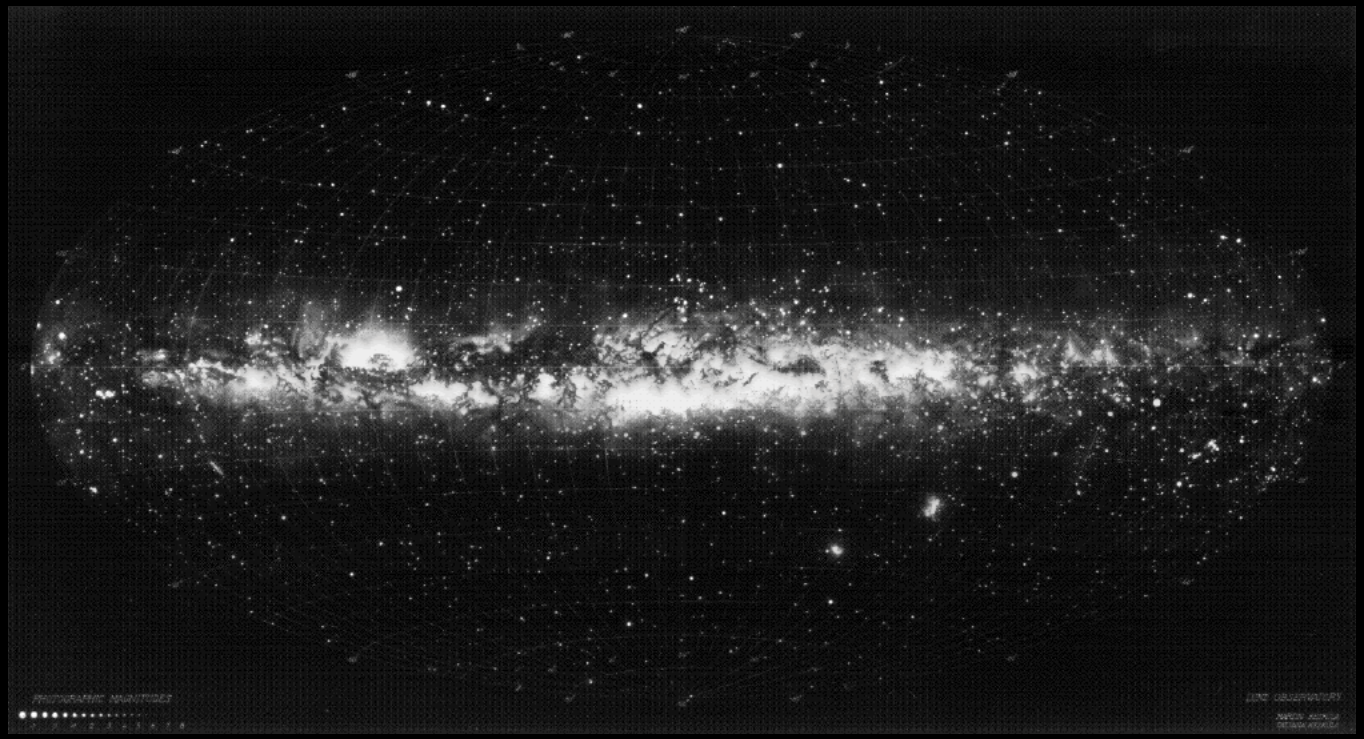
