

VLA large program

PI: H. Beuther  
+ the THOR team

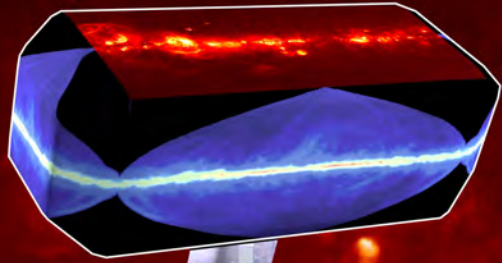
<http://www.mpia.de/thor>



# THOR

**The  $\text{H I/OH/R}$  Recombination  
line survey of the Milky Way**

# The **H**I/**O**H/**R**ecombination line survey of the Milky Way

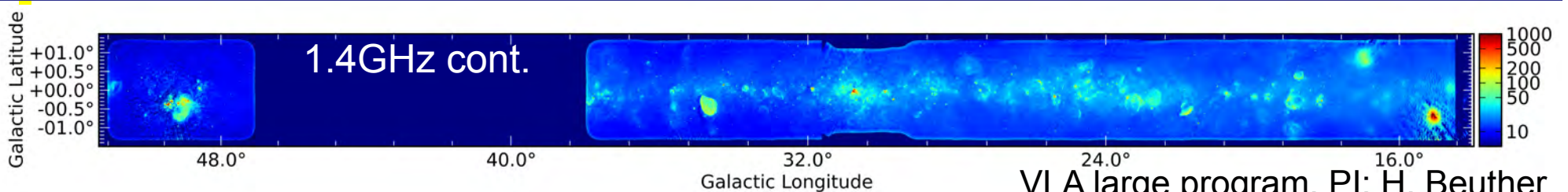


# HOR

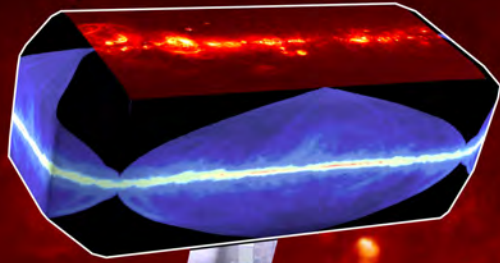


## Survey specs:

- Coverage from  $15 < L < 65$  deg and  $B < \pm 1.25$  deg
- 15''-20'' resolution
- HI 21cm line
- 4 OH lines
- 19 Recomb. lines
- cm continuum (1-2 GHz)



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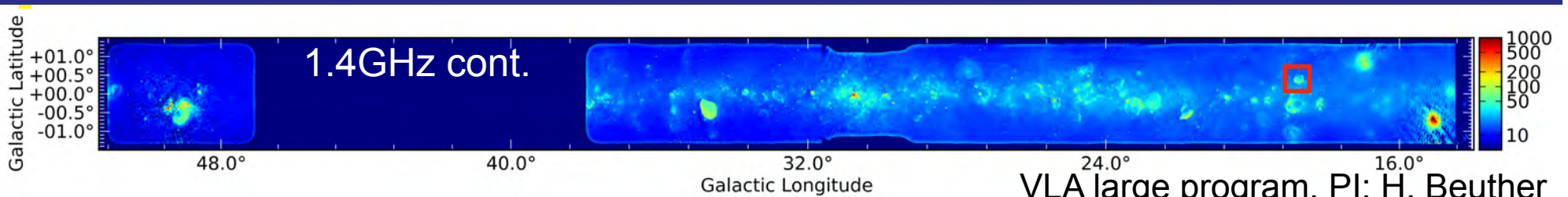


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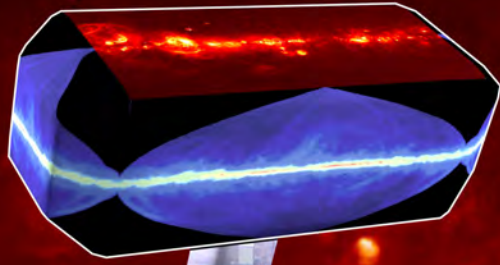


