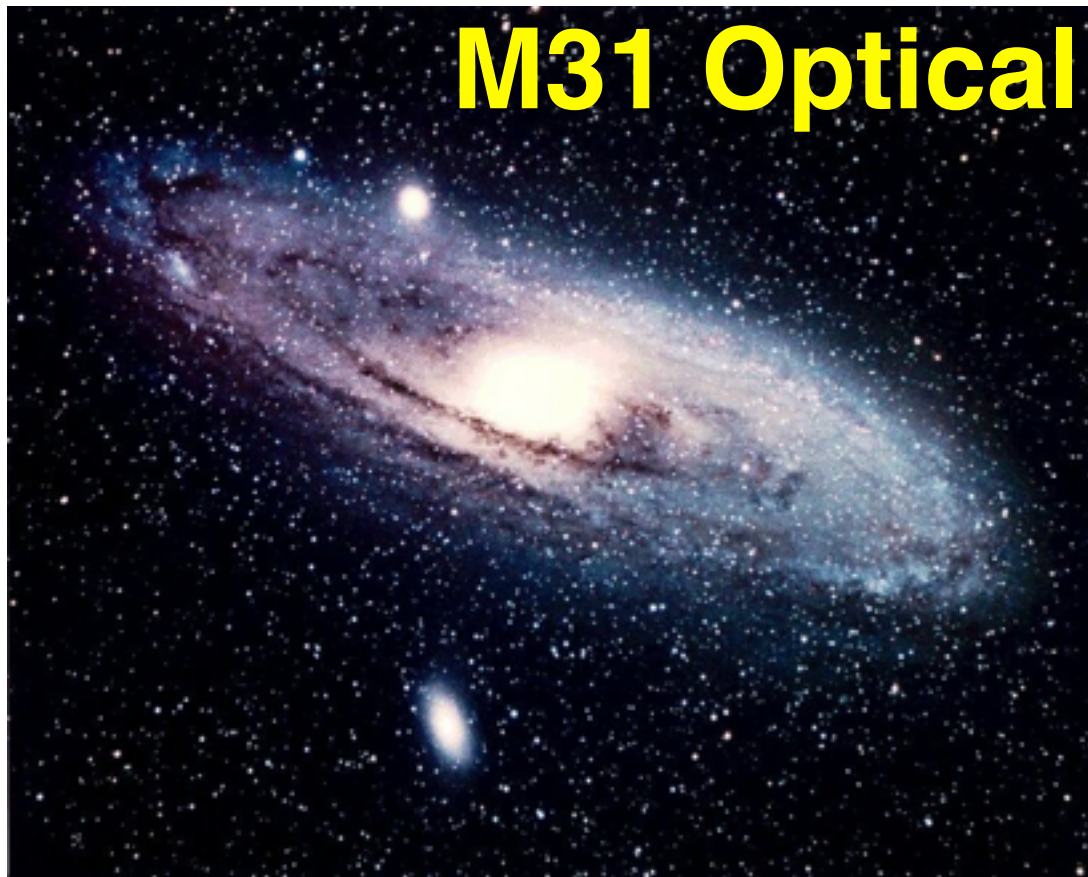
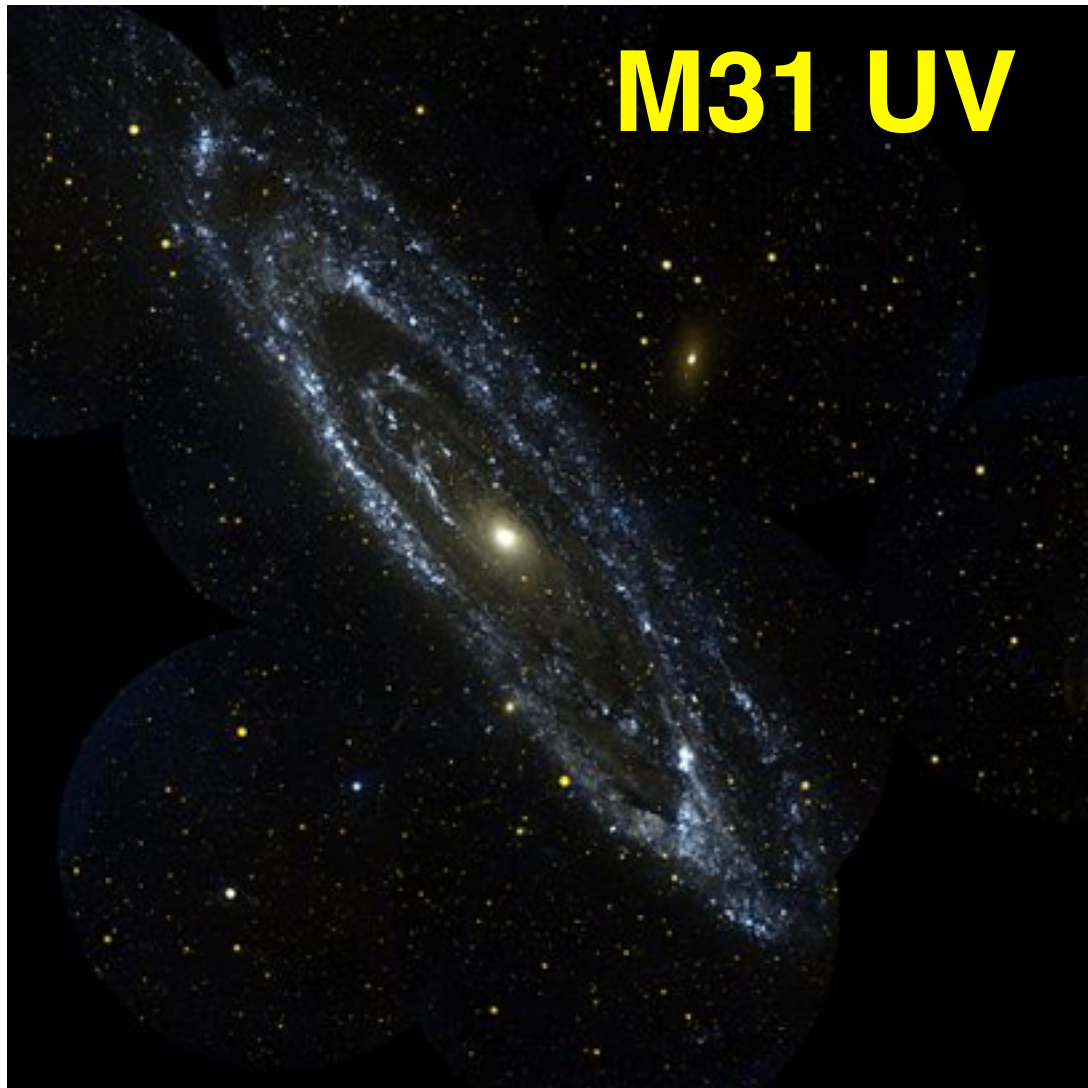