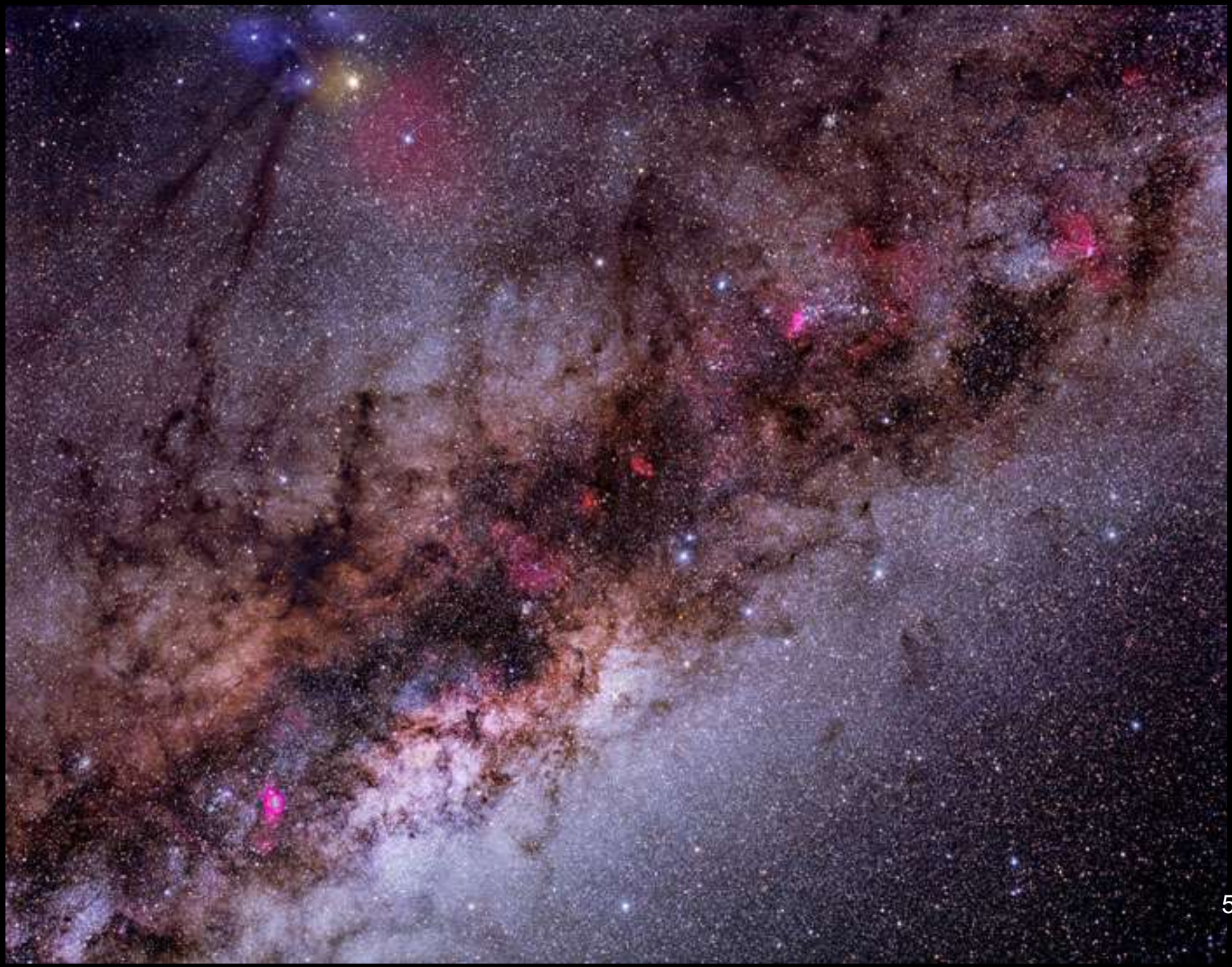
