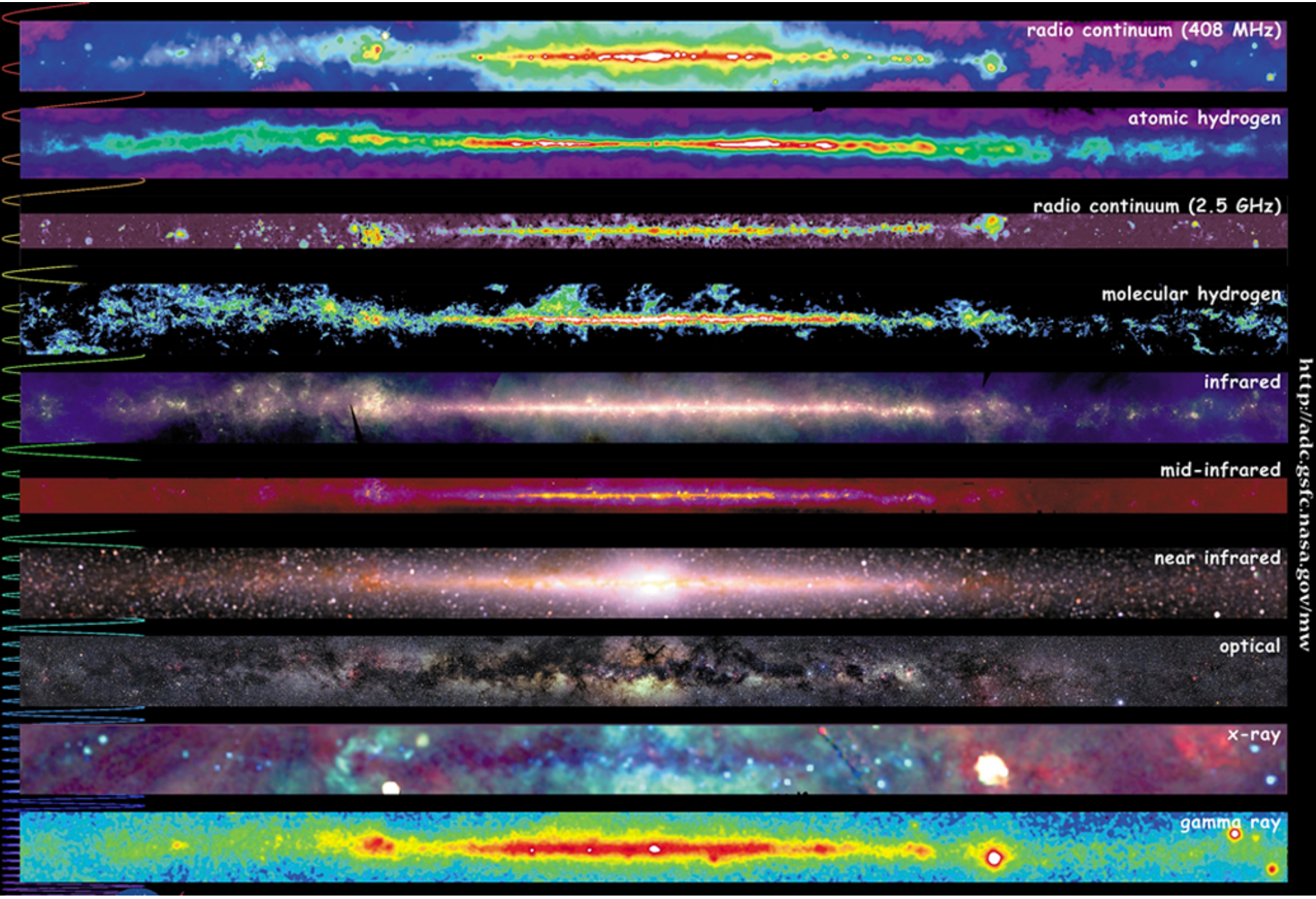
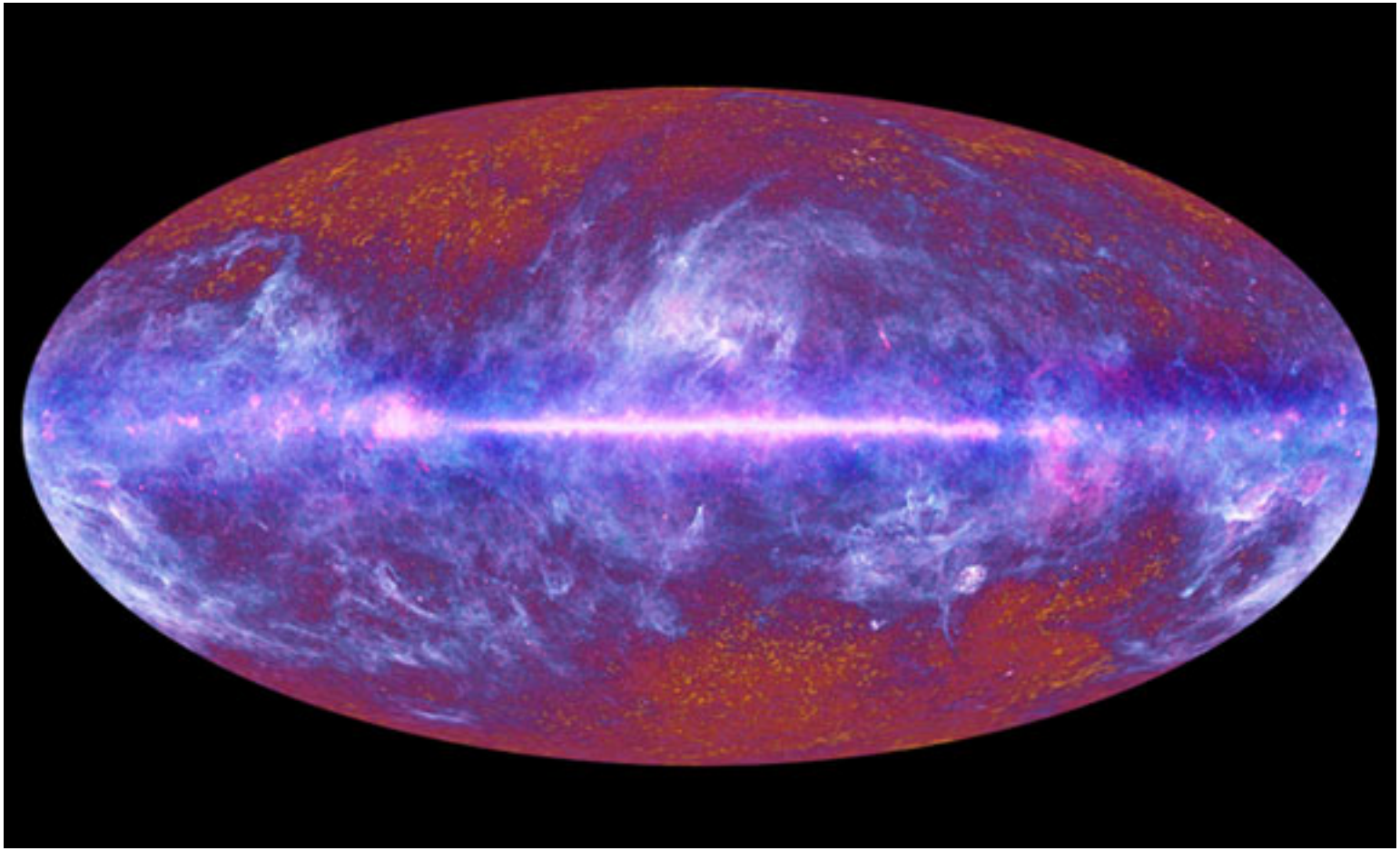
Table 4-16. Scale Heights β_S in the Direction Perpendicular to the Galactic Plane and Surface Density Σ_S for Various Objects

