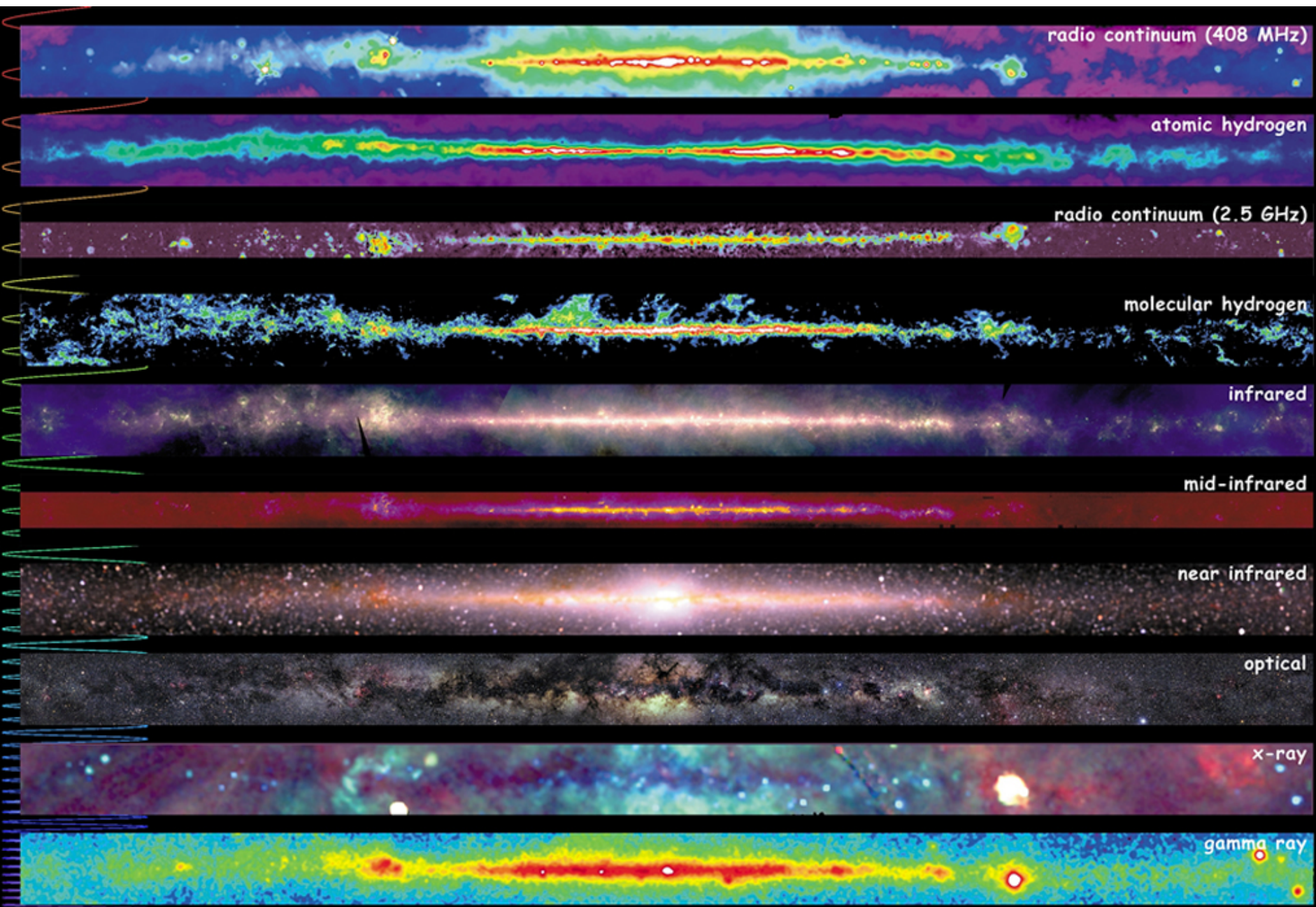
