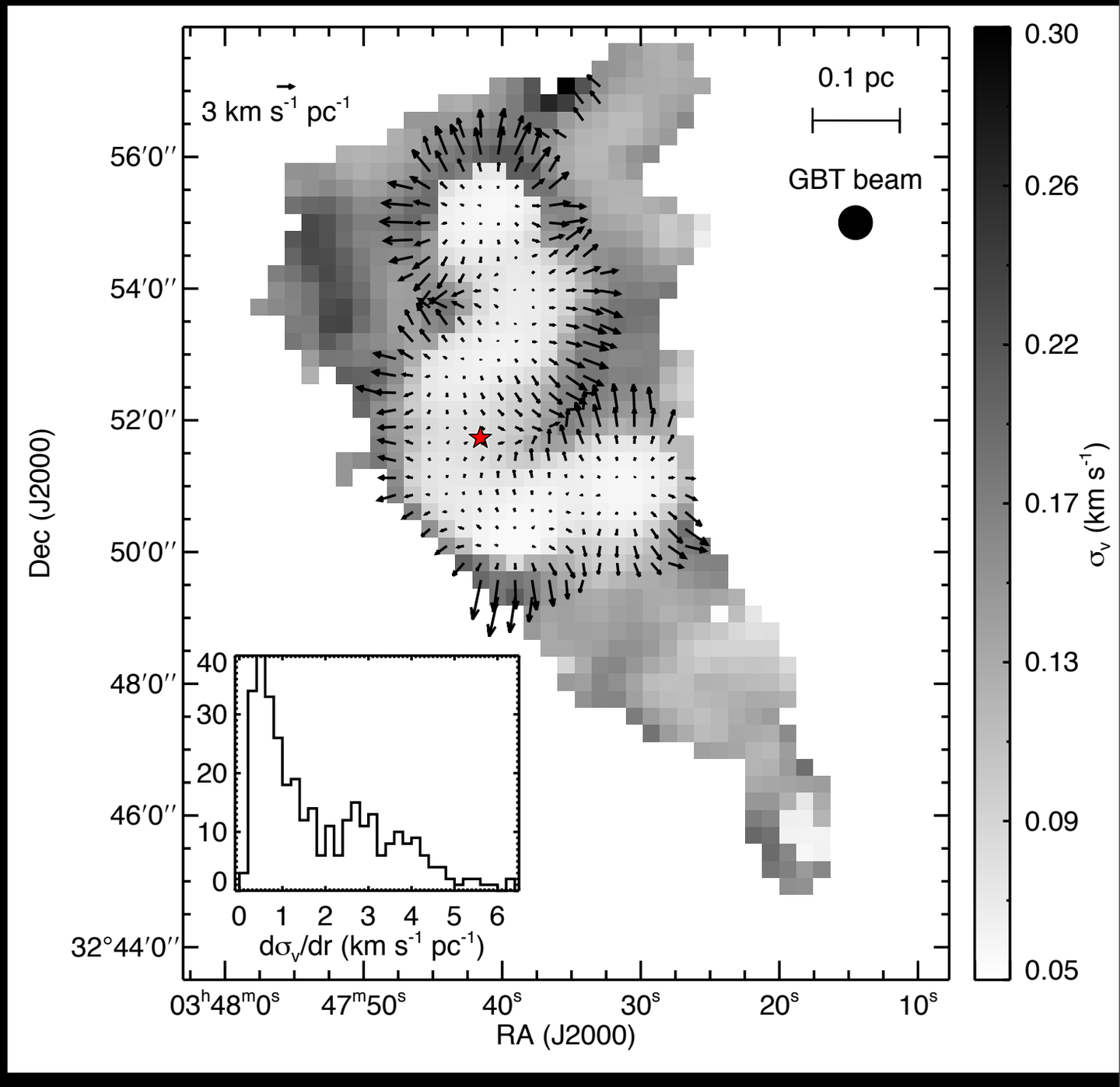
Transition to Coherence



Velocity Dispersion map



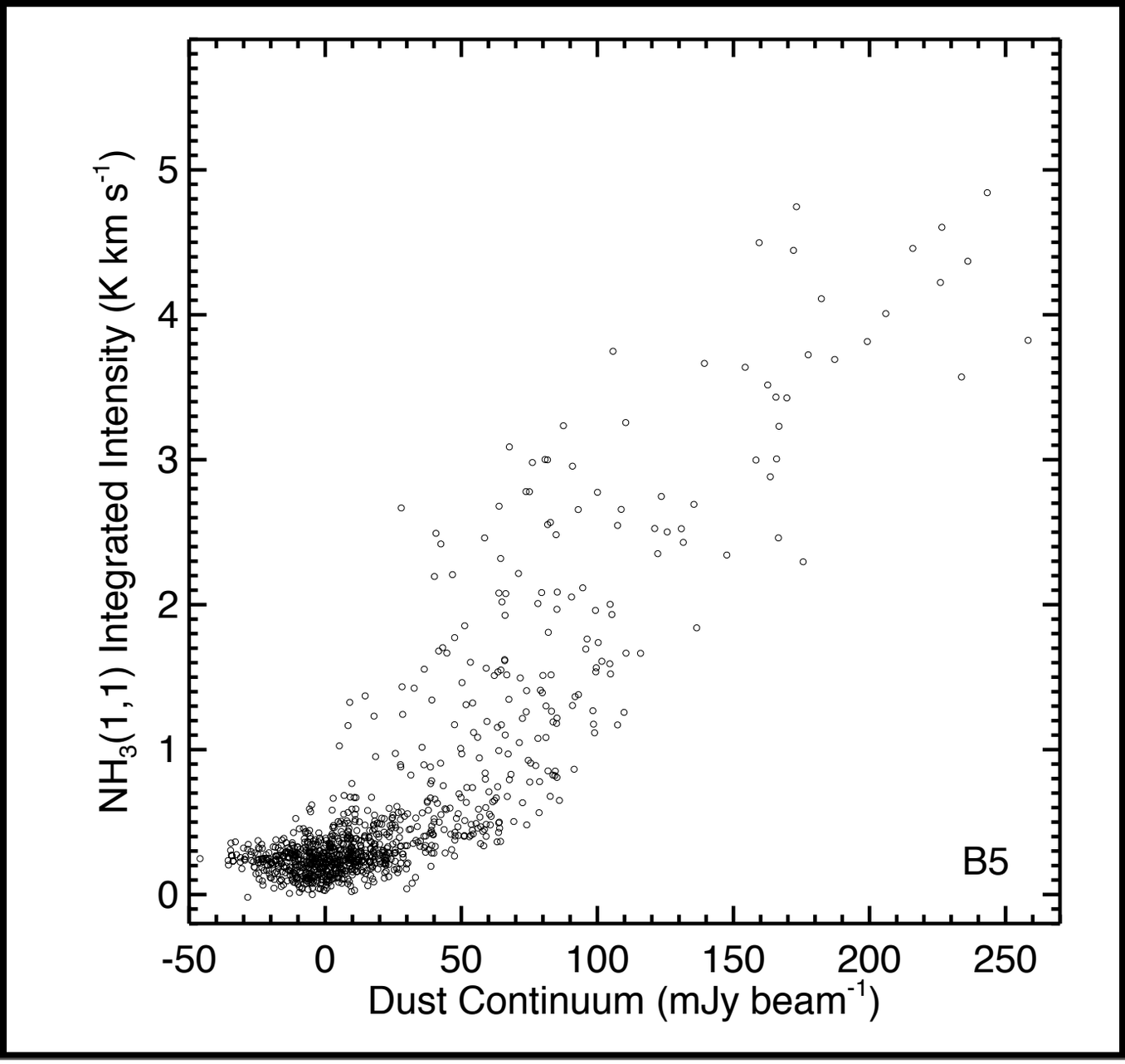
Velocity Dispersion Gradient



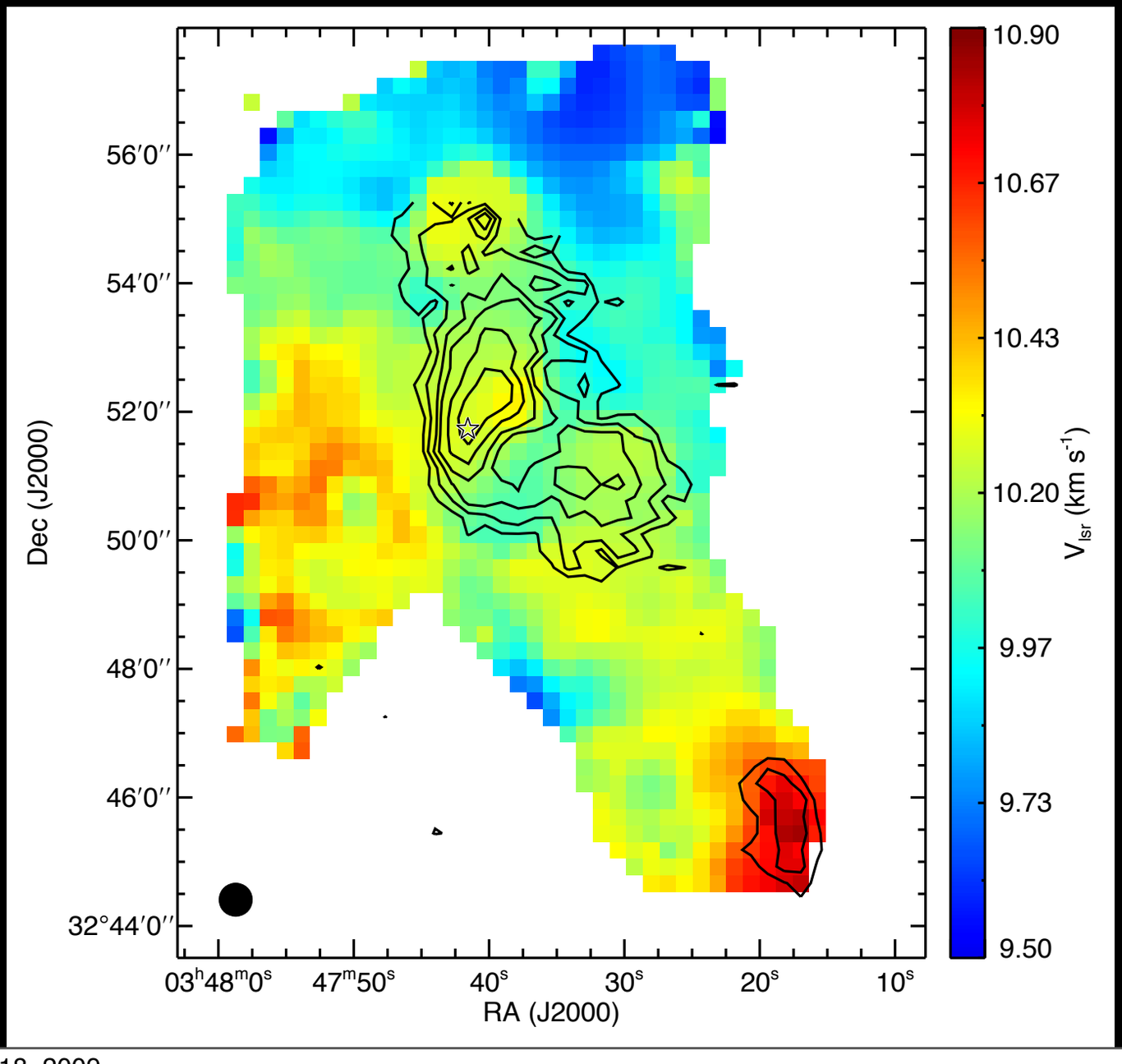
Summary

- Four large area maps of $NH_3(1,1)$ with the GBT
- $NH_3(1,1)$ is found at positions without dust continuum emission
- "Transition to Coherence" is observed for the first time
- Transition to Coherence is very sharp: in ~0.06pc the s_v changes by a factor of 2x
- The transition to coherence could provide a robust definition of a dense core
- It might provide stronger constrains on simulations than pointed observations