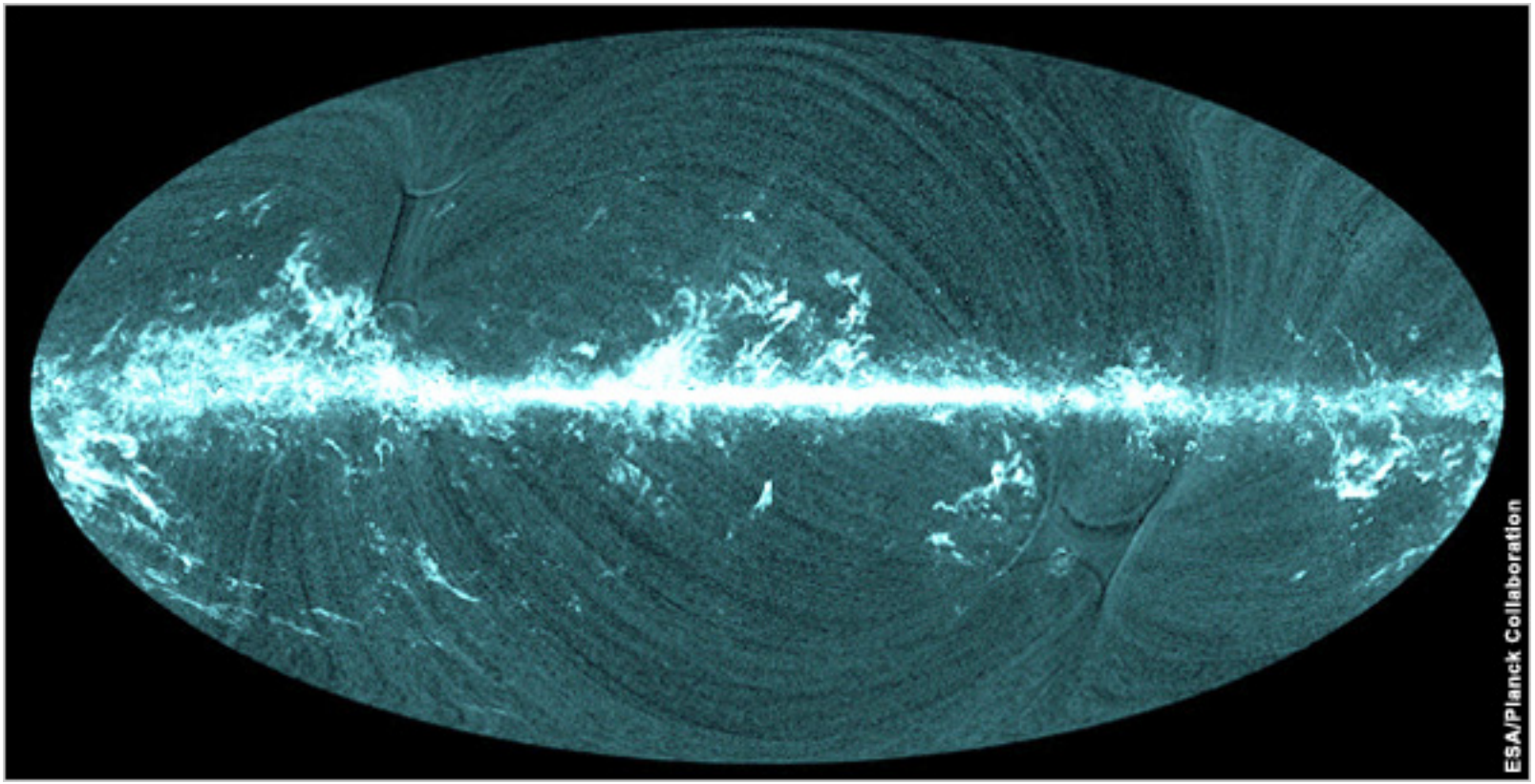
Object	β_S(pc)	$\Sigma_S\left(\frac{\text{stars}}{\text{pc}^2}\right)$	$\Sigma'_S\left(\frac{\mathcal{M}_\odot}{\text{pc}^2}\right)$
O stars	50	1.5×10^{-6}	10^{-4}
Classical Cepheids	50	7.5×10^{-6}	5×10^{-5}
B stars	60	6×10^{-3}	6×10^{-2}
Galactic clusters	80	–	–
Interstellar dust and gas	120	–	
A stars	120	6×10^{-2}	0.1
F stars	190	0.6	0.6
Planetary nebulae	260	–	–
gK stars	270	1.2×10^{-3}	3×10^{-2}
Novae	300	–	–
dG stars	340	2	2
dK stars	350	3.5	2.5
dM stars	350	20	9
gG stars	400	6×10^{-2}	1.6×10^{-1}
White dwarfs	500	12.5	10
Long-period variables (M5–M8)	700		
RR Lyrae variables ($P < 0^d.5$)	900		
Long-period variables (M0–M4)	1000		
RR Lyrae variables ($P > 0^d.5$)	2000		
W Virginis variables (spheroidal-component Cepheids)	2000		
Subdwarfs	2000		
Globular clusters	3000		