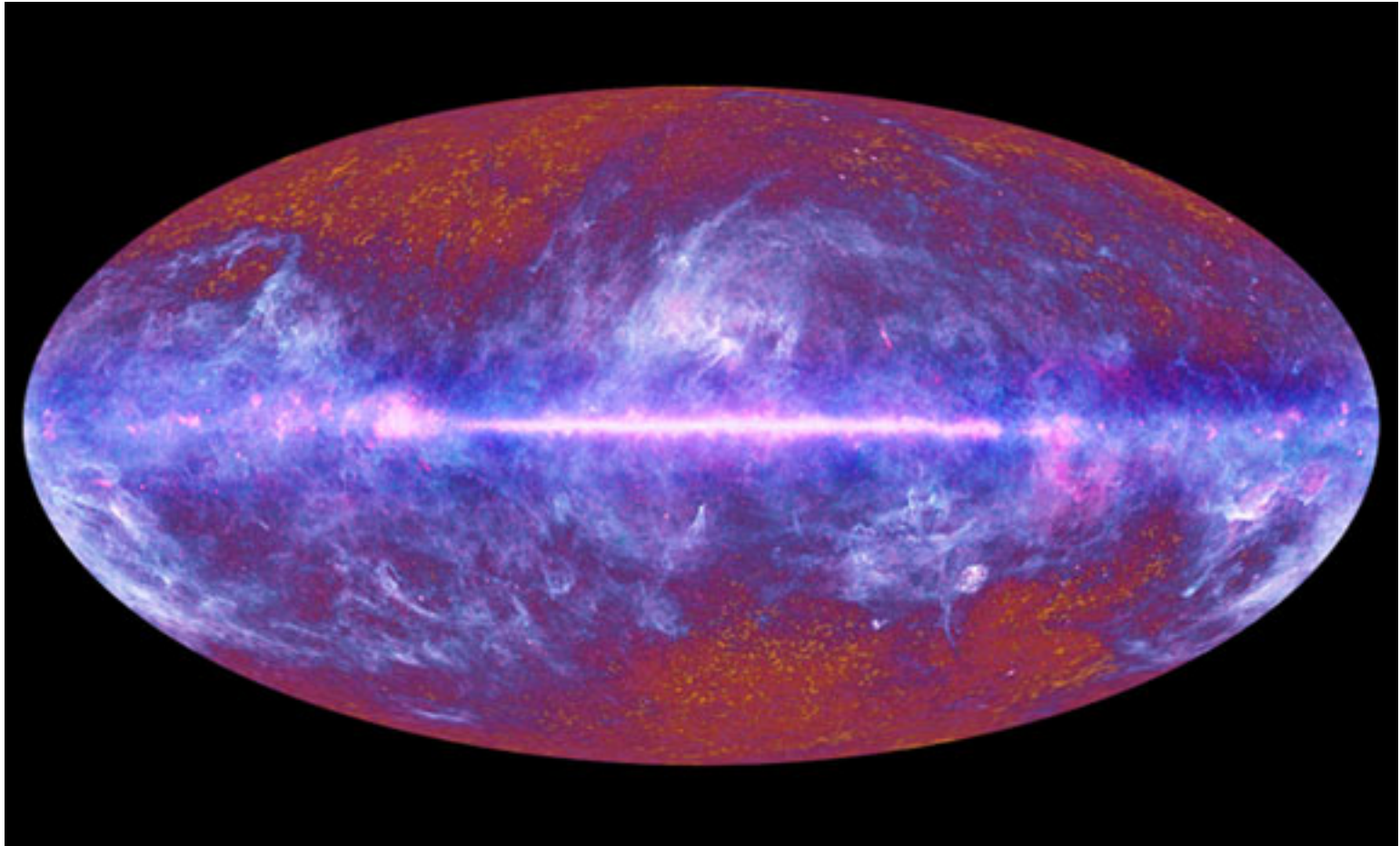


