Comparison of Dyson Catalog of Double Stars with Washington Double Star Catalog Data

1-WDS 00550+2338, BD+22 146, 36 And
2-WDS 02140+4729, BD+46 536
3-WDS 03344+2428, 7 Tau. BD+23 473
4-WDS 04159+3142, BD+31 737
5-WDS 04518+1339, BD+13 728
6-WDS 07573+0108, BD+1 1959
7-WDS 09521+5404, Phi UMa, BD+54 1331
8-WDS 12244+2535, BD+26 2345
9-WDS 13375+3618, 25 CVn, BD+37 2433
10-WDS 13491+2659, BD+37 2433
11-WDS 14463+0939, BD+10 2739
12-WDS 14455+4223, BD+42 2531
13-WDS 15245+3723, Mu Boo, BD+37 2636
14-WDS 16289+1825, BD+18 3182
15-WDS 16309+0159 Iam Oph, BD+2 3118
16-WDS 16439+4329, BD+43 2639
17-WDS 16518+2840, BD+28 2624
18-WDS 17141+5608, BD+56 1959
19-WDS 18096+0400, 73 Oph, BD+03 3610
20-WDS 19266+2719, BD+27 3391
21-WDS 19450+4508, del Cyg, 18 Cyg, BD+44 3234
22-WDS 19487+3519, BD+34 3727
23-WDS 20514-0538, 4 Aqr, BD-6 5604
24-WDS 23189+0524, BD+4 4994
25-WDS 00014+3937, BD+38 5112

Abbreviations:

DCDS – Dyson Double Star Catalog
WDS – Washington Double Star Catalog
FA – FitAstrometry program

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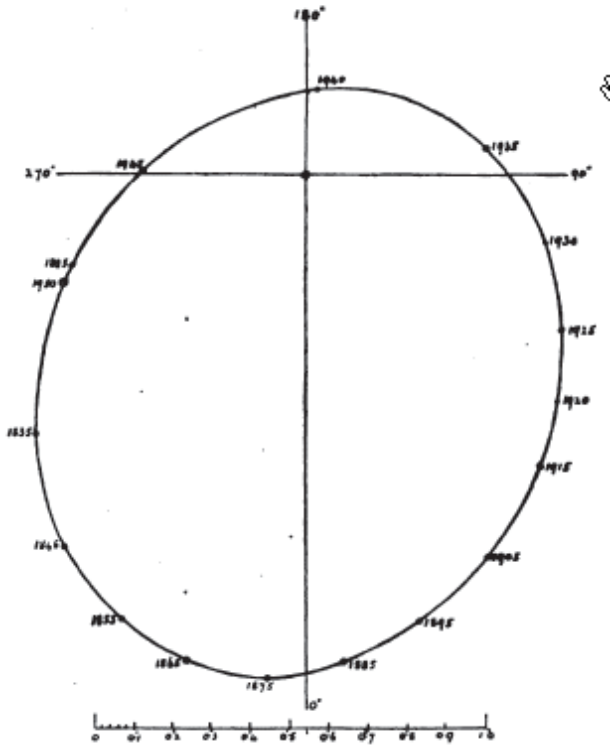
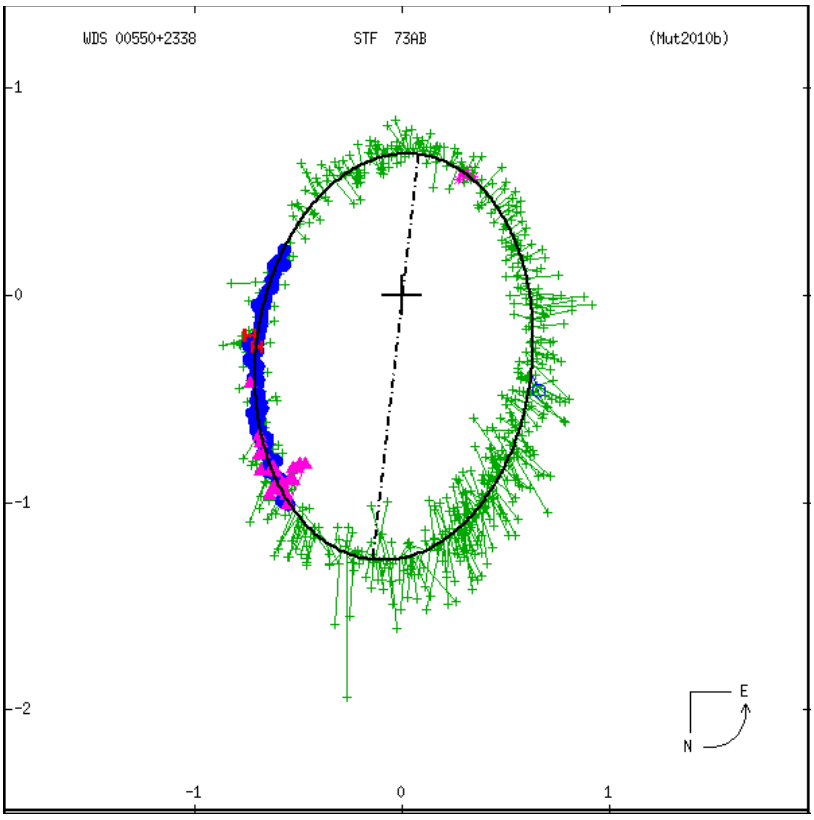
1 - WDS 00550+2338, BD+22 146, 36 And

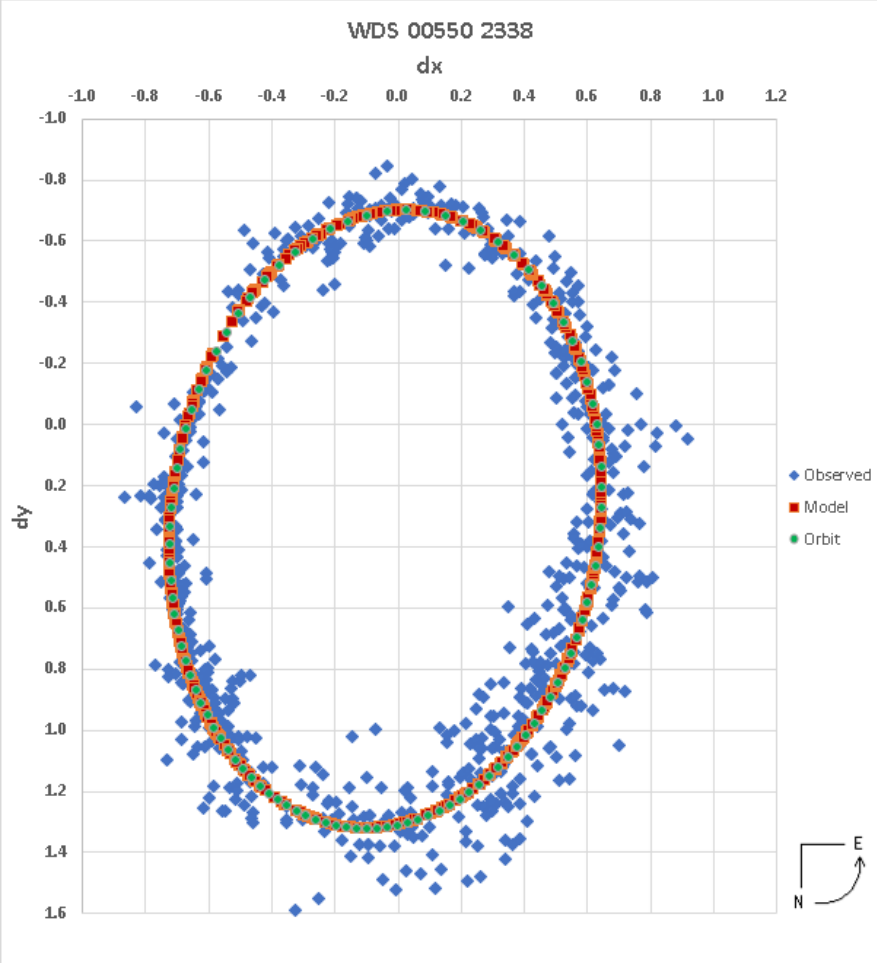
	P	**a**	**e**	**ω°**	**i°**	**Ω°**	**T_0**	**χ2**	**χ2/n**	**Δl**
DCDS	124.20	0.97	0.708	76.5	41.2	105.7	1815.93			
WDS	167.510	0.9837	0.306	358.62	44.57	173.66	1956.2			
FA	168.6	1.014	0.308	358.6	45.2	173.8	1956.3	2695	3.7	
±	0.3	0.003	0.002	0.6	0.3	0.4	0.2			

WDS Orbital elements from Muterspaugh et al, 2010AJ,2010
pair of, subgiant stars, G6 and K6, m1 + m2 = 1.86±0.15 Muterspaugh, Mm.W. et al, AJ, 140, 2010.
Malkov et al, A&A, 546, 69, 2012 dynamical, photometric, and spectroscopic masses 1.86± 0.14, 2.29, and 1.35

Apparent Orbit of Σ 73.







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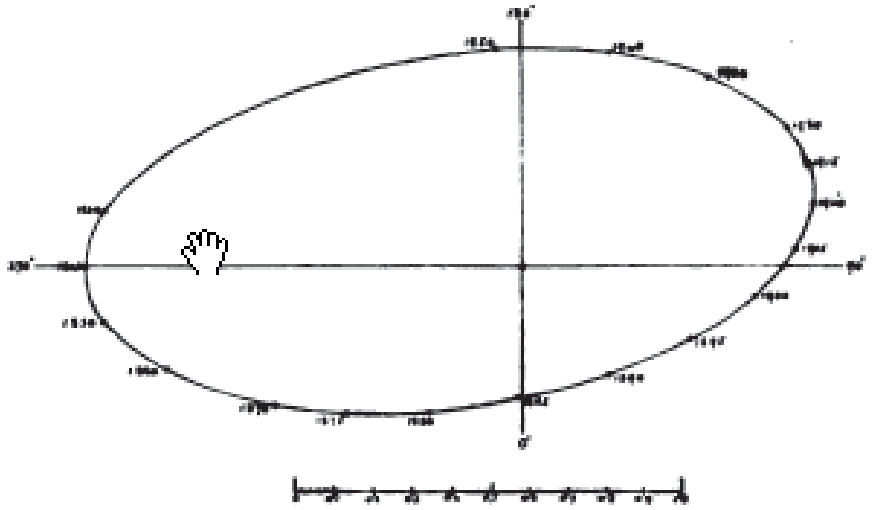
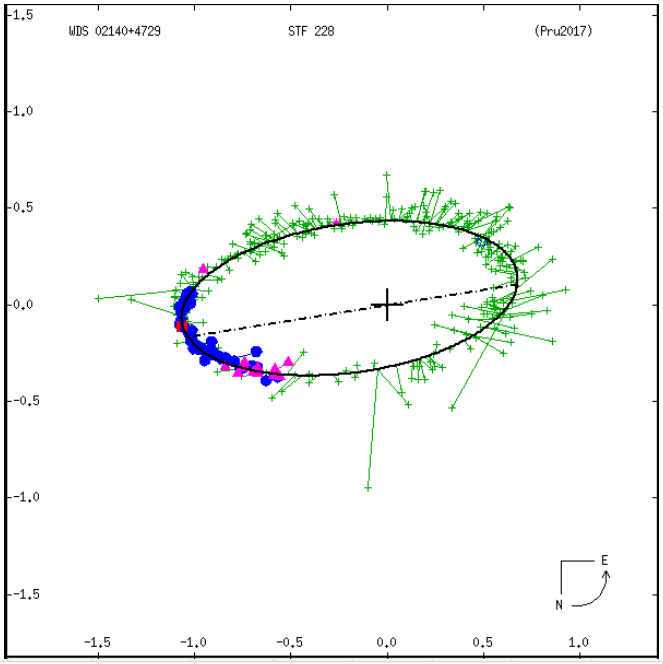
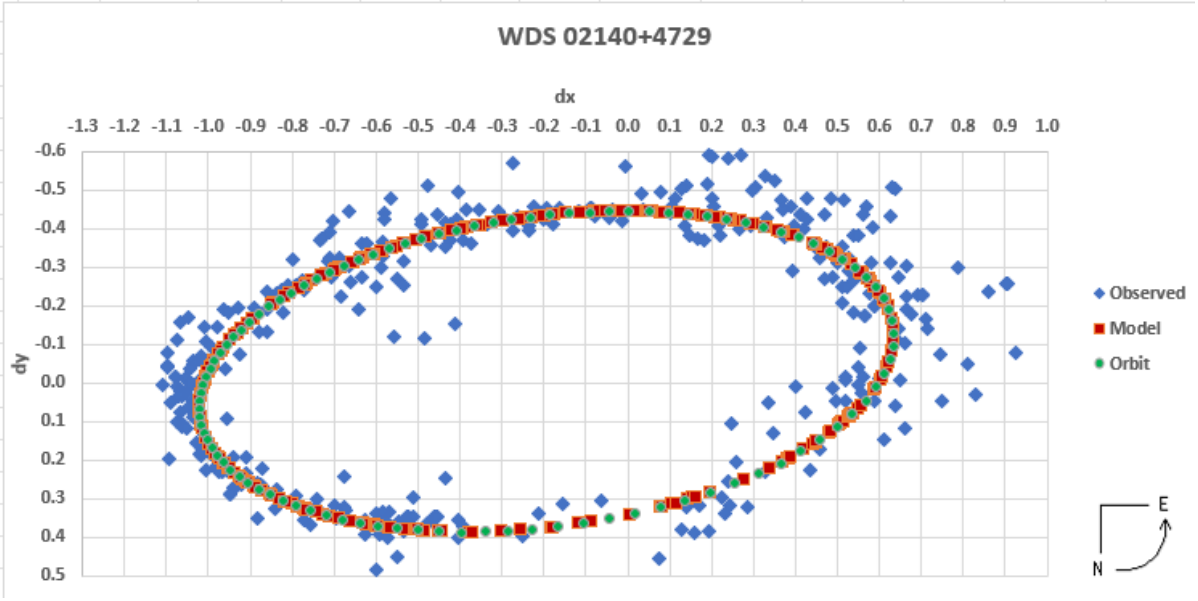
2 - WDS 02140+4729, BD+46 536

Apparent Orbit of Σ 228.