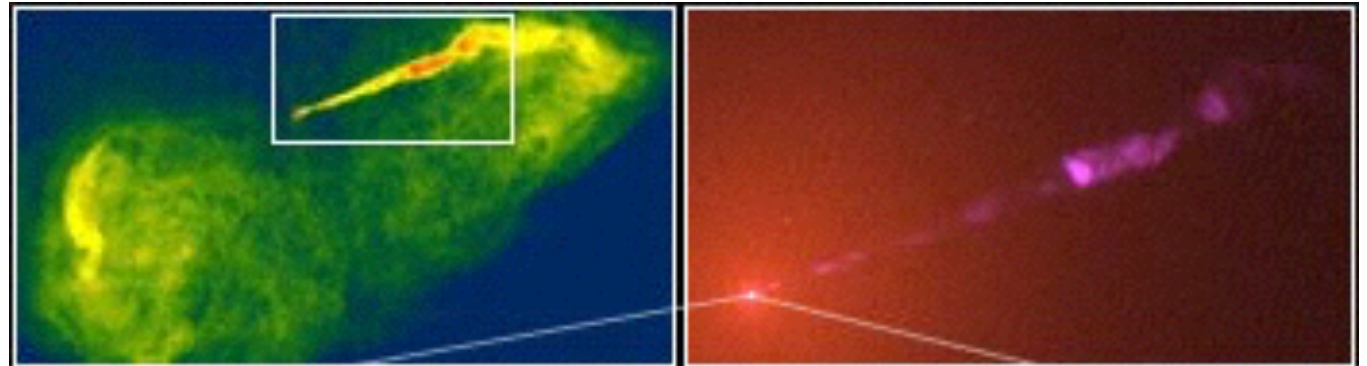
M31 Optical



M31 UV

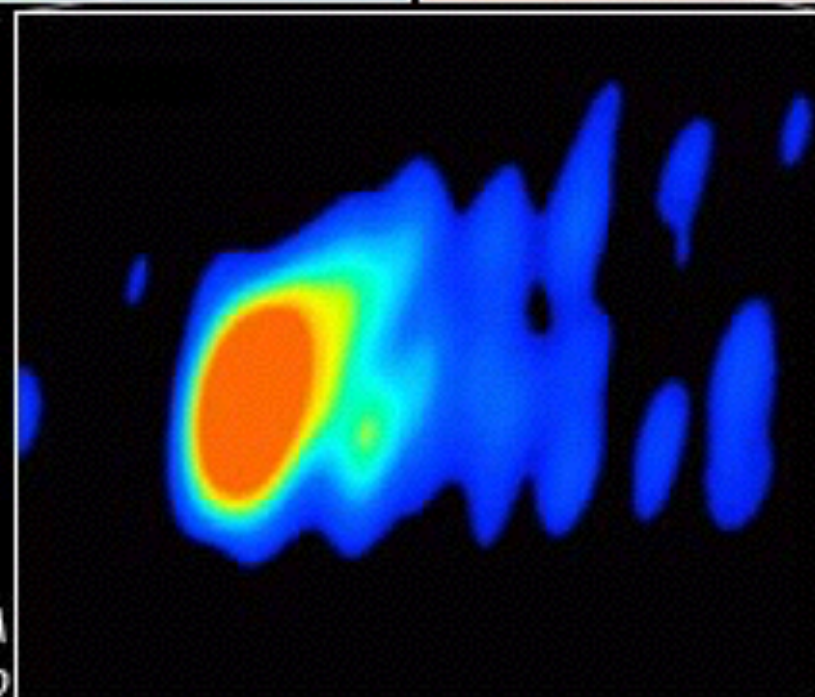


M87 Optical & VLA



*VLA
Radio*

*HST
WFPC2
Visible*