**Table 4-16.** Scale Heights  $\beta_s$  in the Direction Perpendicular to the Galactic Plane and Surface Density  $\Sigma_s$  for Various Objects

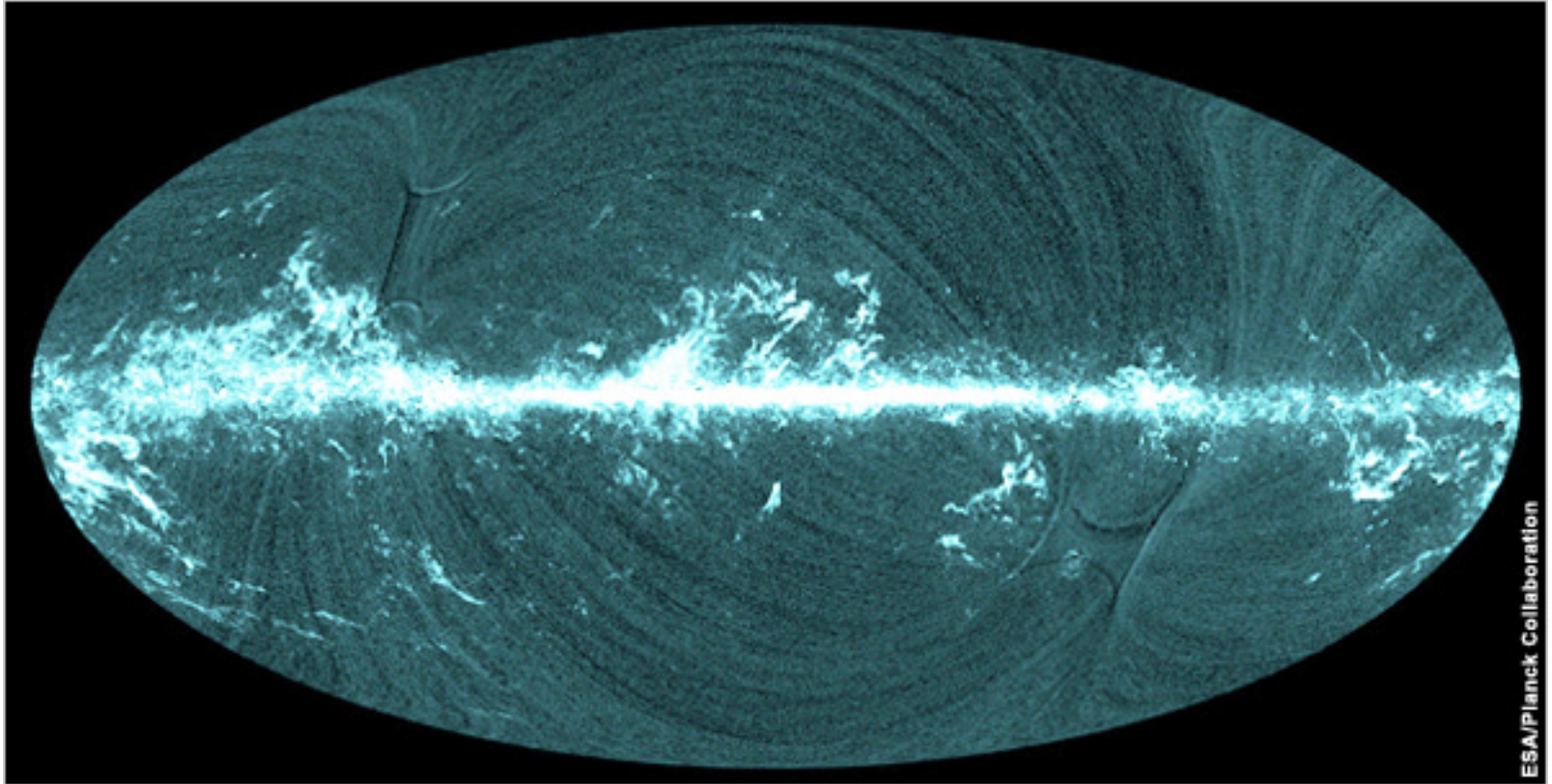
Object	$\beta_s(\text{pc})$	$\Sigma_s\left(\frac{\text{stars}}{\text{pc}^2}\right)$	$\Sigma_s'\left(\frac{M_\odot}{\text{pc}^2}\right)$
O stars	50	$1.5 \times 10^{-6}$	$10^{-4}$
Classical Cepheids	50	$7.5 \times 10^{-6}$	$5 \times 10^{-5}$
B stars	60	$6 \times 10^{-3}$	$6 \times 10^{-2}$
Galactic clusters	80	—	—
Interstellar dust and gas	120	—	—
A stars	120	$6 \times 10^{-2}$	0.1
F stars	190	0.6	0.6
Planetary nebulae	260	—	—
gK stars	270	$1.2 \times 10^{-3}$	$3 \times 10^{-2}$
Novae	300	—	—
dG stars	340	2	2
dK stars	350	3.5	2.5
dM stars	350	20	9
gG stars	400	$6 \times 10^{-2}$	$1.6 \times 10^{-1}$
White dwarfs	500	12.5	10
Long-period variables (M5–M8)	700		
RR Lyrae variables ( $P < 0.5$ )	900		
Long-period variables (M0–M4)	1000		
RR Lyrae variables ( $P > 0.5$ )	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

