Mapping the Milky Way and Magellanic System in HI and OH

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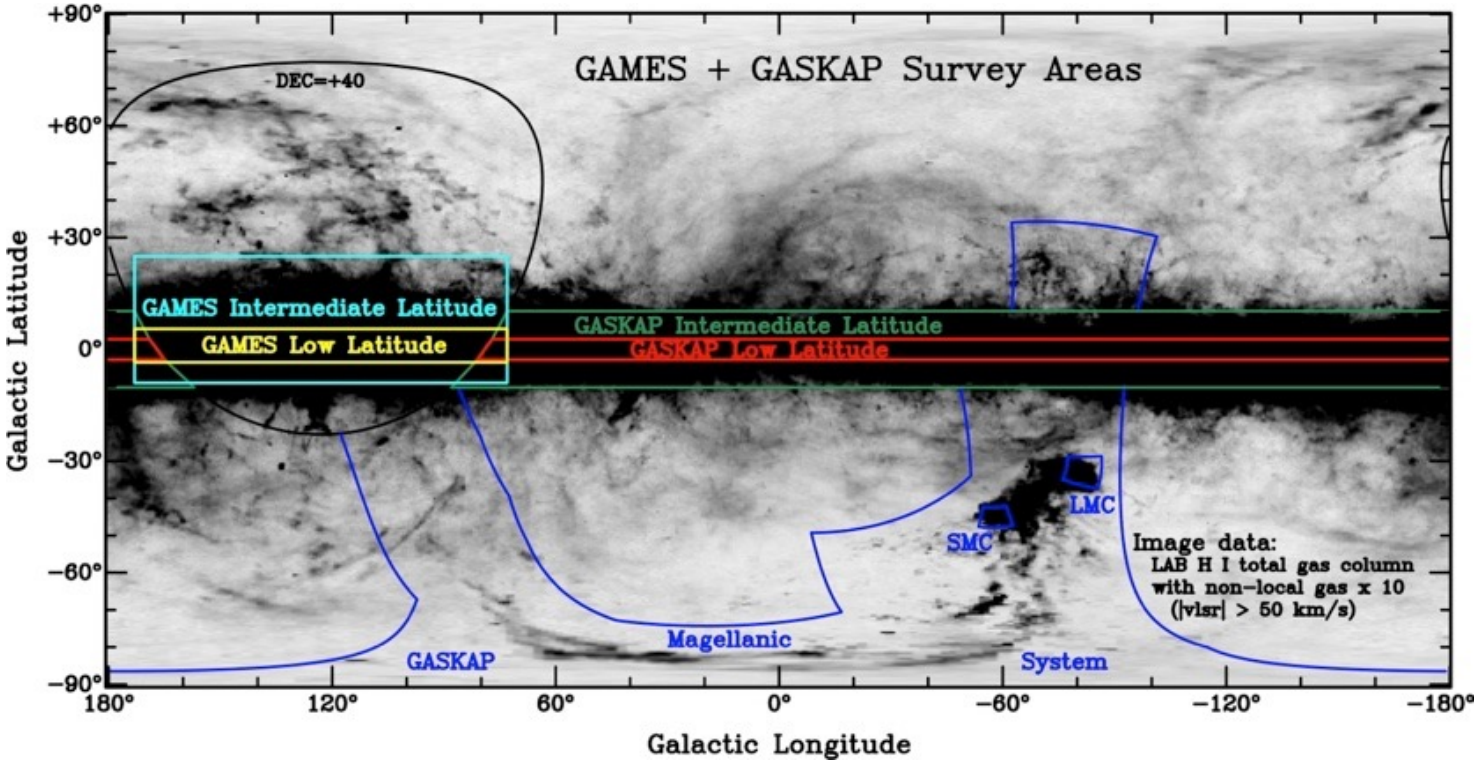
CTA-Oz 2020

Image credit: ESO/S. Brunier

GASKAP: The Galactic ASKAP Survey

Aim: To study the evolution of the Milky Way and Magellanic Clouds through their interstellar gas and star formation