*VLBA
Radio*

Spiral Galaxies: Maoz Figure 7.1



M51: Head on



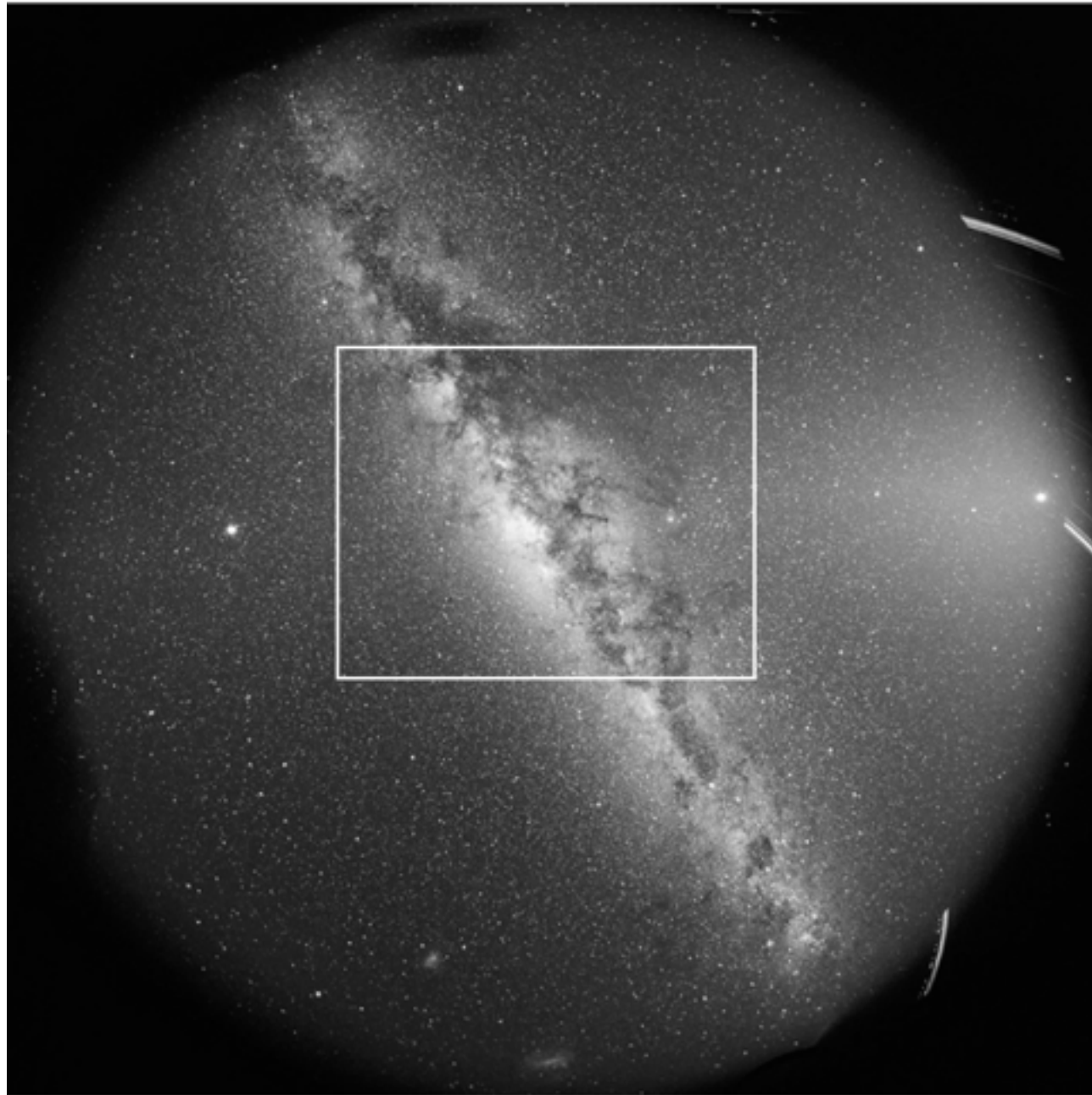
**NGC 3370:
Tilted a little**



**NGC 4594 (aka
“Sombrero”):