	P	a	e	ω°	i°	Ω°	T_0	χ2	χ2/n
DCDS	167.400	0.970	0.31	303.70	61.30	99.70	1894.500		
WDS	145.4	0.89	0.263	322.66	63.75	99.07	1899.07		
FA	145.0	0.844	0.254	326	60.8	99.6	1901.2	7035	20
±	0.4	0.004	0.003	1	0.3	0.4	0.3		

WDS orbital elements from Prieur et al. 2017AN....338...74P
WDS mag1=6.56, mag2=7.21, F2V + F7V
Spectral types and masses of compenents: tenBrummelaar et al, 2000AJ, 119.2403T
Malkov et al, A&A, 546, 69, 2012, dynamical, photometric, and spectroscopic masses of 2.34 +/- 0.36, 2.52, and 2.47,

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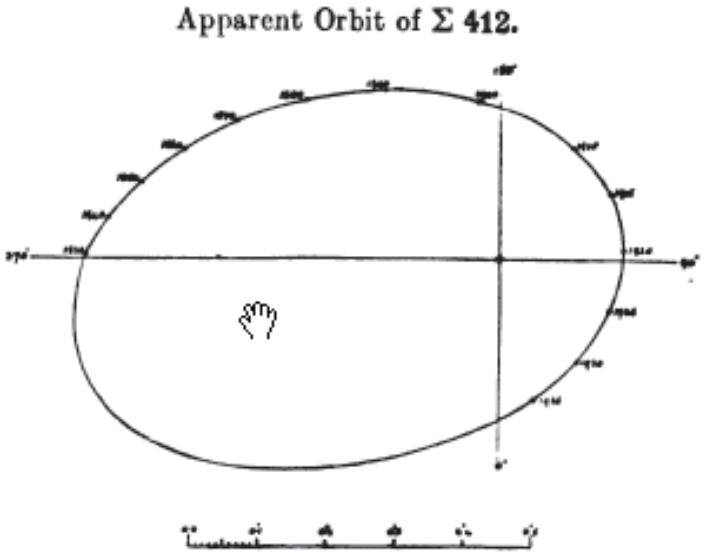
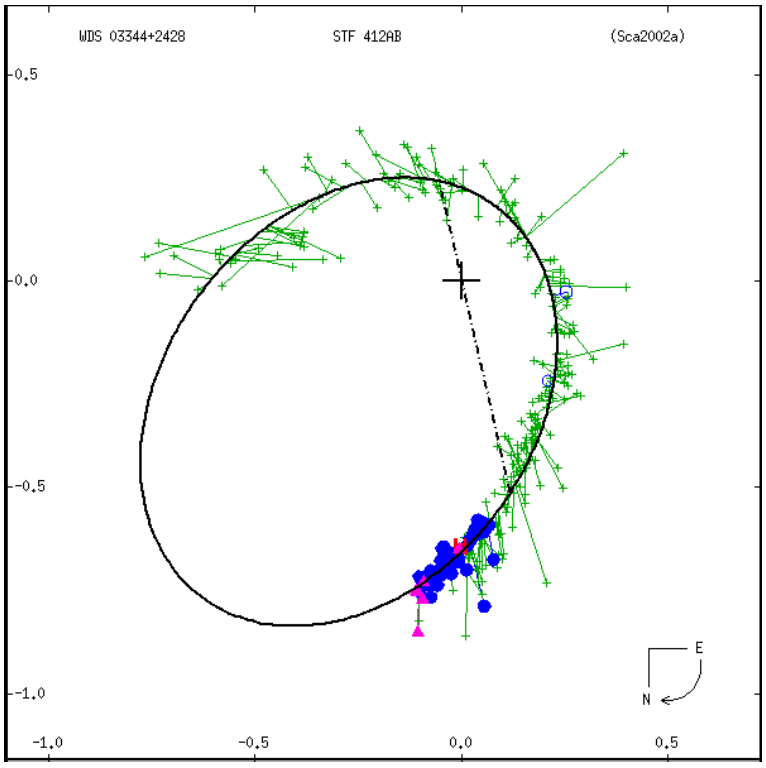
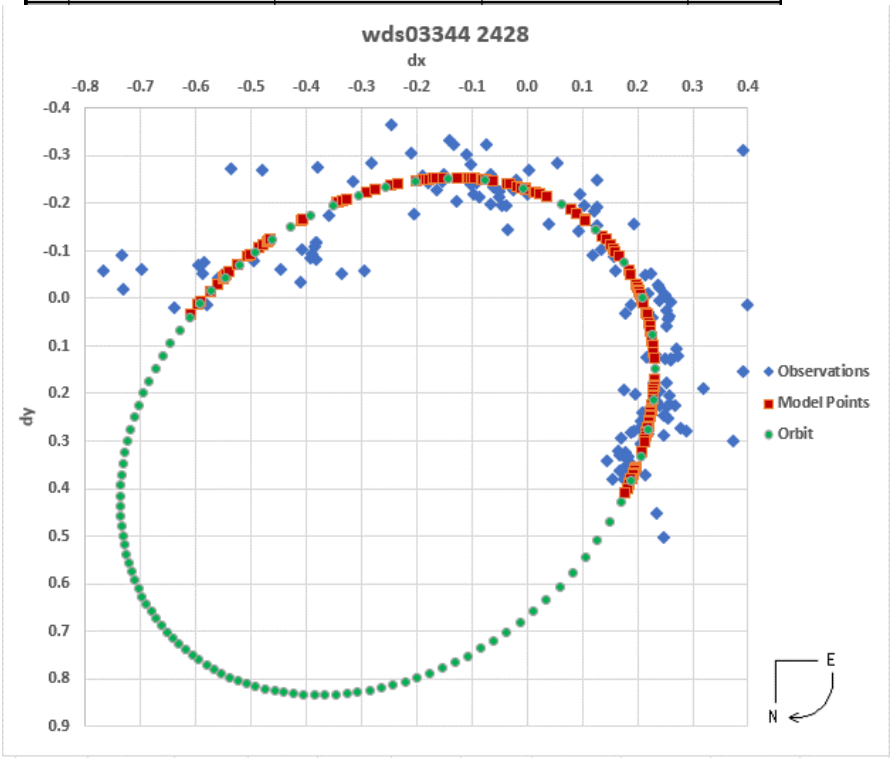
3 - WDS 03344+2428, 7 Tau. BD+23 473







	P	a	e	ω °	i °	Ω °	T_0	χ2	χ2/n
DCDS	216.90	0.41	0.55	350.00	37.00	106.50	1919.37		
WDS	522.160	0.625	0.68	238.10	157.20	13.00	1911.620		

FA	495	0.619	0.67	234	153	10	1912	912	3.0
±	39	0.02	0.02	5	3	4	0.4		

WDS orbital elements from Scardia et al, IAUDS circular 146, 1, 2002
mag1 6.60, mag2 6.86, A3 V + A3 V
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses 2.04 +/- 1.54, 4.91, and 2.09

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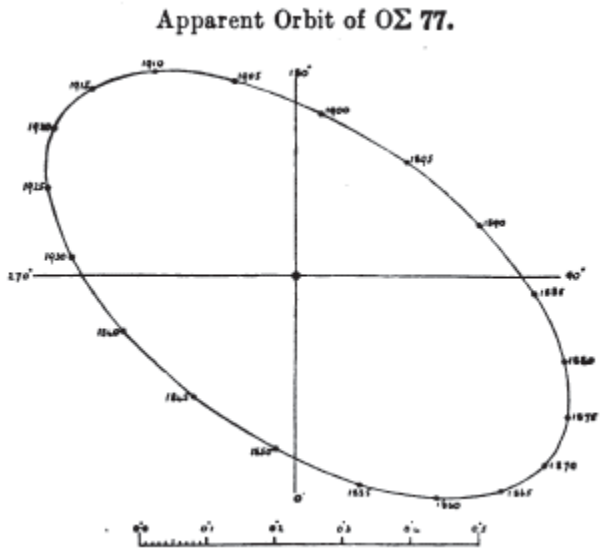
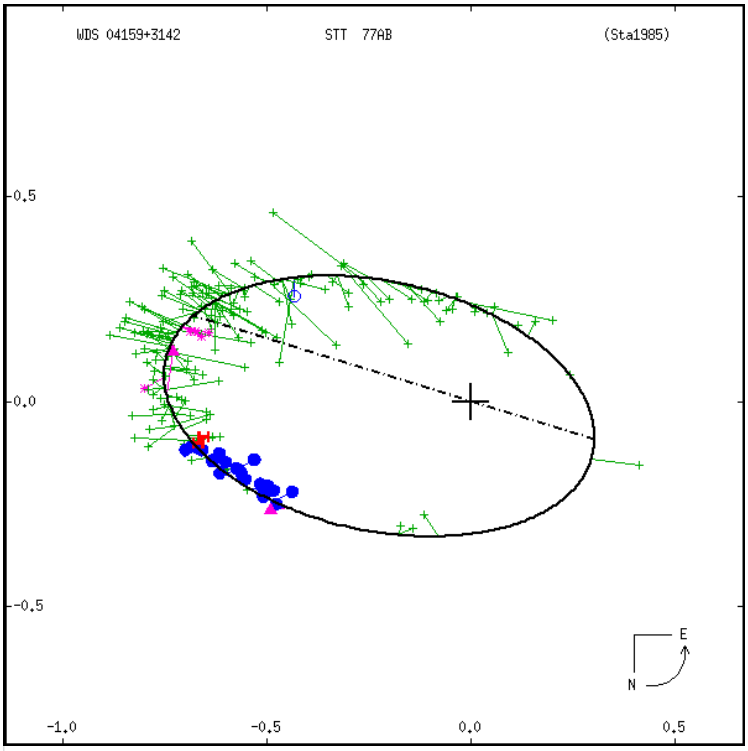
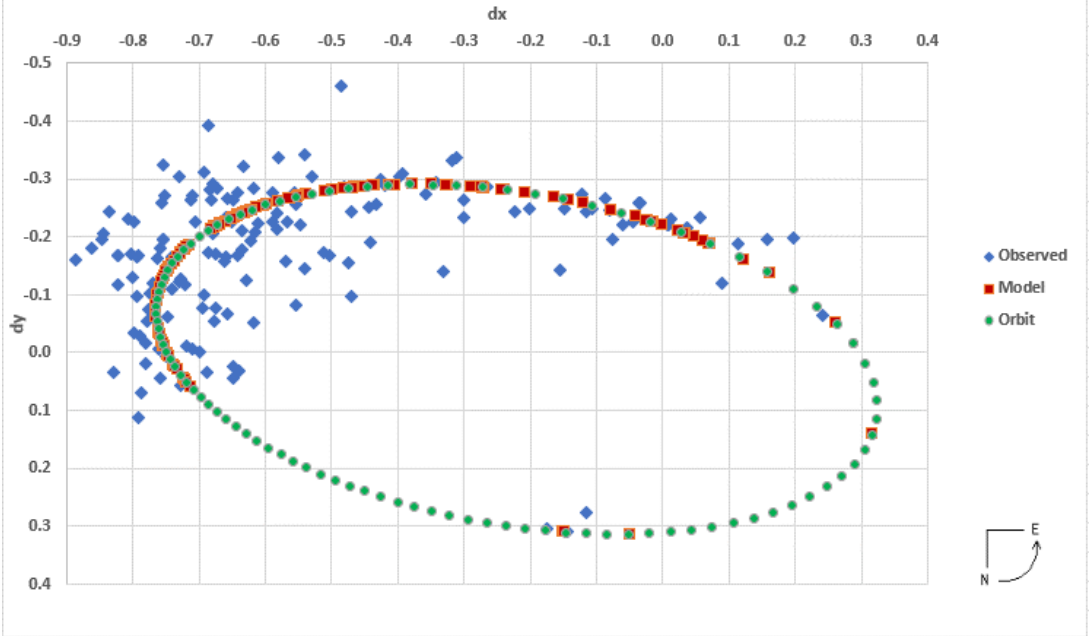
4 - WDS 04159+3142, BD+31 737