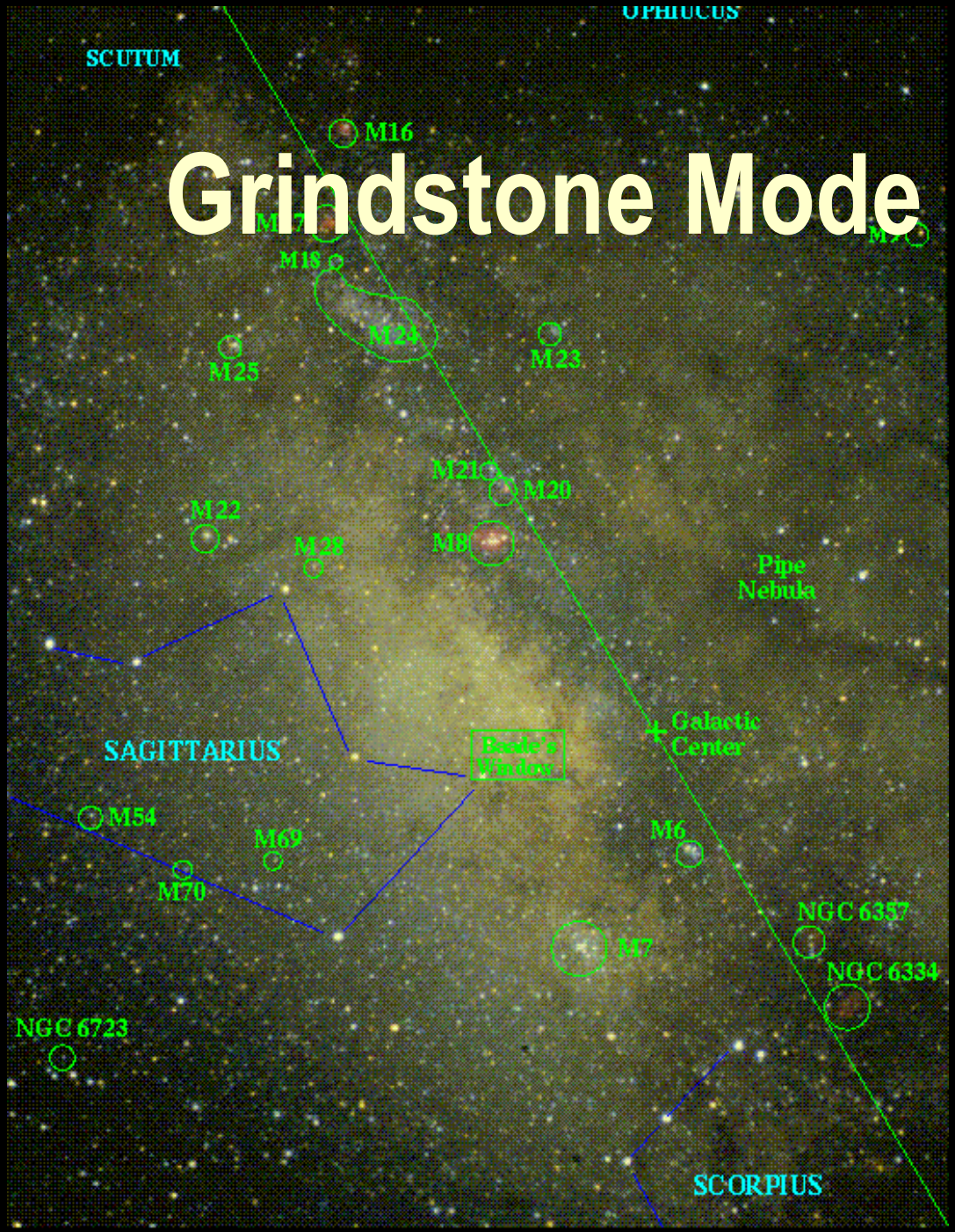
The Milky Way Galaxy



