

Micrometer Measures of Double Stars

Niels Wieth-Knudsen¹

Abstract: Micrometer measures of double stars made with his own 10 cm and 30 cm reflectors are presented.

Introduction

In late 2001, Inger Wieth-Knudsen made available to Charles Worley the original measurement cards of Dr. Nils Wieth-Knudsen containing the observations made towards the end of his career at his personal observatory (Figure 1). The original cards are cataloged in the James Melville Gillis Library of the U.S. Naval Observatory. The 471 measures recorded on these cards are grouped into 211 means of 59 systems, and include 33 measures of differential magnitude. Made with his 10 cm and 30 cm telescopes, they are now part of the inventory of the Wieth-Knudsen Observatory². The observation dates range from 1961.32 to 1989.34 and the measured separations range from 0.6" to 28.97".

Measures

Table 1 summarizes the measures of Niels Wieth-Knudsen from his prior publications and Table 2. The median separation and magnitude difference is provided as well as the aperture of the telescope and the years the measures were made for these data. Also, a brief description of the method of data collection is noted.

Table 2 presents these data. Included are the WDS and Discoverer Designations listing the systems observed in Columns 1 and 2. Columns 3 through 6 give the actual measures, epoch of observation, position angle (measured from north through east), separation (in seconds of arc), and V band magnitude difference (when provided). Column 7 gives the telescope aperture (in meters) while Column 8 gives the number of nights in the

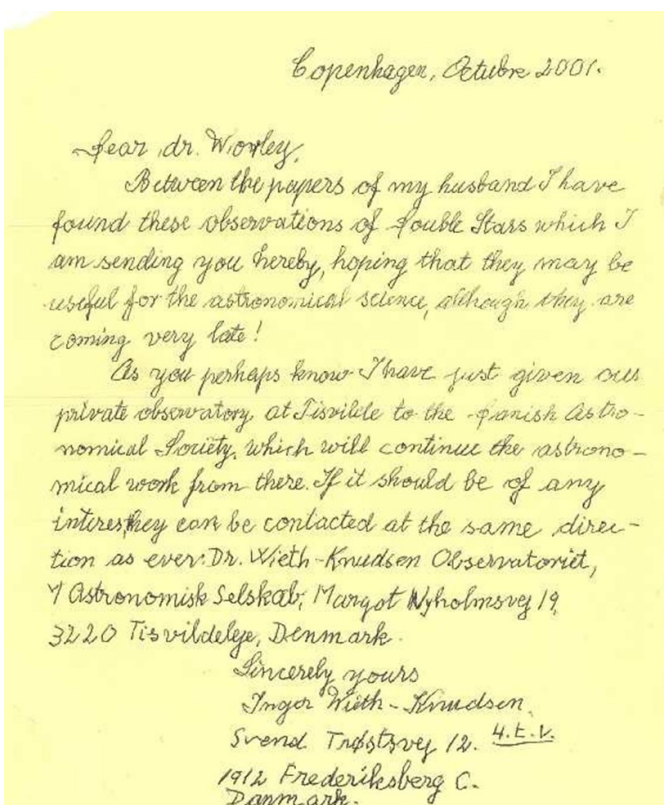


Figure 1. Letter of Inger Wieth-Knudsen to Charles Worley.

mean position. Column 9 gives any notes of the cataloger.

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¹Deceased: 14 April 1993

²WKO; see <http://astronomisk.dk/wieth-knudsen-observatoriet/>.

Micrometer Measures of Double Stars

Table 1. Statistics of Samples

Dataset	Means	Measures	Separation Median (ρ)	Magnitude Difference Median (Δm)	Method	Aperture (m)	Years
1953	13	13	15.85"		1	0.2	1968-1975
1956a	51	51	1.47"	1.40	1	0.6	1973-1975
1956b	119	443	2.42"		2	0.3	1973-1975
1957	360	673		0.78	1	0.6	1951
Table 2	211	471	2.59"	1.20	3	0.1 & 0.3	1984-1990

Table Notes

1. photographic, with medium or long-focus technique
2. micrometer with refractor
3. micrometer with reflector