WDS 04159+3142



	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	95.20	0.44	0.05	174.80	58.20	55.30	1917.21		
WDS	187.925	0.549	0.45	31.02	52.71	72.89	1886.934		

FA	189	0.568	0.43	32	57	74	1888	438	2.5
±	2	0.007	0.01	4	1	2	1		

WDS orbital elements from Starikova, G.A., Trud. Astron. Inst. Sternberg 57, 243, 1985
WDS mag1 8.04, mag2 8.22, F8V
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses 4.90 +/- 3.64, 2.97, and 1.10 Msun

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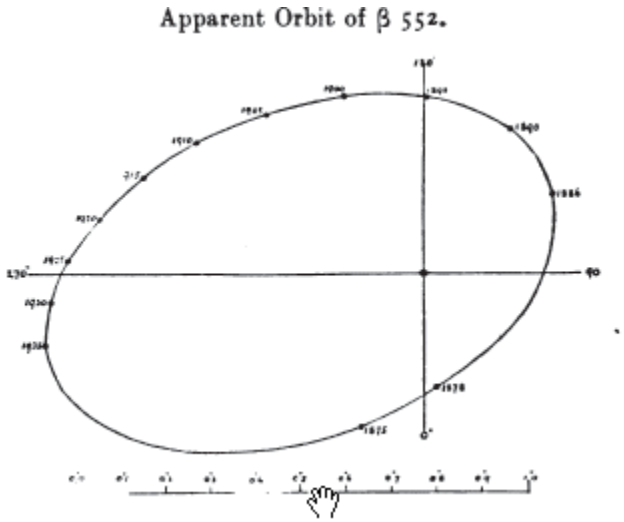
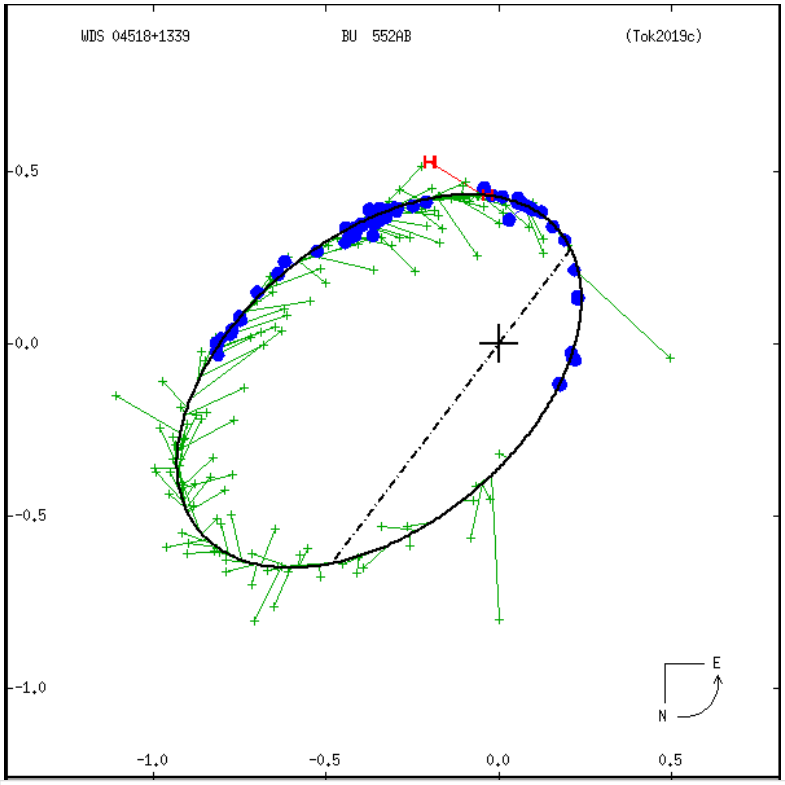
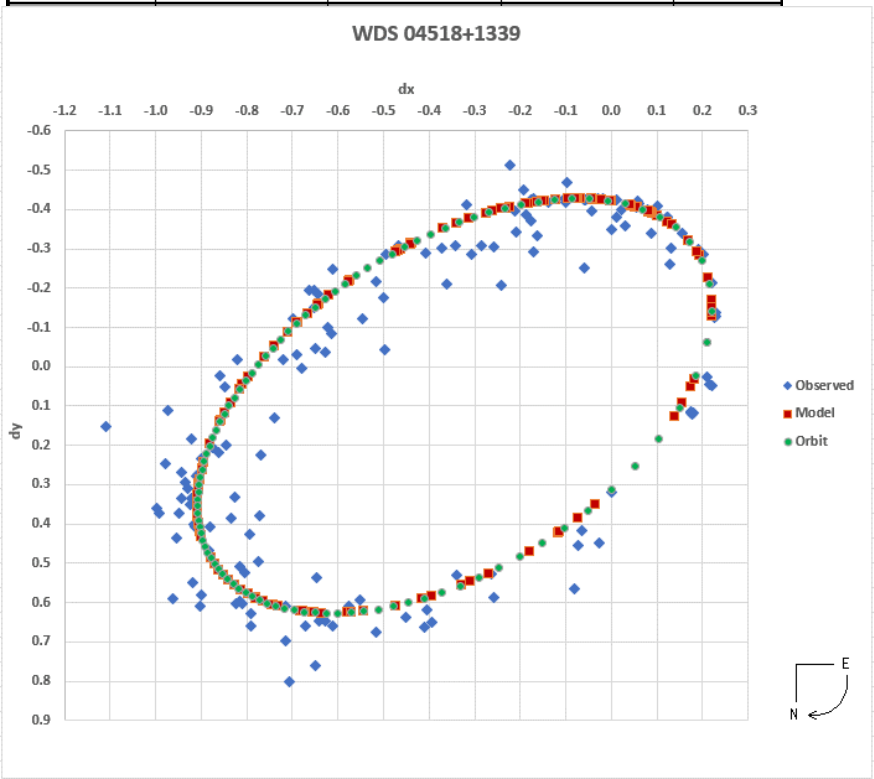
5 - WDS 04518+1339, BD+13 728







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**
DCDS	88.2	0.527	0.519	316.3	50.4	122	1882.85		

WDS	97.7	0.743	0.592	312.3	50.30	142.60	1982.19		
FA	94.1	0.751	0.620	307	53.9	143.7	1982.0	555	2.7
±	0.2	0.007	0.006	1	0.7	0.9	0.2		

WDS orbital elements from Tokovinin et al., 2019 AJ 158 48T
WDS mag1 6.41, mag2 8.89, dF6
The system consists of 3 components, Aa: F5V, 1.48 Msun; Ab: G8V, 0.96 Msun – Aa + Ab = A period 143.27 d; B: G4V, 1.11 Msun, P 97.7 y (around A)
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses 2.67 +/- 1.47, 2.30, and 1.00 Msun

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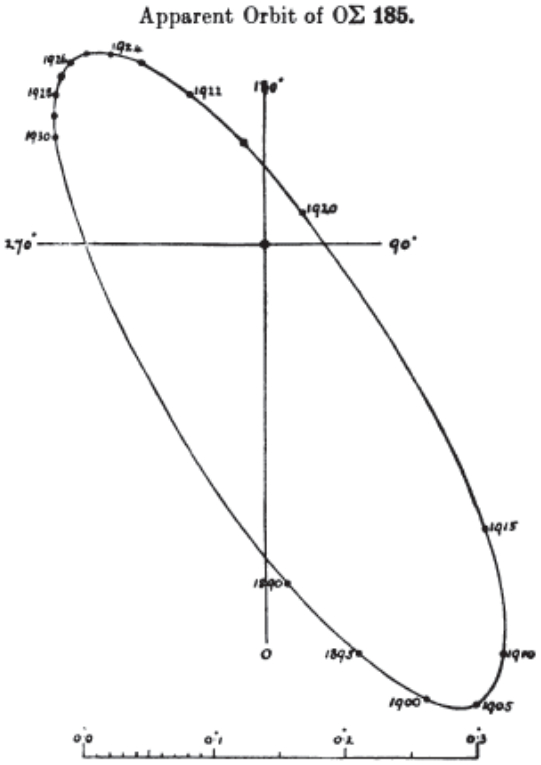
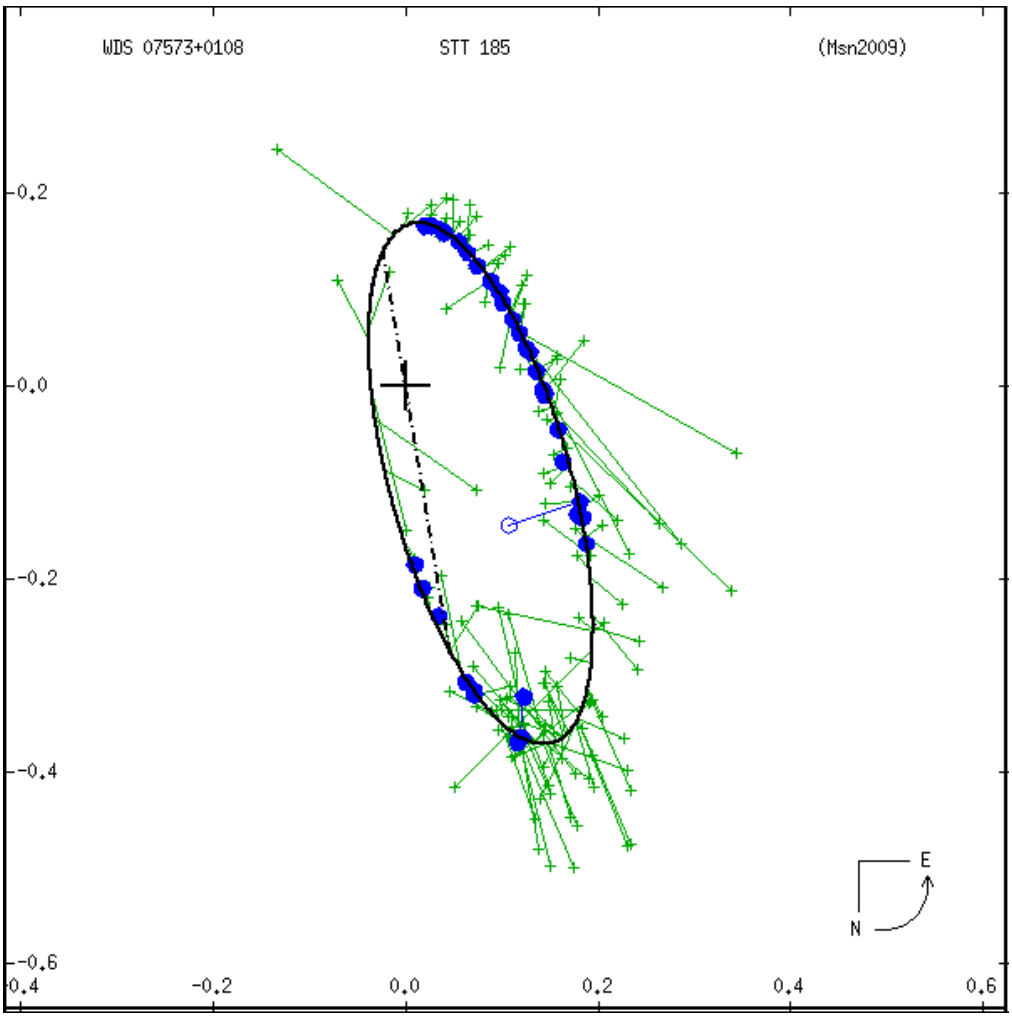
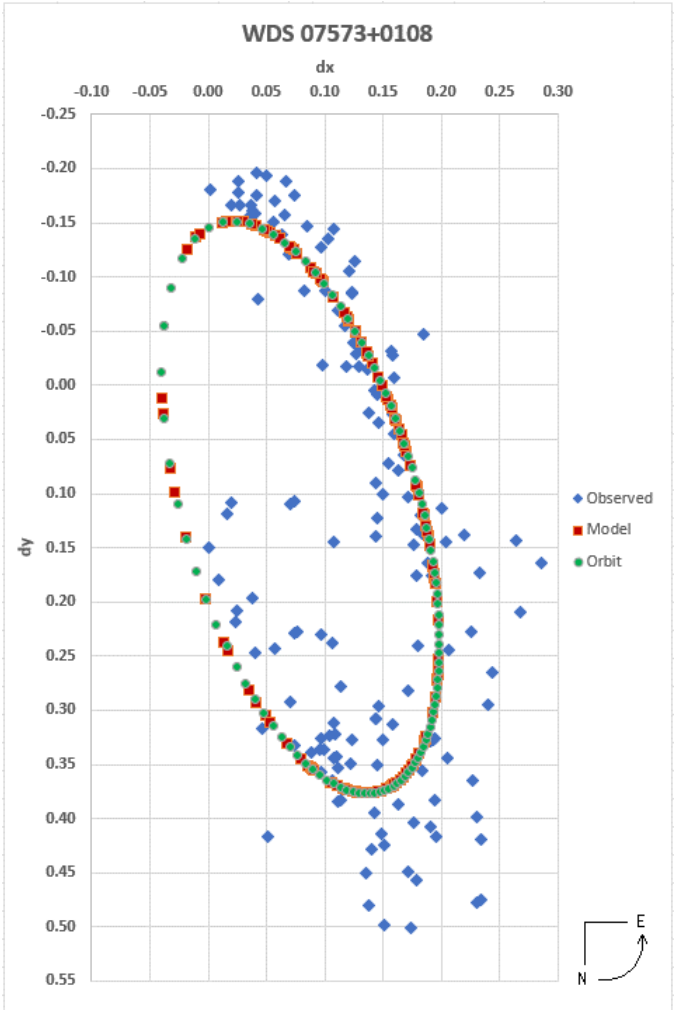
6 - WDS 07573+0108, BD+1 1959 Dyson Catalogue of Double Stars – 6