SOURCE: Adapted from (A1, 247), (A1, 249), and (A1, 251), by permission

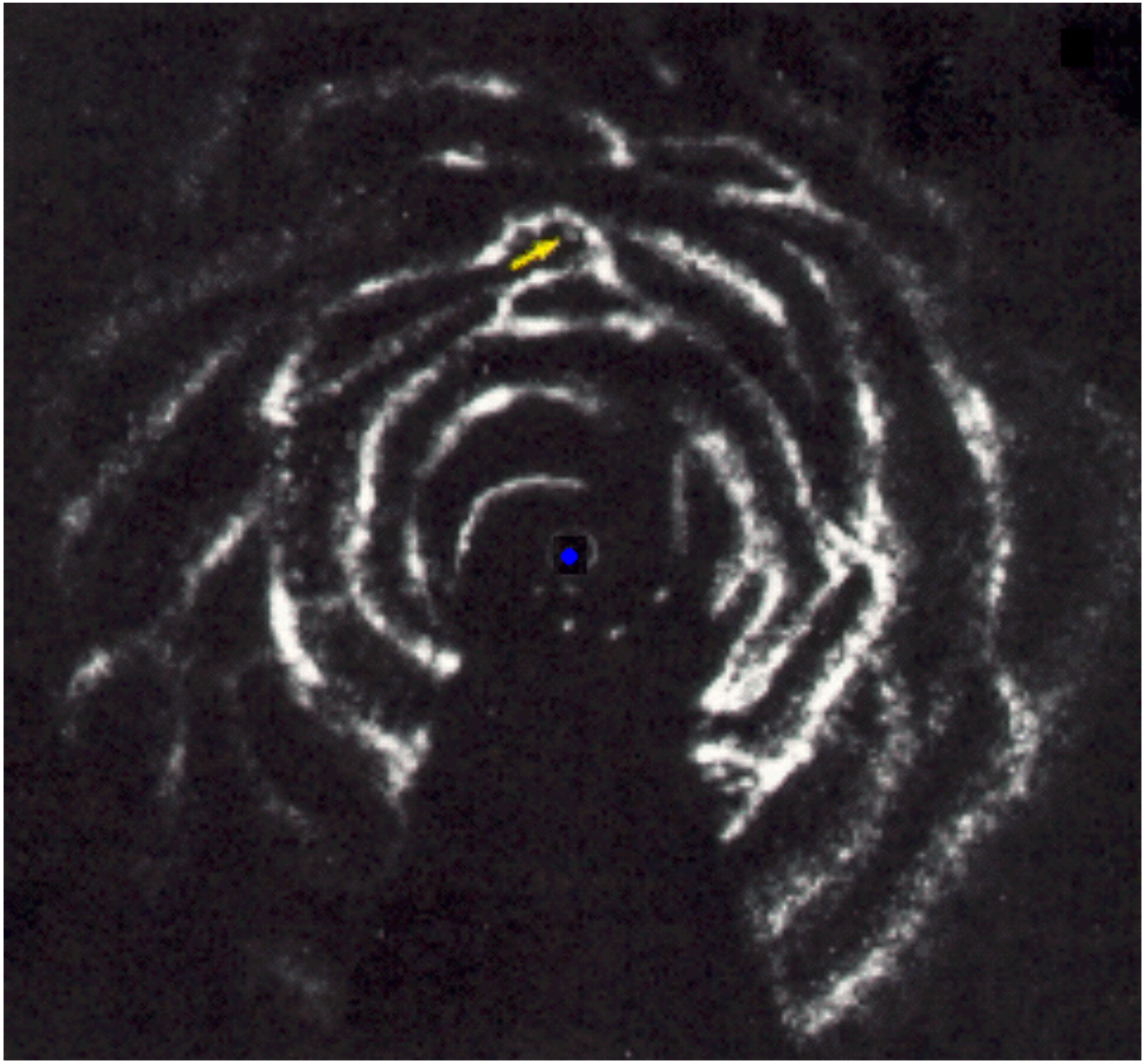

radio continuum (408 MHz)
atomic hydrogen
radio continuum (2.5 GHz)
molecular hydrogen
infrared
mid-infrared
near infrared
optical
x-ray
gamma ray
http://adc.gsfc.nasa.gov/mw