Milky Way Galaxy





Grindstone Mode

Cepheid Variable Stars

They are stars which change their luminosity (reliably) over time.

WHY?

The instability of stellar evolution produces a reliable fluctuation of a star's absolute brightness.

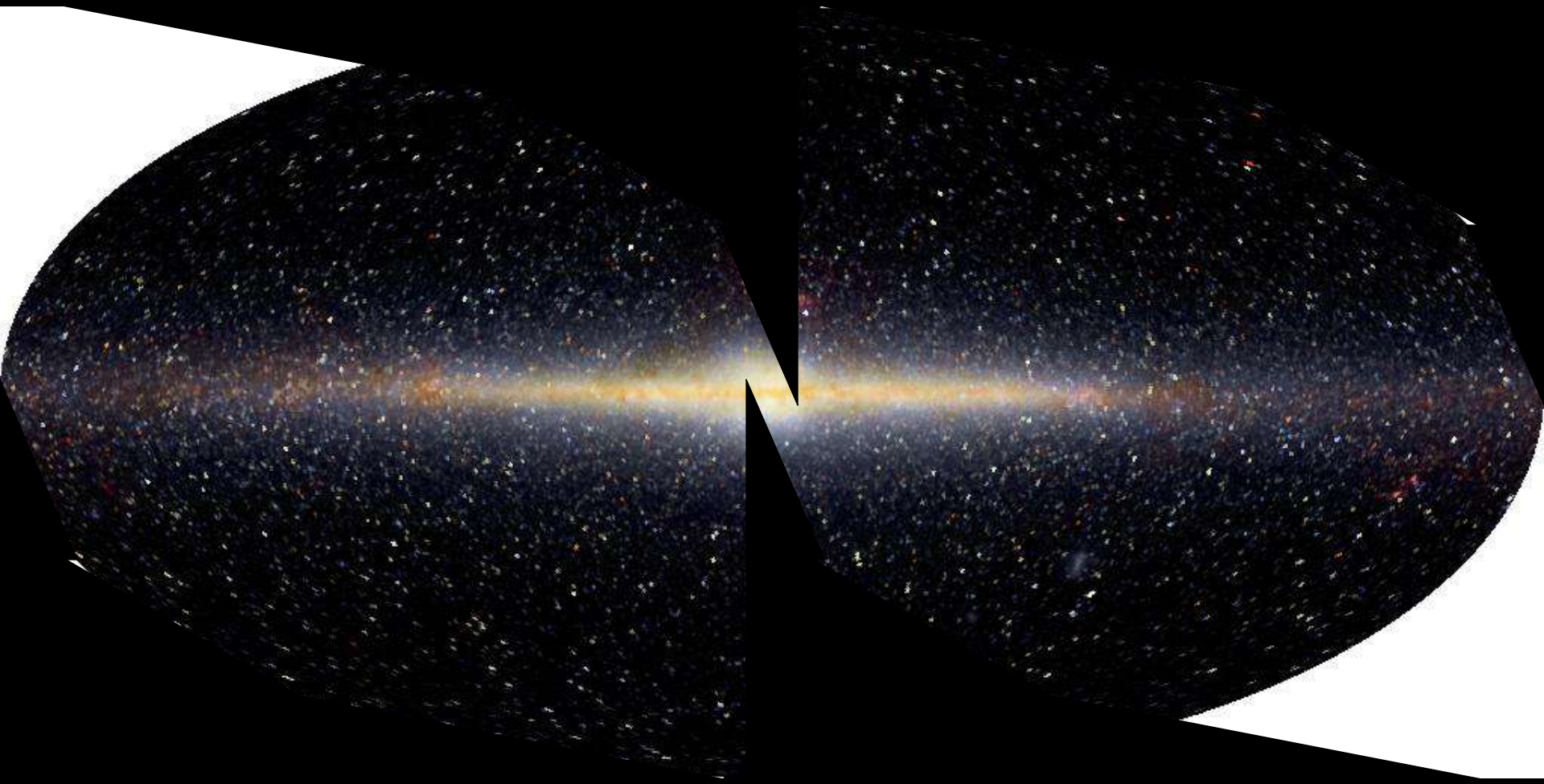
Instability Strip