Tilted a lot**

Spiral Galaxies Edge On: Maoz Figure 7.3

Milky Way Optical

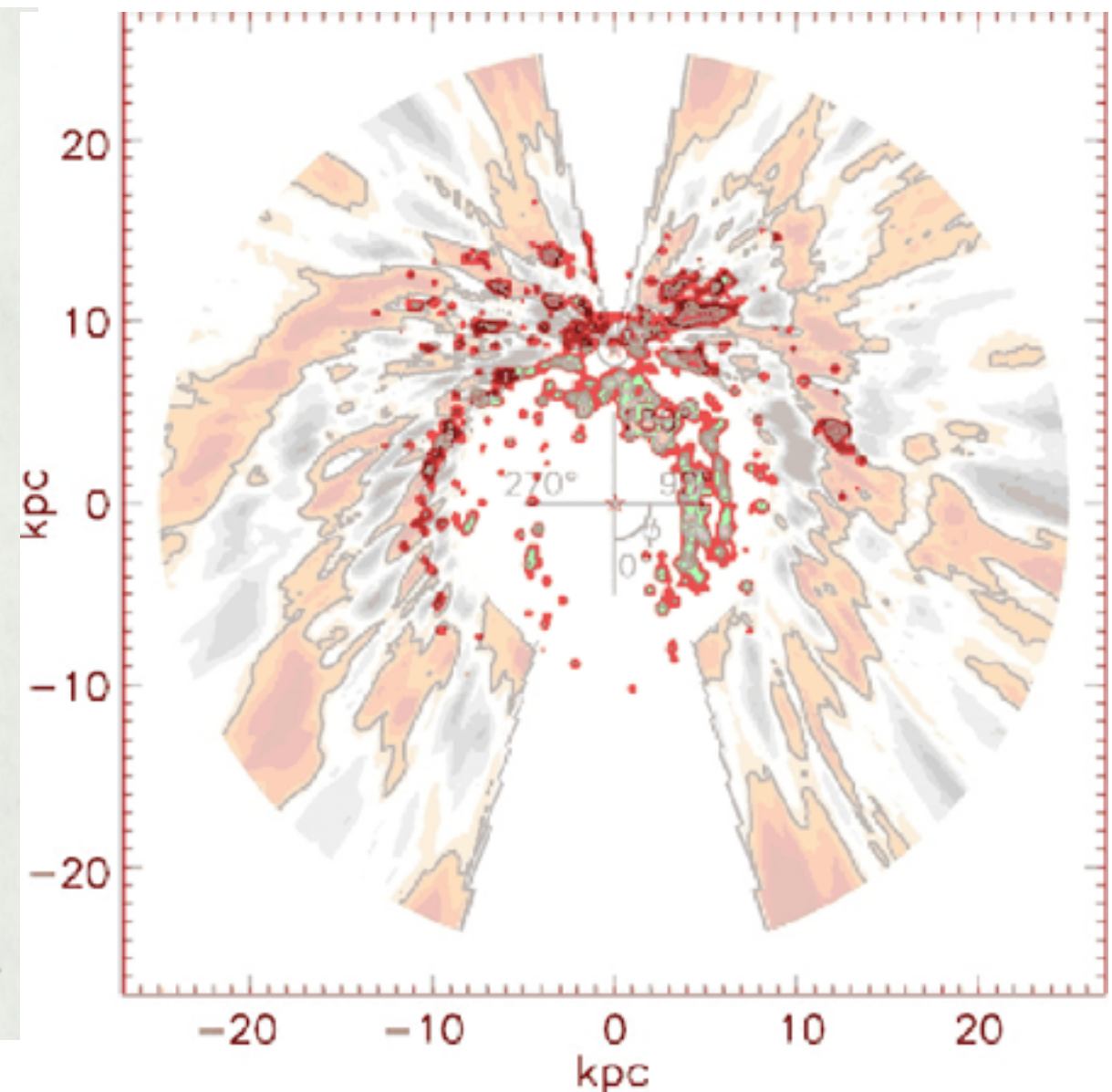
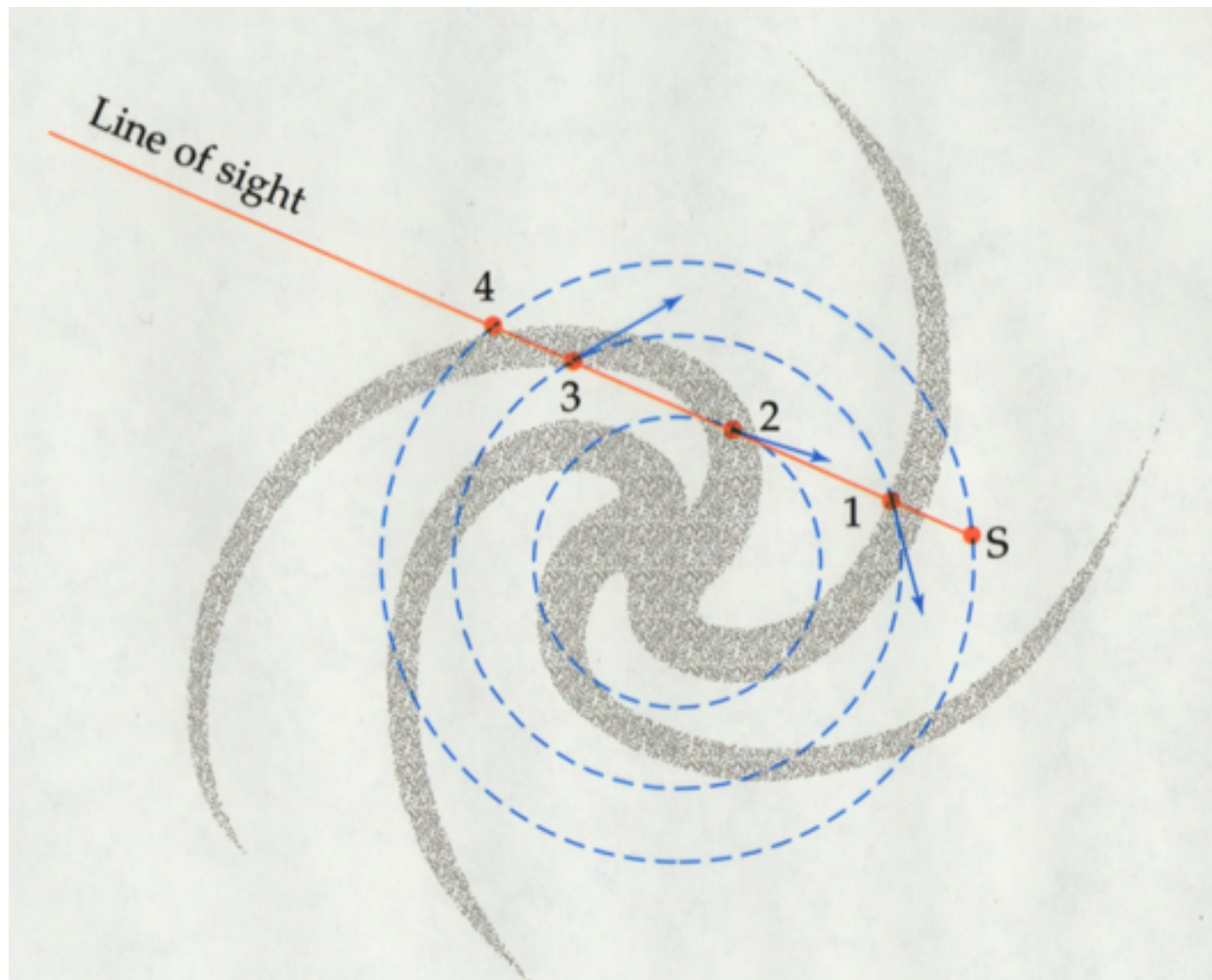


