ACCURACY ESTIMATION OF NEW SETS OF THE SUN AND PLANETS OBSERVATIONS

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The PLANETS database has been conceived and firstly compiled at the Golosiiv Observatory in 1984, Kiev (Kharin et al. 1987). Since 1988, it is updated, maintained and analysed in cooperation with the Institute of Astronomy, Moscow. By this time the database comprises most of the published optical observations of the Sun and 7 major planets made from 1960 onwards with 21 meridian instruments, 15 astrographs and 11 astrolabes at 29 observatories.

The method of random accuracy estimation applied to the actual data covering the interval from 1960 to 1994 is presented in details in Kolesnik (1995). These estimates (the weighted mean standard deviations with weights being proportional to a number of observations in a series $\bar{\sigma}_i$) with respect to the method of observation and object are given in Table 1 (see next page).

References

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TABLE 1 – Number of series (NS), total number of observations (NO) and the weighted mean standard deviation $\bar{\sigma}_i$ attributed to meridian instruments (MI), astrographs (APH) and astrolabes (ASTR) as they are represented in the PLANETS database

	Right ascension			Declination		
	MI	APH	ASTR	MI	APH	ASTR
Sun						
NS	12		4	8		
NO	8088		972	8178		
$\bar{\sigma}_i$	0.052^s		0.040^s	$0.64''$		
Mercury						
NS	12			10		
NO	1980			2014		
$\bar{\sigma}_i$	0.044			0.47		
Venus						
NS	12	8		10	8	
NO	6504	562		6302	562	
$\bar{\sigma}_i$	0.054	0.041^s		0.62	$0.43''$	
Mars						
NS	15	10	5	13	10	5
NO	1621	673	114	2254	673	114
$\bar{\sigma}_i$	0.029	0.024	0.021	0.43	0.30	$0.26''$
Jupiter						
NS	10	6	4	10	5	5
NO	1562	423	80	1600	423	80
$\bar{\sigma}_i$	0.025	0.020	0.040	0.46	0.21	0.38
Saturn						
NS	10	9	7	10	9	7
NO	1557	524	175	1514	524	175
$\bar{\sigma}_i$	0.025	0.016	0.036	0.46	0.20	0.32
Uranus						
NS	11	2	4	9	2	4
NO	1771	124	187	1663	124	187
$\bar{\sigma}_i$	0.016	0.014	0.022	0.27	0.23	0.33
Neptune						
NS	9	3		10	3	
NO	1639	100		1604	100	
$\bar{\sigma}_i$	0.016	0.013		0.26	0.16	

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