Table 2. Measurements of Double Stars

WDS Desig. α, δ (2000)	Discoverer Designation	Epoch 1900.+	θ ($^\circ$)	ρ ($''$)	Δm (V)	Tel. Aper. (m)	n	Note
00499+2743	STF 61	66.66	119.1	4.44		0.3	1	Q
01535+1918	STF 180 AB	66.99	1.3	7.68		0.3	1	
01535+1918	STF 180 AB	68.60	1.0	7.91		0.3	1	
01535+1918	STF 180 AB	69.70	1.8	7.66		0.3	1	
01535+1918	STF 180 AB	77.79	0.5	8.05		0.8	2	
02020+0246	STF 202 AB	68.76	288.0	2.14		0.3	1	
02020+0246	STF 202 AB	77.70	296.3	1.87		0.8	1	
02291+6724	STF 262 AB	79.90	238.3	1.95	1.67	0.8	1	
02592+2120	STF 333 AB	77.79	206.8	1.49		0.8	1	
07346+3153	STF 1110 AB	63.29	157.2	2.11		0.3	3	
07346+3153	STF 1110 AB	67.29	139.8	1.81		0.3	2	
07346+3153	STF 1110 AB	68.38	136.7	1.72		0.3	3	
07346+3153	STF 1110 AB	69.25	133.0	1.87		0.3	5	
07346+3153	STF 1110 AB	70.16	129.1	1.86		0.3	1	
07346+3153	STF 1110 AB	72.35	122.9	1.99		0.8	1	
07346+3153	STF 1110 AB	73.01	121.0	1.97		0.8	1	
07346+3153	STF 1110 AB	74.25	116.3	1.88		0.8	2	
07346+3153	STF 1110 AB	76.00	113.7	2.06	1.41	0.8	3	
07346+3153	STF 1110 AB	77.23	107.7	2.11	0.85	0.8	4	
07346+3153	STF 1110 AB	78.13	104.0	2.26	1.25	0.8	2	
07346+3153	STF 1110 AB	79.26	96.5	2.29	0.81	0.8	3	
07346+3153	STF 1110 AB	80.27	92.7	2.28	1.12	0.8	2	
07346+3153	STF 1110 AB	81.03	96.1	2.35		0.8	1	
07346+3153	STF 1110 AB	82.14	95.4	2.20		0.8	1	
07346+3153	STF 1110 AB	83.28	89.7	2.42		0.8	3	
07346+3153	STF 1110 AB	84.32	86.5	2.72		0.8	4	
08122+1739	STF 1196 AB	69.22	294.2	1.15		0.3	1	X
08508+3504	STF 1282	67.25	277.4	3.98		0.3	2	
09184+3522	STF 1333	67.25	46.3	2.01		0.3	1	
10200+1950	STF 1424 AB	67.35	120.8	4.51		0.3	2	
10200+1950	STF 1424 AB	69.26	121.0	4.43		0.3	2	
10200+1950	STF 1424 AB	74.22	120.7	4.50		0.8	1	
10200+1950	STF 1424 AB	77.29	121.8	4.03	1.09	0.8	1	
10200+1950	STF 1424 AB	89.34	123.4	4.52	1.15	0.8	2	
11182+3132	STF 1523 AB	74.27	116.4	3.29		0.8	1	
11182+3132	STF 1523 AB	84.32	90.7	2.46		0.8	4	
12043+2128	STF 1596	76.31	238.3	3.56	1.12	0.8	1	
12043+2128	STF 1596	89.33	245.3	3.34		0.8	1	
12417-0127	STF 1670 AB	63.34	307.6	4.76		0.3	2	

Table 2 continues on next page.

