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Search for O[-1] earthquake-like precursors: a MEμSR MgO study C BOEKEMA, A CABOT, A-L LEE, I LIN, A COLEBAUGH, San Jose State University, FT FREUND, NASA Ames — We study O^{-1} earthquake-like precursor effects [1,2] by analyzing Muon-Spin-Resonance (μSR) MgO data using Maximum Entropy (ME). [3,4] Due to its presence in the Earth's crust, MgO is ideal to study these features. O^{-1} formation results from a 2-stage break-up in an O anion pair at high-temperature or high-pressure conditions. [2] As T increases above room temperature, a small % of oxygen is predicted to produce an O^{-1} state. ME analysis of 100-Oe μSR data of a pure 3N-MgO single crystal produces a broad Gaussian at 1.36 MHz and a sharp Lorentzian at 1.4 MHz. The latter could be effects of extended O^{-1} states, as positive muons probe near O ions. There is no sharp 1.4-MHz signal observed in the μSR data of insulators Al_2O_3 [5] and $PrBCO_6$ data, only the expected 100-Oe Gaussian. We have fitted MEμSR transforms of MgO to obtain an empirical description of 1.36- and 1.4- MHz peaks. Their T dependences above room temperature appear to be positive-hole effects. Relations to precursor earthquake-like O-valency effects are discussed. Research supported by ISIS-UK, LANL–DOE, SETI-NASA, SJSU & AFC. 1] FT Freund, Nat Hazards Earth Sys Sci **7** (2007) 1. 2] FT Freund *et al,* Phys Chem Earth **31** (2006) 389. 3] C Boekema and MC Browne, MaxEnt 2008, AIP Conf Proc #1073 p260. 4] S Lee *et al,* HUIC Educ, Math & Eng Tech Conf, Uo HI (2013); C Boekema *et al*, Bull Am Phys Soc, March 2015. 5] C Boekema *et al*, Hyperfine Interactions 32 (1986) 667.

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