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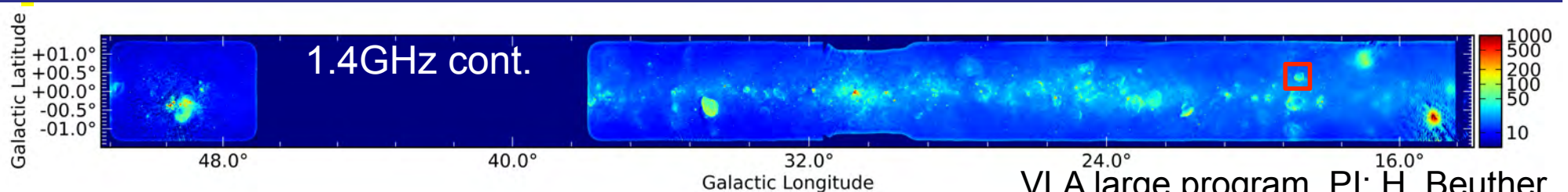
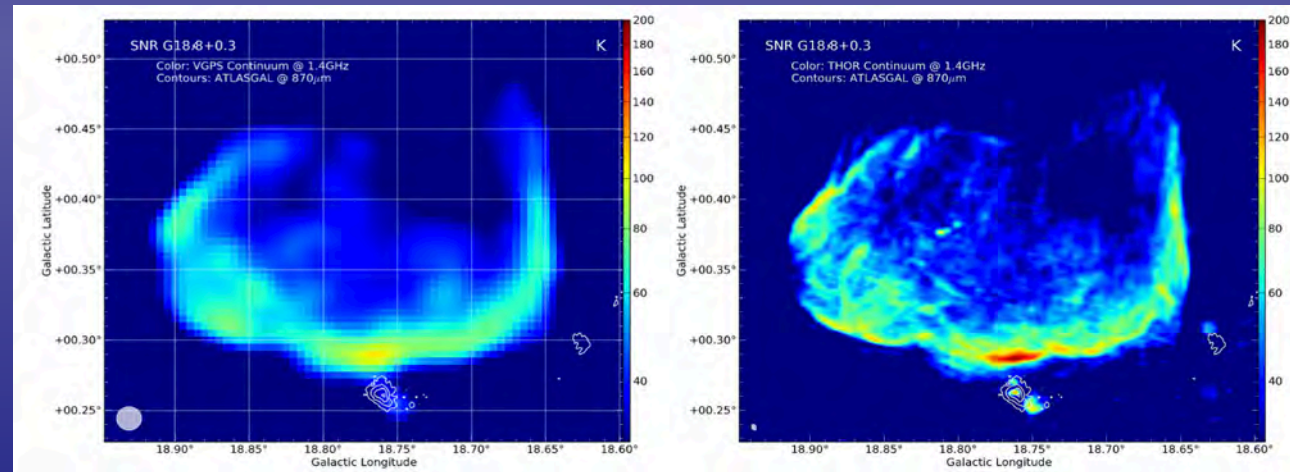
# HOR