WDS 07573+0108
STT 185
(Msn2009)
0.2
0.0
-0.2
-0.4
-0.6
0.4
-0.2
0.0
0.2
0.4
0.6
E
N



	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	59.6	0.350	0.611	114.9	74.6	35.2	1861.16		
WDS	58.01	0.343	0.672	240.7	72.5	9.5	1944.220		
FA	57.5	0.326	0.68	236	69	7	1943	322	2.0
±	0.3	0.01	0.02	3	1	2	0.3		

WDS orbital elements from Mason et al, 2009 AJ 137.3358M
mag1 7.1, mag 2 7.3, F7 V
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses 2.85, 2.86, 1.13

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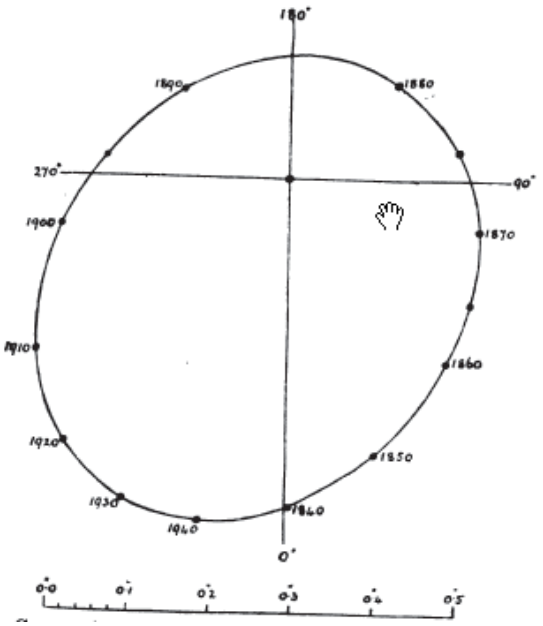
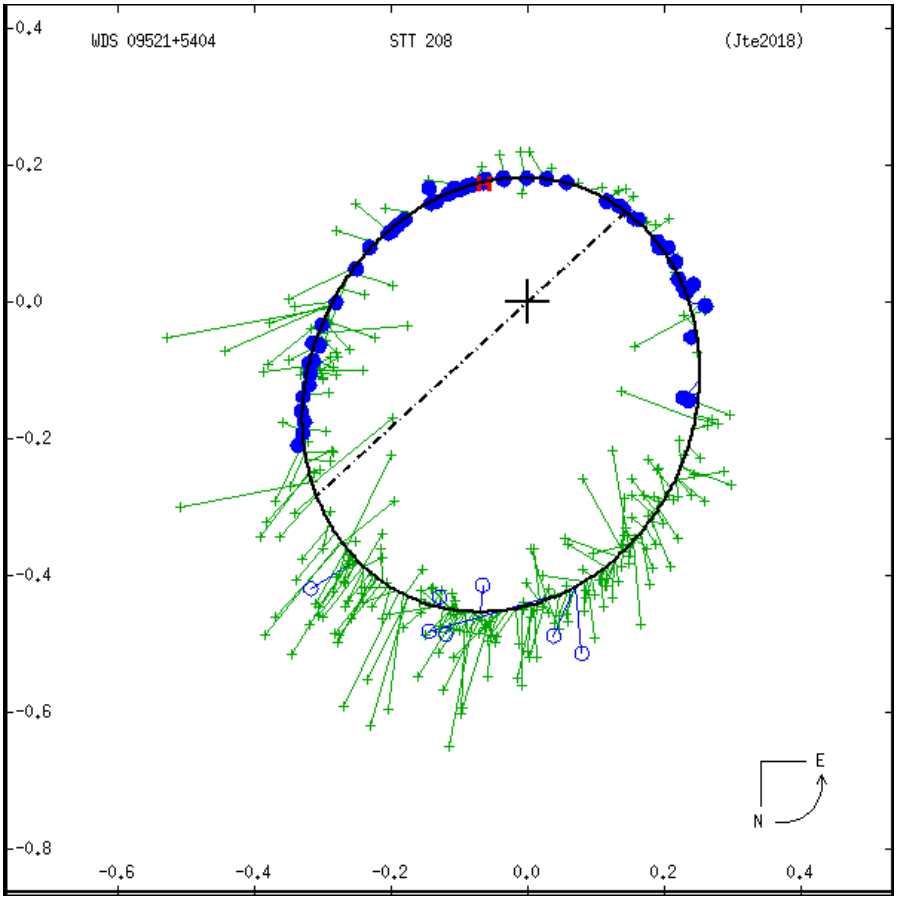
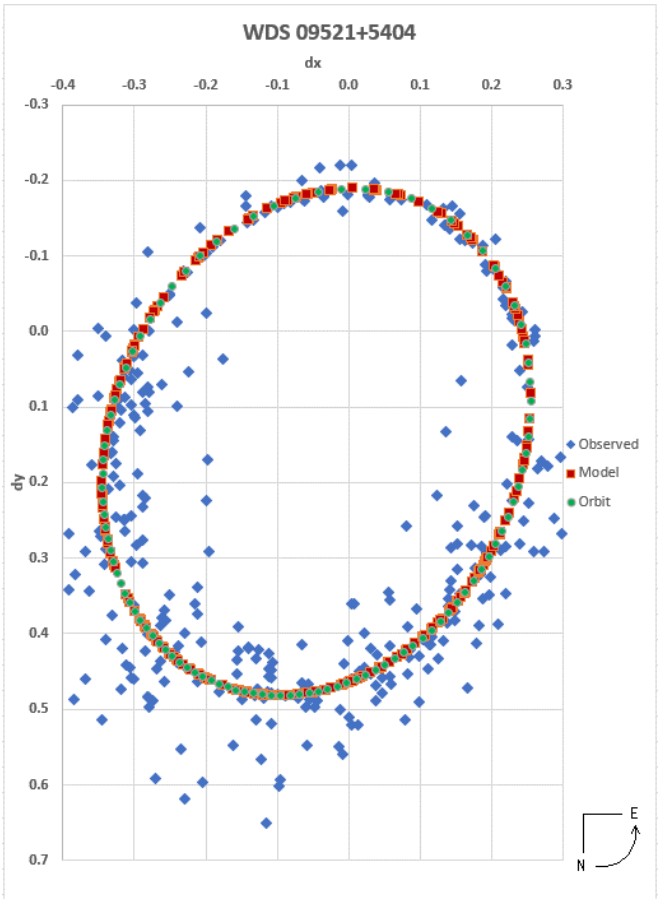
7 - WDS 09521+5404, Phi UMa, BD+54 1331

Apparent Orbit of OΣ **208.**




WDS 09521+5404
STT 208
(Jte2018)
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4
E
N



	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**
DCDS	110.1	0.319	0.473	44.5	32.2	124.6	1883.61		
WDS	104.6	0.329	0.436	33.300	19.4	132.5	1987.52		
FA	105.1	0.353	0.443	27	28	139	1987.6	353	1.0
±	0.5	0.005	0.008	6	3	6	0.3		

WDS Orbital elements from Josties, J., Mason, B.M. 2018IAUDS.196....1J
IAUDS = Information Circular: Internation Astronomical Union
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses of 14.53 +/- 5.60, 8.84, and 2.09 Msun

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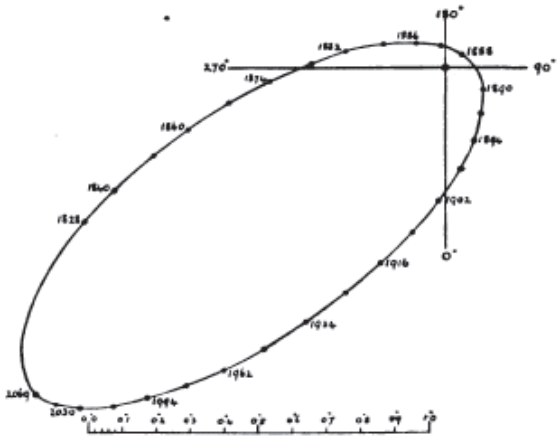
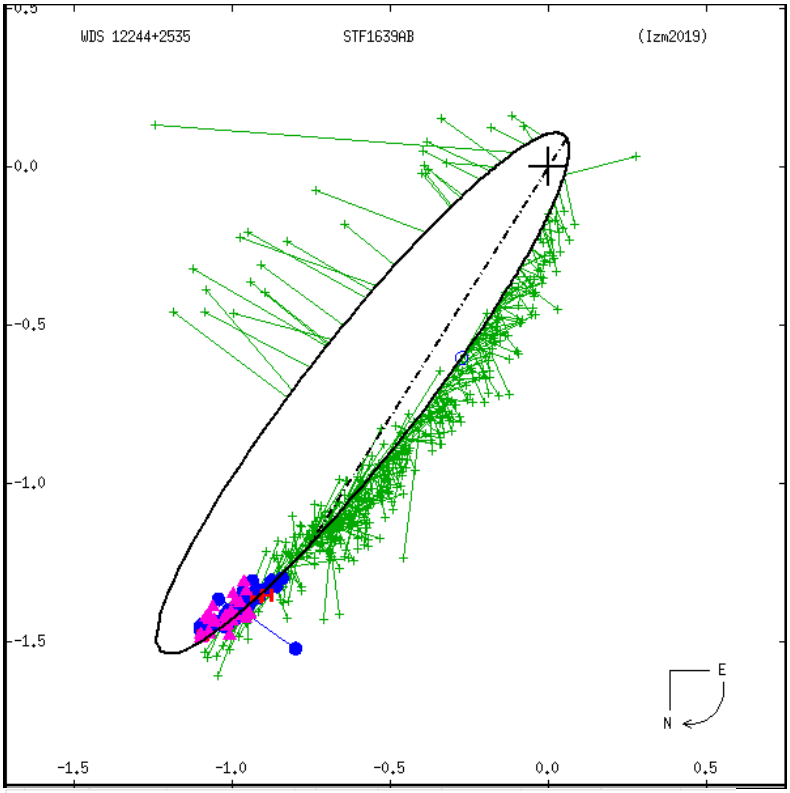
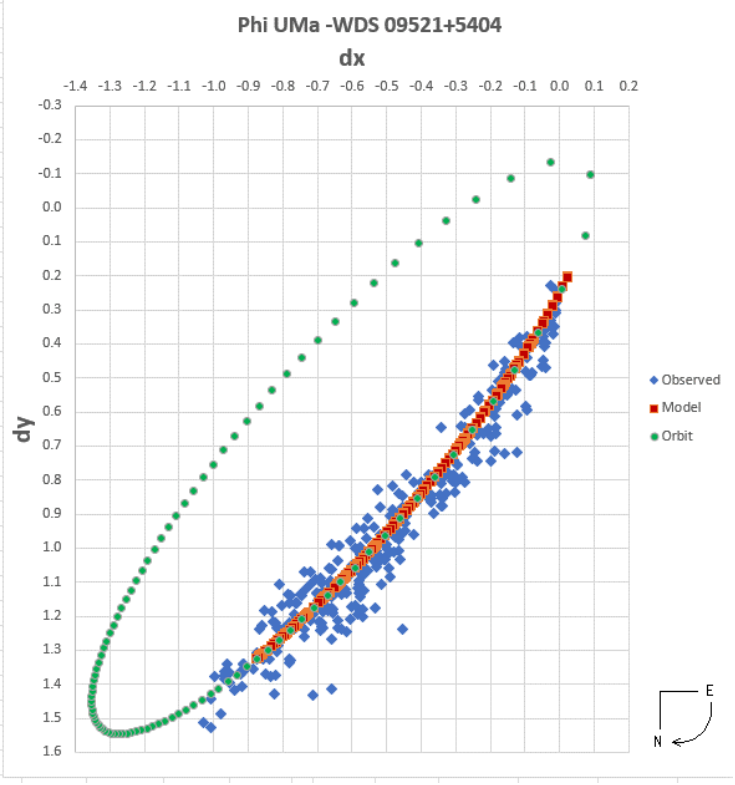
8 - WDS 12244+2535, BD+26 2345

