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DETERMINATION OF HELIOGRAPHIC COORDINATES OF SUNSPOTS ON SHOTS WITH PARTIALLY VISIBLE SOLAR LIMB

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For determination of heliographic coordinates of sunspots the procedure with level is used (Tomić, 1979). This method is prefered, because it implies in-line computer by "inverse micrometer" measurements, and least squares method in Solar radius determination.

Here shots are elaborated, 115 in all, obtained in 11 series in June 1976^{th}, between 7^{th} and 18^{th}. In primary focus $D/F = 100/200$ mm of Zeiss refractor (work regime A), with the entire Sun, 72 shots have been secured. The Barlow extension is applied (work regime B) for focal lengths in the interval 2990 – 3485 mm, with partially visible limb. Solar radius (on image) is determined from maximally 50 points on regime A, and minimum 20 points on regime B, with magnification 18 to 20 times on projection. Parallel results of error-examination give:

– theoretically expected errors dB, dL were practically identical for both regimes,

– the mean interval differences in the same series $\Delta\overline{B}$, $\Delta\overline{L}$ are up to six times smaller than dB, dL,

– the error values are very dependent on central angle of spots, and on accuracy of time registration,

– the effect of focal-length is not too great, but it is evident for larger focal-lengths.

Finally, with larger ratio, i.e. regime B, the work is most pleasant one.

References

Tomić, A.: 1979, *Publ. Obs. Astron. Belgrade*, **26**, 171-177.