

# AMI-SA Galactic Plane Survey



Yvette Perrott for the AMI Consortium

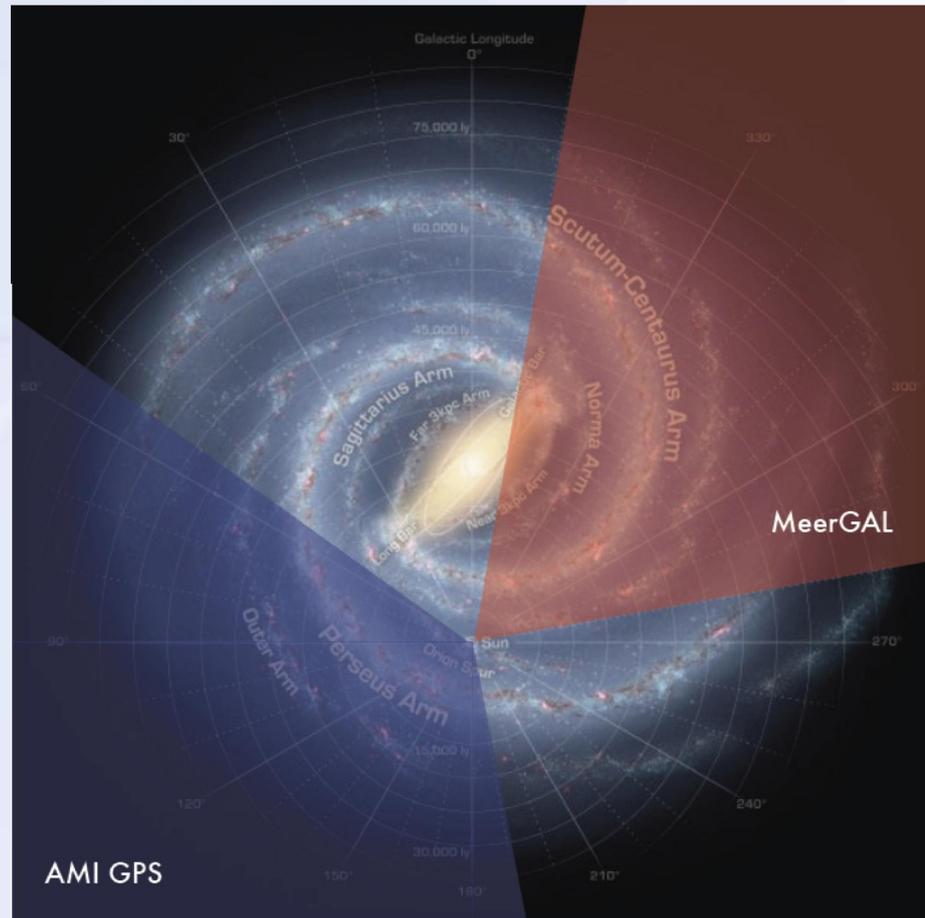
# AMI Technical Information

Observing frequency: 13.5 – 18 GHz (6 channels)

	SA	LA
Number of antennas	10	8
Antenna diameter	3.7 m	12.8 m
Antenna efficiency	75%	67%
Antenna mount	Equatorial	Equatorial
Baseline lengths	5 to 20 m	18 to 110 m
Primary beam (15.7 GHz)	20.1 arcmin	5.5 arcmin
Synthesised beam	$\approx 3$ arcmin	$\approx 30$ arcsec
Polarisation measured	Stokes I + Q	Stokes I + Q
Flux sensitivity	$30 \text{ mJy s}^{-1/2}$	$3 \text{ mJy s}^{-1/2}$
Declination range	$> -15^\circ$	$> -20^\circ$