Apparent Orbit of Σ 1639.







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**$\chi 2$**	**$\chi 2/n$**

DCDS	110.1	0.319	0.473	44.5	32.2	124.6	1883.61		
WDS	421	1.07	0.90	18	112	147	1892.86		
FA	487	1.13	0.909	14	131	146		1795	4.5
±	39	0.05	0.003	8	3	4			

WDS orbital elements from Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019). https://doi.org/10.1134/S106377371901002X
mag1 6374, mag 2 7.83, A7 V + F4V 45.

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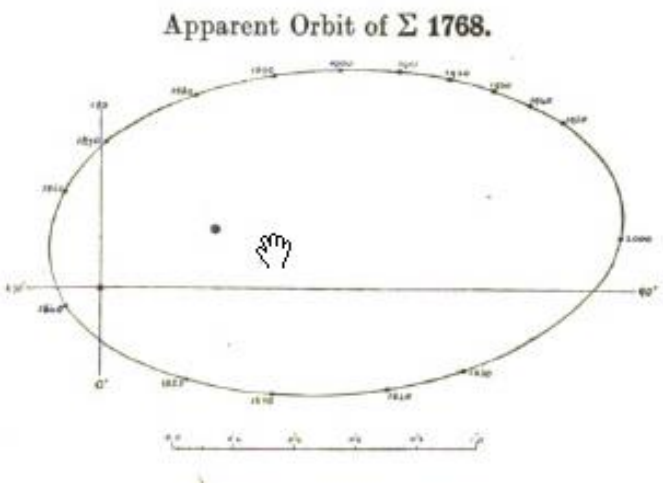
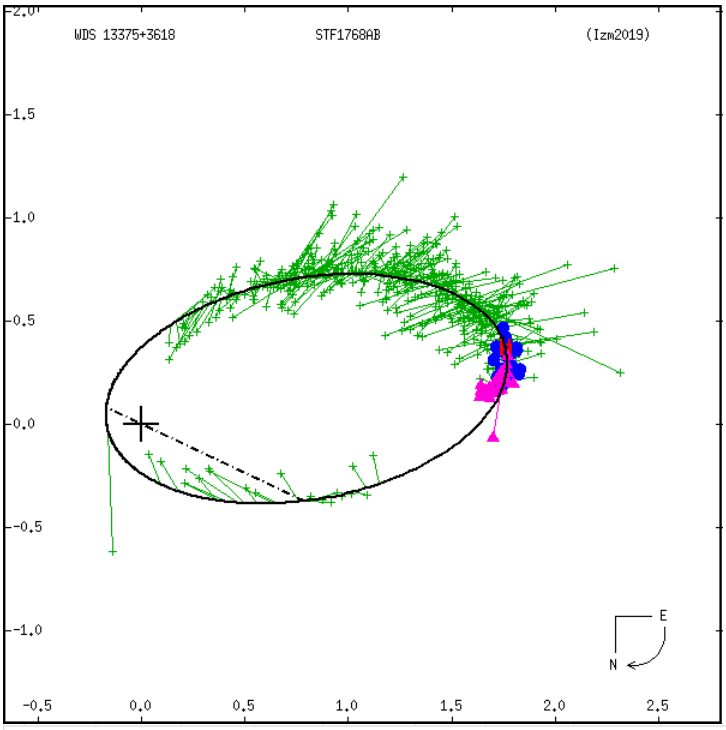
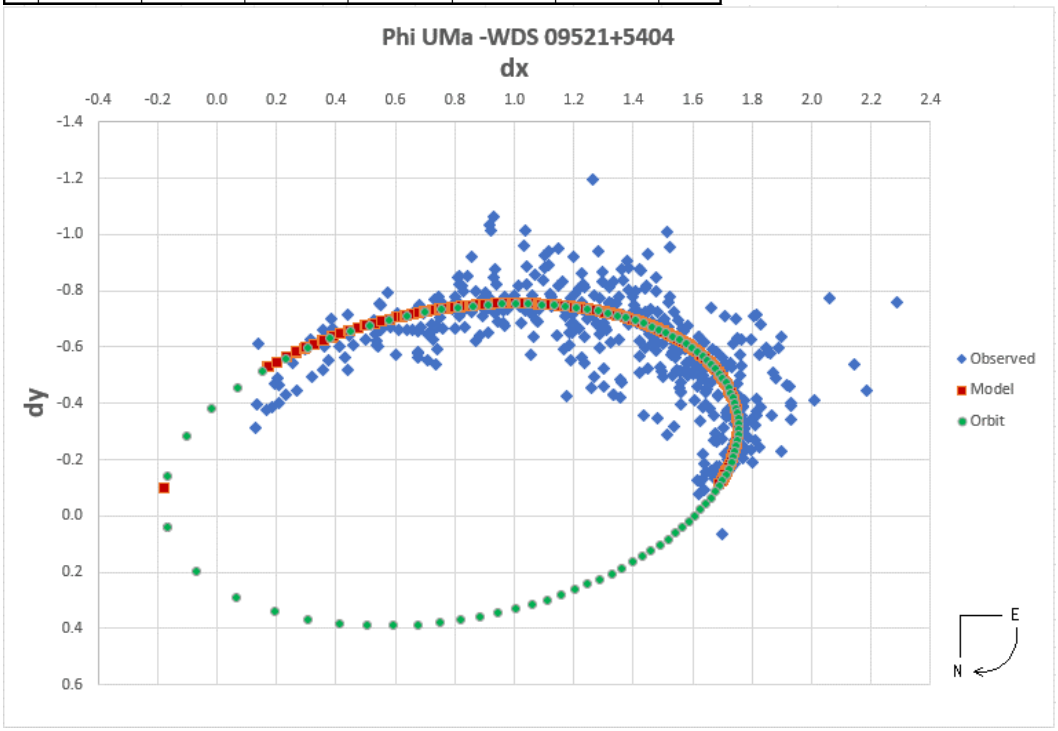
9 - WDS 13375+3618, 25 CVn, BD+37 2433







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	220.4	1.205	0.656	241	47	53	1860.3		
WDS	245.0	1.010	0.830	140	160	65	1865.00		
FA	242	1.000	0.820	140	160	148	1863.7	494	1.0

±	2	0.02	0.01	0.4	4	23	0.6		

WDS orbital elements from Izmailov, I.S., 2016AstL...45...30I
mag1 4.98, mag2 6.95, A7 III + A8 V
25 CVn. AB:
Malkov et al, A&A, 546, 69, 2012, Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses 4.61 +/- 2.52, 3.03, and 1.82 Msun

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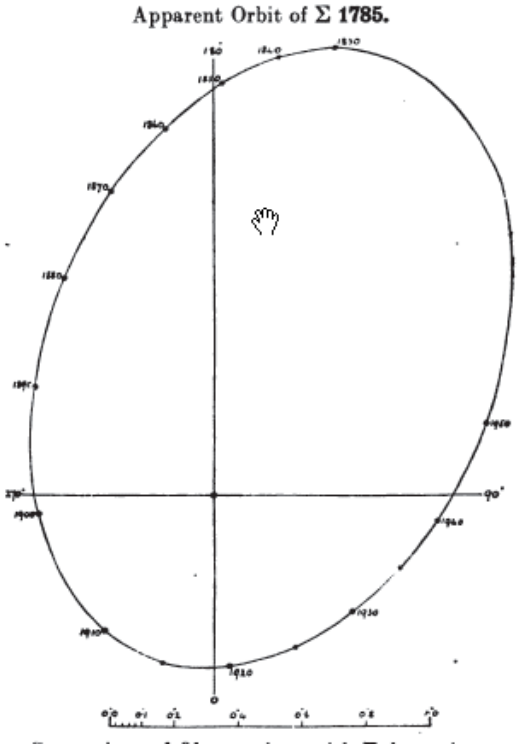
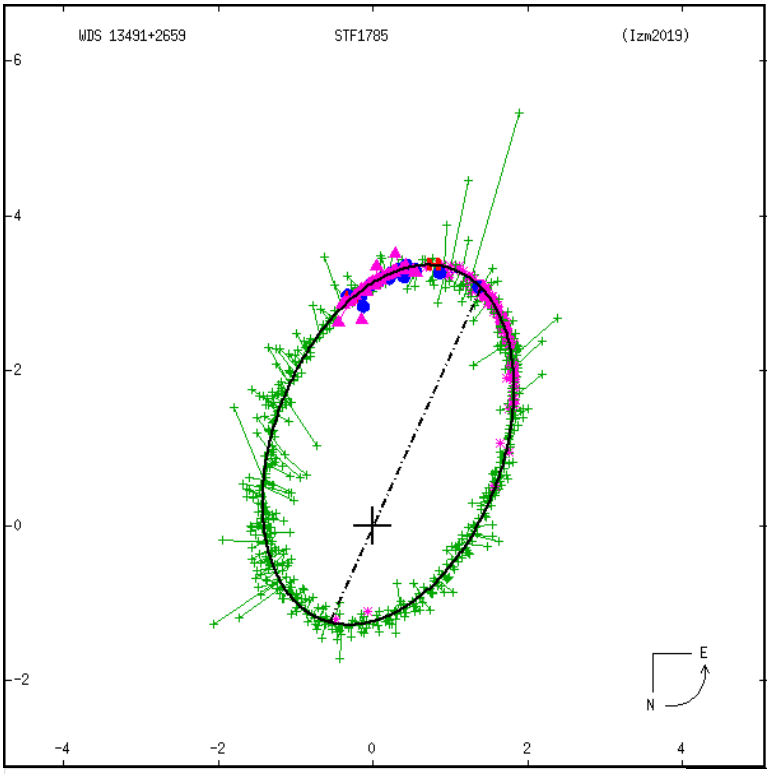
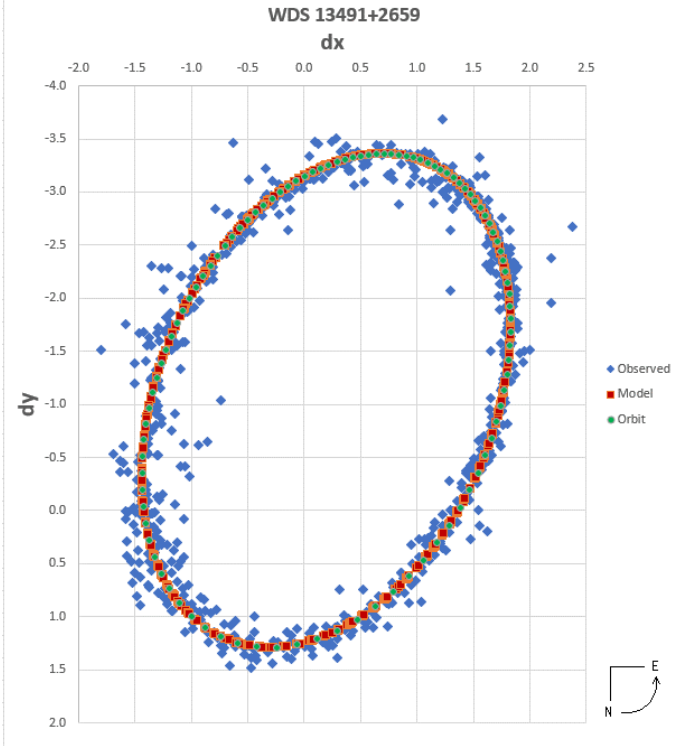
10 - WDS 13491+2659, BD+27 2296