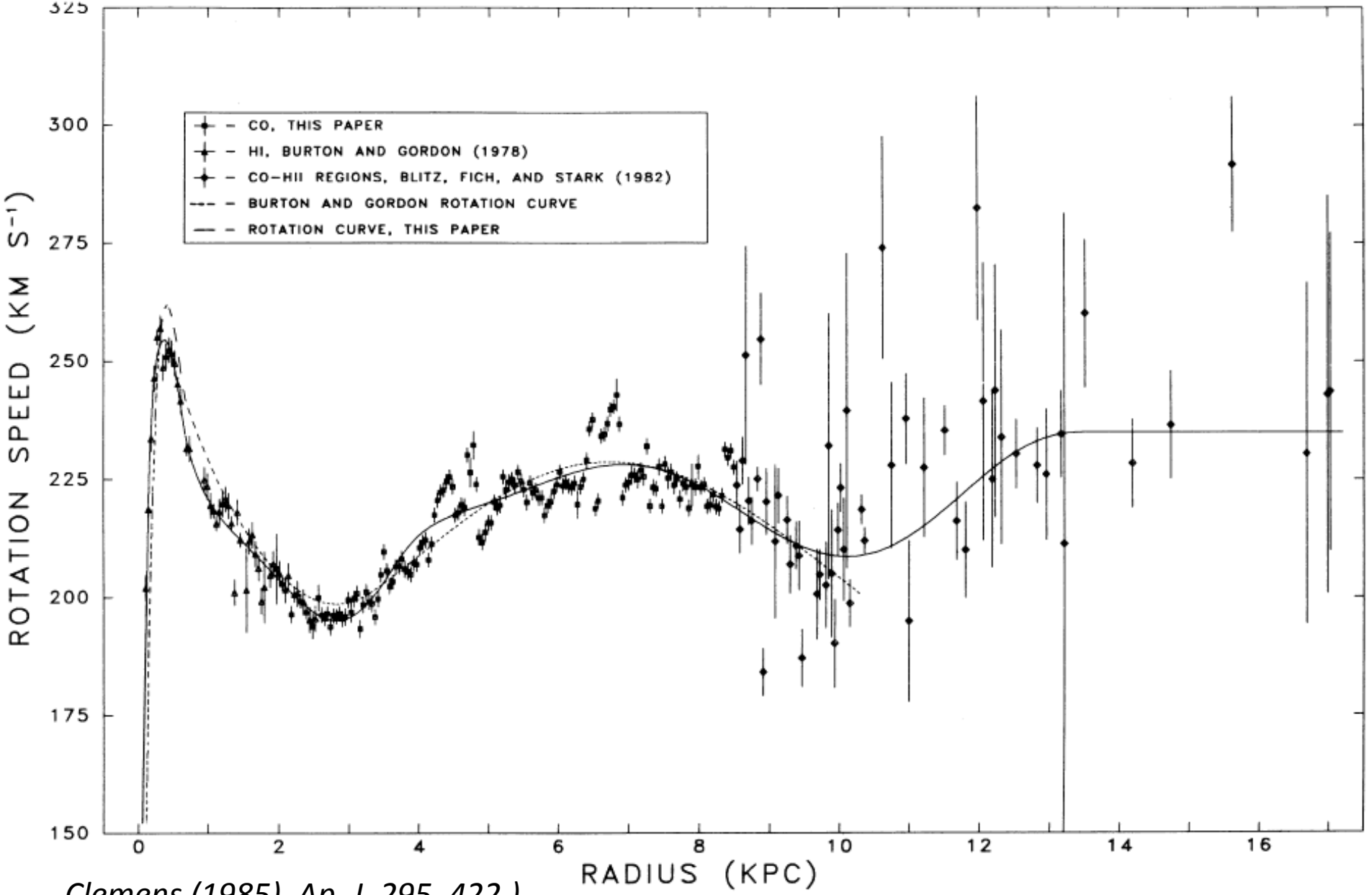


Planck All Sky Image of Dust Emission in the Milky Way

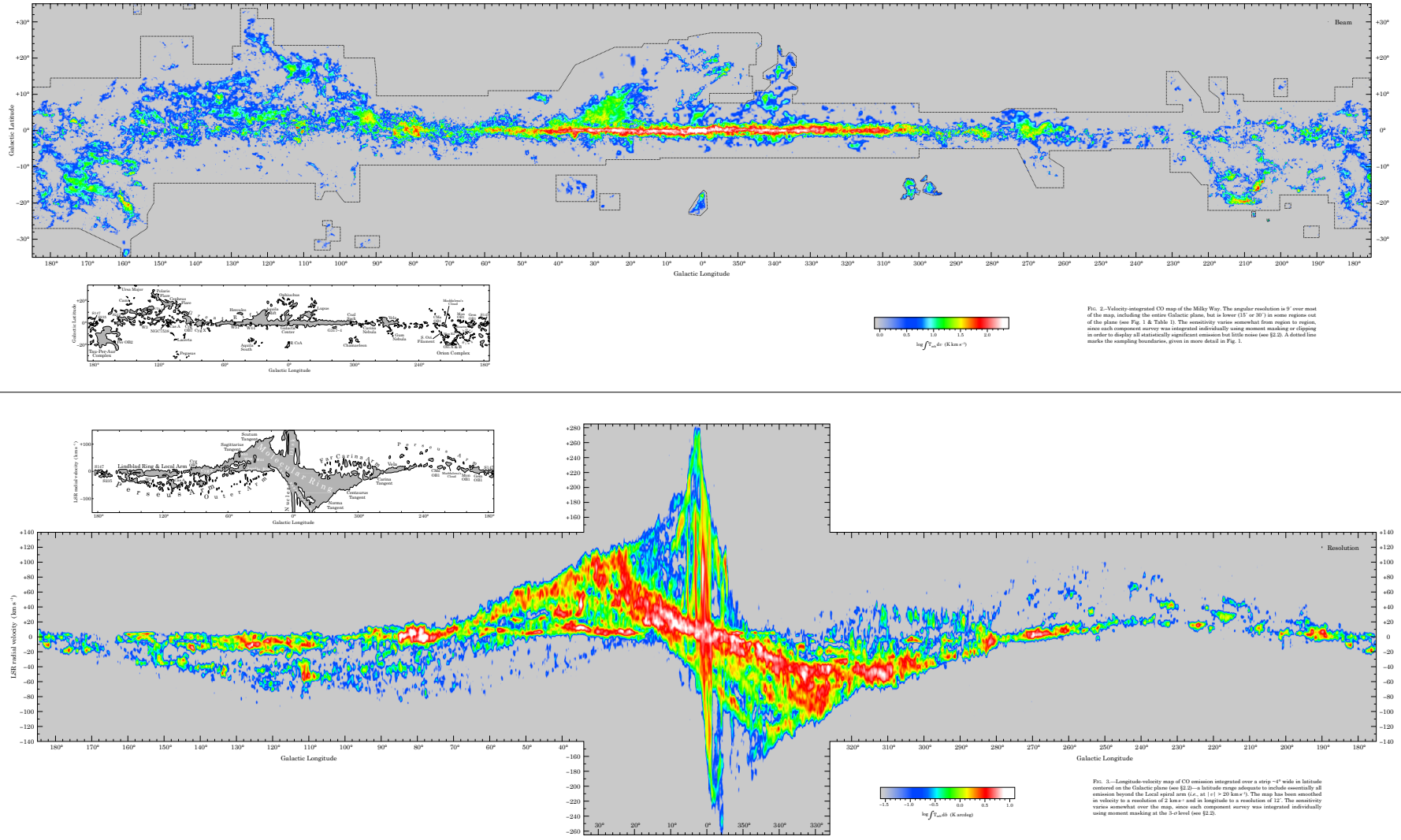