NGC 891



Recall discussion on Doppler Shift of 21cm radiation from H-I regions

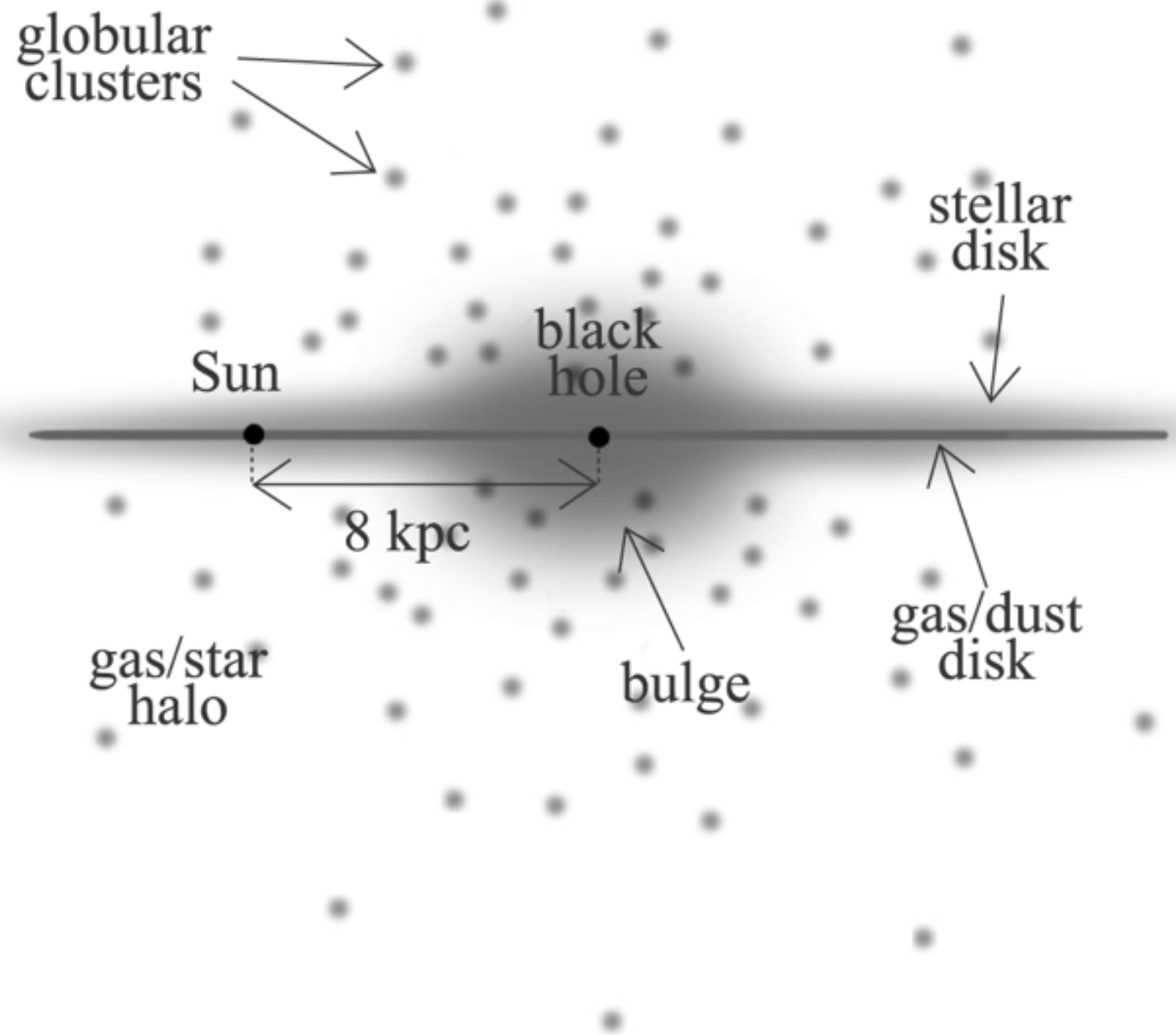
