

Astro 16: week 9

Tuesday, November 4, 2014

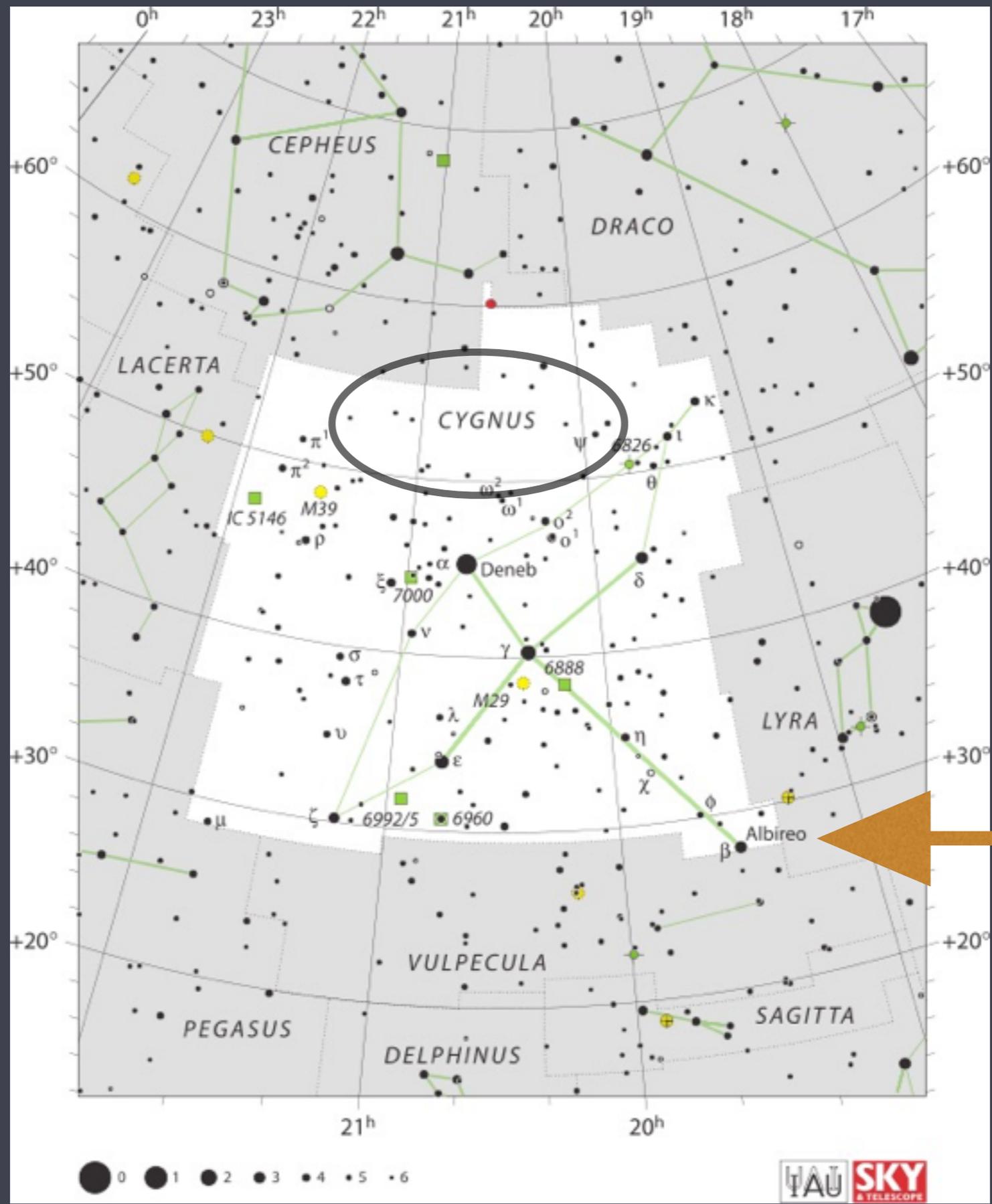


Cygnus



Cygnus happens to be right in the plane of the Milky Way









components **A** and **B**

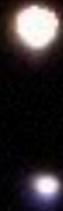
$m_V =$ **3.1** **5.4**

$B - V =$ **1.1** **0.1**

parallax = 0.0075 arc seconds

separation = 35 arc seconds

Put these stars on the HR diagram; can they both be on the main sequence?