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**
DCDS	193.55	2.549	0.460	180.5	39.4	156.3	1913.3		

WDS	156.1	2.443	0.447	200	47.7	156.6	1916.7		
FA	155.9	2.435	0.446	199.6	47.2	155.6	1916.62	8430	6.8
±	0.1	0.002	0.0007	0.2	0.1	0.1	0.04		

WDS Orbital elements from Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019).
mag1 7.38, mag2 8.15, K4 V + K6 V
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses of 1.43 +/- 0.39, 1.49, and 1.34 Msun

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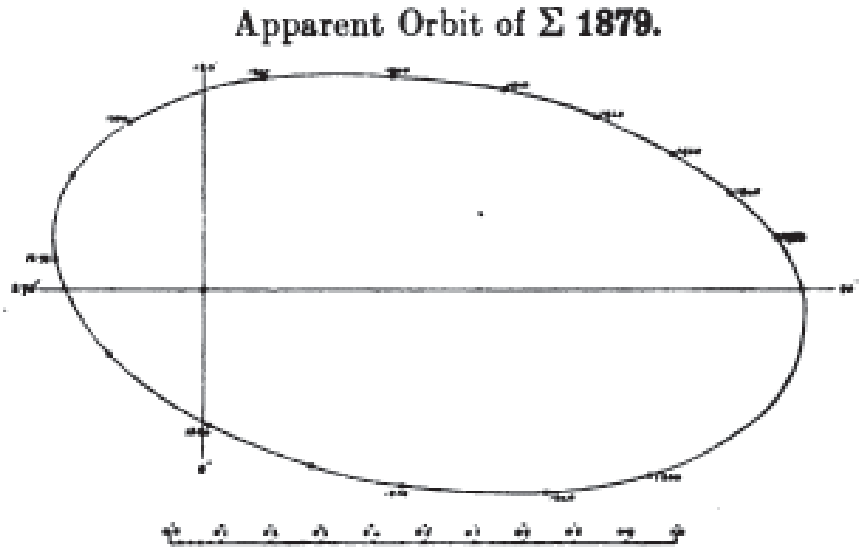
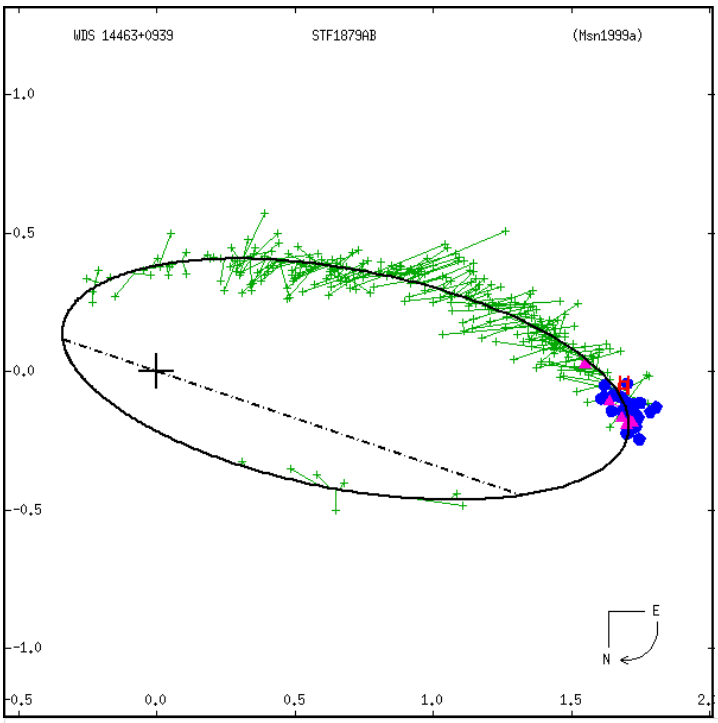
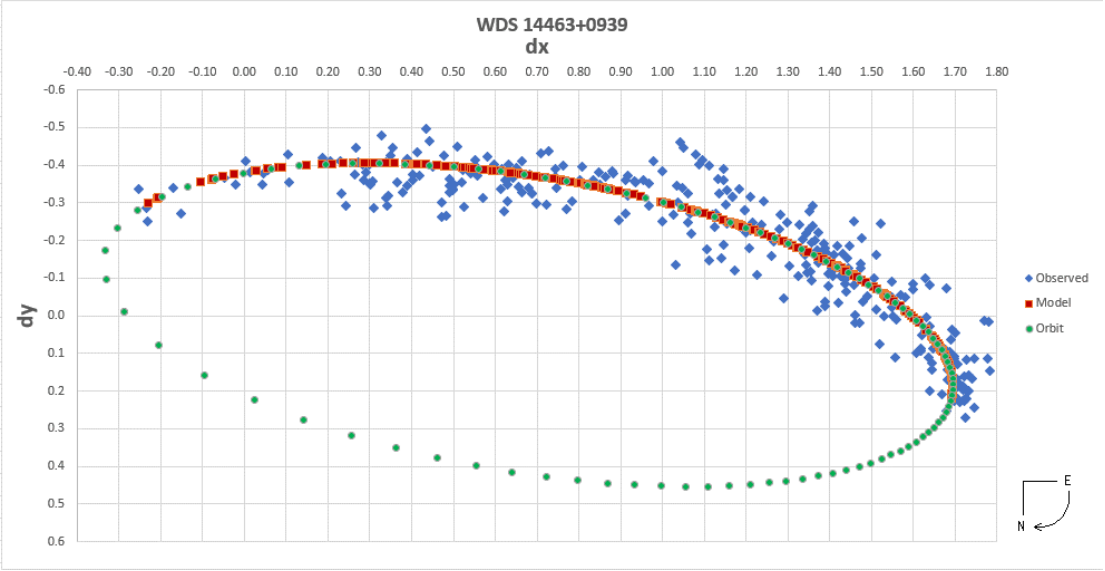
11 - WDS 14463+0939, BD+10 2739







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	238	1.06	0.7	208.6	57.6	74.1	1868.3		
WDS	253.0	1.11	0.699	328	118	251.3	1866		
AF	250	1.11	0.70	327	117	251	1866.0	280	0.9
±	20	0.05	0.09	12	3	6	6		

WDS Orbital elements from Mason et al, 1999AJ....117.1023M
Mag 1 7.79, mag2 8.85, G2V
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses 1.73 +/- 0.35, 2.10, and 1.00 Msun

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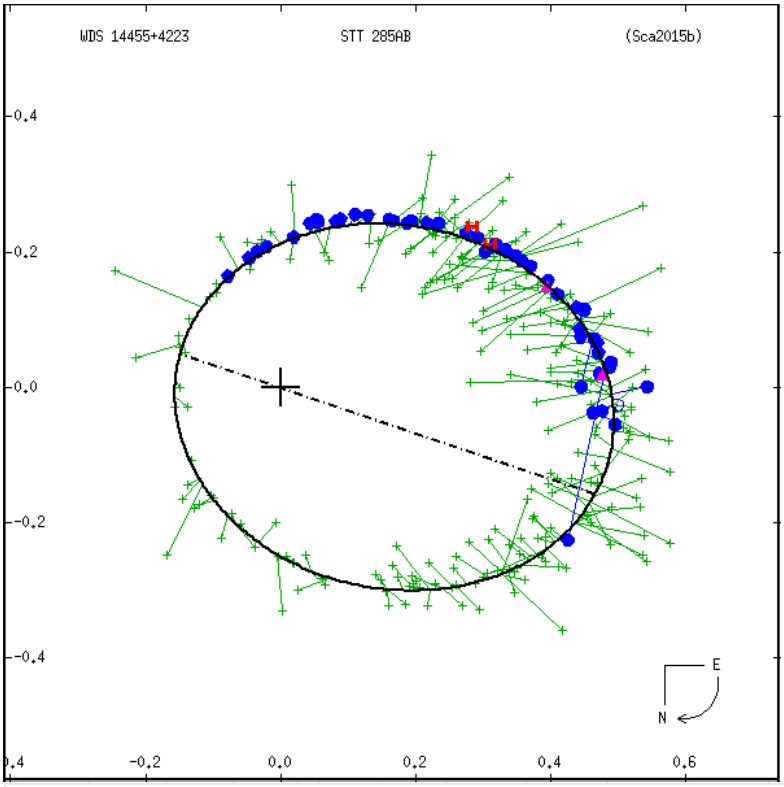
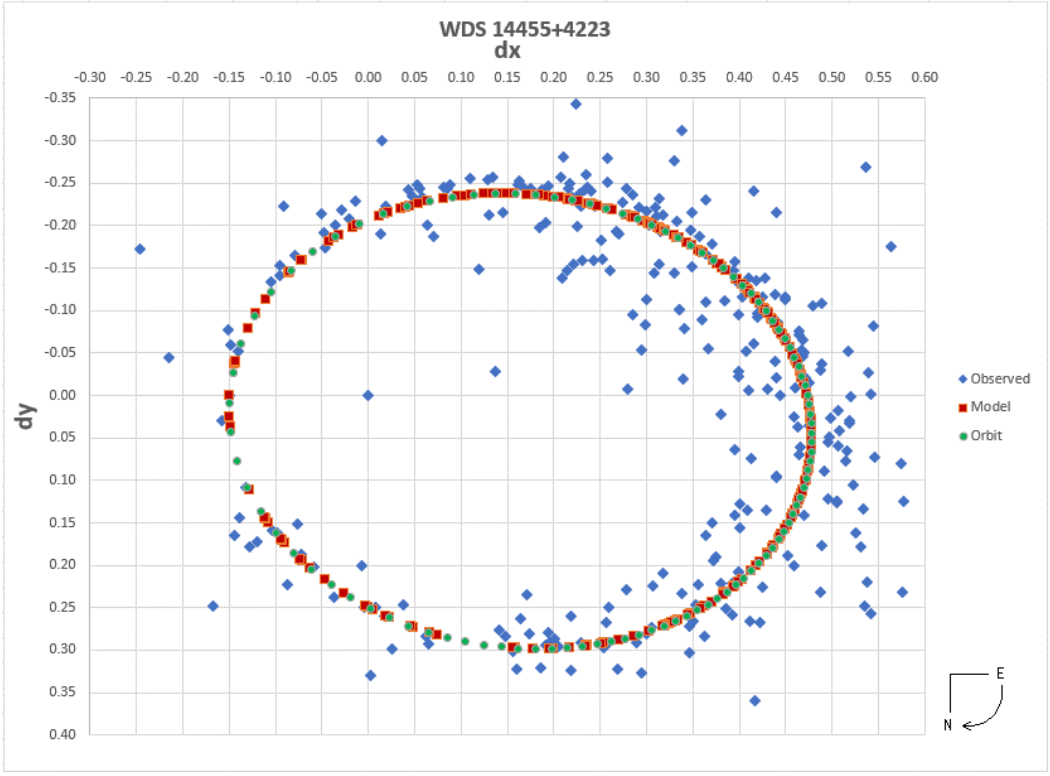
12 - WDS 14455+4223, BD+42 2531





	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**
DCDS	88.5	0.330	0.553	222	26	71	1882.6		

WDS	88.9	0.327	0.523	171	165	71.4	2060.7		
AF	88.6	0.316	0.528	171	173	71	2030.6	522	1.9
±	0.1	0.002	0.006				0.4		

WDS Orbital elements from Scardila et al, 2015 AN, 336, 388, 2915.
mag 1 7.75, mag 2 8.66 F6 V
Malkov et al, A&A, 546, 69, 2012, derive dynamical, photometric, and spectroscopic masses 2.59 +/- 0.86, 2.70, and 1.17 Msun, respectively.