VLA

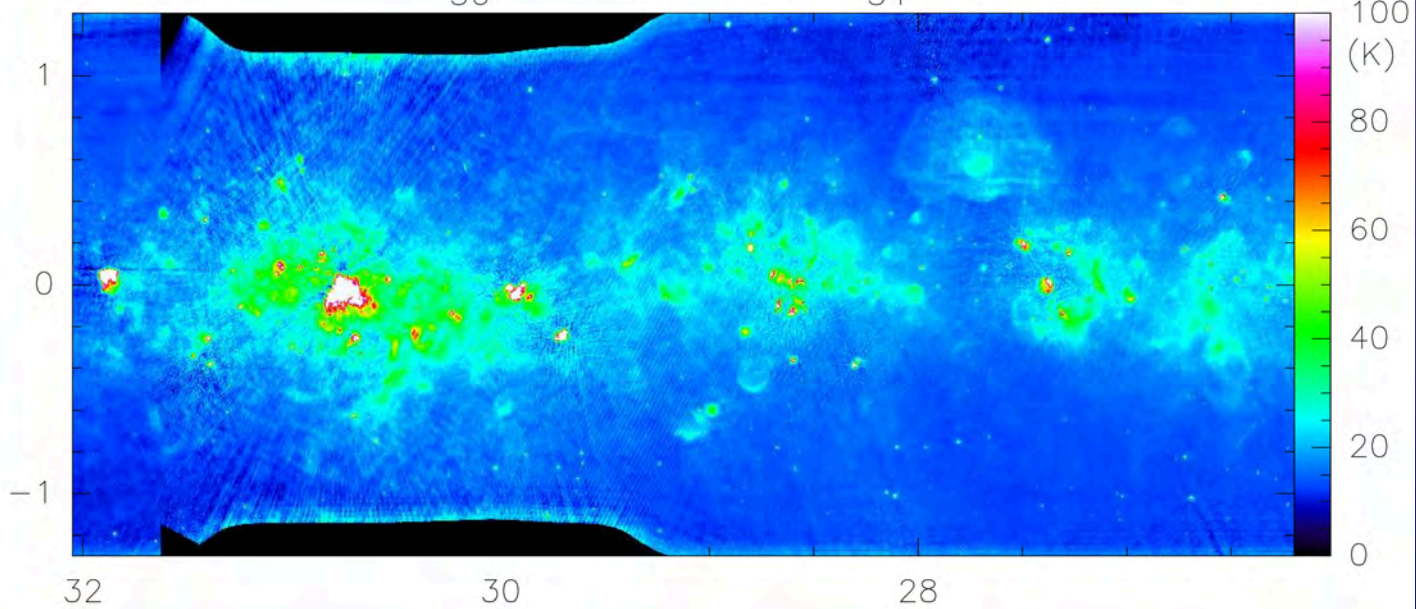
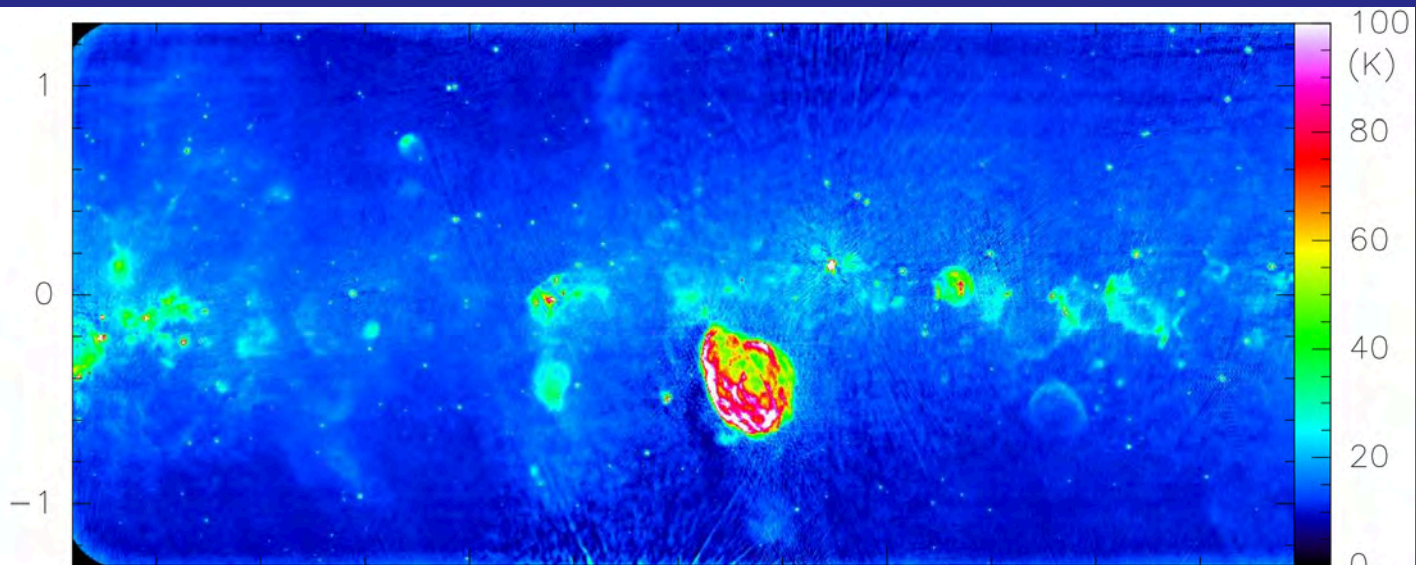
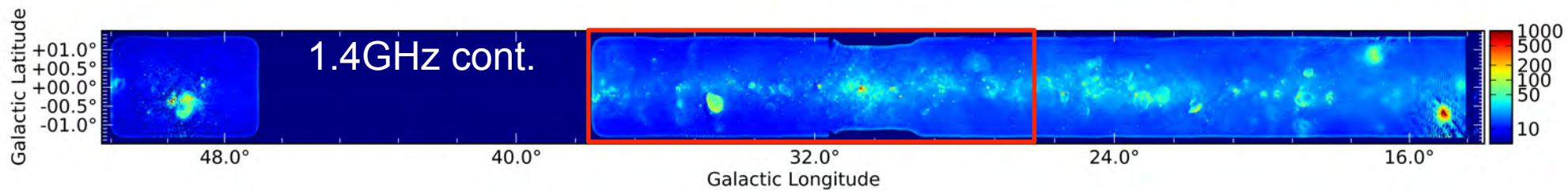
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