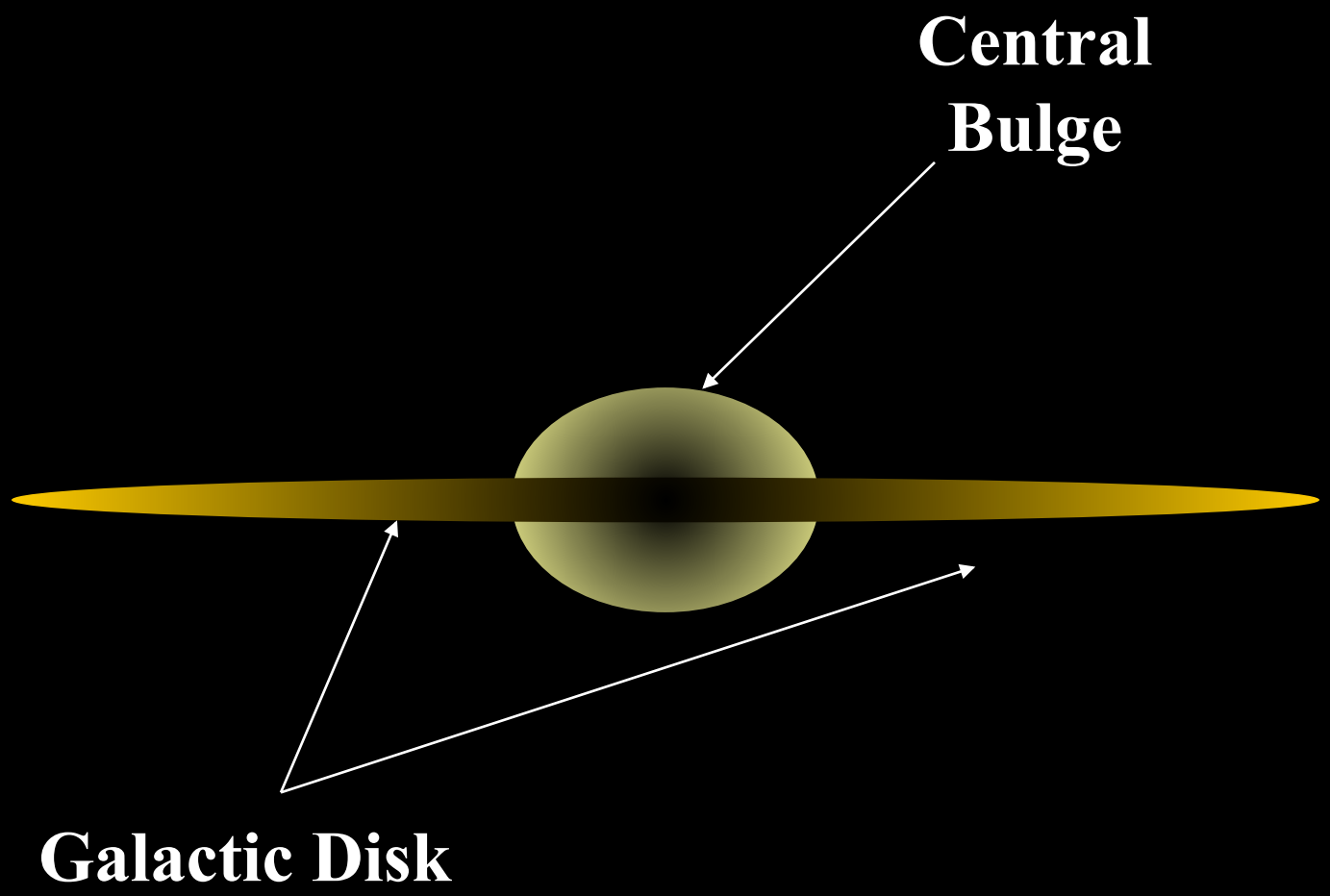
Stars in this phase of their life are susceptible to pulsations (size & luminosity)

This behavior can help us determine distances!

If we know the intrinsic luminosity of a star we can compare it to the apparent luminosity of a star and determine distance.