components **A** and **B**

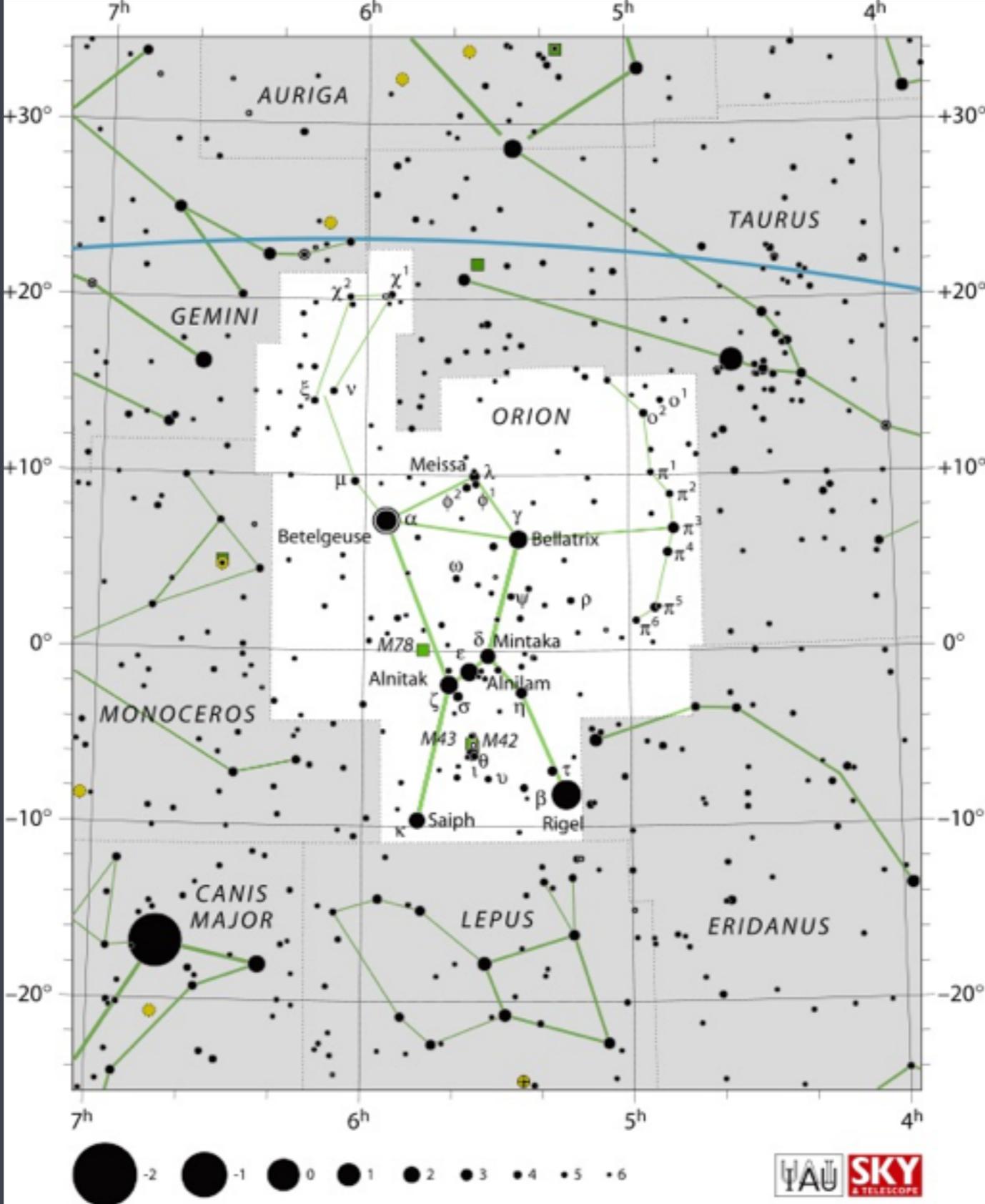
$m_V =$ **3.1** **5.4**

$B - V =$ **1.1** **0.1**

parallax = 0.0075 arc seconds

separation = 35 arc seconds

Sirius, in Canis Major



all observations have been shifted to line up on Sirius A

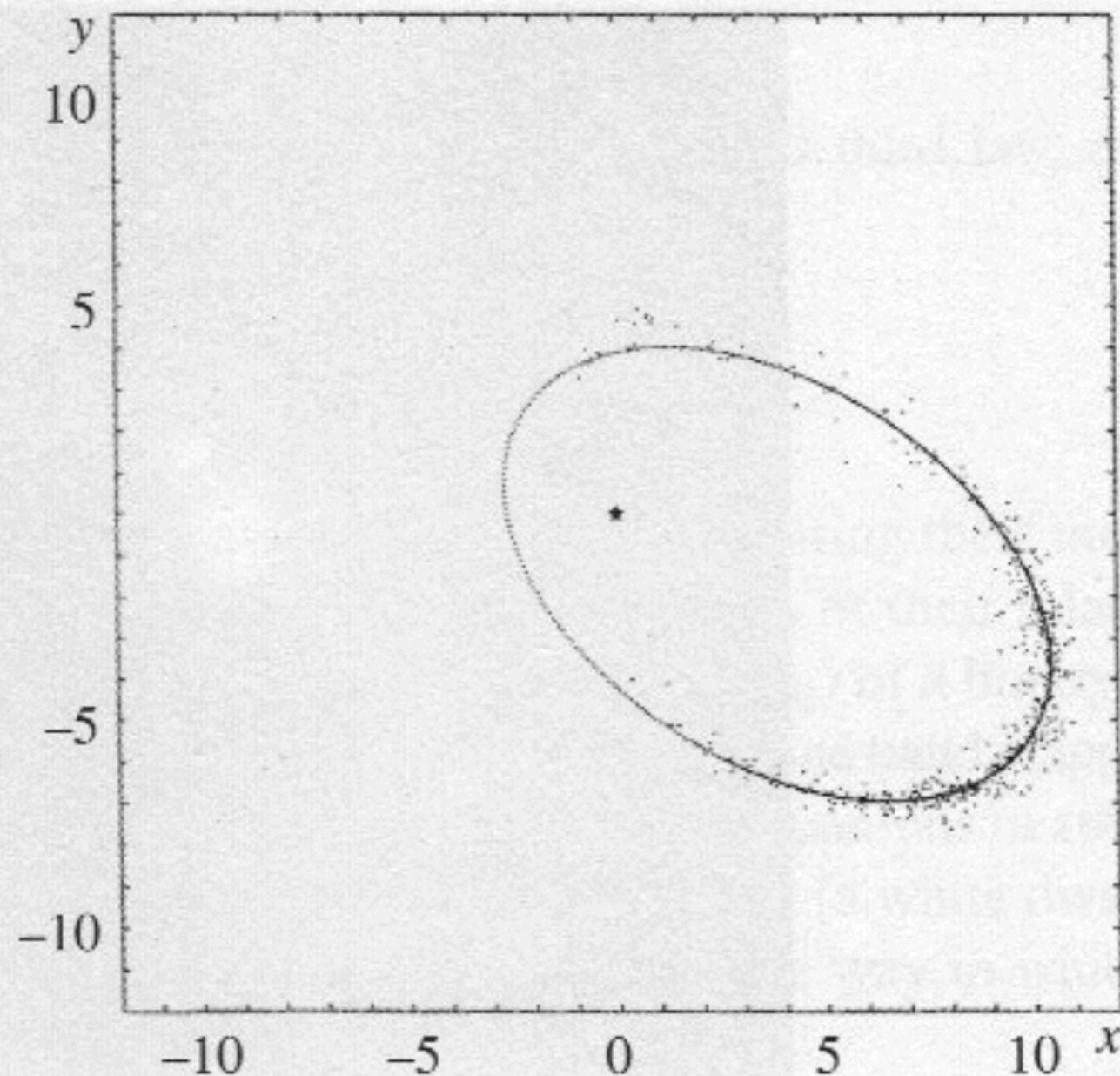


FIGURE 13.6 The projected orbit of Sirius B relative to Sirius A. The five-pointed star is the position of Sirius A, and the small points are observed positions of Sirius B, from the year 1862 to 1979; coordinates are in arcseconds. The best-fitting ellipse for the orbit of Sirius B is shown.

combination of orbital motion and *proper motion*
how would parallax change this set of “observations”?

