

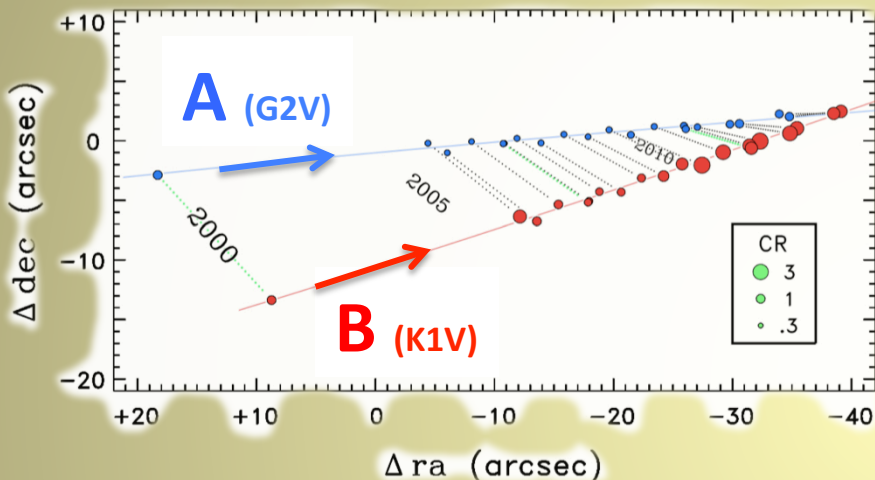


# The Ups and Downs of Alpha Centauri

Tom Ayres *Center for Astrophysics & Space Astronomy*

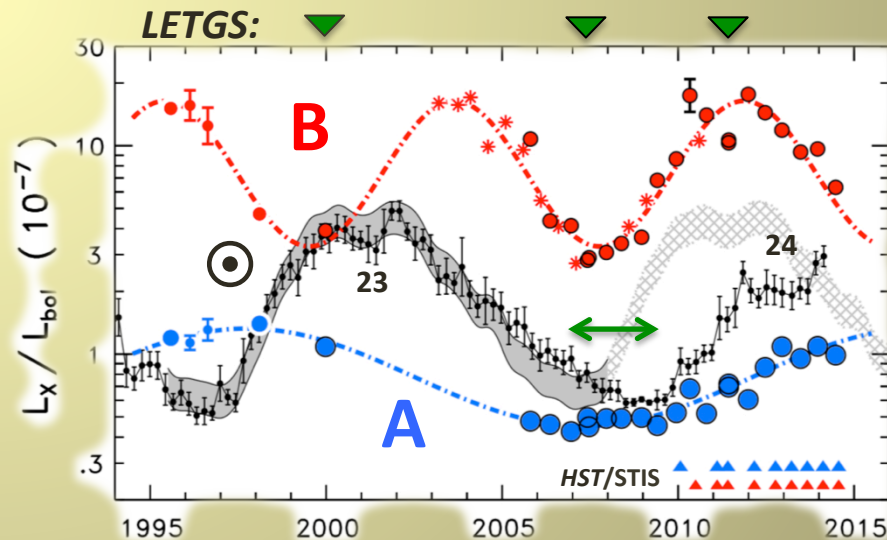


$\alpha$  Cen destined for pivotal place in human history. **BEST STOP EVER** for future starfarers from Earth.



**Fig. 1:** Chandra HRC cartoon streak image of  $\alpha$  Cen AB over 15 years. **N** is up ; **E** to the left. Fast **NW** sweep is large **proper motion** of system; wobbles are **parallax**; slow turn of binary is  $P=80$  yr **orbital arc**. Filled circles are **HRC count rates**, corrected for flares.

**Fig. 2:** Timeline of **0.2-2 keV X-rays** of **Sun** (black dots: 3 rotation ave's) &  $\alpha$  Cen AB. Pre-2000 values-- **ROSAT**, post-- **Chandra** (dots) and **XMM** (\*: **B** only; **A** unresolved by EPIC since 2005). Shading is three solar-cycle ave. Note **delayed MIN** solar Cycle 23.



**AB** coronal cycles bracket Sun's. **B's 8-yr** period shorter, **A** longer (or delayed minimum). Like Sun, **hotter** at MAX, **cooler** at MIN. **AB** are **keystones** for tracing origins of stellar cycles.