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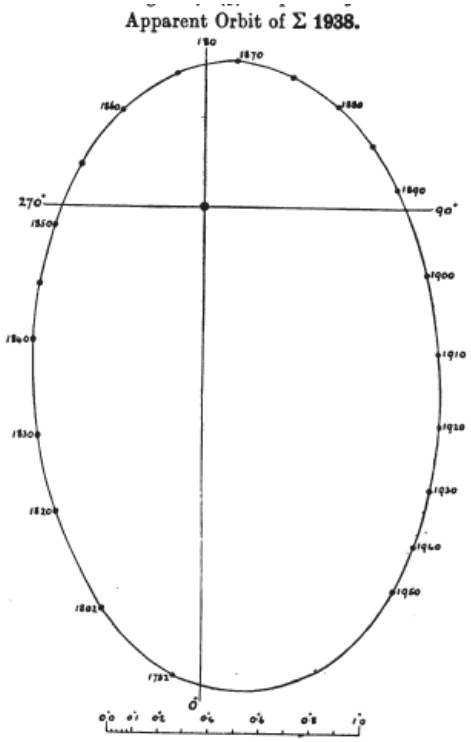
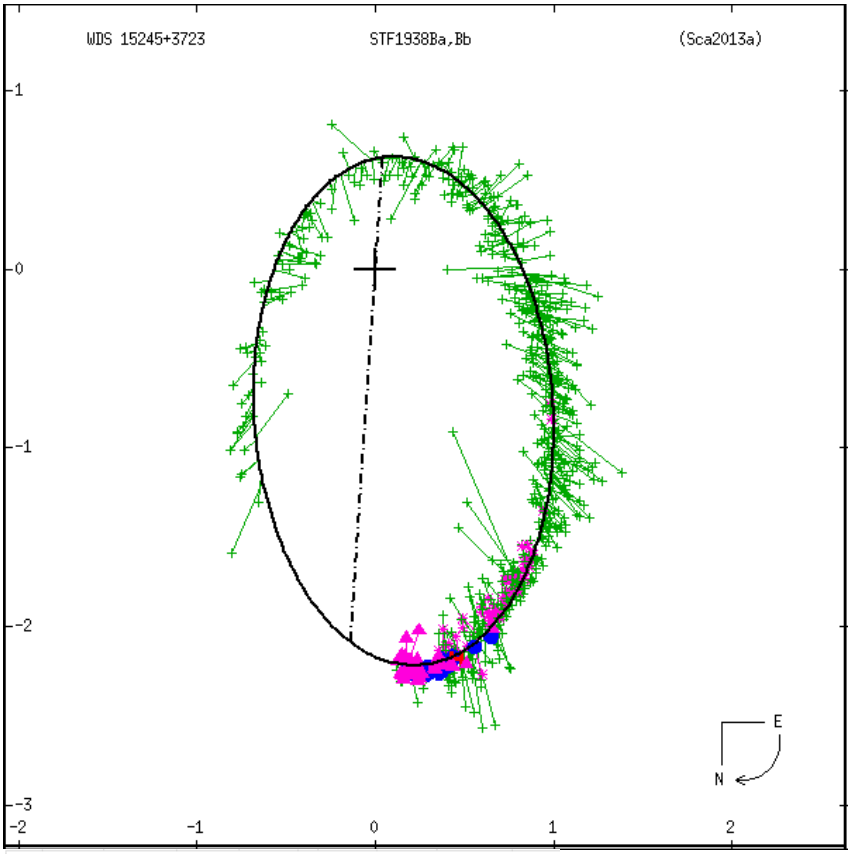
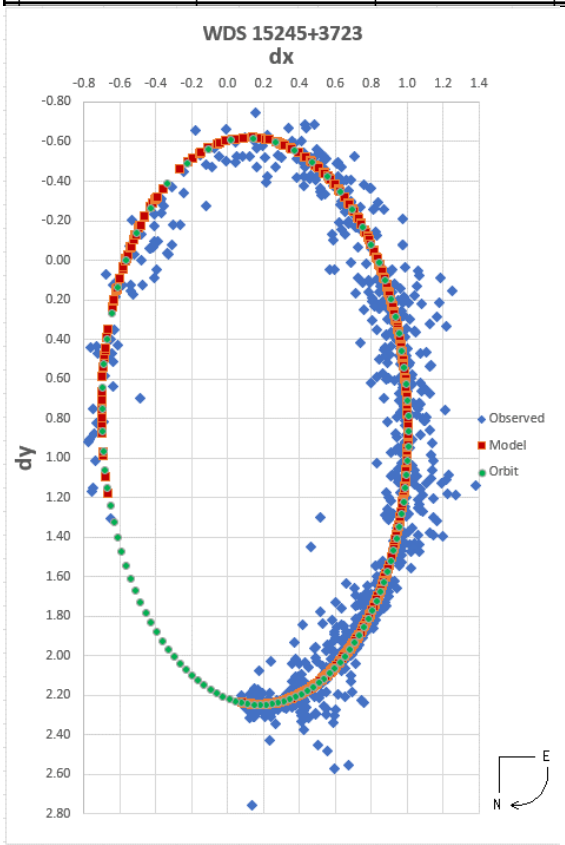
13 - WDS 15245+3723, Mu Boo, BD+37 2636




WDS 15245+3723
STF1938Ba,Bb
(Sca2013a)
E
N


WDS 15245+3723
dx
dy
Observed
Model
Orbit
E
N

	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	234.8	1.271	0.560	23.1	40.9	174.5	1865		
WDS	256.5	1.450	0.579	339	134	176.0	1894.0		
FA	261.3	1.466	0.591	336	135	173	1864.4	3887	5
±	1	0.003	0.002	0.5	0.4	0.4	0.2		

WDS orbital elements from Baize & Petit, A&AS 77, 497, 1989
mag1 7.09, mag2 7.63, G0 V quadruple system, two binaries orbiting each other or possibly two binary systems simply passing by each other

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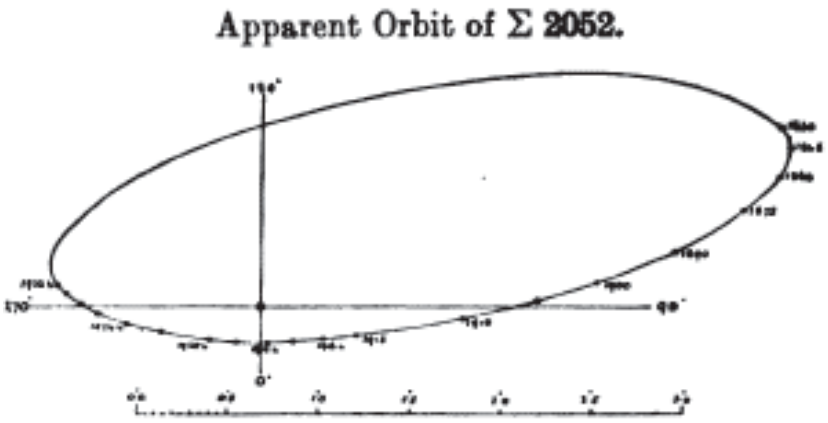
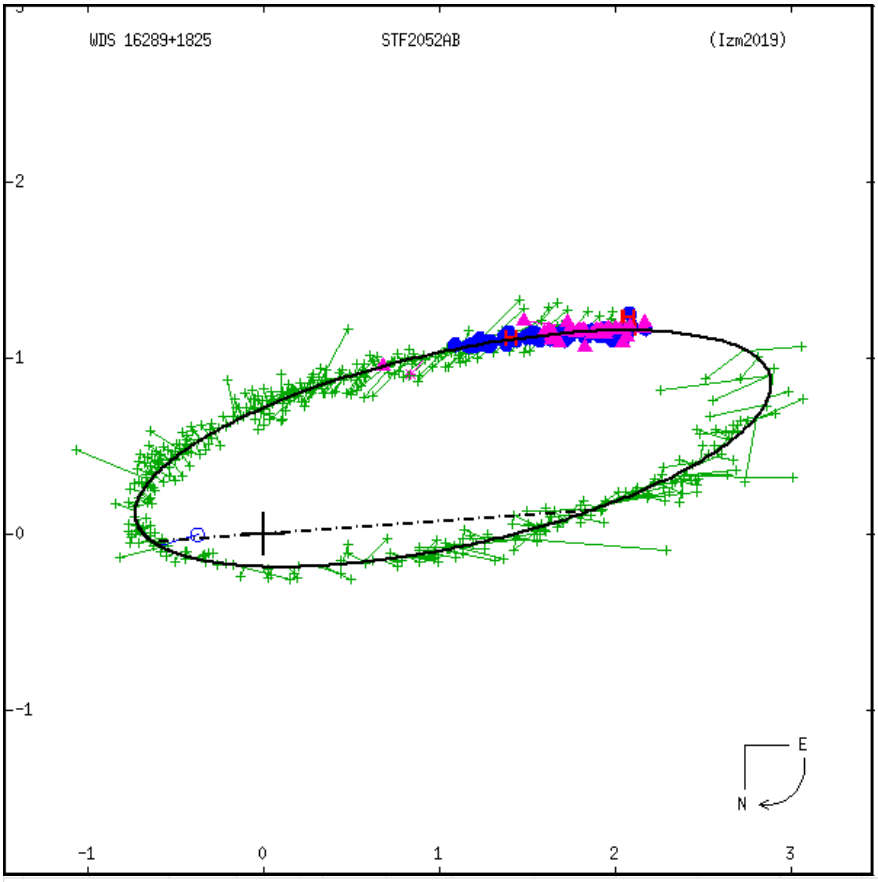
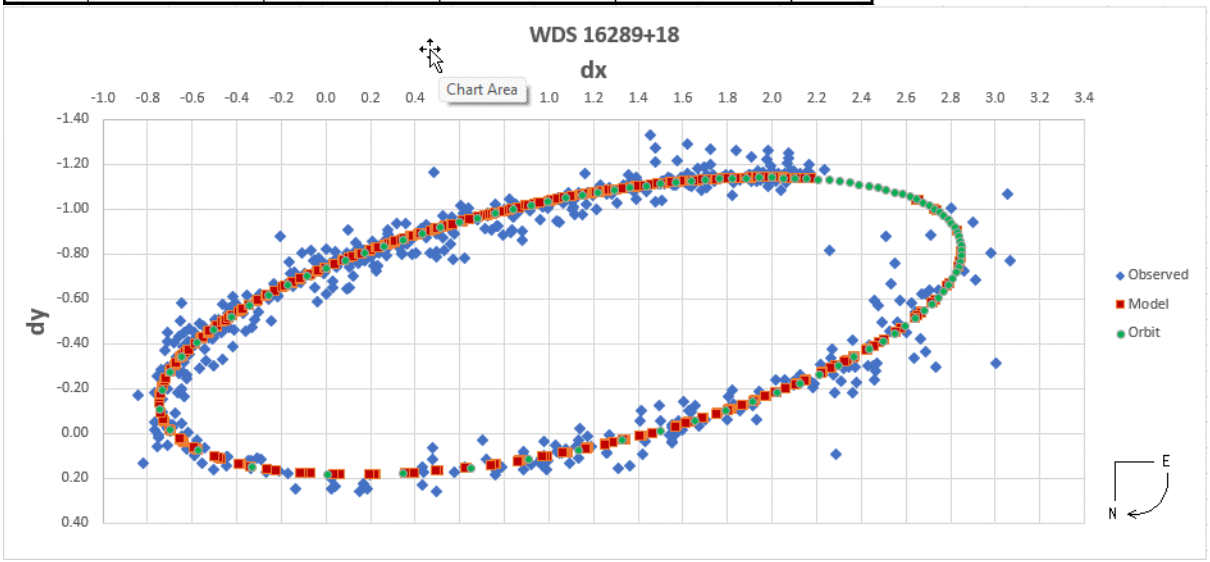
WDS 16289+1825, BD+18 3182, Dyson Catalogue of Double Stars - 14







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	317.5	2.87	0.77	245.5	75	93.1	1920.2		
WDS	229	2.23	0.758	131	108.3	94.3	1921.0		
FA	223.9	2.254	0.762	129	108	94	1921.1	3091	6

±	1	0.008	0.002	0.2	0.1	0.1	0.07		

WDS orbital elements from: Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019).
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses 1.63 +/- 0.88, 1.67, and 0.79 Msun
mag1 7.69, mag2 7.91, K1 V