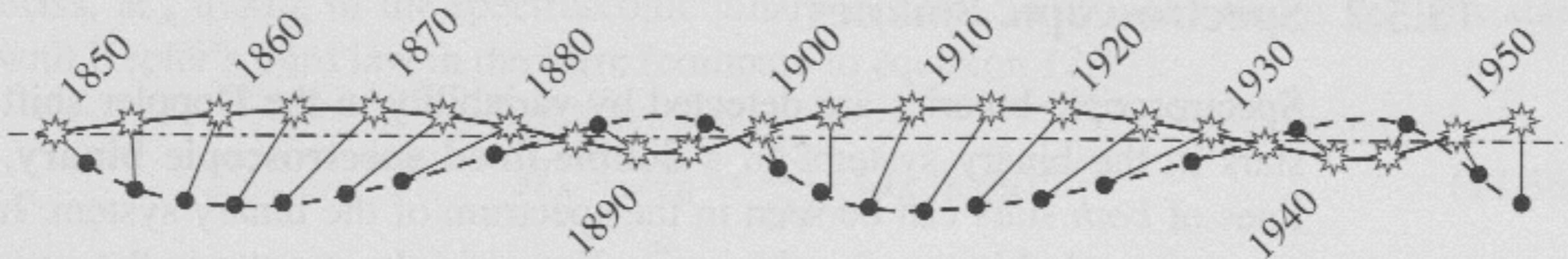
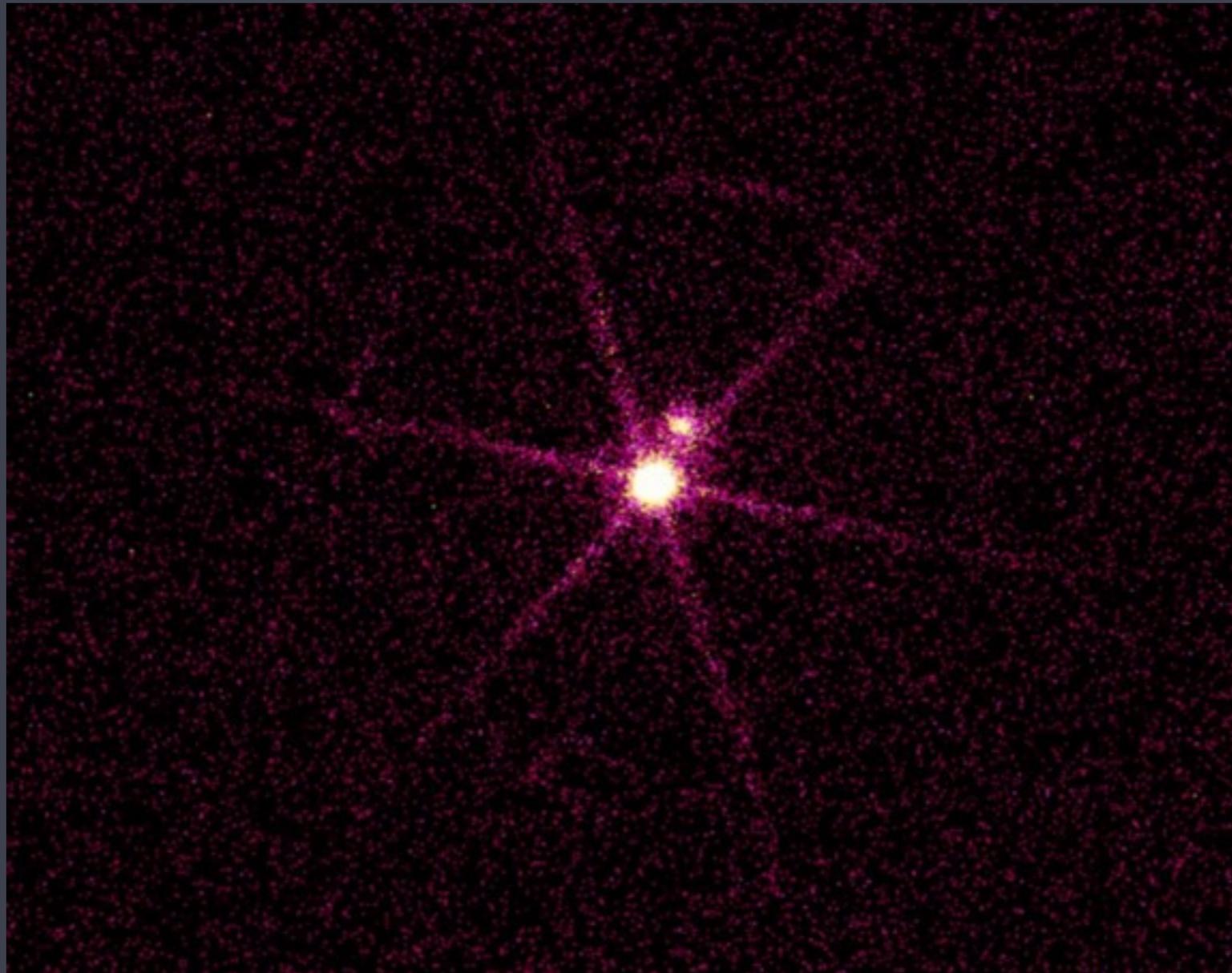