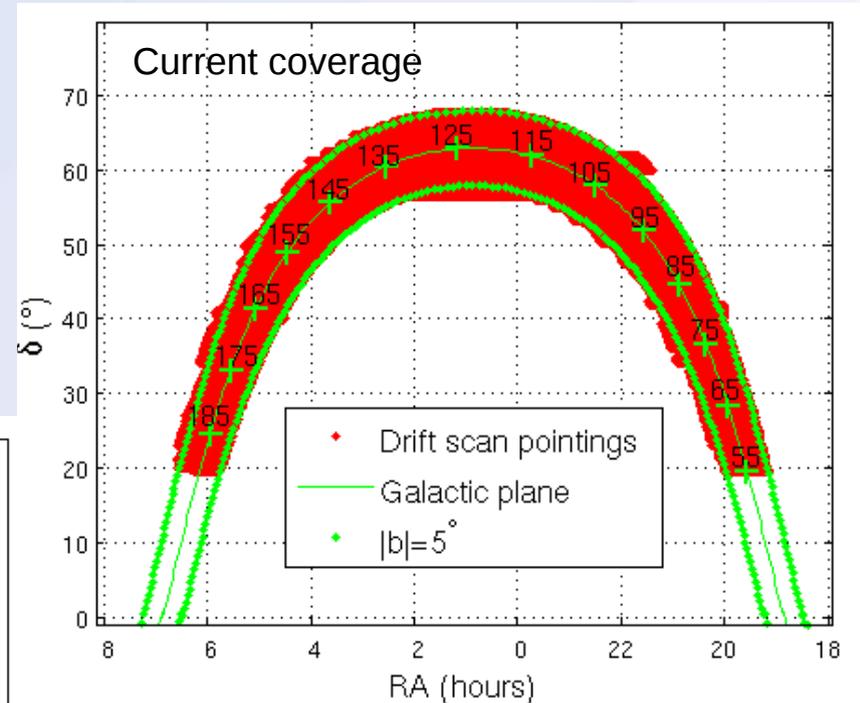
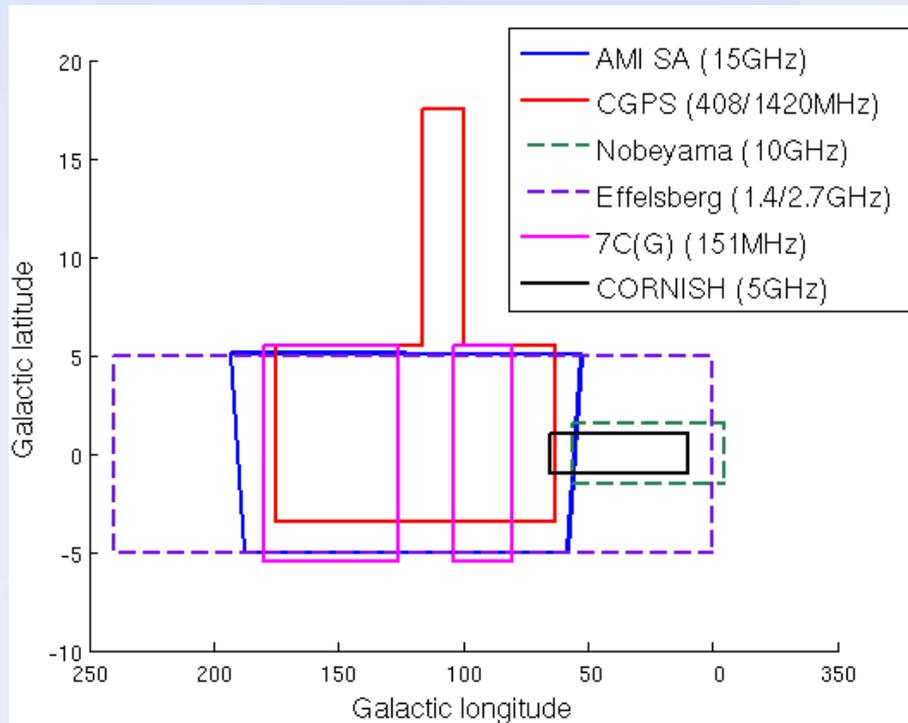
# Motivation for a Galactic Plane Survey with the AMI-SA

- No currently existing large-scale northern Galactic plane surveys at similar frequencies
- 15 GHz data are useful for detecting rising spectrum objects, e.g. ultra- and hyper- compact HII regions, AME
- Short baselines of the SA allow observation of extended objects which are resolved out by higher-resolution surveys
- Wide field of view (FWHM  $\approx 20$  arcmin) allows fast surveying



