ro erties and origin of n-as-a-star magneti eld

.gM

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The line of sight component of Sun as a Star Magnetic ield SSM e hibits a prominent pe riodicity of 2 days with its amplitude as low as .1 gauss during solar minimum period to 2.5 gauss during solar ma imum period. This dependency of amplitude on solar cycle may imply that the observed non zero SSM represent the magnetic u imbalance associated with the sunspot activity across the visible dis of the Sun. While this may be true of the larger am plitude variation, what contributes to the persistent non zero SSM , though with the reduced amplitude, observed during solar cycle minimum is still an open question. Closer loo at the SSM variation shows that the smaller amplitude variation is present even during solar ma i mum period. This may suggest the presence of a constant magnetic structure whose magnitude the S component is modulated by the solar rotation and hence contributing to the persis tently observed low amplitude SSM variation. In this conte t we present the analysis of the synoptic Carrington magnetic field maps of S H MDI and SD HMI, particularly during the minima periods between solar cycles 23 2 and 2 25. The magnetic fields are averaged over a selected range of Carrington latitudes and compared them with the observed SSM towards the goal of identifying the region contributing the SSM . The time history of thus identified region in Carrington maps will help in addressing the above stated enigma. In addition to presenting this analysis, we will give a brief description about the instrument and laboratory characterization of a sun as a star vector magnetometer.