FIGURE 13.7 The long-term motion of the Sirius system. The asterisk represents Sirius A, and the dot represents Sirius B.

Re-read the textbook section at the beginning of binary stars, where the Sirius AB system is analyzed

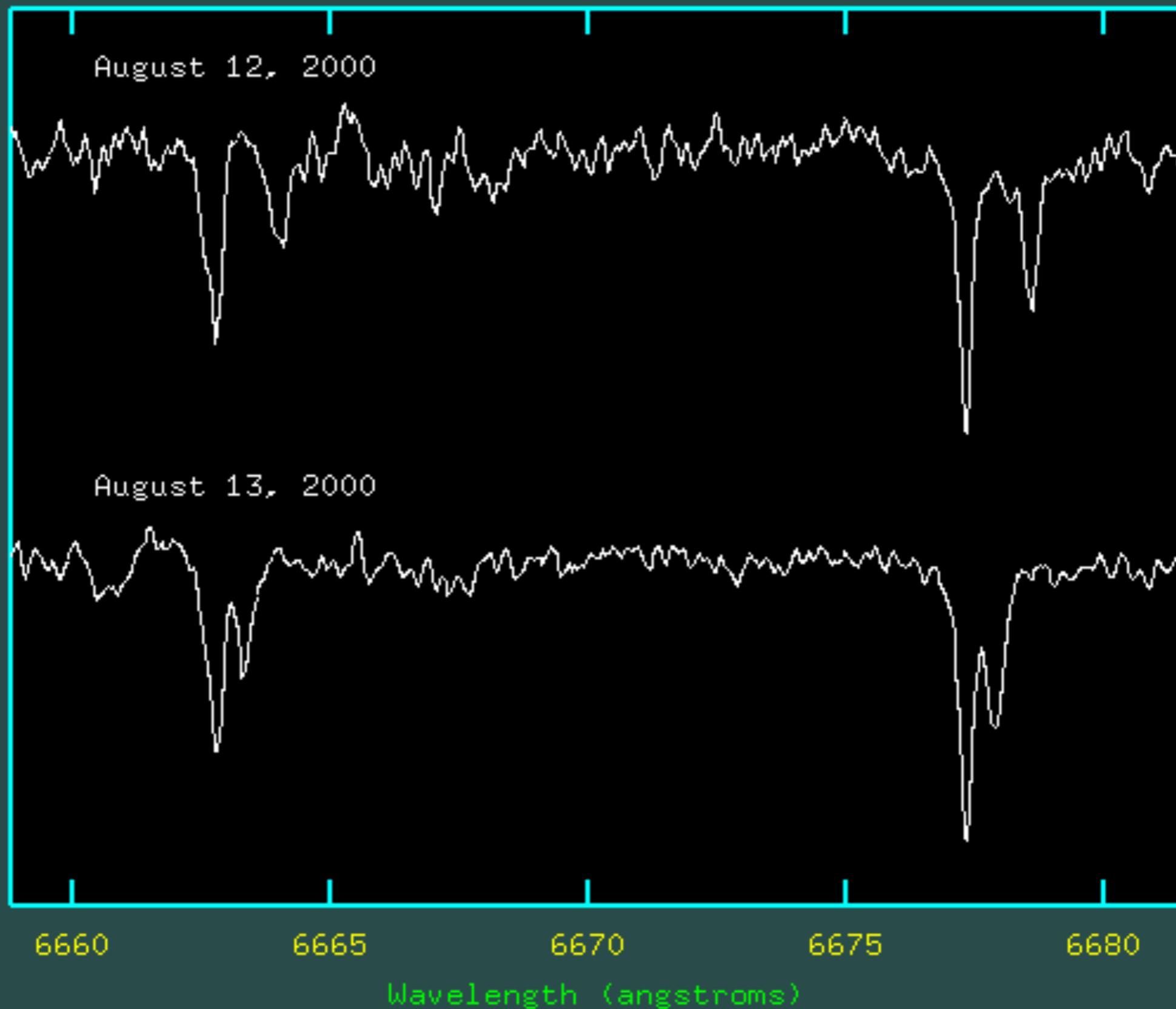
Sirius B is very dim (but hot and therefore small)

this is an X-ray image; the brightness disparity between the two stars is much less in the X-ray