Spiral structure (?) of the Milky Way Galaxy



Globular cluster M80



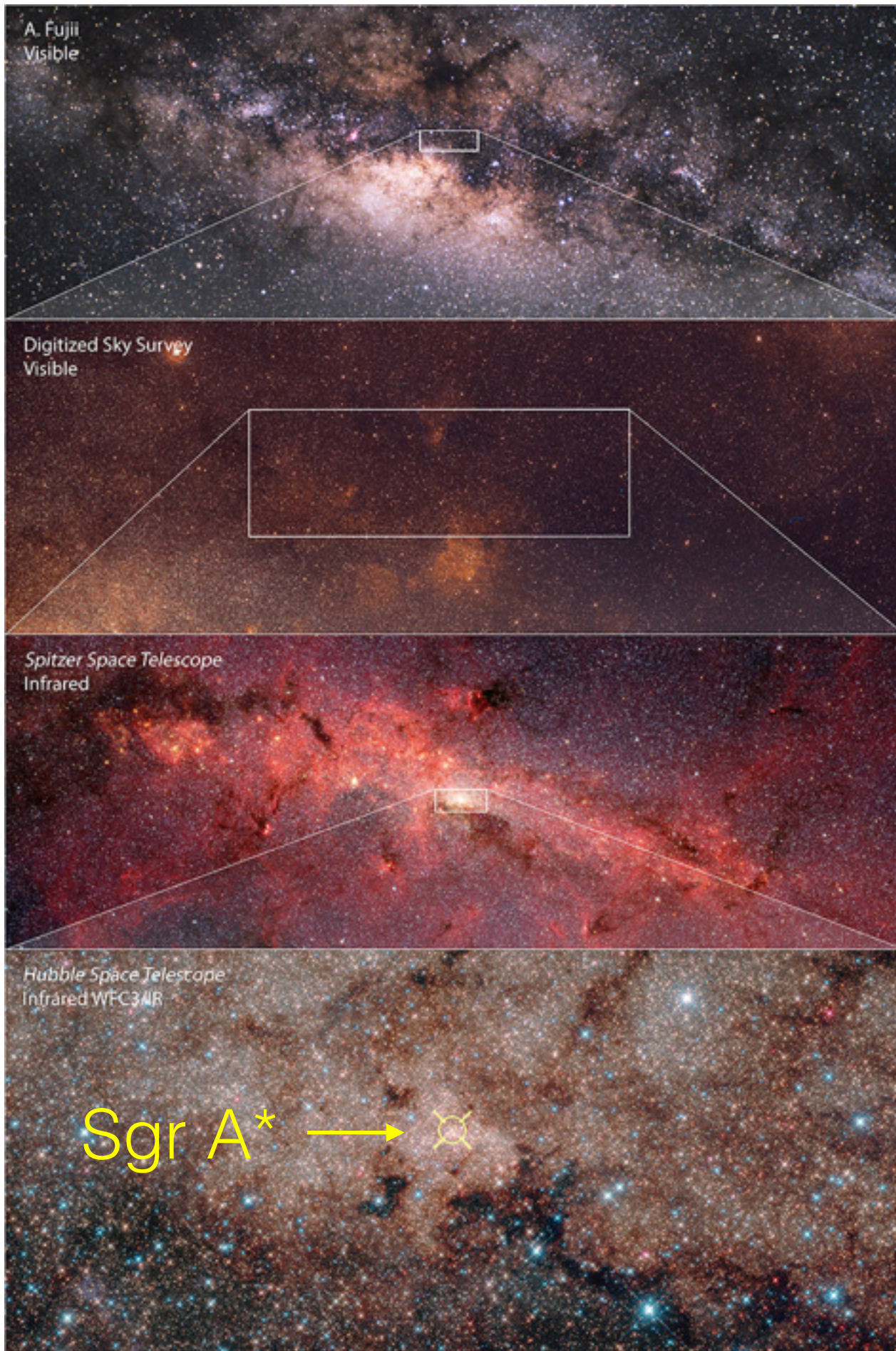
Maoz Figure 7.2: Basic Model of the Milky Way