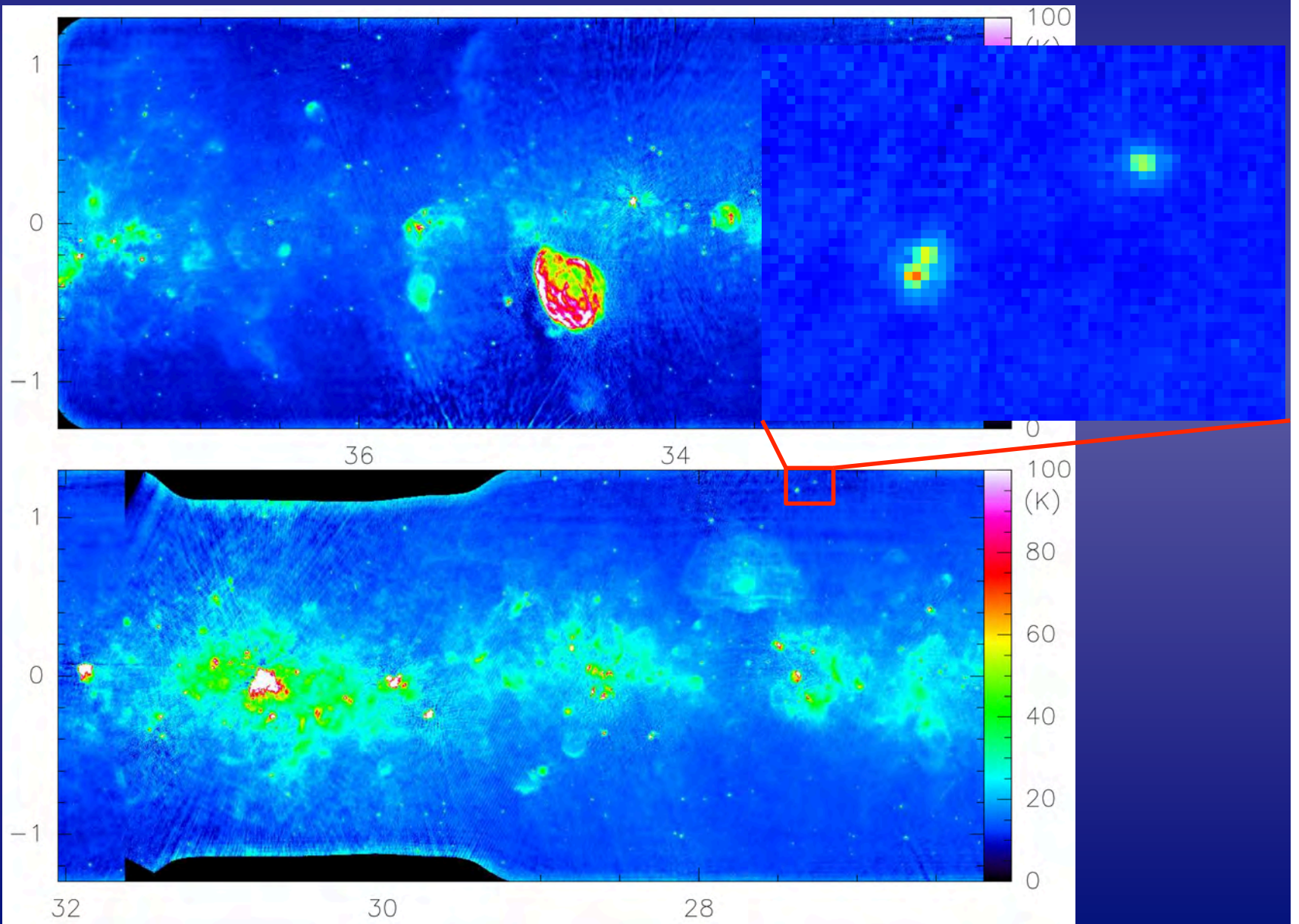
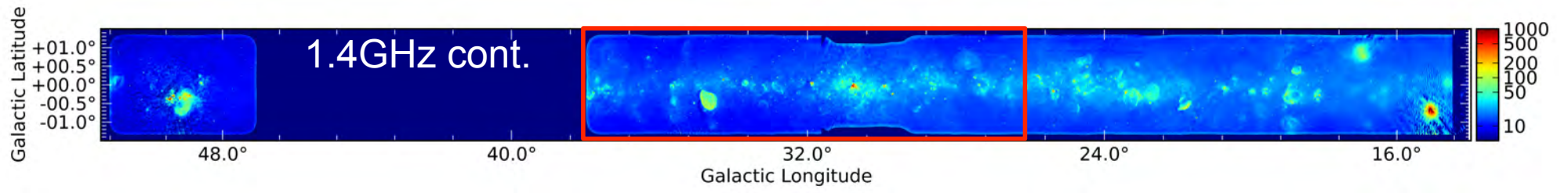
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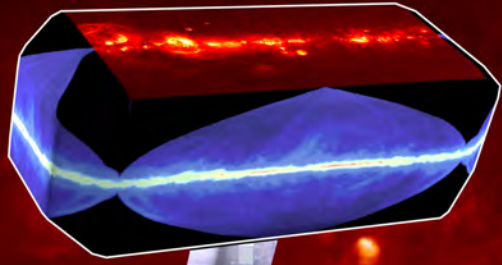