Survey of the Galactic plane and Magellanic System

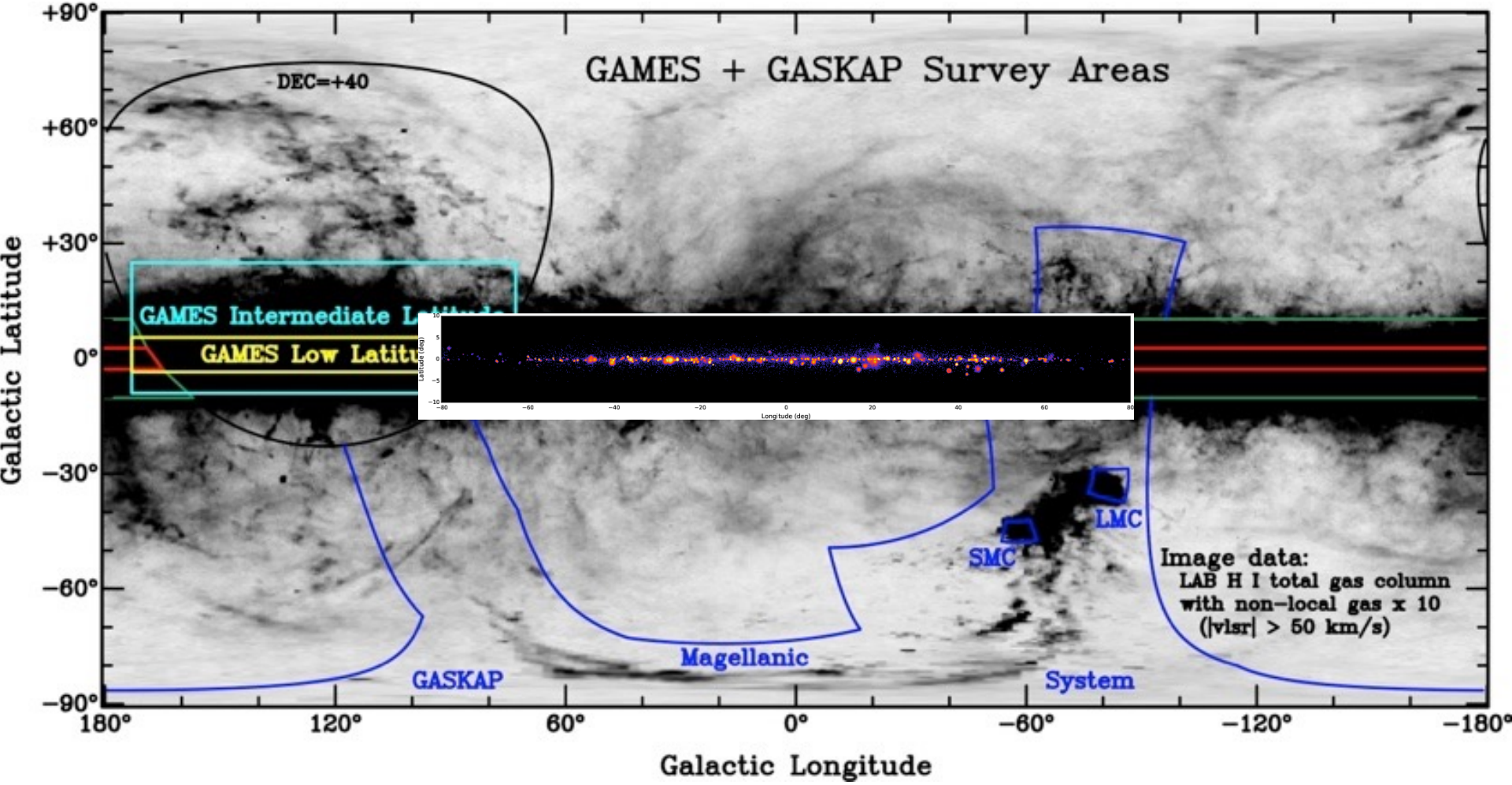
HI 21 cm and OH 18 cm emission and absorption

More than an order of magnitude more sensitive than previous surveys

→ Working on developing plan for commensality during Pilot Phase 2

Dickey+ (2012)

GASKAP: The Galactic ASKAP Survey



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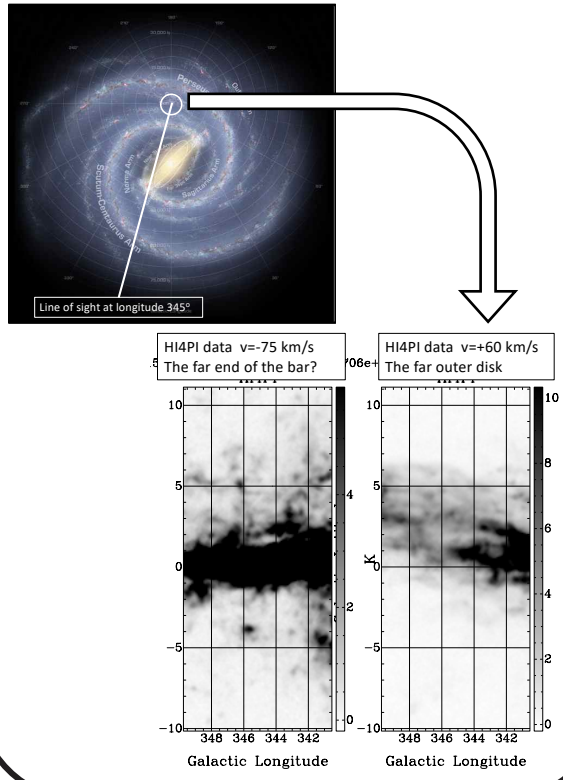
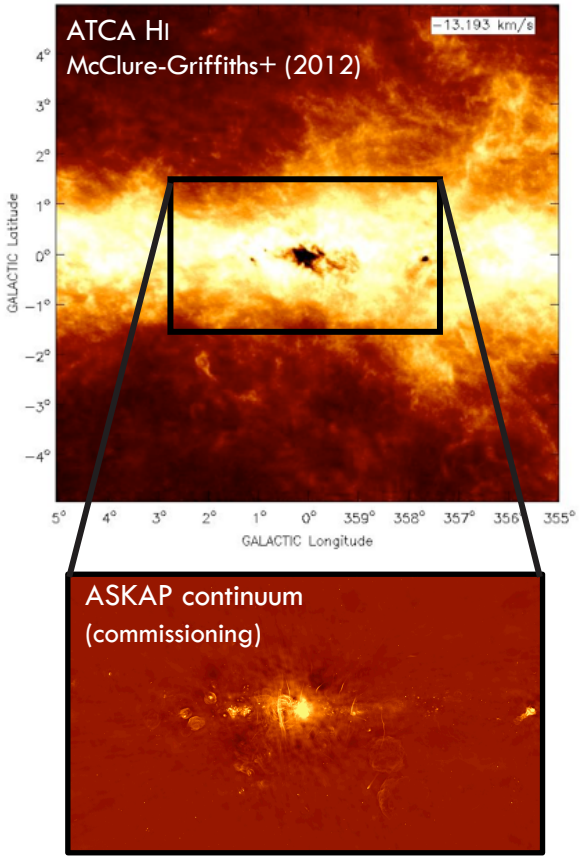
Dickey+ (2012)

