

THE "EAST - WEST" DIFFERENCES IN THE DECLINATION OBSERVATIONS WITH THE BELGRADE VERTICAL CIRCLE

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SUMMARY: Presented both tabularly and graphically are the values of the "East–West" differences in the declination observations made with the Belgrade Vertical Circle.

In the framework of preparations for the elaboration of a catalogue of absolute declinations of 212 FK4 stars in the zone -30° to $+90^\circ$, observed (52 stars at lower transit) with the Belgrade Vertical Circle (BVC) in the period 1983–1985, their preliminary values (Bozhichkovich, 1991) are analysed depending on the order of instrument reversals, i.e. whether they were obtained with the instrument reversed from CE to CW (δ_{EW}) or from CW to CE (δ_{WE}). In this we made use of differences ($\delta_{EW} - \delta_{WE}$), meaned according to 5-degree declination zones.

Table 1 lists the values ($\delta_{EW} - \delta_{WE}$), their mean error ε and the number n of observations. In Fig. 1 are plotted these differences according to declination, their mean error ε being shown by vertical streaks crossing the curve ($\delta_{EW} - \delta_{WE}$).

As evident from Table 1 and Fig. 1 there is present, as is the case with other vertical circles, the "East–West" effect in the observations with the BVC too, in quite customary amounts. The general run of these differences points to their complex nature. As is well known, at work here is a number of factors connected with the instrument parameters: the inclination, the azimuth, the collimation, the tube

flexure, the non-perpendicularity of the vertical and horizontal axes, the effect of the curvature of the parallel (Chubej, 1983) ect.

It is to be noted that beginning with the declination $+40^\circ$ upwards, the observations were performed on vertical wires ever closer to the meridian at every 10° declination, whereas with the polar stars (above $+80^\circ$ declination) this coming ever closer to the meridian took place at every 5° declination.

However, considering that the number of observations begun at CE position, in the overwhelming majority of cases, is equal to the one of observations begun at CW position, the possible application of corrections for the difference ($\delta_{EW} - \delta_{WE}$) in the final treatment of these observations will affect but very little the catalogue system of these 212 FK4 stars.

REFERENCES

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Table 1. Systematic differences ($\delta_{EW} - \delta_{WE}$) according to declination zones.

Zone	Zenith distance*	($\delta_{EW} - \delta_{WE}$)	ε	n
-30° to -25°	72° 0 _s	+0''13	±0''025	224
-25° to -20°	66° 8 _s	+0''13	±0''022	120
-20° to -15°	61° 6 _s	+0''19	±0''031	138
-15° to -10°	56° 3 _s	+0''33	±0''062	84
-10° to -5°	52° 5 _s	+0''19	±0''037	88
-5° to 0°	47° 2 _s	+0''05	±0''031	104
0° to +5°	41° 4 _s	+0''06	±0''043	68
+5° to +10°	37° 8 _s	+0''07	±0''045	96
+10° to +15°	32° 4 _s	+0''13	±0''040	14
+15° to +20°	27° 8 _s	+0''11	±0''037	78
+20° to +25°	21° 8 _s	+0''03	±0''032	62
+25° to +30°	17° 7 _s	+0''04	±0''031	40
+30° to +35°	—	—	—	—
+35° to +40°	—	—	—	—
+40° to +45°	2° 4 _s	-0''06	±0''030	104
+45° to +50°	1° 1 _n	+0''06	±0''035	92
+50° to +55°	—	—	—	—
+55° to +60°	—	—	—	—
+60° to +65°	17° 4 _n	-0''01	±0''044	76
+65° to +70°	23° 1 _n	-0''10	±0''064	52
+70° to +75°	27° 8 _n	-0''17	±0''040	52
+75° to +80°	32° 2 _n	-0''08	±0''031	46
+80° to +85°	38° 3 _n	+0''01	±0''050	76
+85° to +90°	41° 0 _n	-0''07	±0''088	22
+90° to +85°	49° 4 _{nl}	+0''17	±0''037	36
+85° to +80°	51° 9 _{nl}	-0''04	±0''042	120
+80° to +75°	58° 8 _{nl}	-0''05	±0''048	62
+75° to +70°	62° 8 _{nl}	0''00	±0''045	84
+70° to +65°	67° 4 _{nl}	+0''13	±0''044	96
+65° to +60°	72° 7 _{nl}	-0''21	±0''060	106

* : zenith distances marked by s are south of zenith,
 n are north of zenith,
 nl —//— at lower transit.

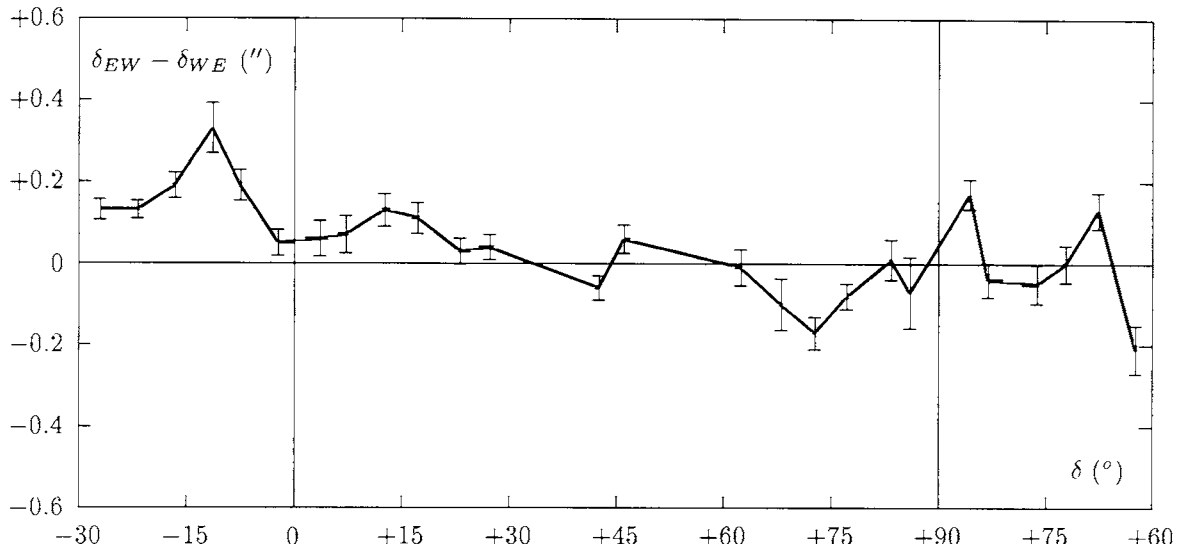


Fig. 1. Systematic differences ($\delta_{EW} - \delta_{WE}$) according to declination. Vertical streaks crossing the curve show the mean error ε associated with particular ($\delta_{EW} - \delta_{WE}$) values.

РАЗЛИКЕ "EAST - WEST" У ДЕКЛИНАЦИЈАМА ЗВЕЗДА ПОСМАТРАНИХ НА БЕОГРАДСКОМ ВЕРТИКАЛНОМ КРУГУ

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Претходно саопштење

У раду су табеларно и графички приказане вредности "East - West" ефекта у деклинацијама звезда посматраних на Београдском Вертикалном Кругу.