

### **Seeking the Quiet Sun Among the Stars**

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How does one judge the state of the Quiet Sun, if by that is meant the barest minimum of solar activity? Some possibilities include: (1) construct histograms of spatially resolved solar measurements (e.g., UV and X-rays) and evaluate the activity properties of, say, the lower portions of the distribution; (2) follow global “irradiance” tracers over multiple sunspot cycles, to identify empirical minima; or, (3) collect large samples of stellar observations to sketch out a lower activity bound among stars of solar type. These approaches all have advantages and drawbacks.

I have developed a way to jointly leverage the positive aspects of such methods, exploiting datasets from IRIS (spatially resolved Mg II); SORCE (disk-average UV spectra over recent solar cycles); and long-term HST-STIS UV monitoring of Alpha Cen AB, two nearby stars that closely bracket the Sun’s activity extremes. A curiosity on the solar side involves flux-flux correlations between different diagnostics say, X-rays vs. Mg II. The well-behaved stellar power laws at moderate activity give way to broken power laws at low activity in SORCE. This offers a way to extrapolate global activity indices into the regime below that sampled by the existing solar irradiance records, to examine consequences of a Sun in its quietest possible state.