dark
halo

Later...

The Galactic Center

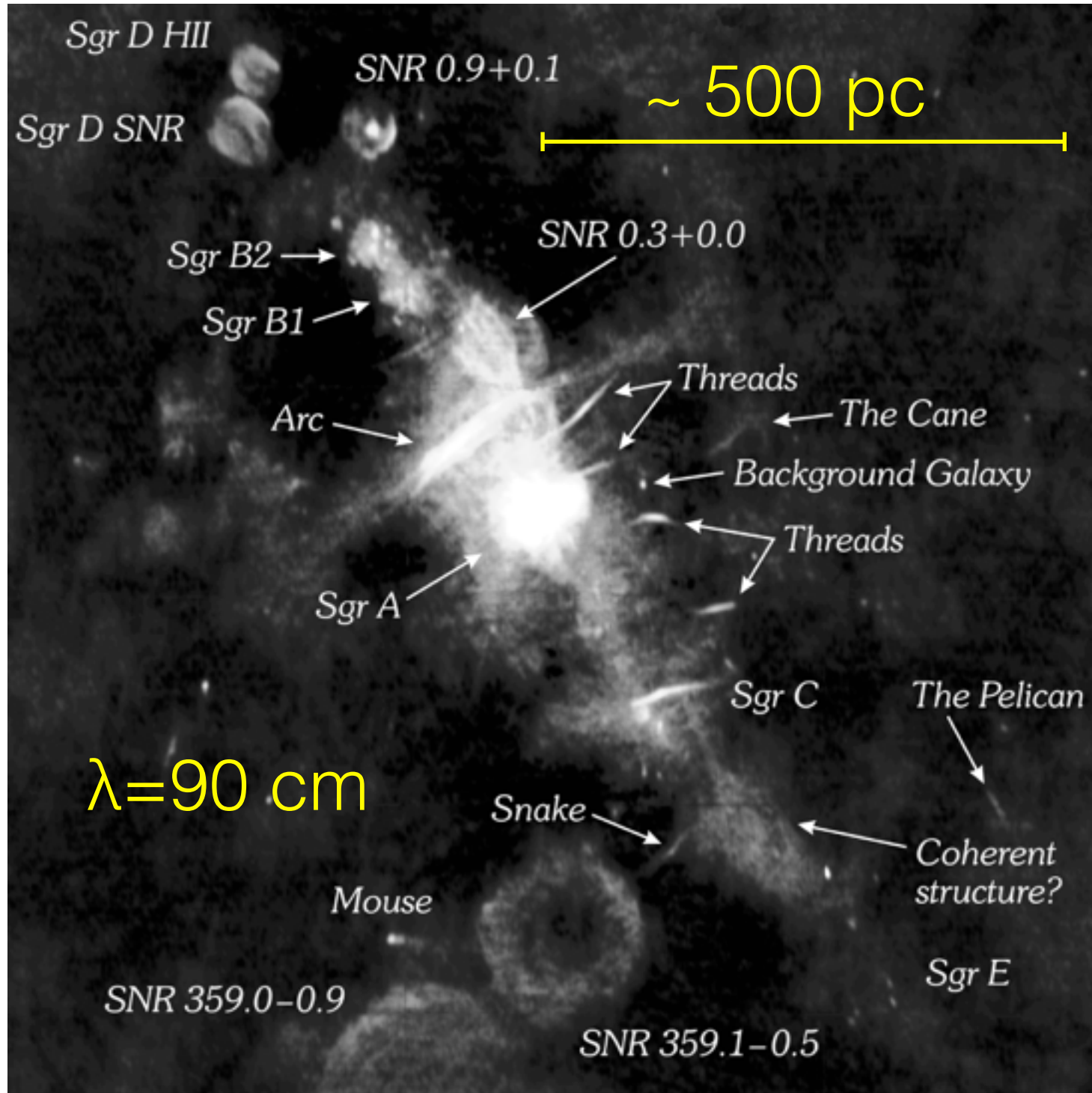


Visible

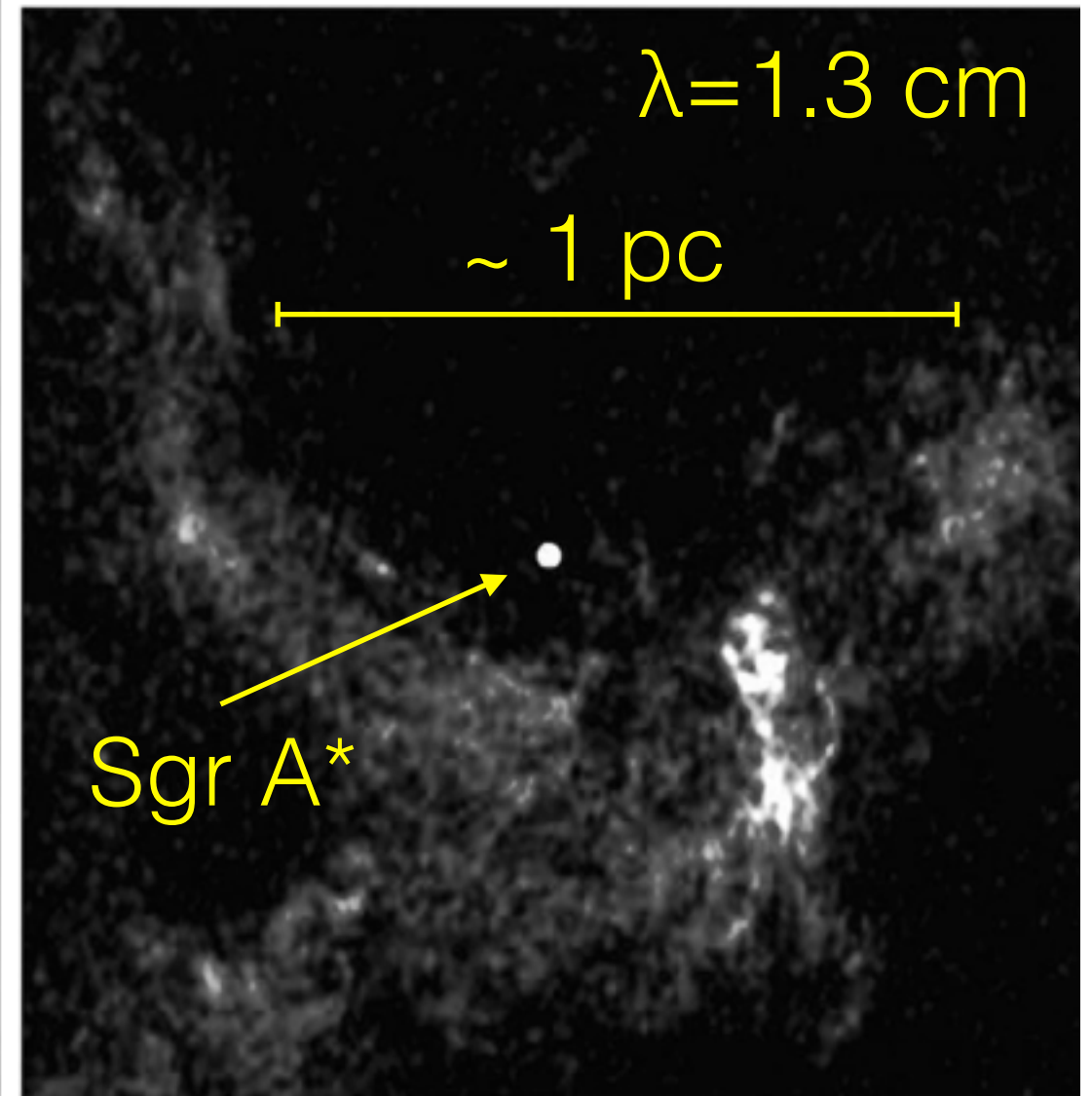
Infrared (Spitzer)

Infrared (Hubble)

