

Abstract Submitted
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**Looking for Changes in Photospheric Temperature Gradients
over Solar Cycle 24 Using Hinode/SP¹** JAMES CROWLEY, LASP/NSO —

The intent of this project is to study the effects of the solar magnetic cycle on the physical structure, namely the thermal structure, of the solar atmosphere in the quiet Sun. Using data from the spectropolarimeter onboard the Hinode satellite, datasets were selected from throughout Solar Cycle 24; all datasets selected were near the disk center and without any obvious magnetic signatures. Using two inversion methods, first a simple inversion based on the Milne-Eddington model, and then a more sophisticated atmospheric model using the SIR inversion code, a quarter-million pixels were inverted from each dataset. By inverting the data and analyzing the differences in the inverted parameters between the datasets, we attempt to see if the resolution and the precision of the Hinode data is able to detect meaningful differences in photospheric structure throughout the solar cycle, primarily the source function and its gradient as indicators of the temperature gradient. Inversion results using both the Milne-Eddington approach and the SIR inversion code are being analyzed for statistical differences between years

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