1.4GHz cont.

VLA large program, PI: H. Beuther







# The **HI/OH/Recombination** line survey of the Milky Way

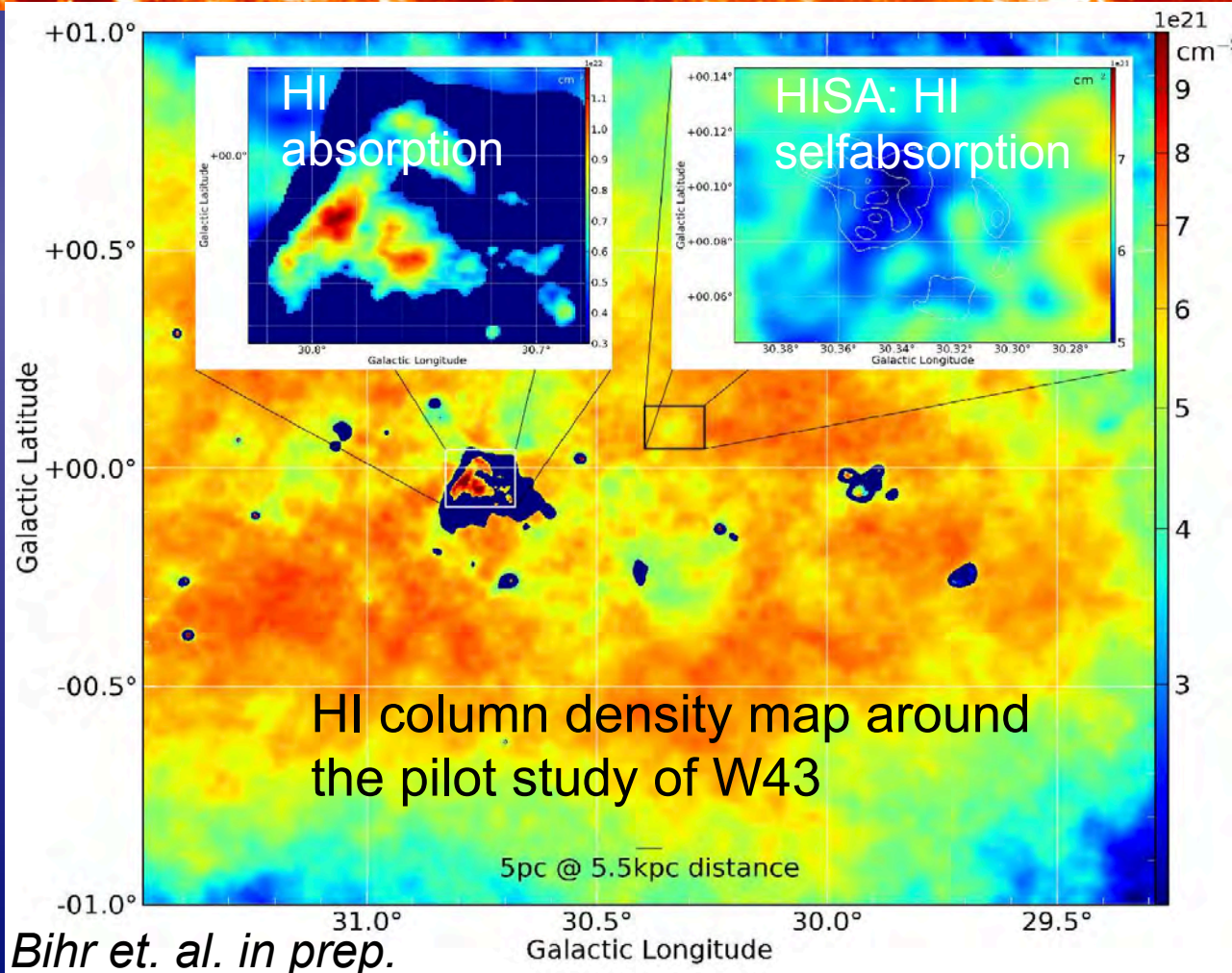
# THOR

## Goals:

- Molecular cloud formation processes
- Atomic to molecular gas conversion
- OH molecular emission and absorption
- OH masers
- Ionized gas in continuum and RRL emission
- Polarization continuum to identify supernovae and Faraday rotation

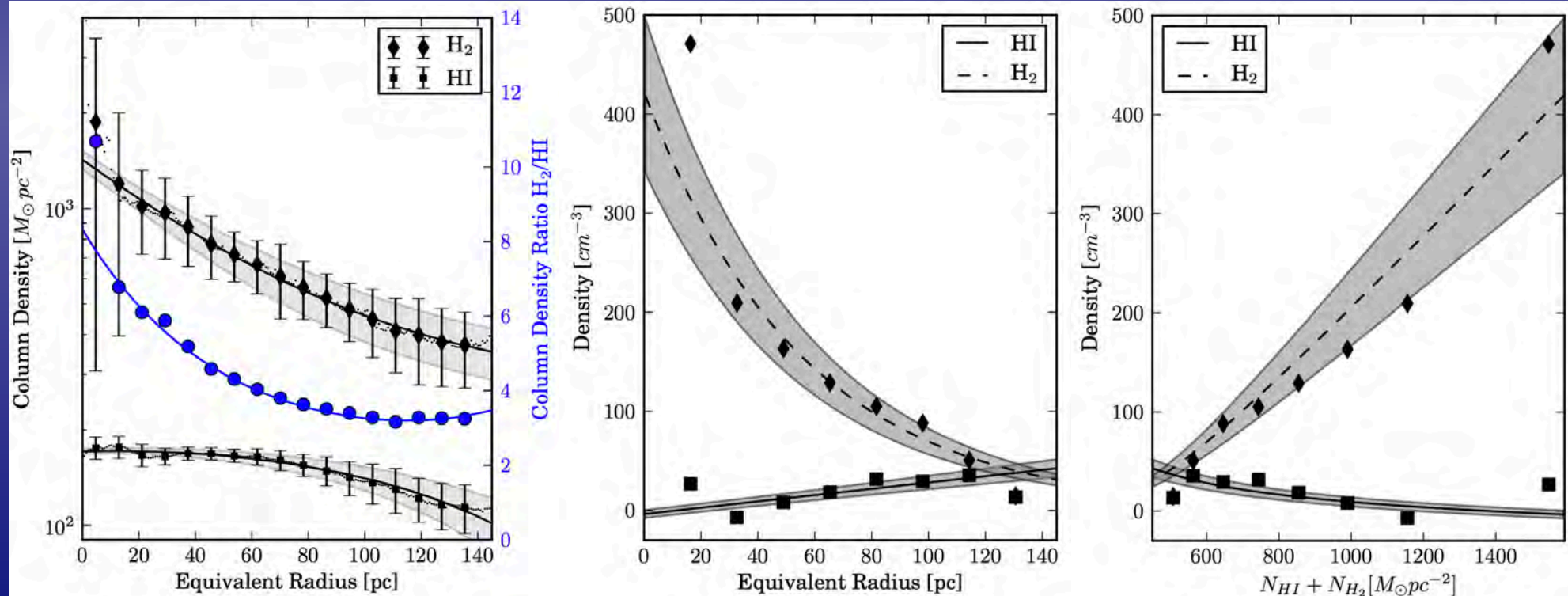
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# The **HI/OH/Recombination** line survey of the Milky Way





