

Magnetic Activity of Ultracool Dwarfs

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ABSTRACT

Ultracool dwarfs are very low mass objects that have a temperature below about 2,800K; magnetic activity signatures probe magnetic field behavior in a mass regime intermediate between stars and planets. Very few ultracool dwarfs have detected levels of radio emission, so increasing the sample size is important for the understanding the variety of magnetic processes at work. Because of the dramatic variations in radio and X-ray properties, these probes are best done with simultaneous measurements. We report on a small sample of ultracool dwarfs that have been observed simultaneously with XMM Newton Observatory and the Jansky Very Large Array, for constraints on their coronal plasmas through X-ray and radio observations, respectively; we present the results of the radio reduction, calibration and imaging of our sample. We discuss the implications of upper limits and detections for increasing our understanding of magnetic field behavior in this regime.