The GASKAP Pilot Phase I

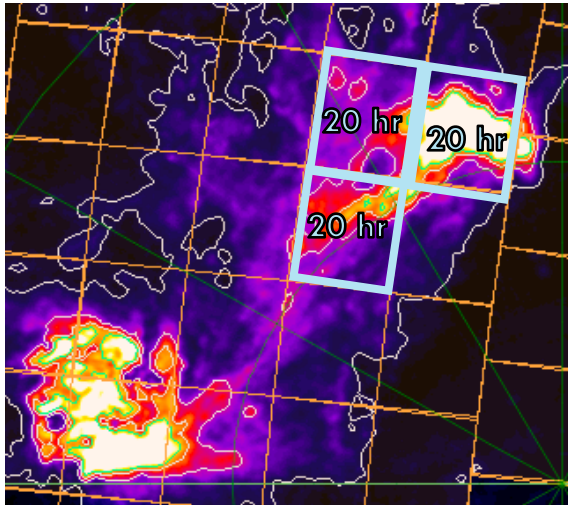
Galactic Plane (l=340)
(HI 16 hrs, OH 8 hrs)



Galactic Centre
(HI 8 hrs, OH 8 hrs)



SMC, Stream, and Bridge
(HI 60 hrs)



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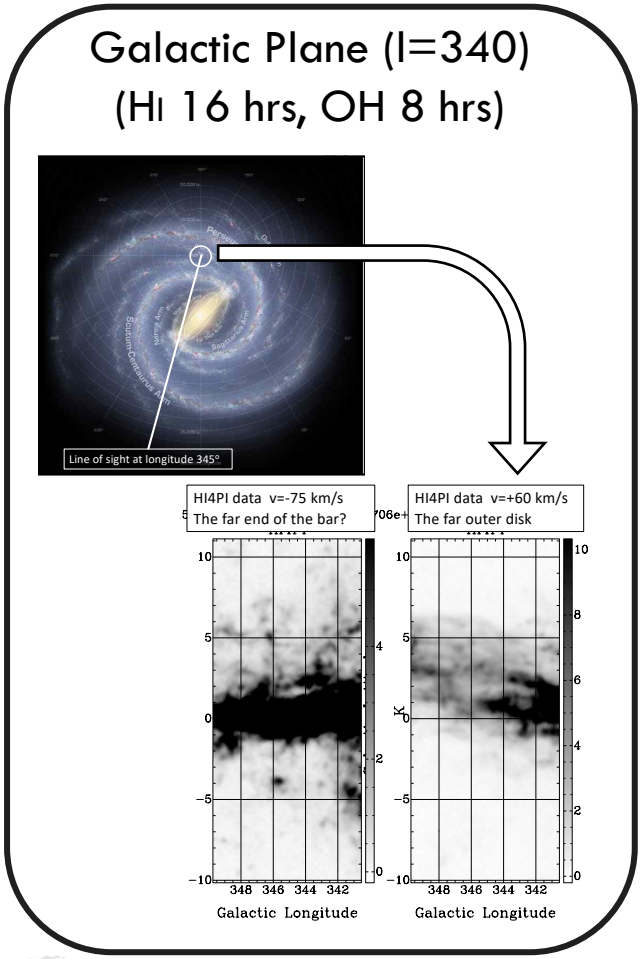
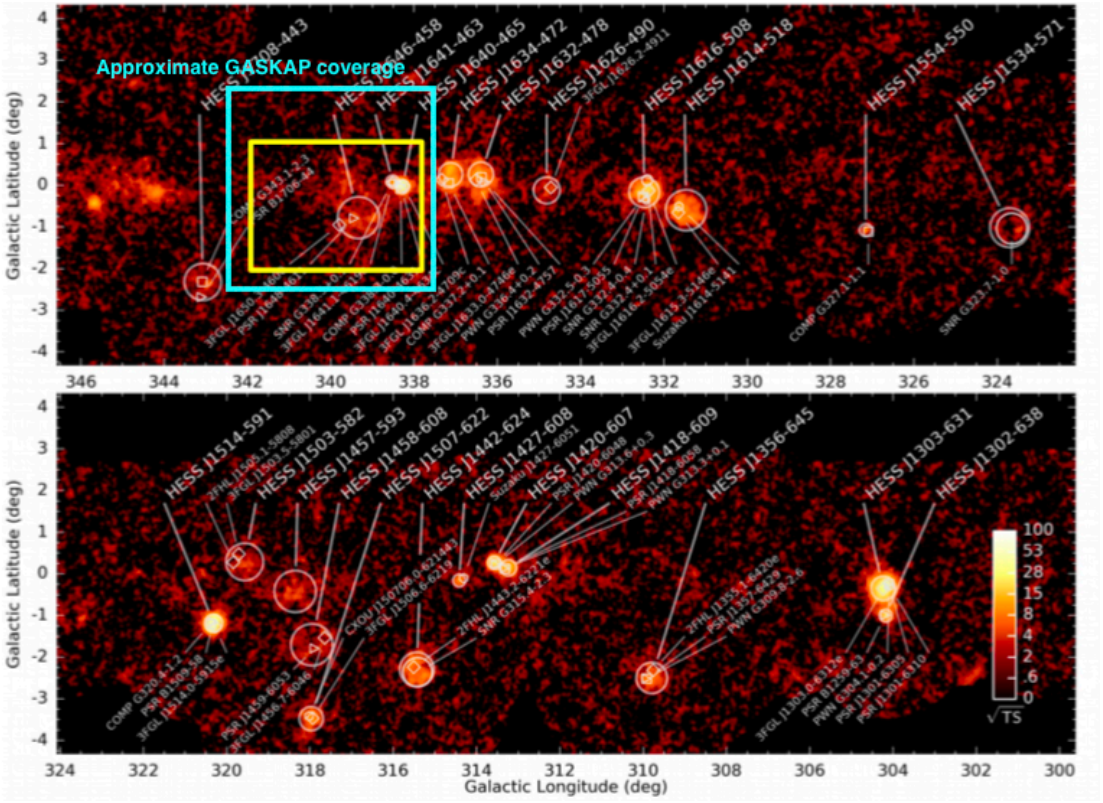
The GASKAP Pilot Phase I Survey