# Observation strategy

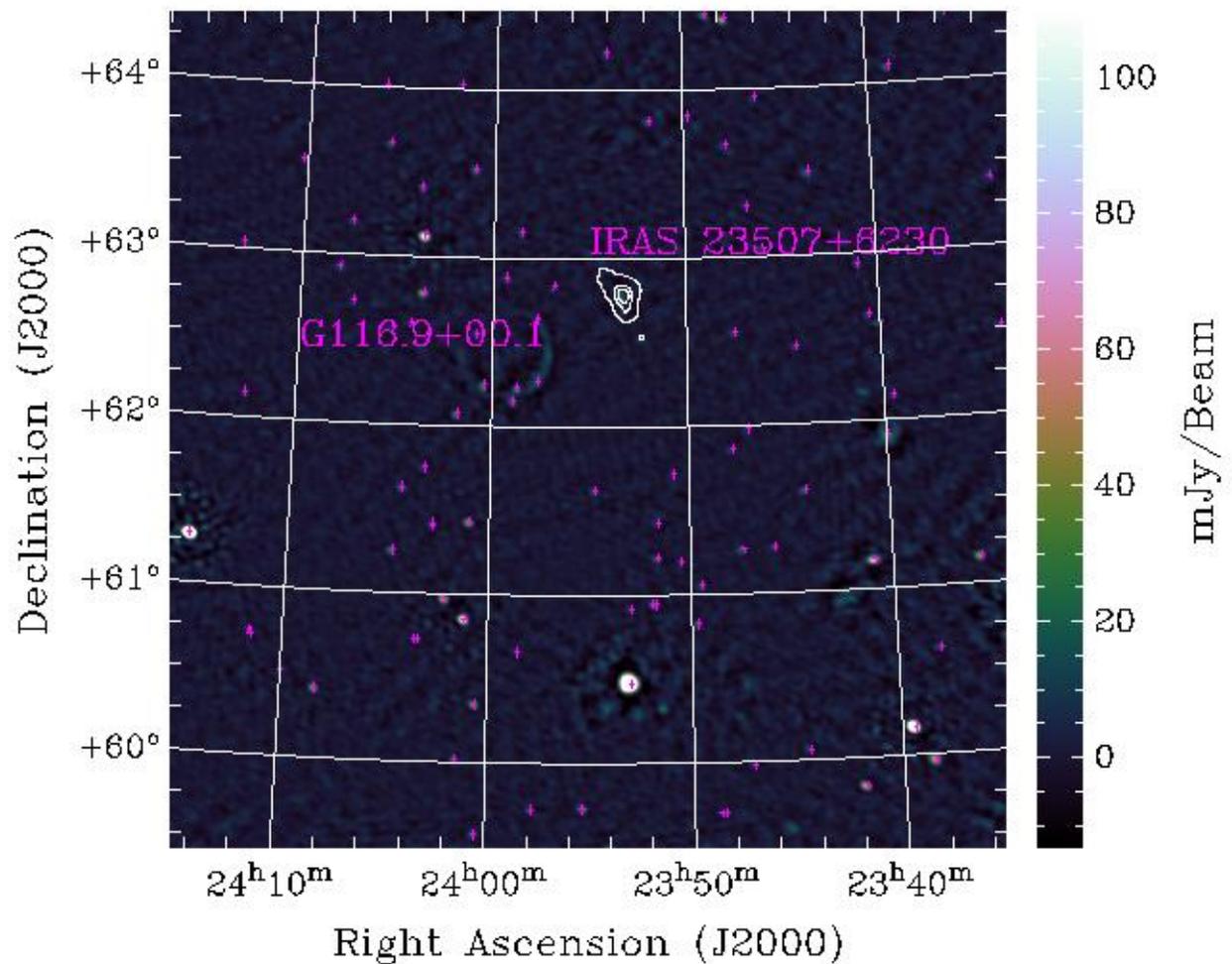
- Drift scan mode, observing strips in  $\delta$  to  $\approx 3\text{mJy}$  noise level
- Coverage between  $b = \pm 5^\circ$  and  $l \approx 55 - 200^\circ$



- First data release will consist of observations above  $\delta = 40^\circ$  ( $\sim 870$  sq deg); second will extend to  $\delta = 20^\circ$  ( $\sim 1350$  sq deg total).
- Expect to detect  $> 5000$  sources total