# The **H I/OH/R** recombination line survey of the Milky Way

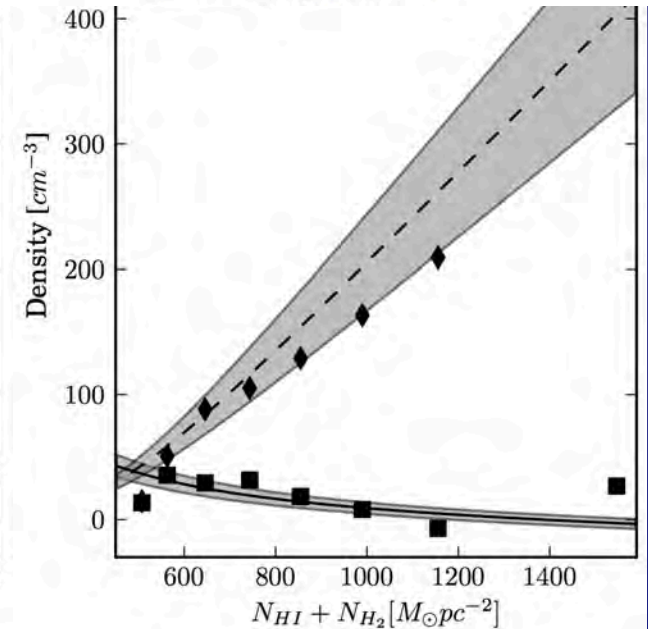
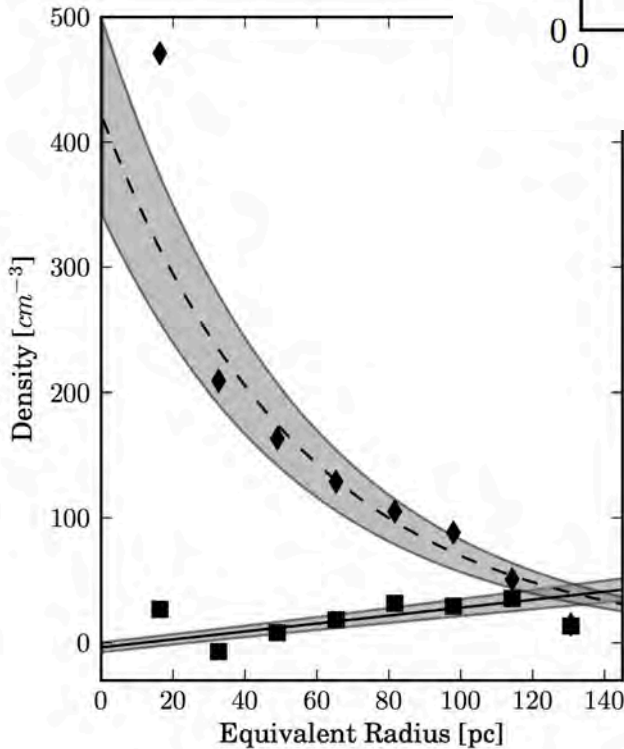
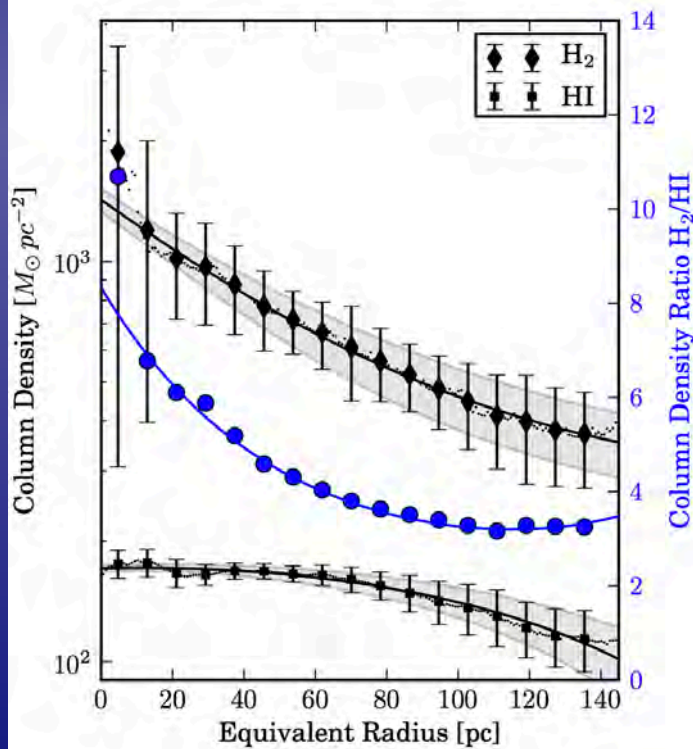
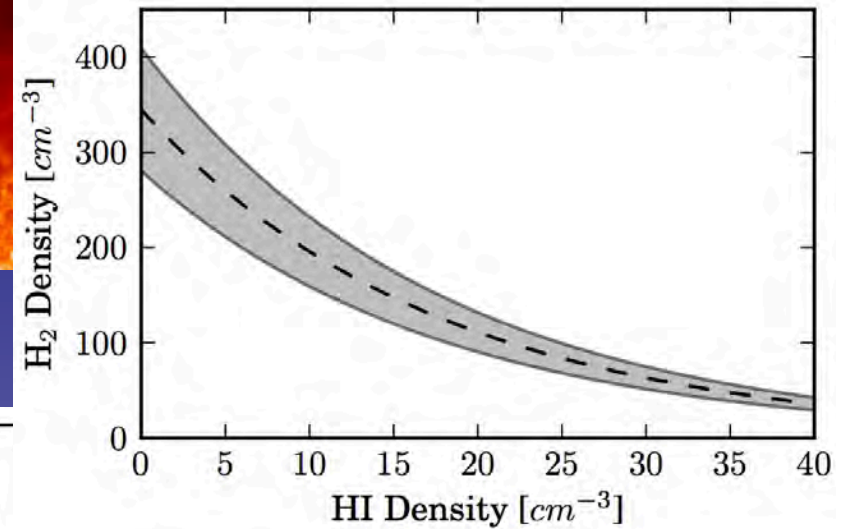