Collaboration with Gavin Rowell, Pilot field covers:

- HESSJ1646-458 (associated with Westerlund 1 cluster)
- HESSJ1641-463 (unidentified)

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The GASKAP Pilot Phase I:
Status Update

Galactic Plane (l=340) (HI 16 hrs, OH 8 hrs)	Galactic Centre (HI 8 hrs, OH 8 hrs)	SMC, Stream, and Bridge (HI 60 hrs)
16 hrs HI observed **16 hr OH observed**	**8 hrs HI observed** **16 hr OH observed**	**60 hrs Observed** **SMC and Stream imaged**

CASA imaging pipeline in place on OzStar, developed by Nick Pingel (HI Scientist)
4300 pix x 4300 pix x 210 channels, 20GB cube per HI field
~10 hrs on 5 CPUs with 20GB RAM

Pilot project with Down Under GeoSolutions (DUG) to create an imaging pipeline with Yandasoft

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The GASKAP Pilot Phase I:
Status Update

Galactic Plane (l=340)
(HI 16 hrs, OH 8 hrs)

16 hrs HI observed
16 hr OH observed

Galactic Centre
(HI 8 hrs, OH 8 hrs)

8 hrs HI observed
16 hr OH observed

SMC, Stream, and Bridge
(HI 60 hrs)

60 hrs Observed
SMC and Stream imaged

HI Working Groups

1. Absorption Spectra
2. Spectral Decomposition
3. Filaments
4. Turbulence

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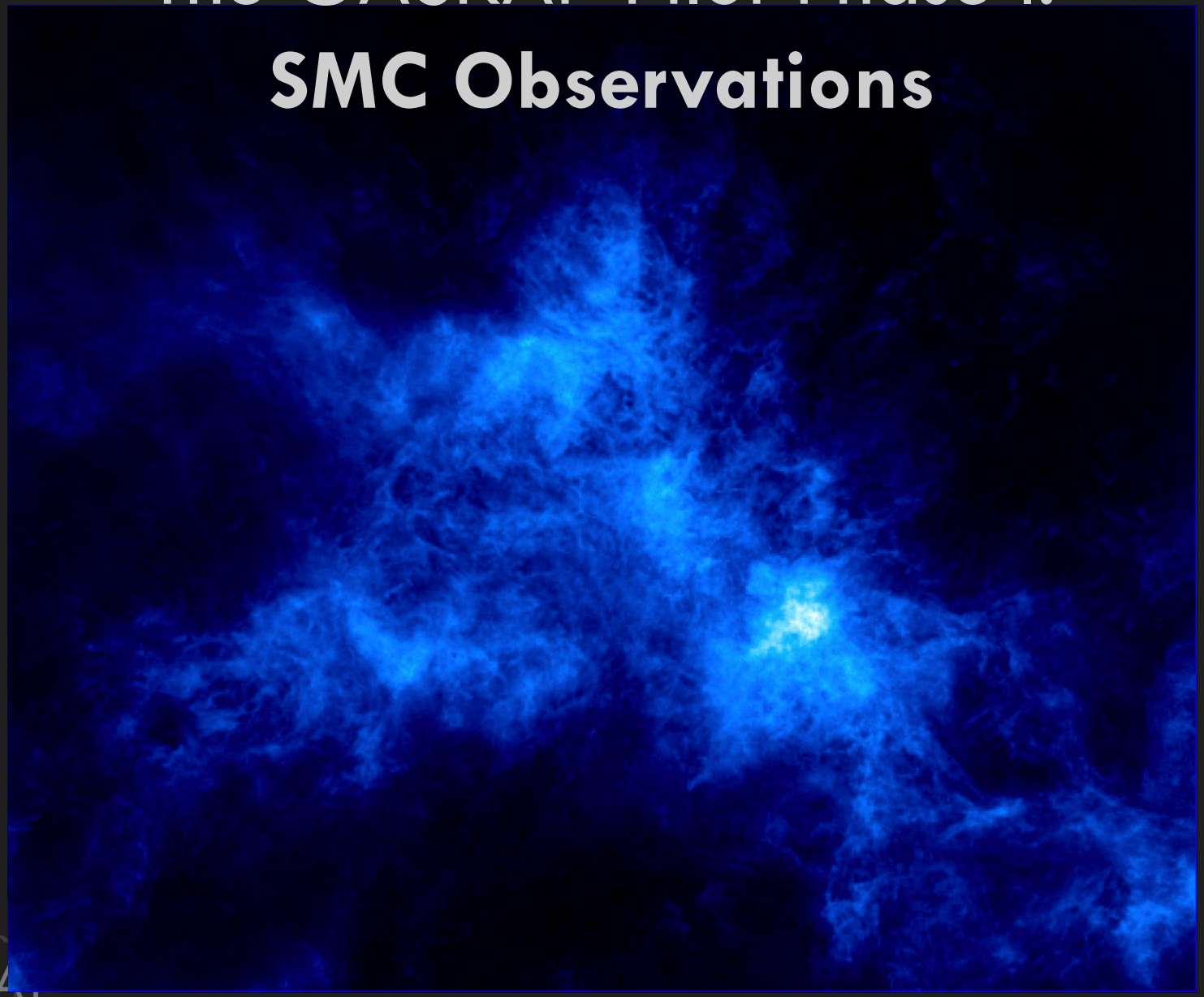
The GASKAP Pilot Phase I:

SMC Observations



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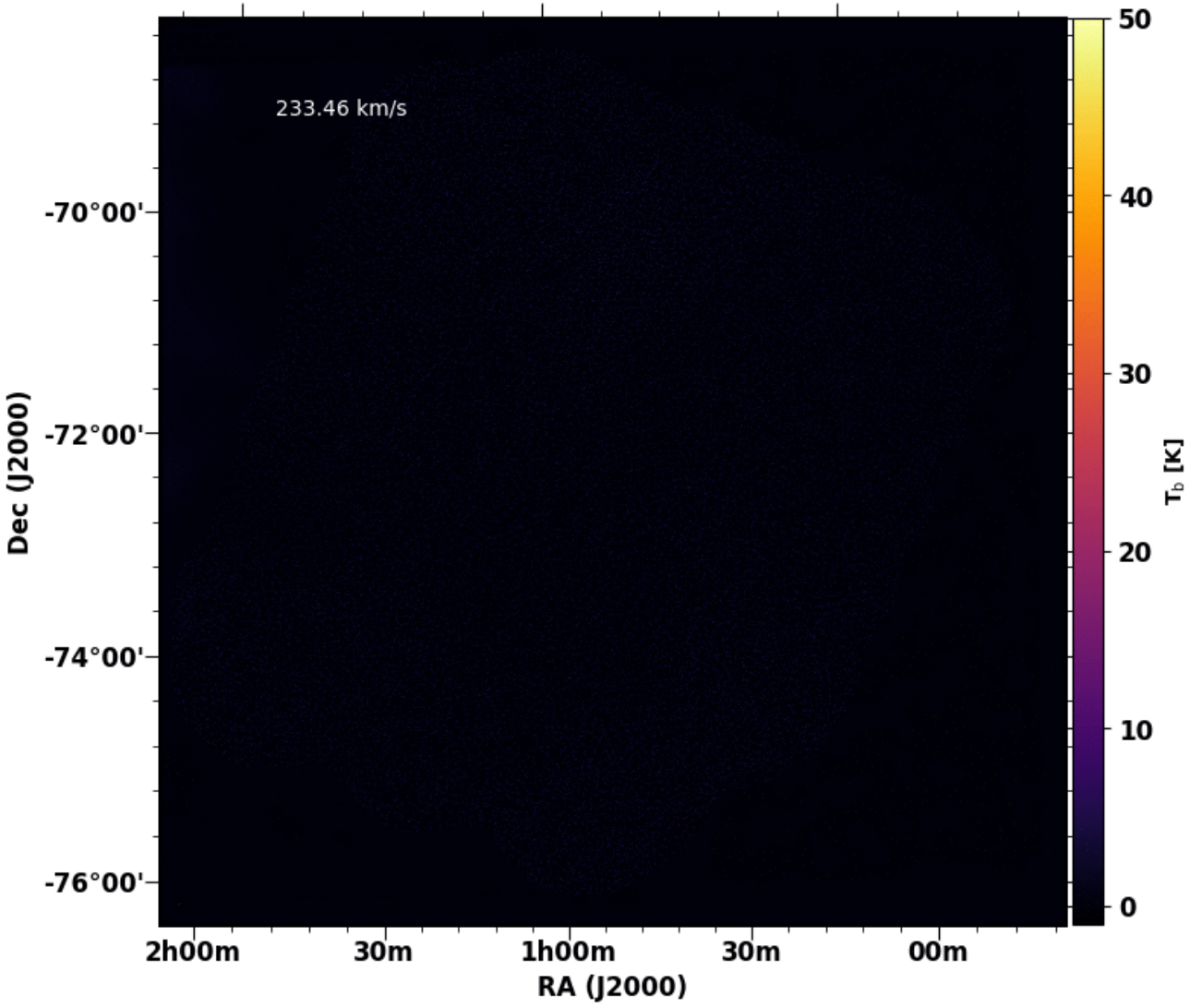
The GASKAP Pilot Phase I:
SMC Observations