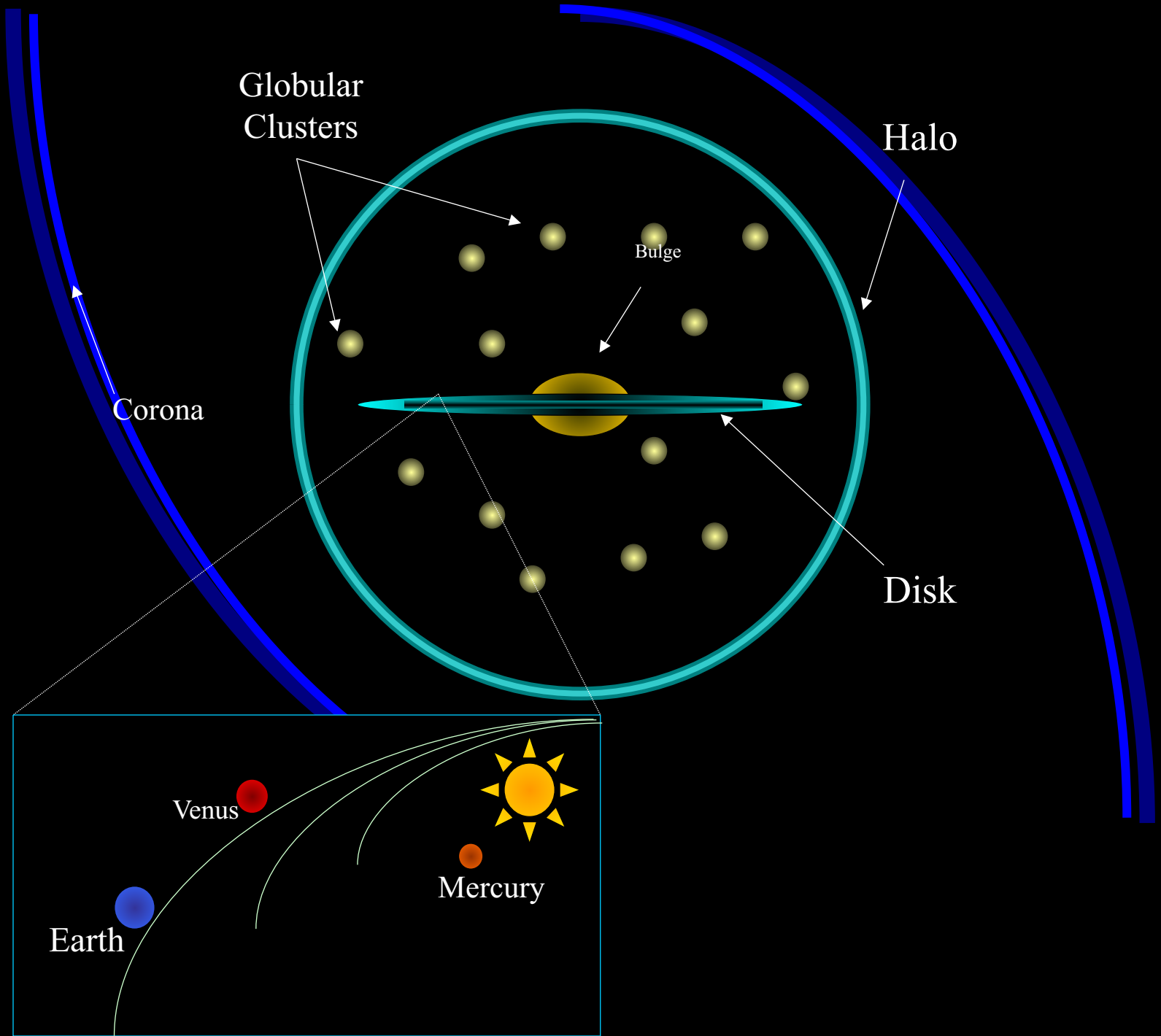
Cepheids give us distance to objects – and we can then determine where things are.




Central
Bulge
Galactic Disk

The Galactic Disk:

- Most stars are here. Nearly all the interstellar gas.
- Old Stars (10^{10}yrs) to Younger Stars (10^{6}yrs)
- Star Formation is occurring now.
- Composition: Old Metal Poor to Young Metal Rich stars.
- Motions – coplanar, direct, elliptical orbits.
- Spiral Arms (?)