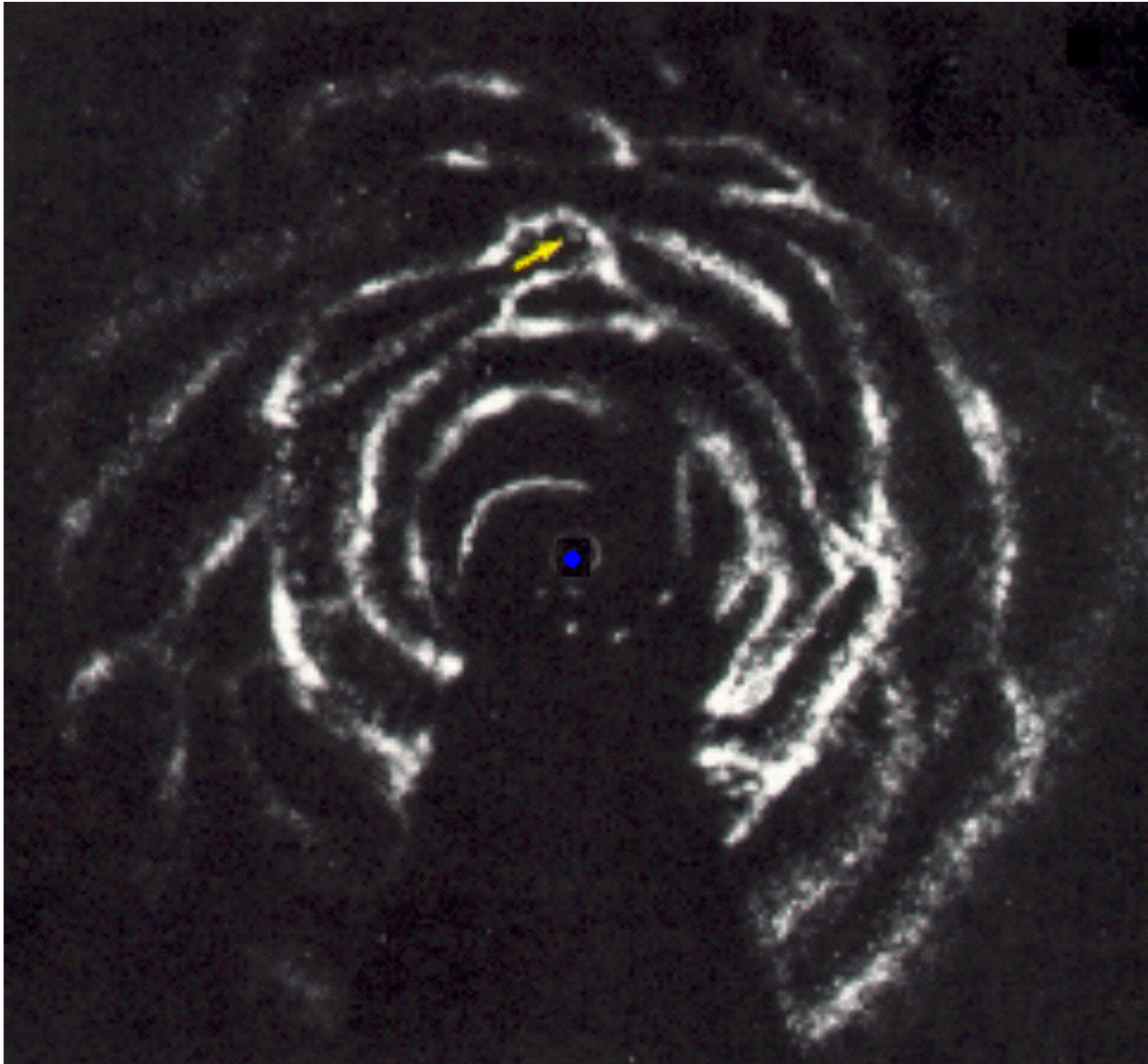


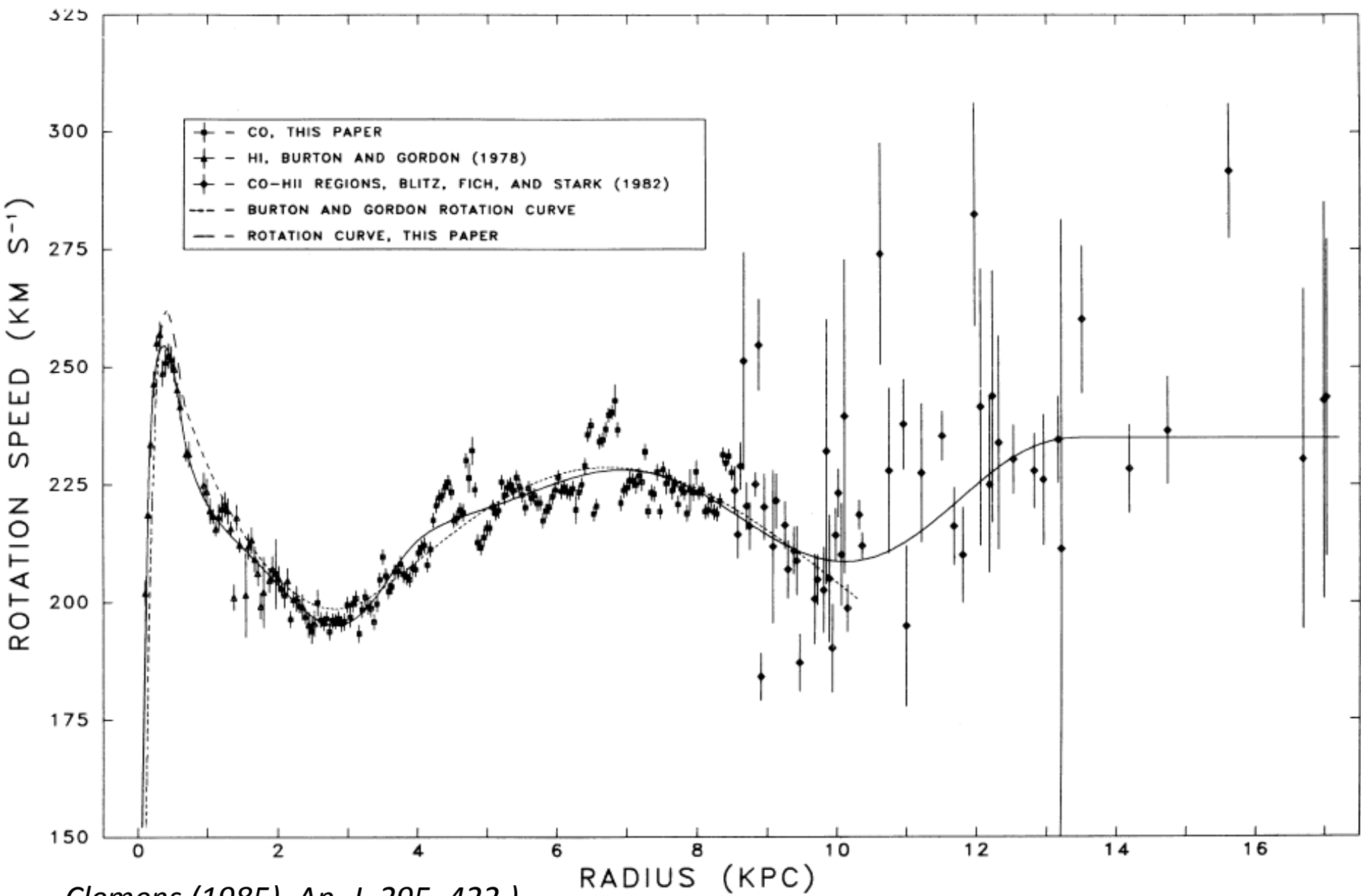


Planck All Sky Image of Dust Emission in the Milky Way



Planck Map of CO Emission in the Milky Way





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

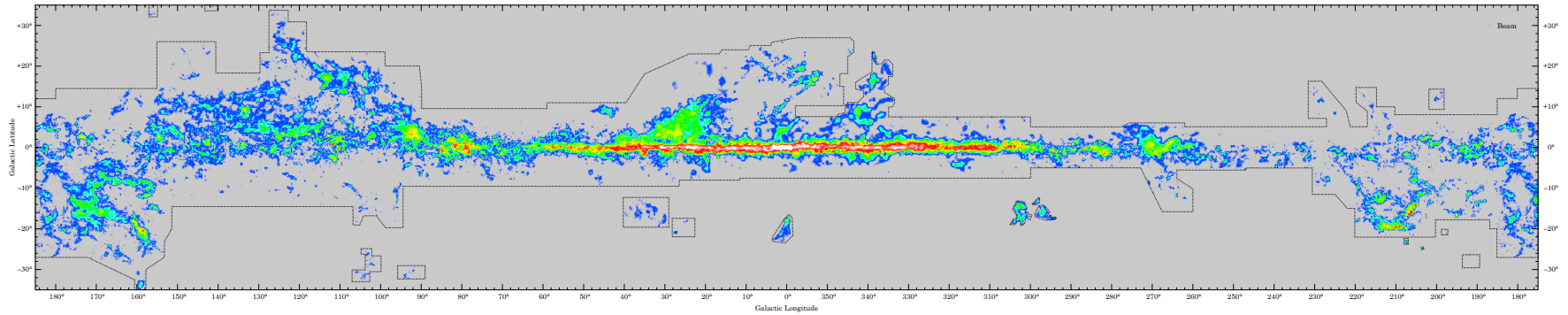


FIG. 2.— Velocity-integrated CO map of the Milky Way. The angular resolution is  $5''$  over most of the map, including the entire Galactic plane, but is lower ( $15''$  or  $30''$ ) in some regions out of the plane (see Fig. 1 & Table 1). The sensitivity varies somewhat from region to region, since each component survey was integrated individually using moment masking or clipping in order to display all statistically significant emission but little noise (see §2.2). A dotted line marks the sampling boundaries, given in more detail in Fig. 1.