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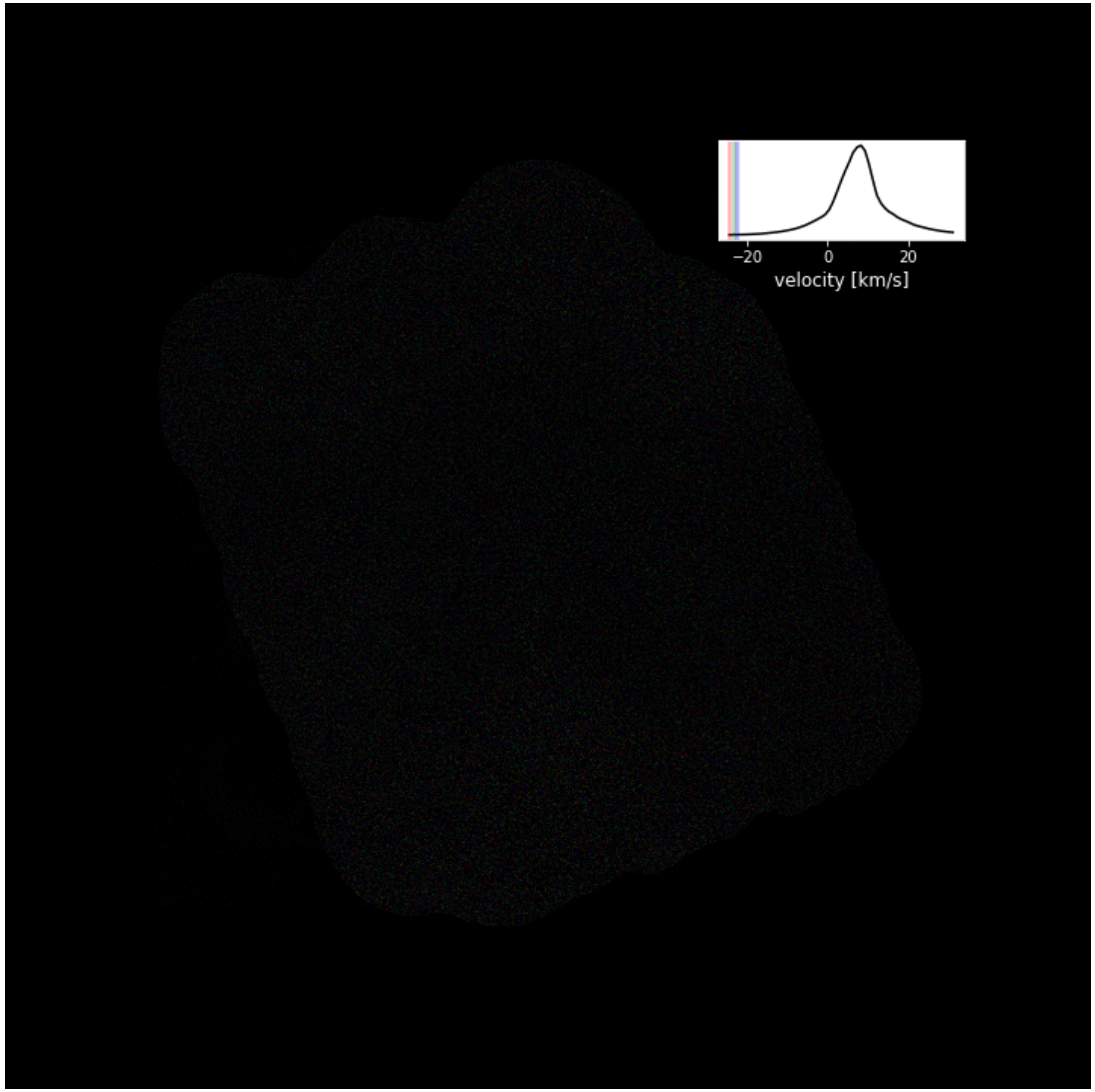
The GASKAP Pilot Phase I:
MW Foreground Observations



