

Name: James R. A. Davenport
Email: jrad@astro.washington.edu
Institution: University of Washington
Title: Spots and Flares: Tracing 3 years of magnetic activity on GJ 1243 with Kepler
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Abstract: James R. A. Davenport, Leslie Hebb, Suzanne L. Hawley, Adam F. Kowalski, John P. Wisniewski

GJ 1243 is one of the most active stars in the Kepler sample, and has a rapid rotation period of just 14 hours. Here we present a detailed study of GJ 1243's flares and starspots. Both of these phenomena are byproducts of the star's turbulent magnetic dynamo, and dominate the morphology of the 3-year lightcurve. We have assembled a carefully validated census of over 5000 flares from 11 months of short cadence Kepler data. This sample permits the most detailed study of flare lightcurve morphology for an M dwarf to date, allowing us to characterize the similarity of flares of different energies, particularly during their slow decay phase. We also look for variations in the flare rate and flare energy distribution over time. A stable polar starspot is seen on GJ 1243 in the Kepler observations, and is virtually unchanged in position and size from Q0 to Q16. Additionally we find shorted lived secondary spots, with lifetimes over 100 days. We present results of MCMC light curve fitting for multiple starspots on GJ 1243. Using both long and short cadence Kepler data we are able to trace spot motion and evolution with high time resolution.