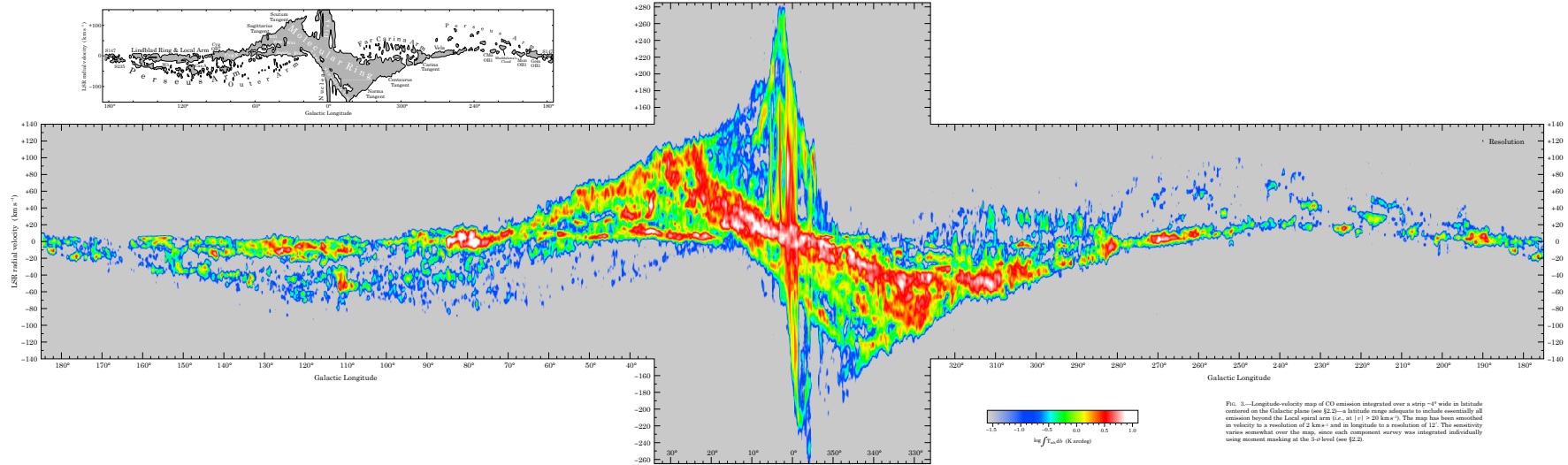
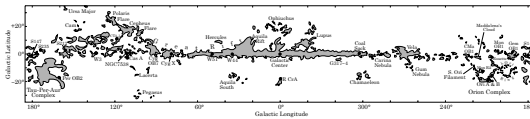
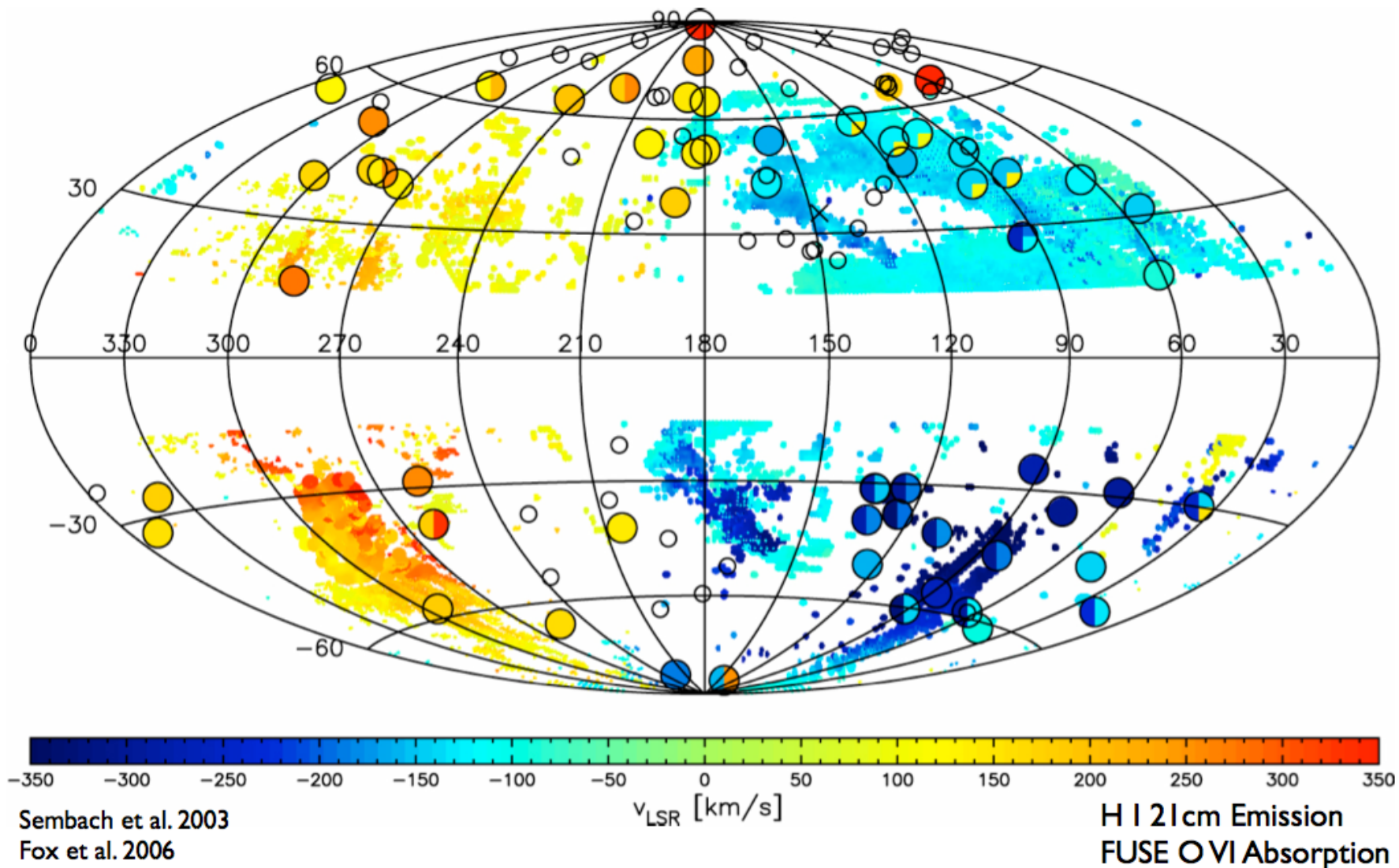