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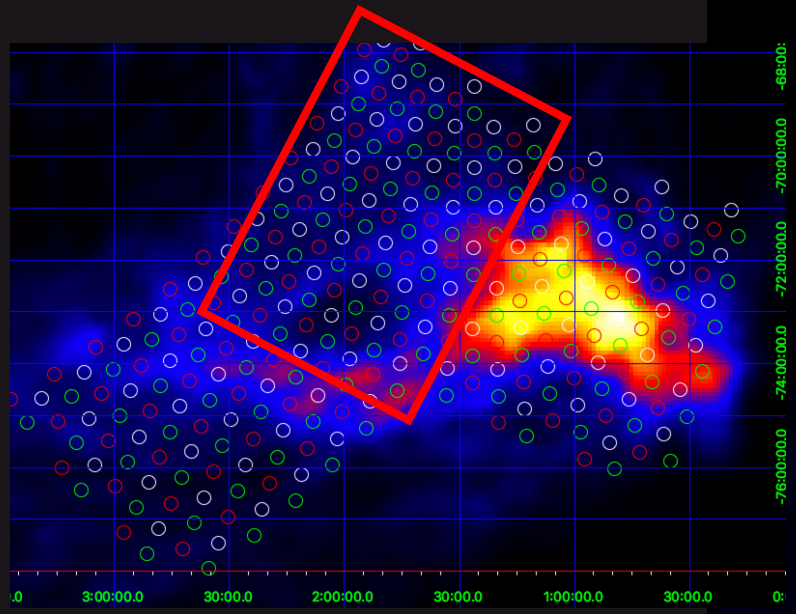
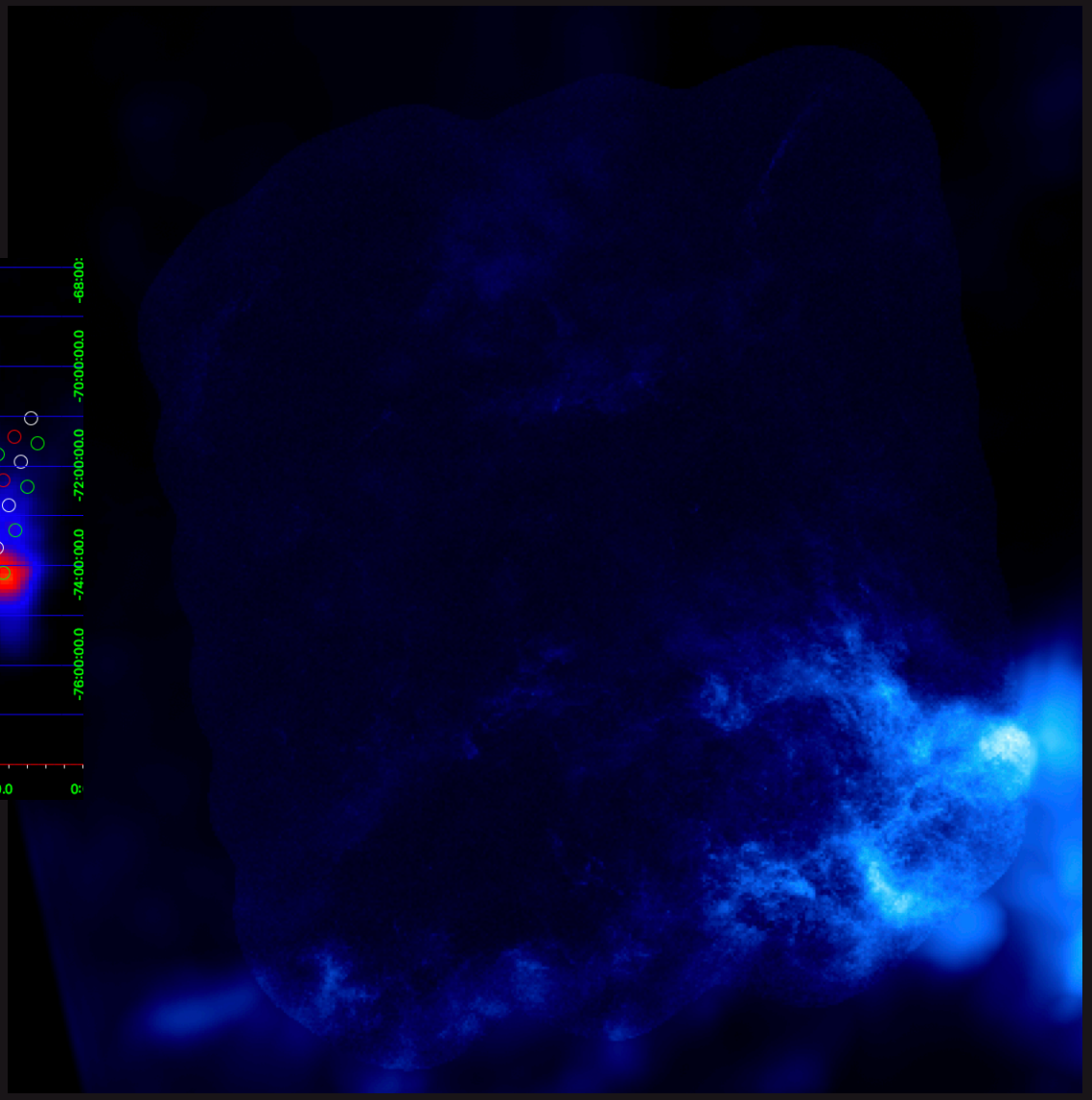
The GASKAP Pilot Phase I:
SMC Stream Observations





