
Eridani: an active K dwarf and a planet hosting star?

Sandra Jeffers*^{†1,2}

¹University of Goettingen – Germany

²IAG, Goettingen – Germany

Abstract

The young K-dwarf Eridani is an example of a young active planet hosting star that has shown over long-term monitoring of its chromospheric emission to exhibit cyclic magnetic activity. In this paper, we investigate how Eridani's large-scale magnetic field geometry evolves over the timescale of its S-index cycle using spectropolarimetric observations and the technique of Zeeman-Doppler imaging. Our observations comprise six epochs secured over a time period of nearly seven years, with each almost yearly observational epoch showing a dramatic change in the large-scale magnetic field topology, with no stable regions. The poloidal field varies from strongly dipolar to mono-polar and the toroidal field is non-existent to begin with and then emerges to dominate the magnetic field energy before disappearing and re-emerging again. A potential cycle is detected in the poloidal field, but further observations are needed to confirm this.

*Speaker

[†]Corresponding author: jeffers@astro.physik.uni-goettingen.de