Micrometer Measures of Double Stars

Table 2 (continued). Measurements of Double Stars

WDS Desig. α, δ (2000)	Discoverer Designation	Epoch 1900.+	θ ($^{\circ}$)	ρ ($''$)	Δm (V)	Tel. Aper. (m)	n	Note
12417-0127	STF 1670 AB	80.35	299.1	3.27		0.8	4	
12417-0127	STF 1670 AB	85.39	292.2	3.08		0.8	4	
12492+8325	STF 1694 AB	67.66	327.0	21.30		0.3	2	
13120+3205	STT 261	74.37	341.8	2.40		0.8	5	
13120+3205	STT 261	77.39	342.6	2.34		0.8	3	
13120+3205	STT 261	80.36	343.6	2.43		0.8	1	
13120+3205	STT 261	84.31	337.3	2.55		0.8	1	
13375+3618	STF 1768 AB	73.40	105.8	1.83		0.8	1	
13375+3618	STF 1768 AB	77.38	107.5	1.91	1.63	0.8	1	
14407+1625	STF 1864 AB	62.44	107.8	5.86		0.3	4	
14407+1625	STF 1864 AB	63.31	108.1	5.95		0.3	3	
14407+1625	STF 1864 AB	73.41	107.2	7.32		0.8	1	X
14411+1344	STF 1865 AB	73.41	303.4	1.34		0.8	2	
14411+1344	STF 1865 AB	74.38	306.7	1.10		0.8	1	
14411+1344	STF 1865 AB	77.37	309.0	1.11		0.8	4	
14411+1344	STF 1865 AB	78.43	307.4	1.12		0.8	2	
14411+1344	STF 1865 AB	80.40	309.3	1.13		0.8	2	
14450+2704	STF 1877 AB	77.39	344.9	2.76	2.35	0.8	2	
14450+2704	STF 1877 AB	78.41	344.6	2.68	2.50	0.8	4	
14450+2704	STF 1877 AB	79.46	345.0	2.55	2.45	0.8	1	
14514+1906	STF 1888 AB	76.39	335.1	7.67	2.23	0.8	1	
15038+4739	STF 1909	73.40	355.2	0.53		0.8	1	
15038+4739	STF 1909	75.43	11.8	0.73		0.8	4	
15038+4739	STF 1909	76.48	18.3	0.85		0.8	4	
15038+4739	STF 1909	77.39	20.1	0.87		0.8	2	
15038+4739	STF 1909	78.42	26.7	0.99		0.8	4	
15038+4739	STF 1909	82.42	31.4	1.40		0.8	3	
15038+4739	STF 1909	85.39	38.3	1.43		0.8	2	
15038+4739	STF 1909	88.45	46.0	1.61		0.8	1	
15075+0914	STF 1910	77.41	211.8	4.15		0.8	1	
15232+3017	STF 1937 AB	67.58	180.6	0.73		0.3	1	X
15232+3017	STF 1937 AB	77.46	247.5	0.46		0.8	5	
15245+3723	STF 1938 Ba,Bb	78.43	14.3	2.19		0.8	1	
15245+3723	STF 1938 Ba,Bb	82.55	17.1	2.17		0.8	4	
15348+1032	STF 1954 AB	67.40	177.9	4.01		0.3	2	
15348+1032	STF 1954 AB	77.39	175.2	3.93	1.16	0.8	2	
15394+3638	STF 1965	62.48	303.3	5.94		0.3	3	
15394+3638	STF 1965	63.41	303.1	6.15		0.3	2	
15394+3638	STF 1965	67.62	306.0	6.27		0.3	2	

Table 2 continues on next page.

Micrometer Measures of Double Stars

Table 2 (continued). Measurements of Double Stars

WDS Desig. α, δ (2000)	Discoverer Designation	Epoch 1900.+	θ ($^{\circ}$)	ρ ($''$)	Δm (V)	Tel. Aper. (m)	n	Note
15394+3638	STF 1965	77.48	309.2	6.51	0.86	0.8	1	
16009+1316	STT 303 AB	77.48	163.4	1.34		0.8	1	
16009+1316	STT 303 AB	85.39	176.7	1.54		0.8	1	
16133+1332	STF 2021 AB	62.49	346.4	4.18		0.3	2	
16133+1332	STF 2021 AB	67.52	347.2	4.12		0.3	2	
16133+1332	STF 2021 AB	69.44	352.0	4.20		0.3	1	
16133+1332	STF 2021 AB	76.50	350.4	4.08		0.8	4	
16133+1332	STF 2021 AB	77.39	350.6	3.98		0.8	4	
16133+1332	STF 2021 AB	82.52	353.6	4.56		0.8	4	
16133+1332	STF 2021 AB	85.51	356.2	4.10		0.8	3	
16133+1332	STF 2021 AB	88.45	354.3	3.98		0.8	1	
16147+3352	STF 2032 AB	67.65	231.7	6.53		0.3	2	
16147+3352	STF 2032 AB	68.51	232.5	6.40		0.3	3	
16147+3352	STF 2032 AB	69.42	232.8	6.38		0.3	7	
16147+3352	STF 2032 AB	76.48	232.3	6.15	0.98	0.8	1	
16362+5255	STF 2078 AB	68.39	112.5	3.41		0.8	2	
16362+5255	STF 2078 AB	77.45	108.5	3.26		0.8	4	
16362+5255	STF 2078 AB	78.54	106.4	3.39	0.96	0.8	3	
17053+5428	STF 2130 AB	63.40	70.3	2.18		0.3	2	
17053+5428	STF 2130 AB	67.59	65.6	2.16		0.3	2	
17053+5428	STF 2130 AB	75.48	50.9	1.93		0.8	4	
17053+5428	STF 2130 AB	77.46	47.0	2.05		0.8	4	
17053+5428	STF 2130 AB	78.42	49.2	1.85		0.8	1	
17053+5428	STF 2130 AB	79.46	47.5	2.25		0.8	1	
17053+5428	STF 2130 AB	81.51	44.9	2.08		0.8	1	
17053+5428	STF 2130 AB	82.43	32.2	2.02		0.8	1	
17053+5428	STF 2130 AB	83.53	40.2	2.14		0.8	2	
17053+5428	STF 2130 AB	84.52	38.0	2.34		0.8	1	
17146+1423	STF 2140 AB	68.51	105.4	4.58		0.3	2	
17146+1423	STF 2140 AB	69.50	105.7	4.61		0.3	5	
17146+1423	STF 2140 AB	70.52	106.5	4.79		0.3	1	
17146+1423	STF 2140 AB	76.50	110.3	4.68	2.25	0.8	3	
17146+1423	STF 2140 AB	77.53	107.8	4.77	1.93	0.8	1	
17237+3709	STF 2161 AB	63.46	315.6	4.61		0.3	6	
17237+3709	STF 2161 AB	67.59	318.6	3.92		0.3	2	
17237+3709	STF 2161 AB	79.52	323.2	4.07	0.92	0.8	4	
17237+3709	STF 2161 AB	80.58	319.0	4.01	0.98	0.8	5	
17237+3709	STF 2161 AB	81.59	319.8	3.68		0.8	1	
17290+5052	STF 2180	77.53	262.4	3.13		0.8	4	