Planck Map of CO Emission in the Milky Way



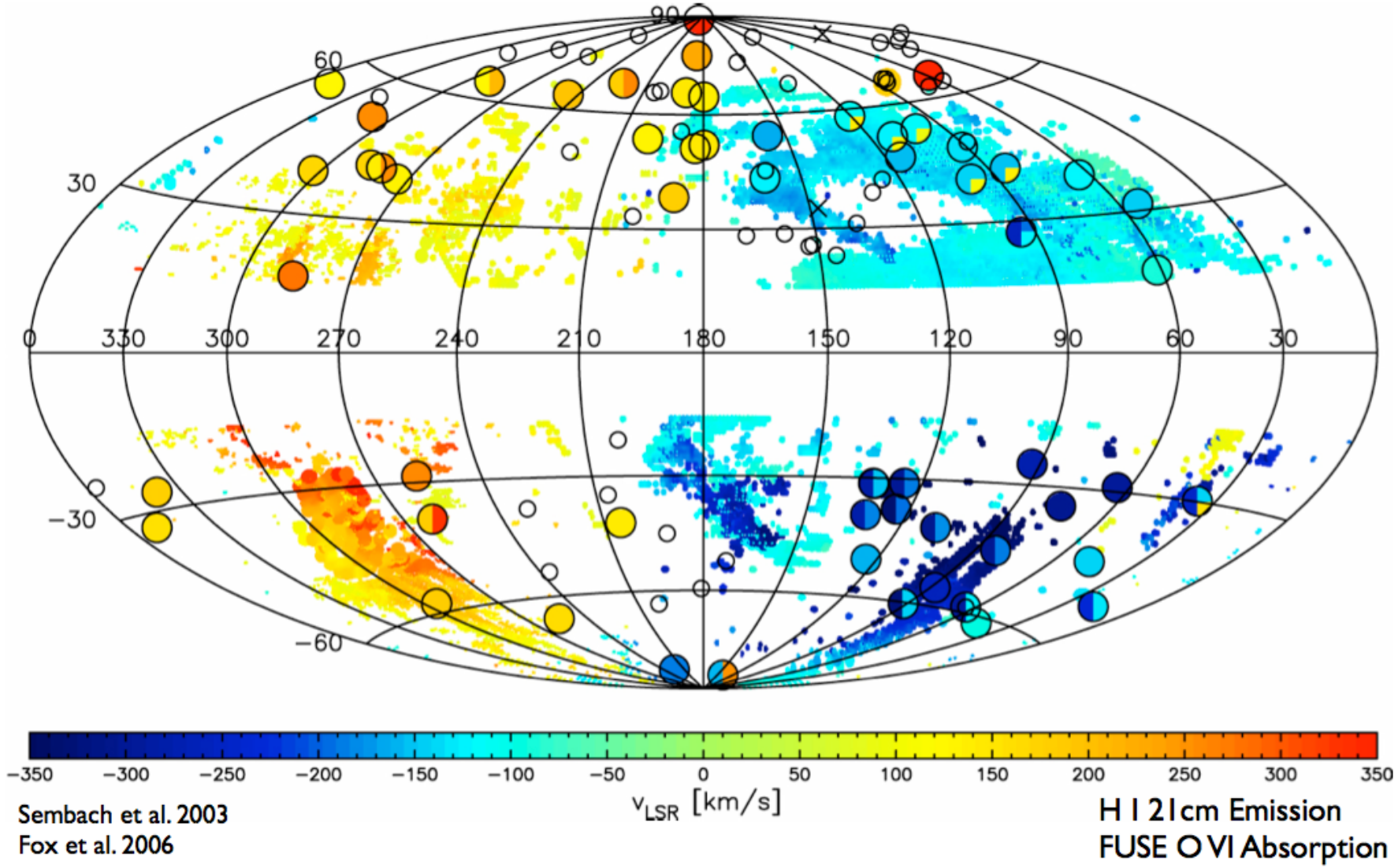


Clemens (1985), Ap. J. 295, 422.)