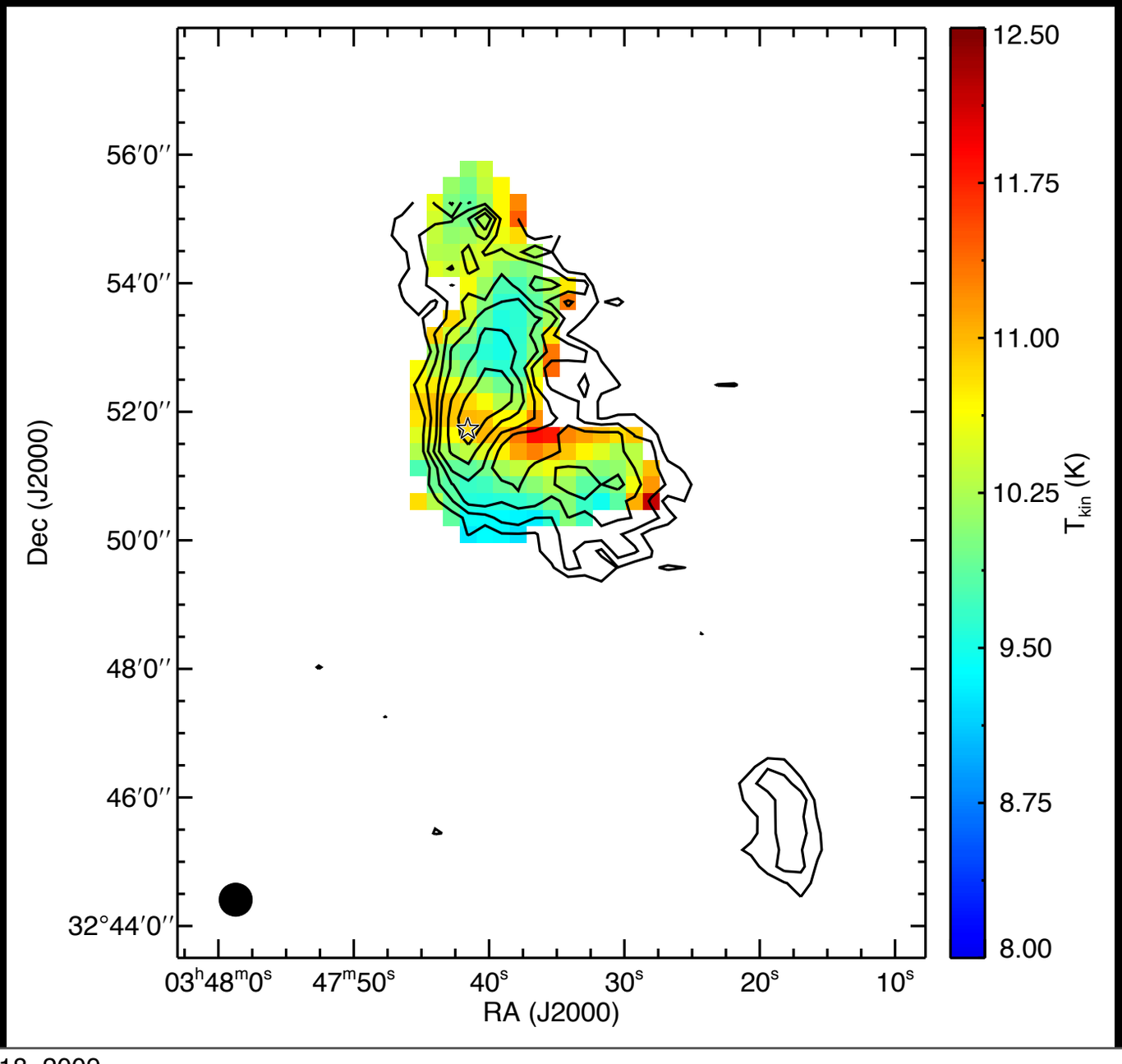
$NH_3(1,1)$ and dust emission



Centroid Velocity map



Kinetic Temperature map



Non-Thermal component