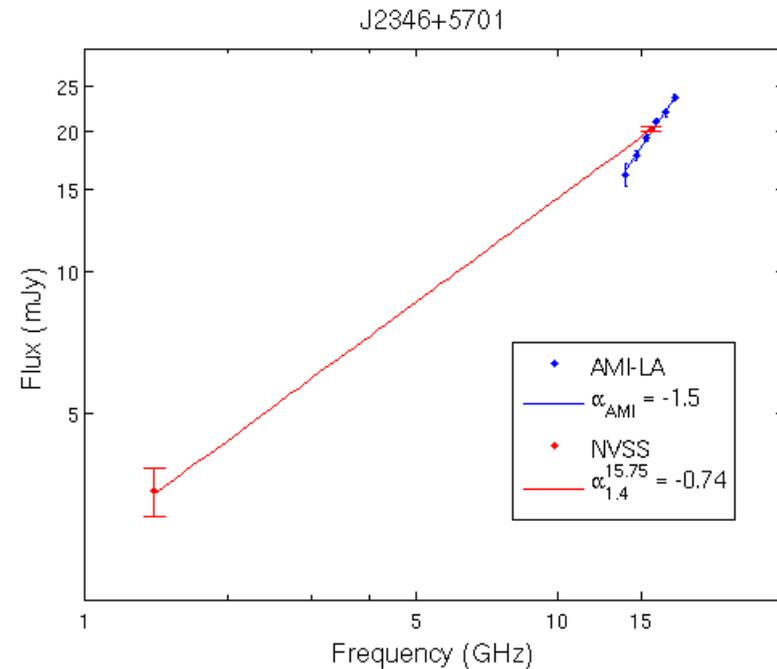
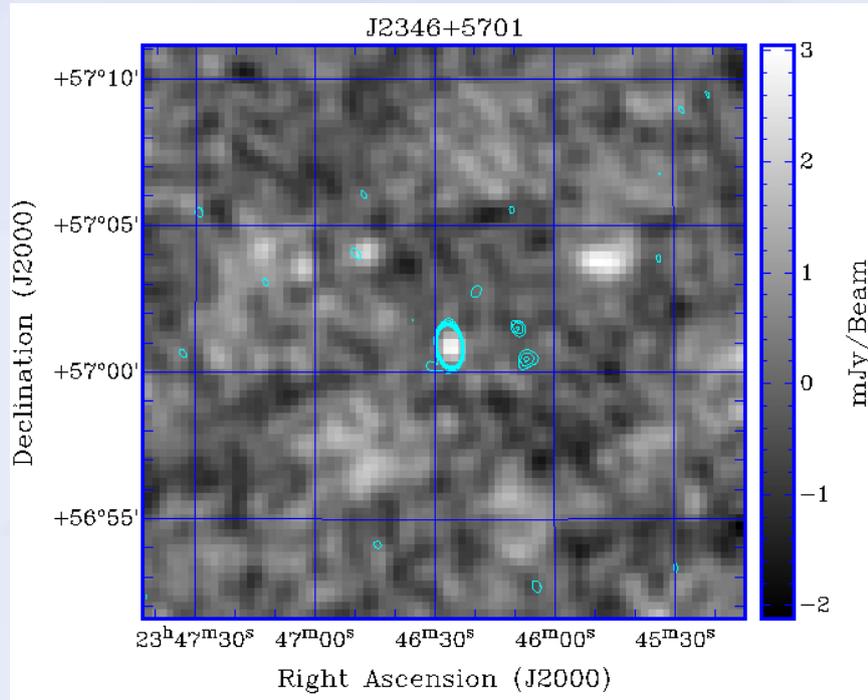
## Example map

- Typical 25 sq deg region of the drift scan
- Magenta crosses indicate positions of detected sources with NVSS counterparts.
- White contours show the position of IRAS 23507+6230 which is resolved out and not identified by NVSS, but detected by AMI.
- Also visible is the supernova remnant G116.9+00.1



# Follow-up of Inverted Spectrum Objects

- Match with NVSS to identify point-like objects with rising spectra
- Follow up with LA to take advantage of greater flux sensitivity and angular resolution, get spectral index over AMI band



- Currently following up  $\approx 500$  objects above  $\delta = 40^\circ$
- Example detection – greyscale is NVSS and contours are AMI-LA