FIG. 3.— Length-velocity map of CO emission integrated over a strip  $\sim 4''$  wide in latitude centered on the Galactic plane (see §2.2) — a latitude strip adequate to include essentially all emission beyond the Local spiral arm (*i.e.*, at  $|l| > 20$  km s $^{-1}$ ). The map has been smoothed in velocity to a resolution of 2 km s $^{-1}$  and in longitude to a resolution of 12'. The sensitivity varies somewhat over the map, since each component survey was integrated individually using moment masking at the 3- $\sigma$  level (see §2.2).

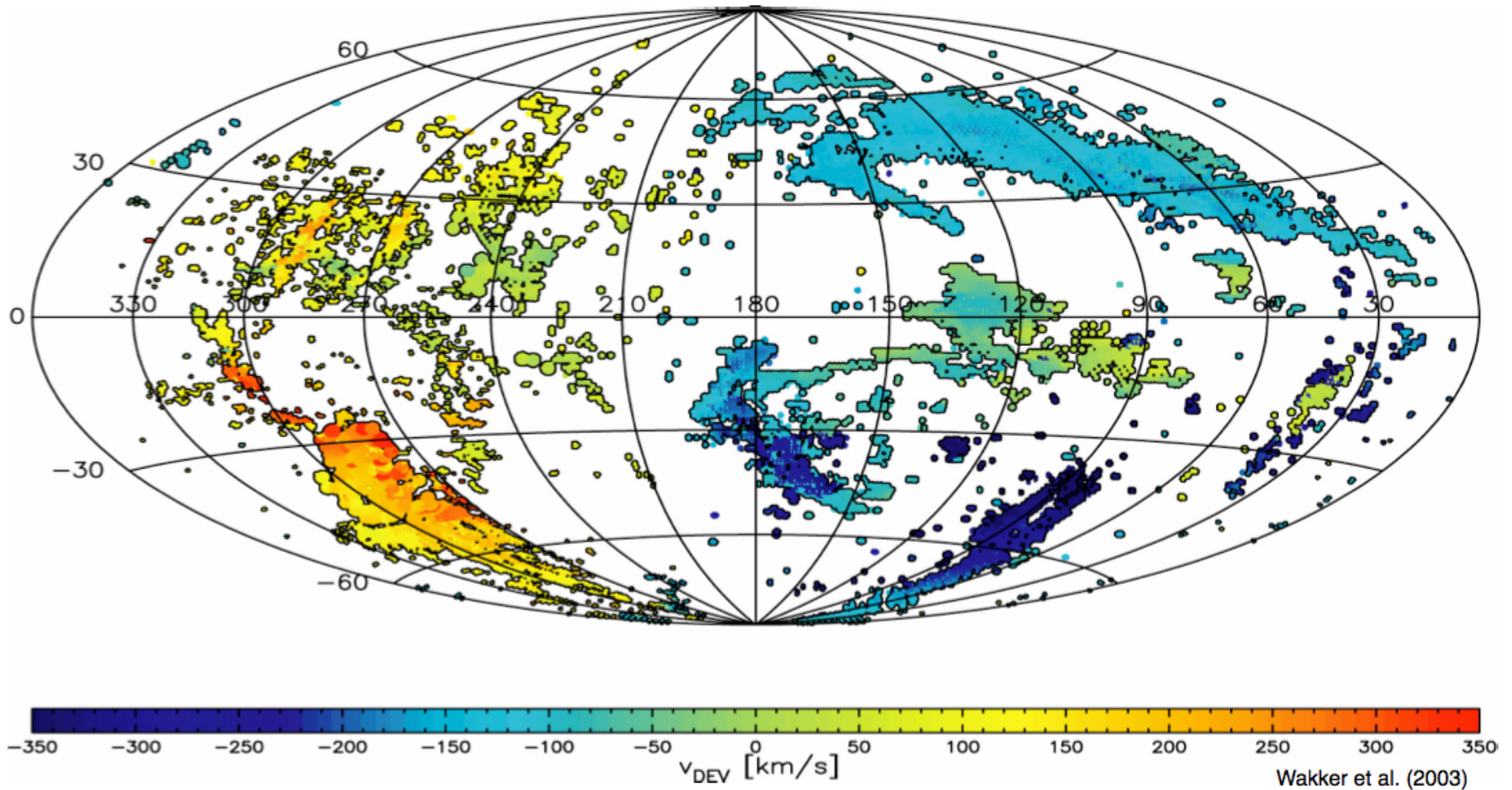
# UV observations of the Galactic sky



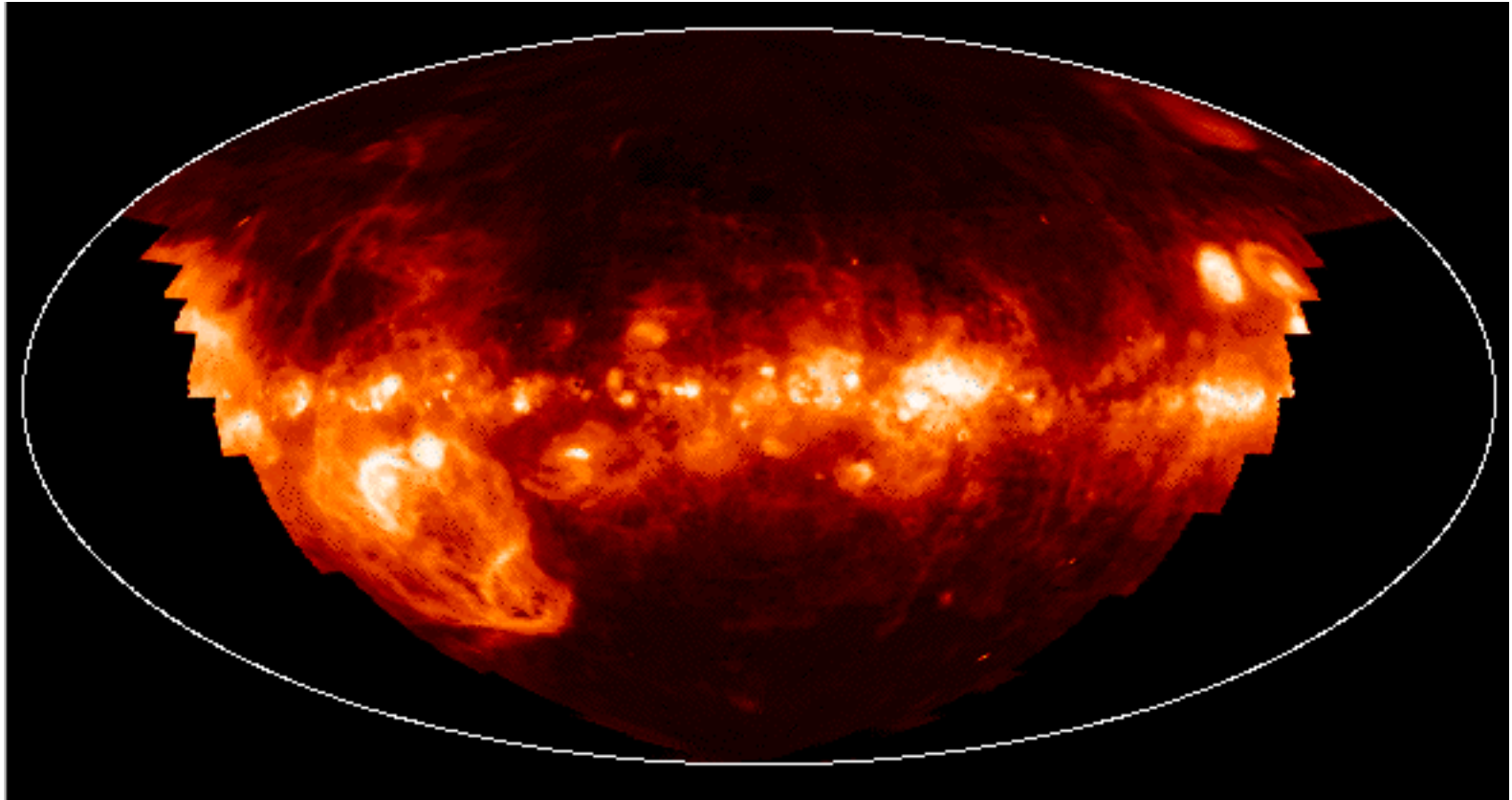
**Covering fraction:** 60% – 85% of sky covered at  $N(\text{H}^+) \geq 10^{18} \text{ cm}^{-2}$  (for SMC metallicity)



# High-velocity clouds are clouds moving at fast speed



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



Milky Way Ionized Gas from the  
Wisconsin H $\alpha$  Mapper (WHIM)