*Bihr et al. in prep.*

# The $\text{HI}/\text{OH}/\text{R}$ recombination line survey of the Milky Way



# HOR



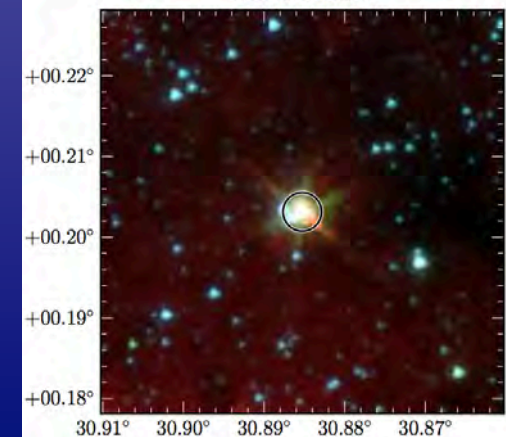
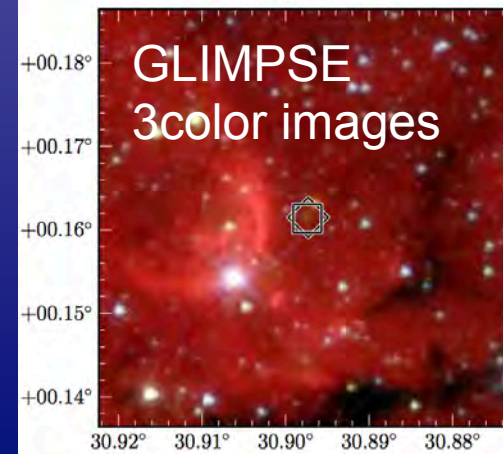
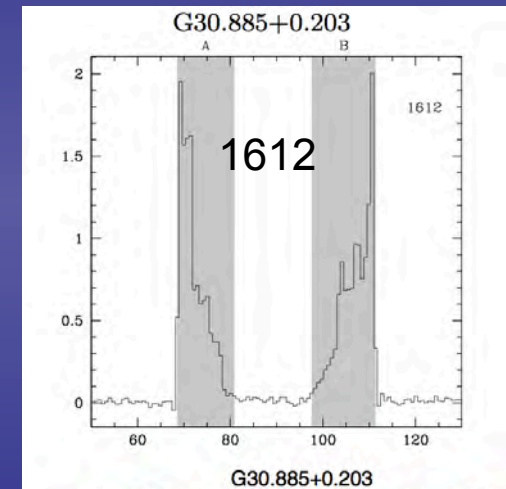
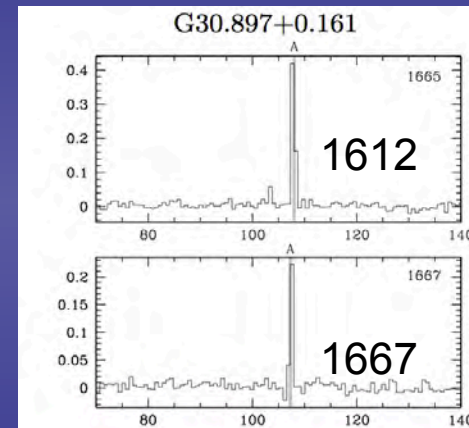
# The **H<sub>I</sub>/OH/Recombination** line survey of the Milky Way