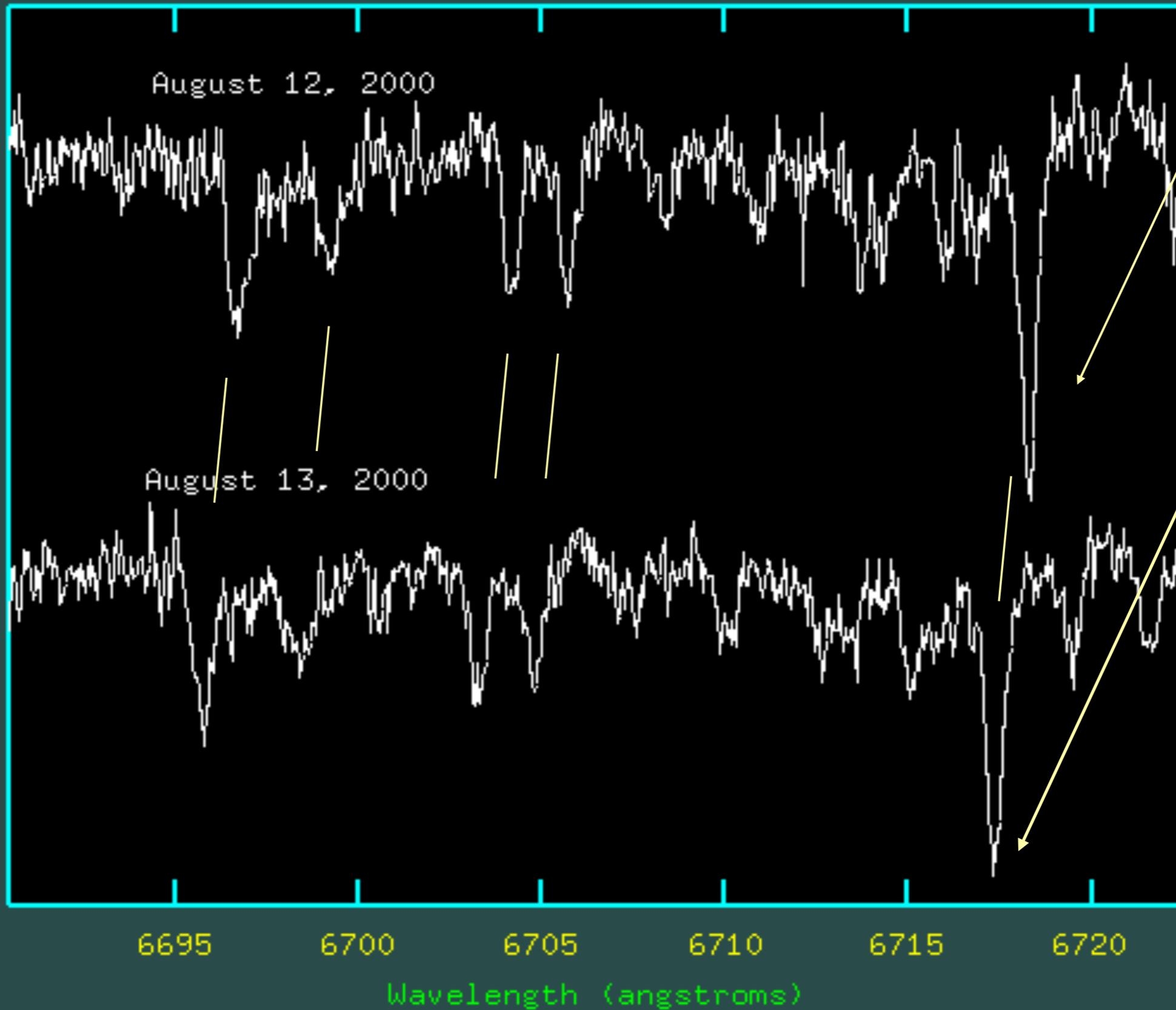


<http://apod.nasa.gov/apod/ap001006.html>

Spectra of HIP 94050, double-lined spectroscopic binary



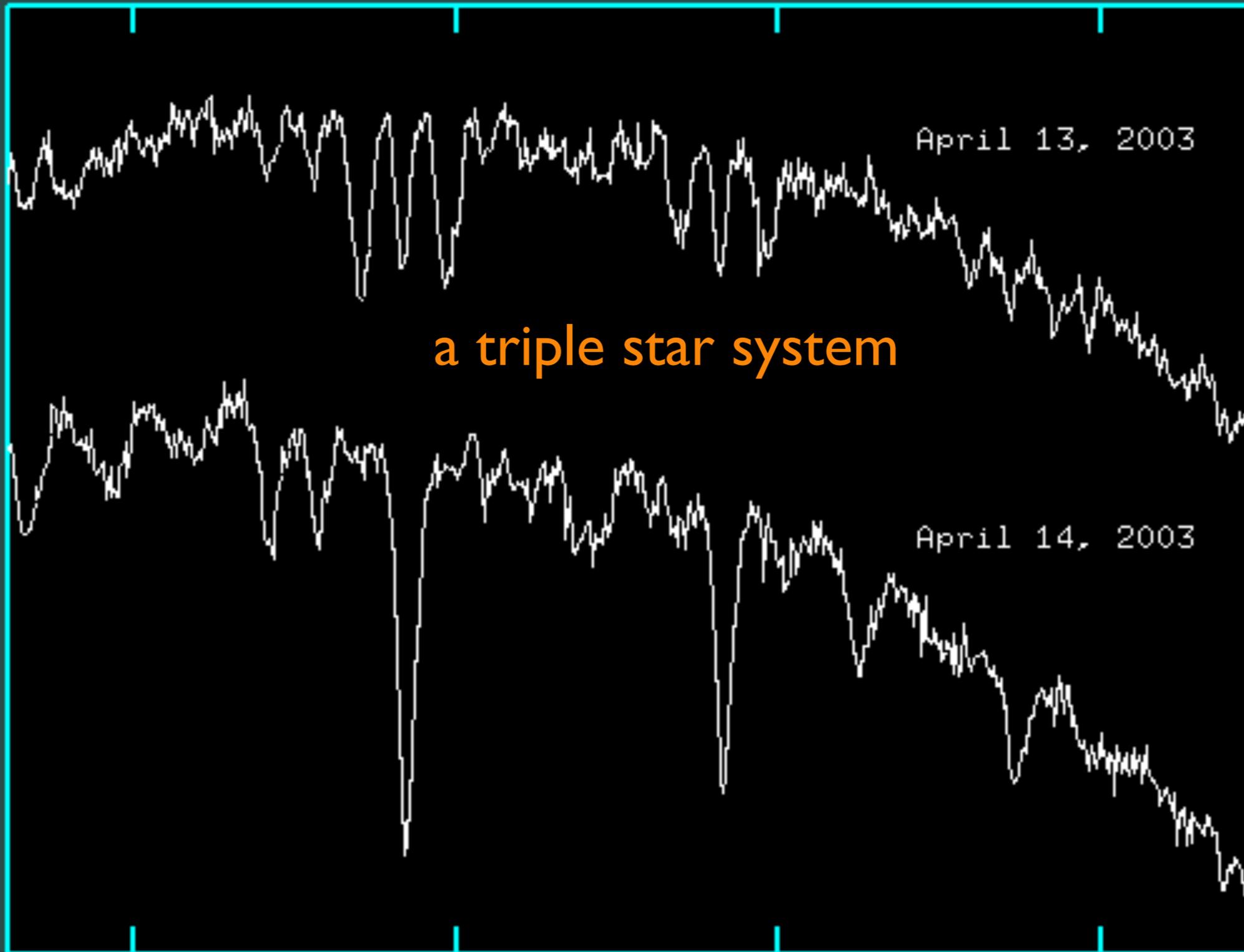
HIP 100117, single-lined spectroscopic binary



measure
 $\lambda = 6719.5$
on August 12

measure
 $\lambda = 6717.2$ on
August 13

HIP 48558



a triple star system

6700

6710

6720

6730

Wavelength (angstroms)