

Study of long period variations from the data obtained at Kodaikanal

Jagdev singh

Observations:

Solar Tower Telescope: Ca-K line profiles of the sun as a function of latitude integrated over the visible longitudes with the phase of solar cycle

Spectro-section: Broad band images of the sun, Ca-K and H-alpha line images of the sun,

Digitizers: Uniform light sources, 4K x 4K CCD cameras, motorized system to move the photographic plate in position

Observational Projects:

1. Sketching of Ca-K line plage areas, their measurements and analysis of the data for the period of 1907 -2007 to study the irradiance variance and variation in the chromospheric rotation rate

2. Digitization of Photoheliograms, Ca-K and H-alpha spectrheliograms of the sun obtained since 1904 and to analyse the data to study
 - (i) Irradiance variance, solar diameter variation with phase of solar cycle,
 - (ii) Photospheric and chromospheric rotation rate from sun spots and ca-K line plages, respectively,
 - (iii) Tilt angle of sun spots and its relation with phase of solar cycle or latitude of the sun spot

3. Ca-k line profiles of the sun as a star and as function of latitude integrated over the visible disk on daily basis
 - (i) Study of Chromo-spheric differential rotation rate
 - (ii) Variation in Chromo-spheric rotation rate with the phase of solar cycle
 - (iii) Variation in polar region with the phase of solar cycle
 - (iv) Variation in back ground flux with the phase of solar cycle
 - (v) Implication of these variations to the solar dynamo

Research projects:

1. Solar activity and its variations with time
2. Long term variations in the photospheric and chromospheric rotation rate
3. Variation of tilt angle with the solar cycle phase and its implication to the helicity and solar dynamo.
4. Variation in the size of the sun with the phase of solar cycle.
5. Variation of background flux with the phase of solar cycle
6. Variation in polar the regions with the phase of the solar cycle