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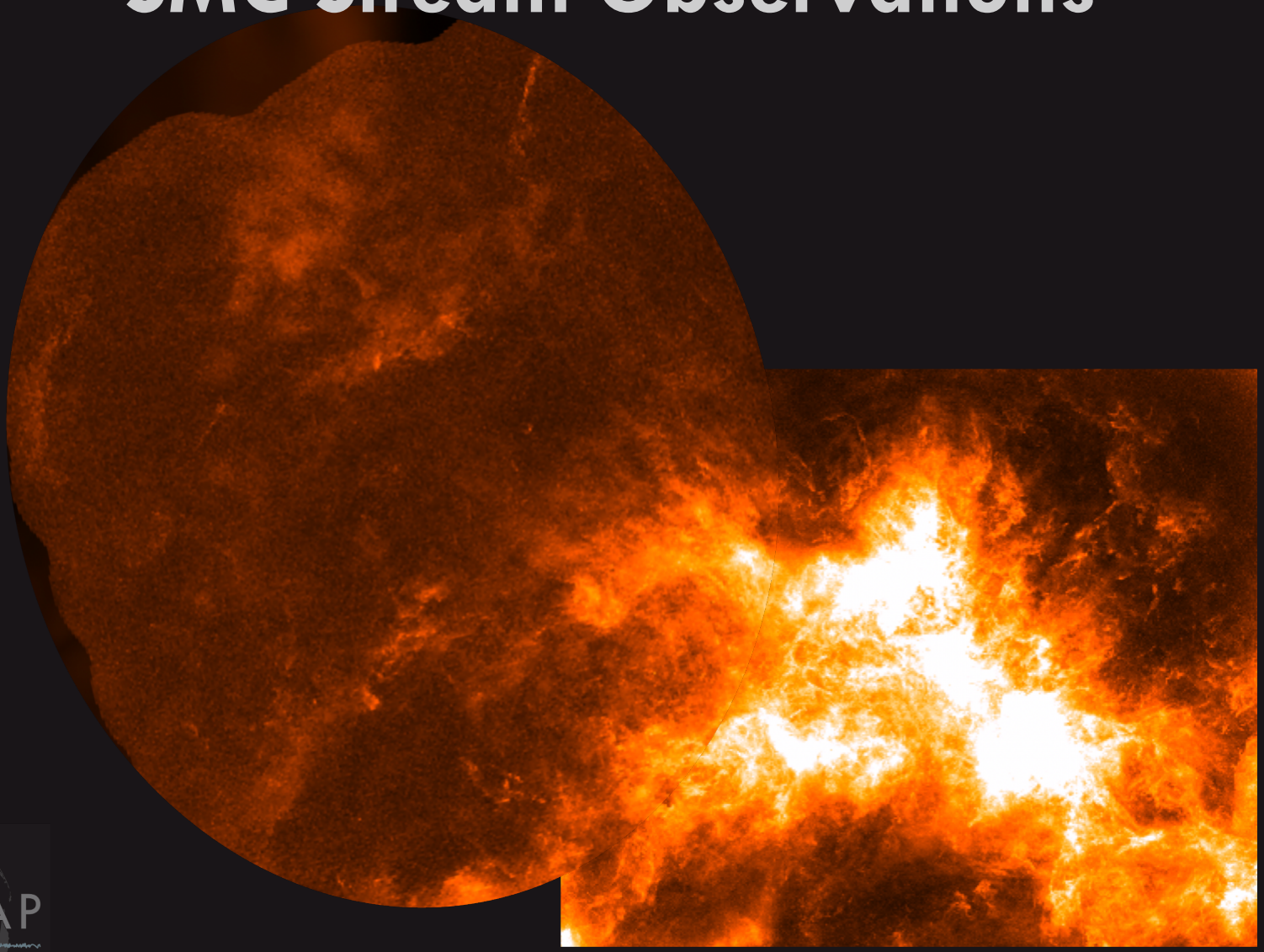
The GASKAP Pilot Phase I:
SMC Stream Observations



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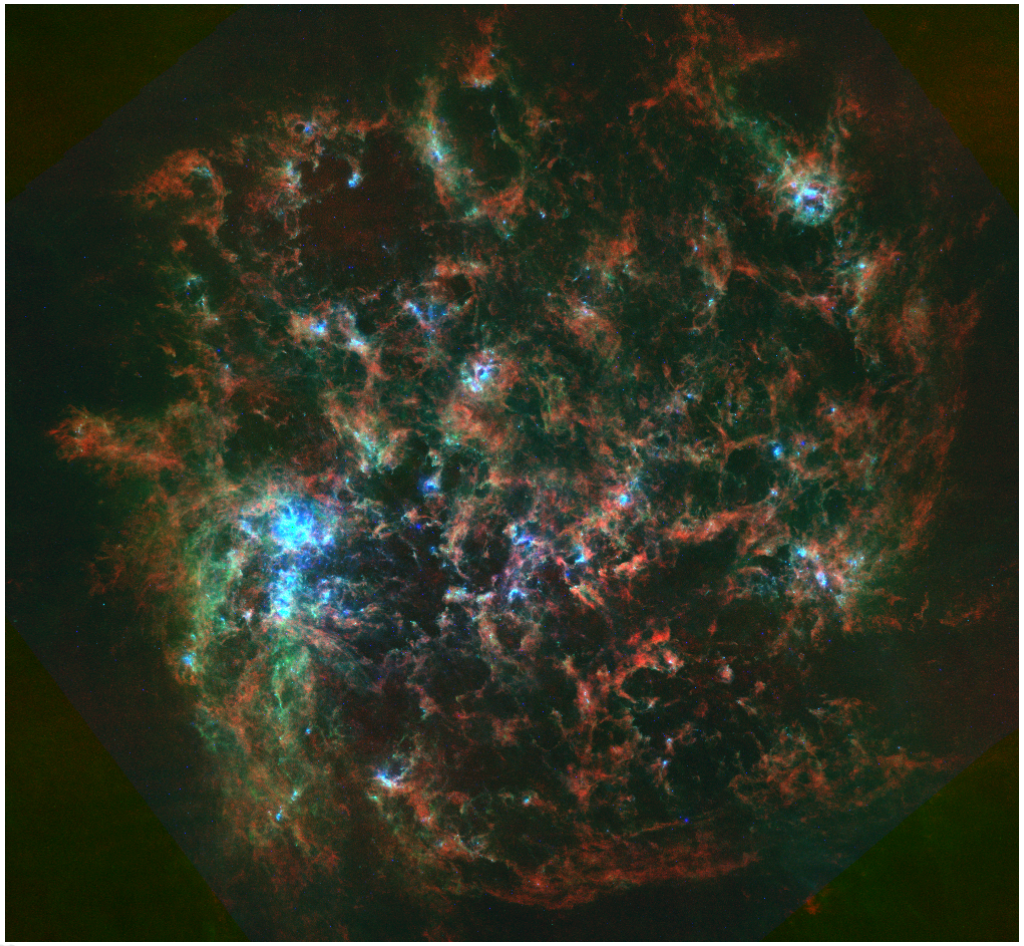
The GASKAP Pilot Phase II:
100hr on LMC



- 1 or 2 fields
- Include 30 Dor

Test commensality with WALLABY observing at Zoom2 (2 km/s resolution) in the Galactic Plane

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