

Progress towards routine full-disk NLTE inversions of the SOLIS/VSM Ca II 854 nm observations

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Routine NLTE inversions of the full-disk spectropolarimetric observations in the Ca II 854 nm spectral line, by the SOLIS/VSM instrument, presents us with a rather challenging task. This is due to the vast amount of spectral profiles (3 million) and the time-consuming iterative complex NLTE radiative transfer computations needed to find the best-fit model atmosphere. We present some strategies that we have experimented with in dealing with this problem. Apart from using parallel computation, we study the neural-network approach, K-means clustering approach, and searching a library of pre-calculated spectra from a grid of model atmospheres. We present our results and discuss the pros and cons of each approach.