Dame et al 1987 ApJ 322, 706

UV observations of the Galactic sky

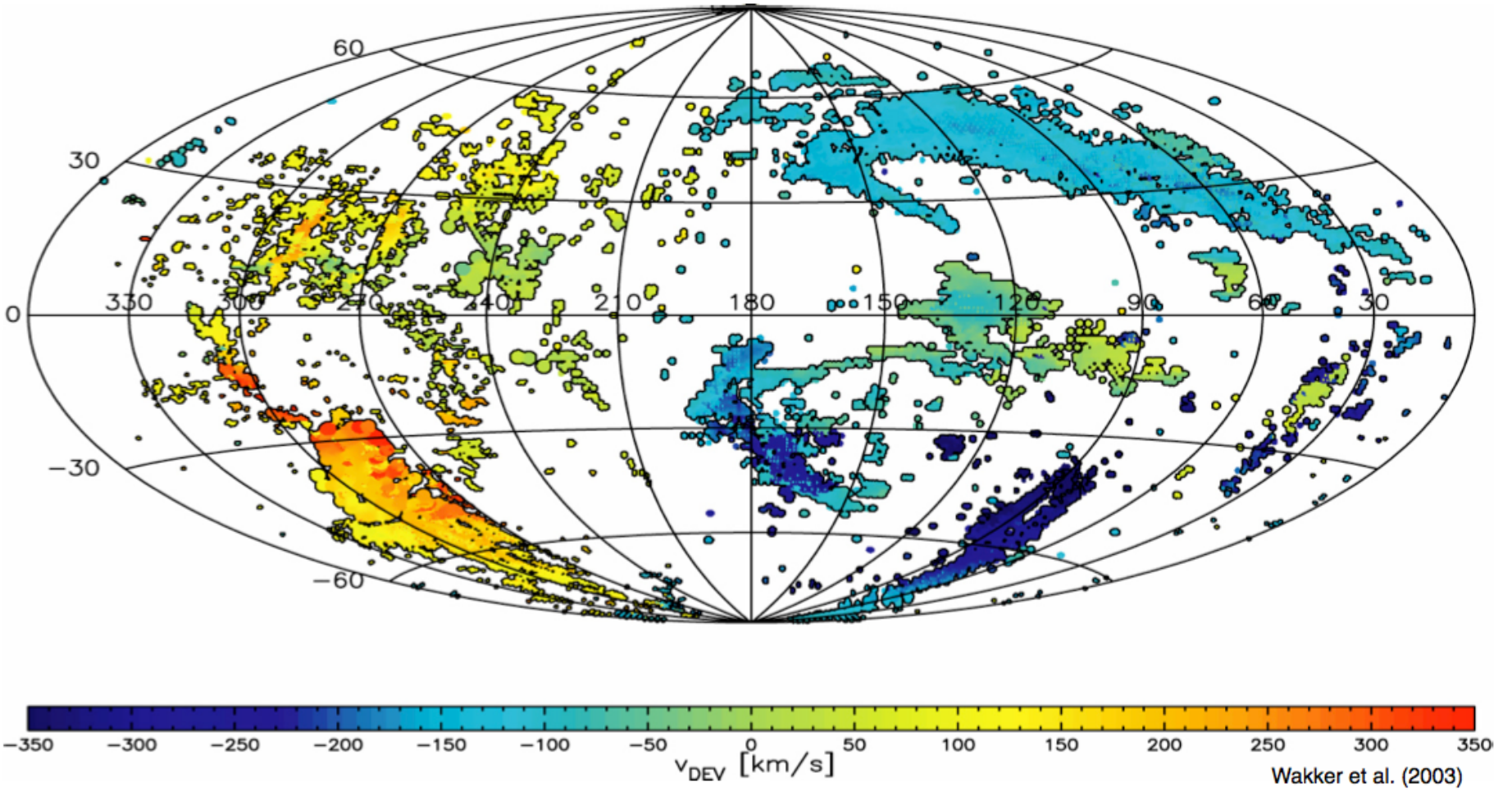


Sembach et al. 2003
Fox et al. 2006

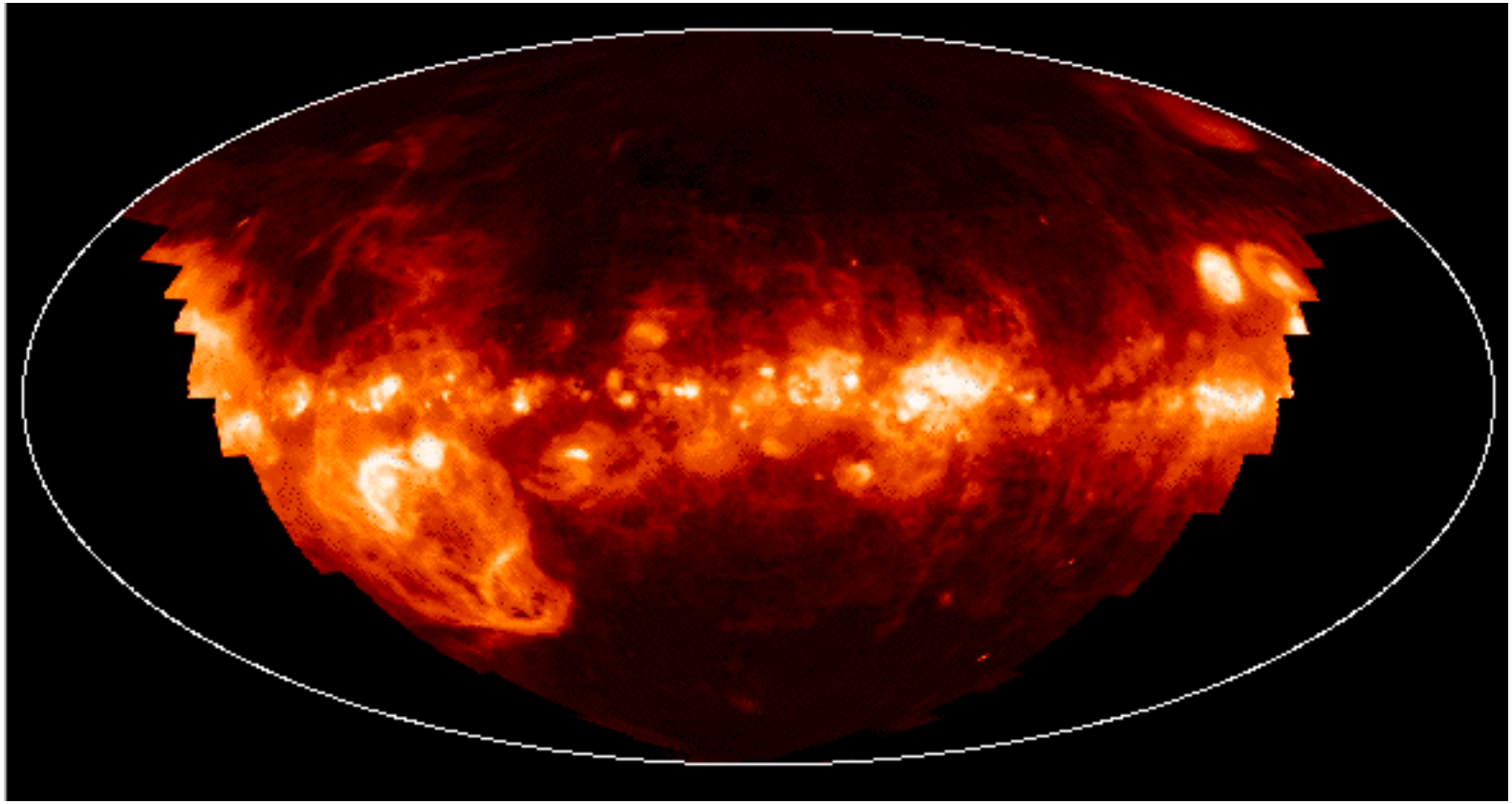
H I 21cm Emission
FUSE O VI Absorption

Covering fraction: 60% – 85% of sky covered at $N(H^+) \geq 10^{18}$ cm^{-2} (for SMC metallicity)

High-velocity clouds are clouds moving at fast speed



HVCs exhibit **H I 21cm emission** that covers ~18% HI covering factor at at $N_{HI} > 2 \times 10^{18}$ cm^{-2} (Wakker 1991).



Milky Way Ionized Gas from the
Wisconsin Halpha Mapper (WHIM)