Maoz Figure 7.4

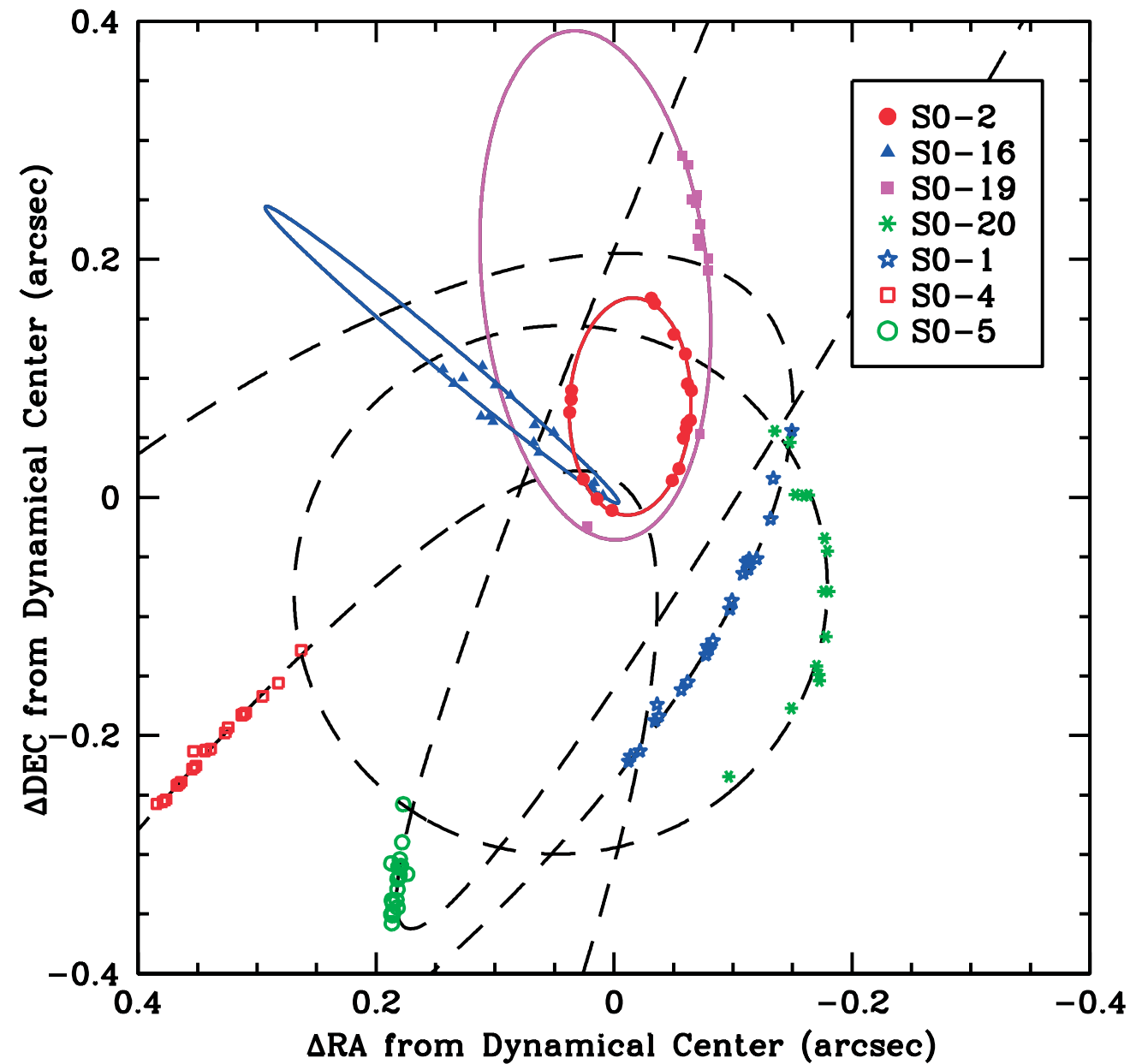
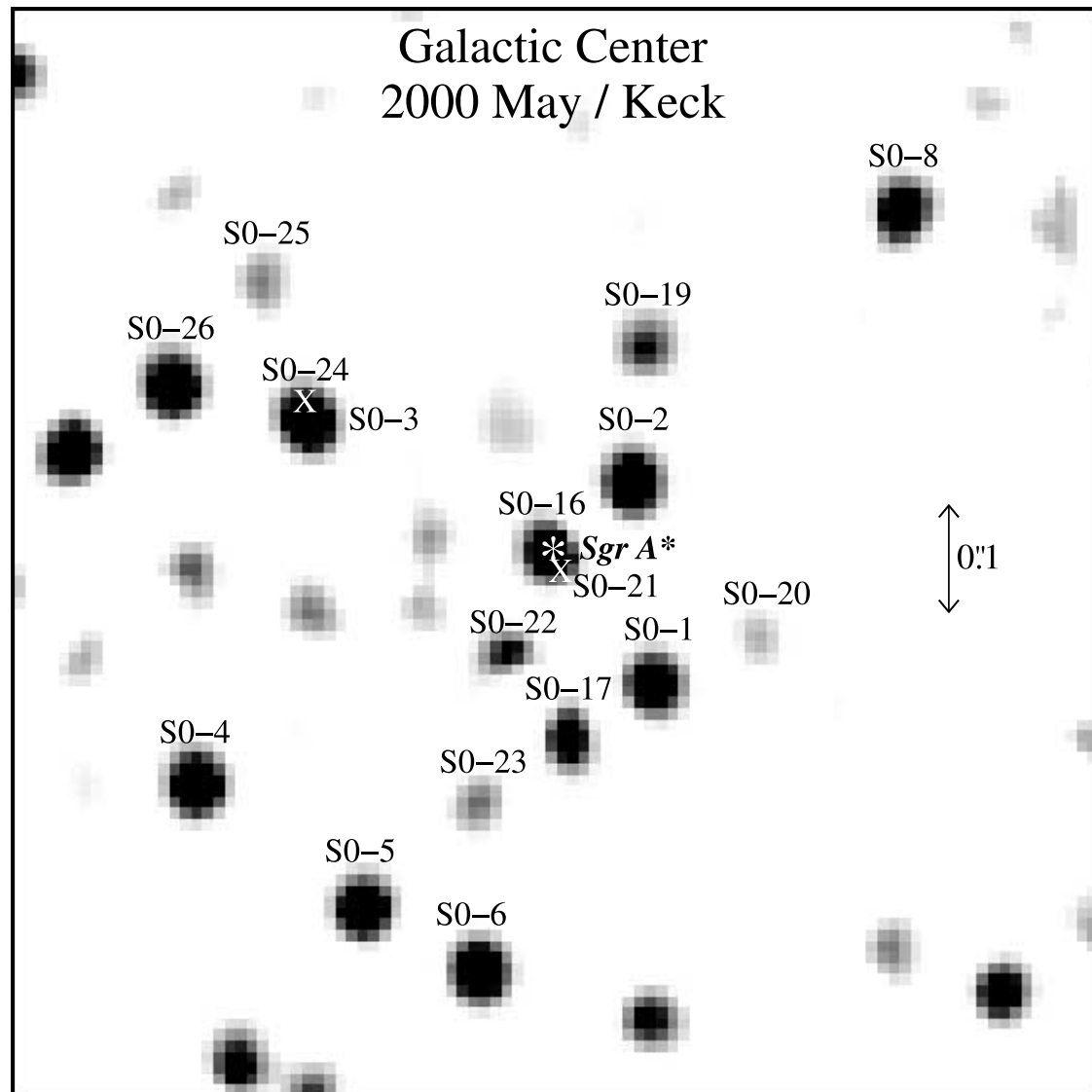


VLA / NRAO Data



Maoz Figure 7.5

A. Ghez, et al, Astrophysical Journal [620\(2005\)744](#)



$\approx 4 \times 10^6 M_{\odot}$ within 45 AU of dynamical center