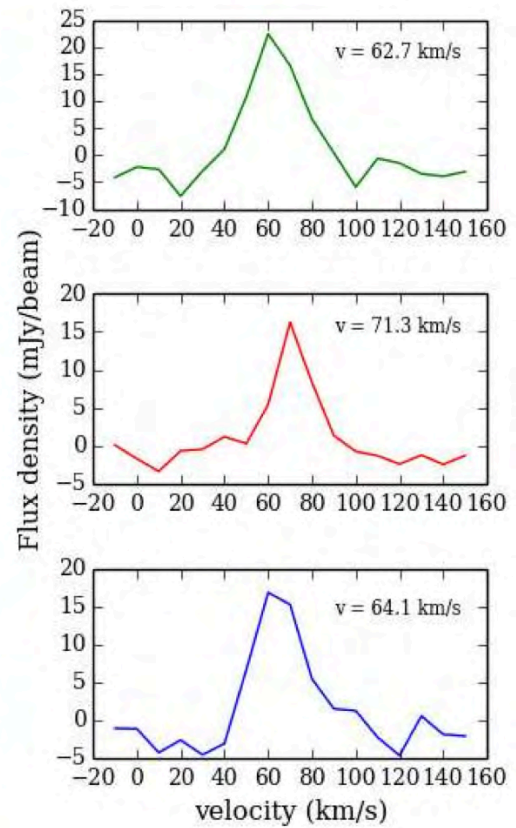
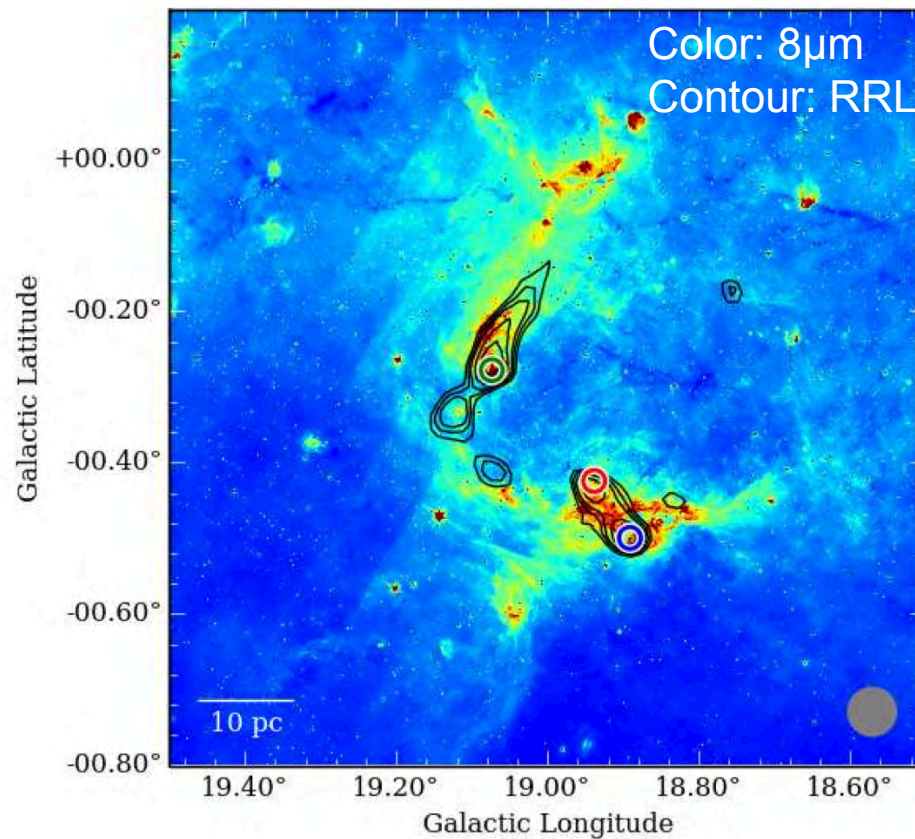
## OH study toward W43 pilot

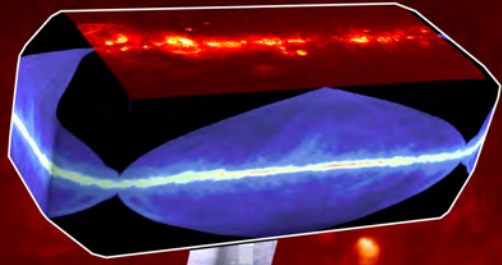
- 103 maser sites over 4 square deg.
- 288 maser spots (133@1612, 74 @1665, 72@1667MHz, 9@1720MHz)
- 46 associated with evolved stars,  
31 with star formation  
26 with unknown associations
- Diffuse emission toward only a few sources
- Absorption against continuum sources → molecular versus atomic gas studies

*Walsh et al. in prep.*



# The **H<sub>I</sub>/OH/Recombination** line survey of the Milky Way





# The **HI/OH/Recombination** line survey of the Milky Way

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## Goals and summary:

- Study of the molecular, atomic and ionized gas over large fraction of northern Milky Way
- Diverse applications from cloud formation, HI to H<sub>2</sub> conversion, masers from early to late evolutionary stages, HII regions, supernovae ... etc.
- Pilot study data public some time next year. The rest later with time.
- Kind of open team. If people are interested to join, please contact me.

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