Table 2 continues on next page.

Micrometer Measures of Double Stars

Table 2 (continued). Measurements of Double Stars

WDS Desig. α, δ (2000)	Discoverer Designation	Epoch 1900.+	θ ($^{\circ}$)	ρ ($''$)	Δm (V)	Tel. Aper. (m)	n	Note
17564+1820	STF2245 AB	82.57	294.7	2.62		0.8	4	
18002+8000	STF2308 AB	67.61	232.8	19.37		0.3	5	
18002+8000	STF2308 AB	68.35	232.4	19.17		0.3	5	
18015+2136	STF2264	68.60	259.1	6.46		0.3	2	
18031-0811	STF2262 AB	76.49	282.2	2.15		0.8	4	
18031-0811	STF2262 AB	79.57	278.2	1.91	0.44	0.8	1	
18031-0811	STF2262 AB	82.59	283.8	2.07		0.8	4	
18055+0230	STF2272 AB	63.48	86.3	3.89		0.3	2	
18239+5848	STF2323 AB	68.63	354.5	3.77		0.3	2	
18239+5848	STF2323 AB	75.51	0.8	3.79	2.50	0.8	1	
18239+5848	STF2323 AB	81.53	354.0	3.62	2.77	0.8	5	
18359+1659	STT358 AB	76.55	166.9	1.85		0.3	5	
18428+5938	STF2398 AB	61.32	162.6	12.92		0.3	1	
18428+5938	STF2398 AB	63.43	159.9	14.99		0.3	4	
18428+5938	STF2398 AB	66.91	162.5	15.41		0.3	2	
18428+5938	STF2398 AB	67.64	163.2	15.04		0.3	2	
18428+5938	STF2398 AB	68.45	165.0	14.20		0.3	1	
18428+5938	STF2398 AB	71.64	165.1	13.94		0.8	2	
18428+5938	STF2398 AB	74.48	167.0	14.35		0.8	2	
18428+5938	STF2398 AB	75.51	167.0	13.82		0.8	2	
18428+5938	STF2398 AB	76.50	168.1	13.87		0.8	1	
18428+5938	STF2398 AB	77.50	167.5	13.74		0.8	1	
18443+3940	STF2382 AB	66.66	1.4	2.78		0.3	1	
18443+3940	STF2382 AB	67.57	356.2	2.68		0.3	1	
18443+3940	STF2382 AB	68.59	2.2	2.81		0.3	2	
18443+3940	STF2382 AB	69.49	357.8	2.66		0.3	3	
18443+3940	STF2382 AB	73.58	357.8	2.49		0.8	1	
18443+3940	STF2382 AB	76.60	357.9	2.82	0.83	0.8	2	
18443+3940	STF2382 AB	77.56	359.0	2.87		0.8	2	
18443+3940	STF2382 AB	79.60	0.7	2.76	0.73	0.8	1	
18443+3940	STF2382 AB	80.60	356.3	2.62		0.8	5	
18443+3940	STF2382 AB	81.61	357.0	2.66		0.8	1	
18443+3940	STF2382 AB	82.58	357.7	2.72		0.8	3	
18443+3940	STF2382 AB	83.61	356.9	2.78		0.8	3	
18443+3940	STF2382 AB	84.52	359.4	2.67		0.8	1	
18443+3940	STF2383 CD	66.66	98.2	2.35		0.3	1	
18443+3940	STF2383 CD	67.57	100.2	2.42		0.3	1	
18443+3940	STF2383 CD	68.59	99.5	2.38		0.3	2	
18443+3940	STF2383 CD	69.49	97.9	2.34		0.3	3	