Globular
Clusters
Halo
Bulge
Corona
Disk
Venus
Mercury
Earth

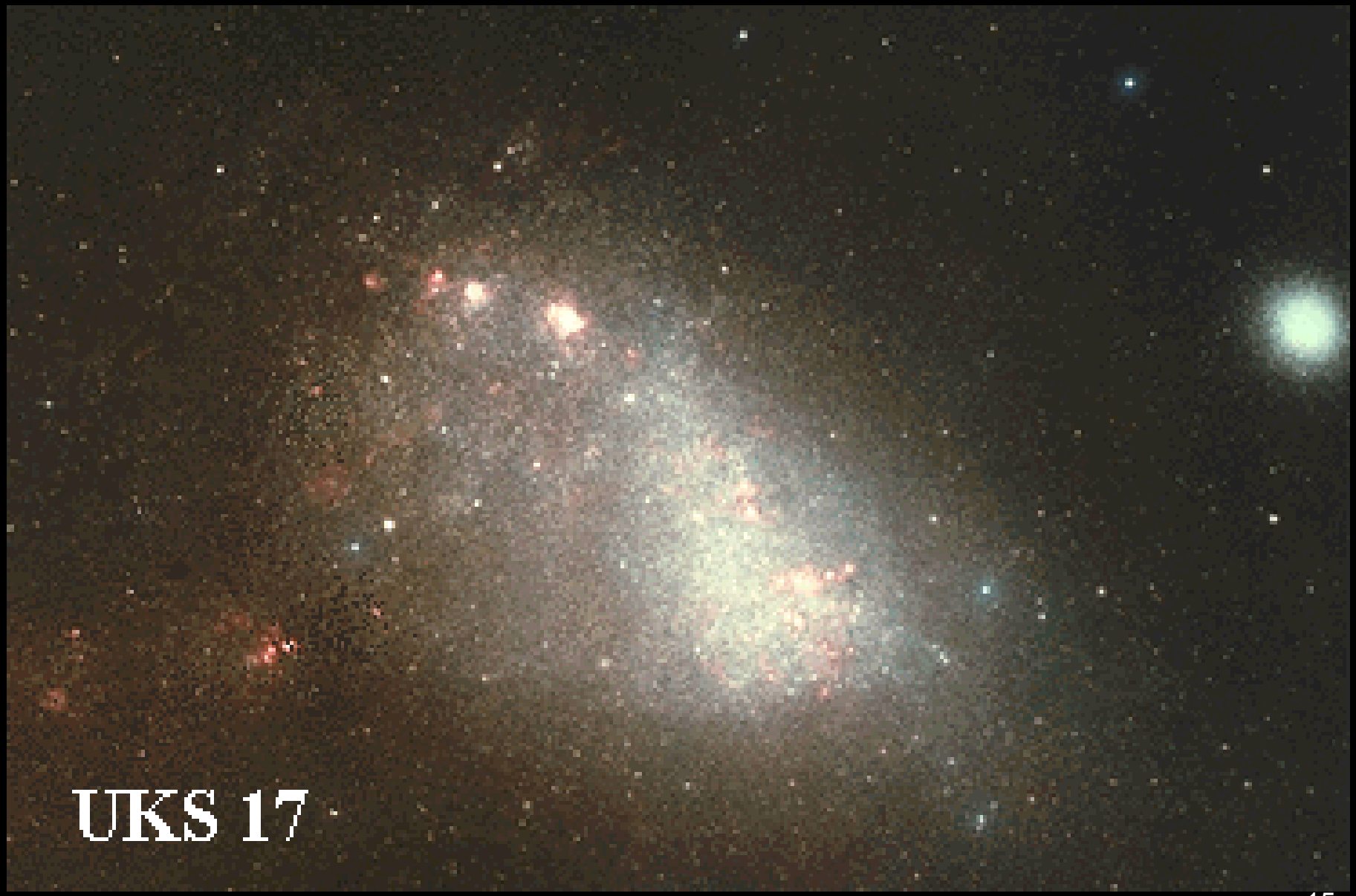
The Galactic Bulge & Halo

The Galactic Halo

- Thin scattering of stars & clusters
- Stars (OLD), globular clusters (OLD), no interstellar material.
- Metal Poor material (mostly H, He, very little else)
- Random eccentric orbits

The Galactic Bulge

- Like the halo, only more crowded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