Table 2 concludes on next page.

Micrometer Measures of Double Stars

Table 2 (conclusion). Measurements of Double Stars

WDS Desig. α, δ (2000)	Discoverer Designation	Epoch 1900.+	θ ($^{\circ}$)	ρ ($''$)	Δm (V)	Tel. Aper. (m)	n	Note
18443+3940	STF 2383 CD	76.60	97.2	2.12		0.8	2	
18443+3940	STF 2383 CD	77.56	92.8	2.07		0.8	2	
18443+3940	STF 2383 CD	80.60	91.5	2.21		0.8	7	
18443+3940	STF 2383 CD	81.60	90.1	2.19		0.8	2	
18443+3940	STF 2383 CD	82.58	90.6	2.27		0.8	3	
18443+3940	STF 2383 CD	83.61	90.0	2.24		0.8	3	
18443+3940	STF 2383 CD	84.52	90.3	2.09		0.8	1	
18455+0530	STF 2375 AB	68.45	119.4	2.44		0.3	1	
19450+4508	STF 2579 AB	72.62	244.0	2.86		0.8	5	X
19450+4508	STF 2579 AB	73.58	239.2	2.39		0.8	1	
19450+4508	STF 2579 AB	74.52	244.5	2.43	3.23	0.8	3	
19450+4508	STF 2579 AB	75.48	248.1	2.66	3.01	0.8	2	
19450+4508	STF 2579 AB	78.63	241.7	2.15	3.39	0.8	2	
19450+4508	STF 2579 AB	79.64	234.4	2.15	3.27	0.8	4	
19487+1149	STF 2583 AB	63.53	111.8	1.72		0.3	1	
19487+1149	STF 2583 AB	67.56	109.1	1.40		0.3	2	
19487+1149	STF 2583 AB	80.63	112.8	1.57		0.8	2	
19487+1149	STF 2583 AB	81.52	109.9	1.55		0.8	1	
19487+1149	STF 2583 AB	82.55	112.3	1.49		0.8	1	
20014+1045	STF 2613 AB	75.52	353.4	3.90		0.8	1	
20035+3601	STF 2624 AB	75.53	177.5	1.90		0.8	2	
20035+3601	STF 2624 AB	83.60	174.3	2.03		0.8	1	
20035+3601	STF 2624 AB	84.61	172.0	1.90		0.8	3	
20396+4035	STT 410 AB	82.73	9.5	0.98		0.8	1	
20467+1607	STF 2727	62.55	266.8	9.81		0.3	1	
20467+1607	STF 2727	63.55	268.5	9.69		0.3	2	
20467+1607	STF 2727	66.66	270.1	9.76		0.3	3	
20467+1607	STF 2727	67.56	268.6	9.83		0.3	2	
20467+1607	STF 2727	68.65	269.5	9.77		0.3	1	
20585+5028	STF 2741 AB	68.57	26.1	1.65		0.3	2	
20585+5028	STF 2741 AB	80.69	29.3	2.25		0.8	1	
20585+5028	STF 2741 AB	81.66	25.2	1.94		0.8	1	
20585+5028	STF 2741 AB	82.60	27.4	2.04		0.8	5	
20591+0418	STF 2737 AB,C	67.66	69.4	10.90		0.3	2	
21069+3845	STF 2758 AB	63.55	140.8	27.48		0.3	1	
21069+3845	STF 2758 AB	67.63	144.4	28.43		0.3	2	
21069+3845	STF 2758 AB	68.65	144.4	28.02		0.3	5	
21069+3845	STF 2758 AB	69.47	144.8	28.97		0.3	2	
21208+3227	STT 437 AB	75.61	24.6	2.14		0.8	1	

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Compilation of the measurements and brief description prepared by Brian Mason. Additional information supplied by Michael Quaade (WKO).

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