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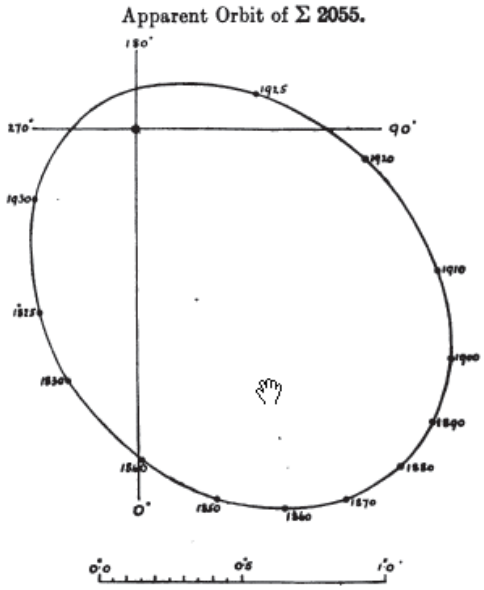
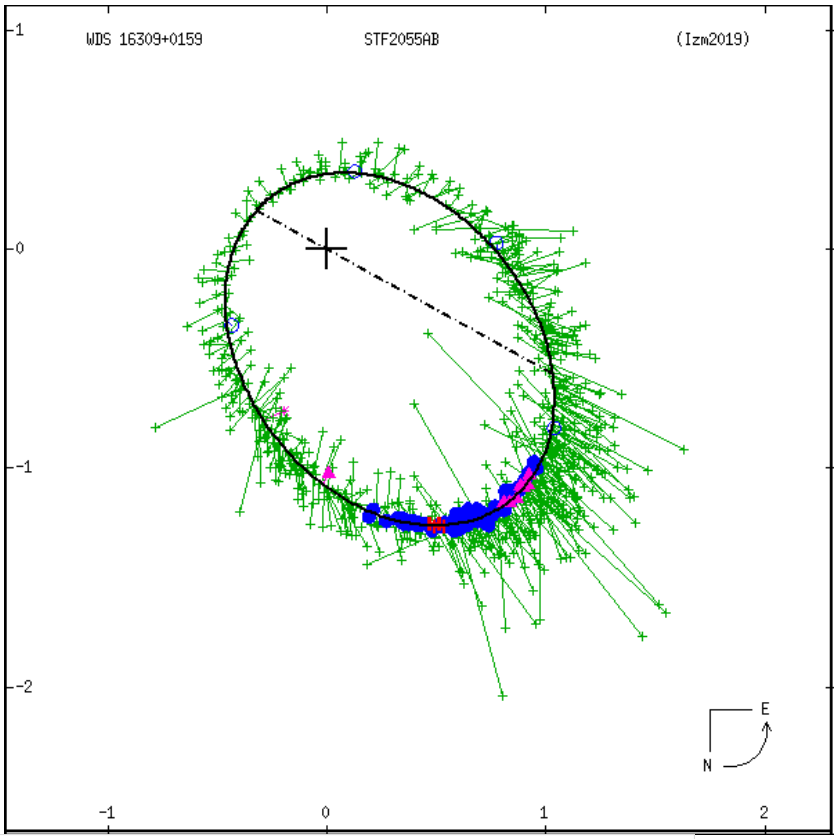
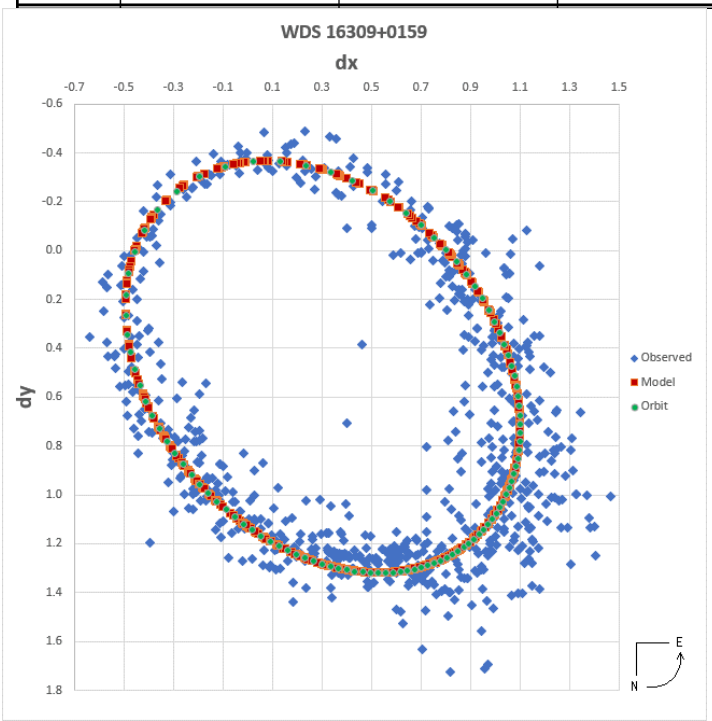
WDS 16309+0159 Iam Oph, BD+2 3118, Dyson Catalogue of Double Stars – 15







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**

DCDS	110.3	1.328	0.86	96.7	53.2	110	1927.4		
WDS	129.0	0.900	0.615	140	24	61.3	1939.5		
FA	128.9	0.951	0.611	149	25.2	61	1939.5	6395	8.1
±	0.2	0.003	0.002	0.002	0.6	1	0.07		

WDS orbital elements from: Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019).
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses 6.77 +/- 1.92, 4.88, and 4.48 Msun
mag1 4.15, mag2 5.14, A0 V + A0 V

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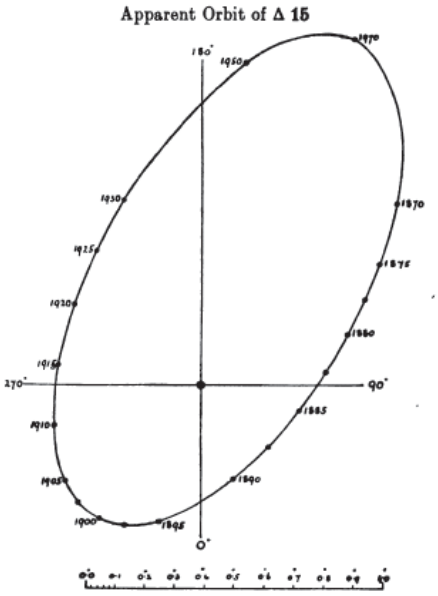
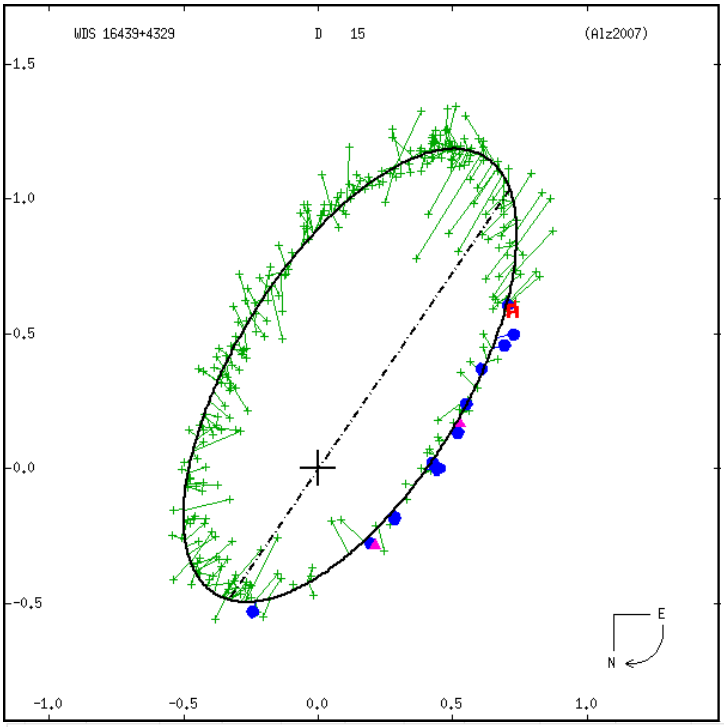
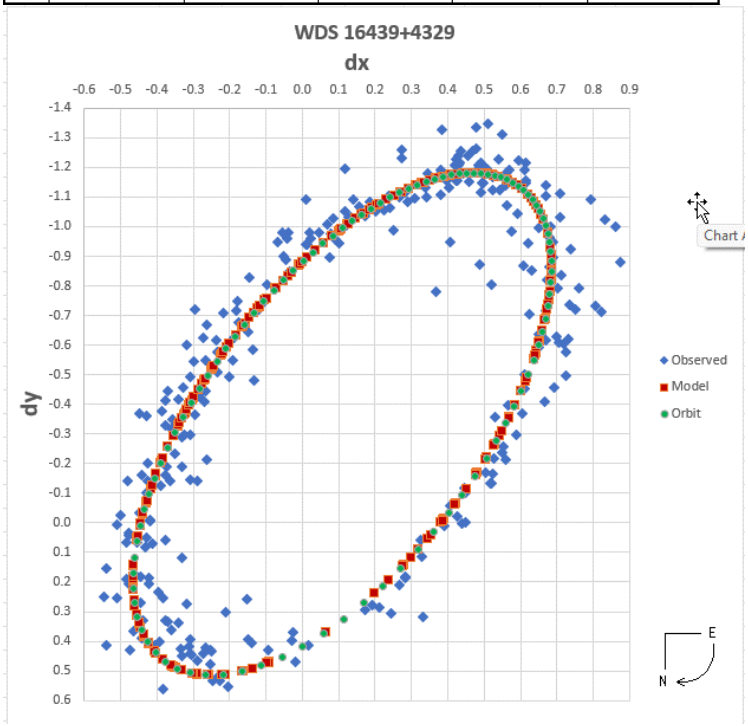
WDS 16439+4329, BD+43 2639, Dyson Catalogue of Double Stars – 16







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	126.1	0.935	0.435	213	59.3	147.1	1894.52		
WDS	129.0	0.900	0.615	140	24	61.3	1939.5		
FA	128.9	0.951	0.611	149	25.2	61	2181.0	6395	8

±	0.3	0.004	0.004	0.0008	0.3	0.4	0.3		

WDS orbital elements from: Alsner, a.,IAUDS Circular 163, 2007
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses of 1.27 +/- 0.16, 1.52, and 0.65 Msun
With the Hipparcos parallax of 36.59 +/- 2.13 mas, the Alzner solution yields a mass sum of 1.31Msun, which matches well a pair of K5 main sequence stars.
mag 1 9.04, mag 2 9.27, K5

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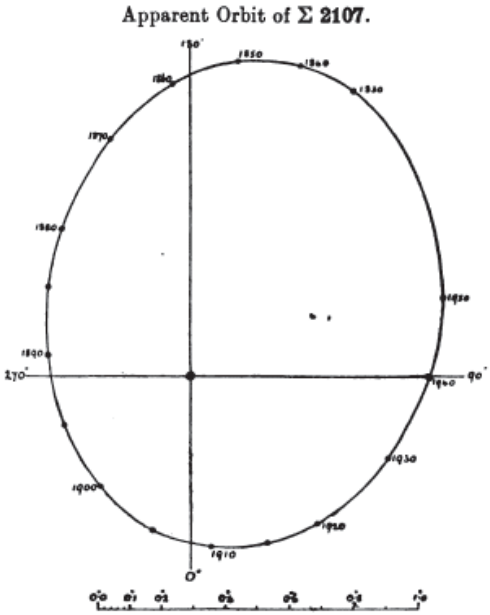
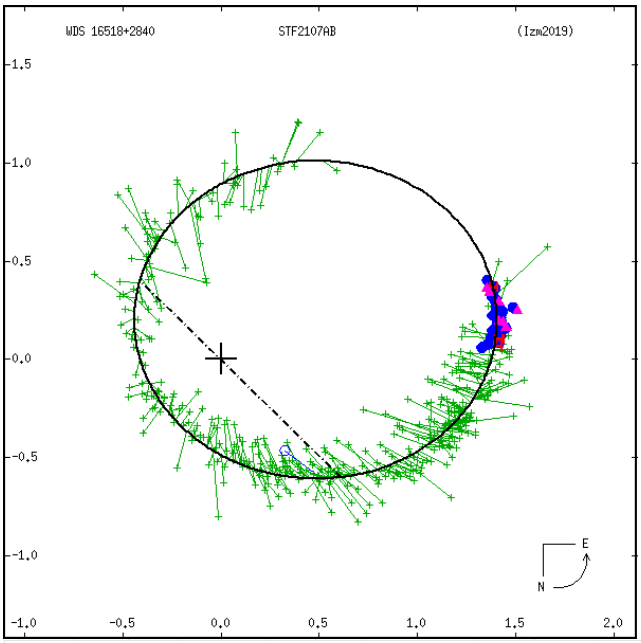
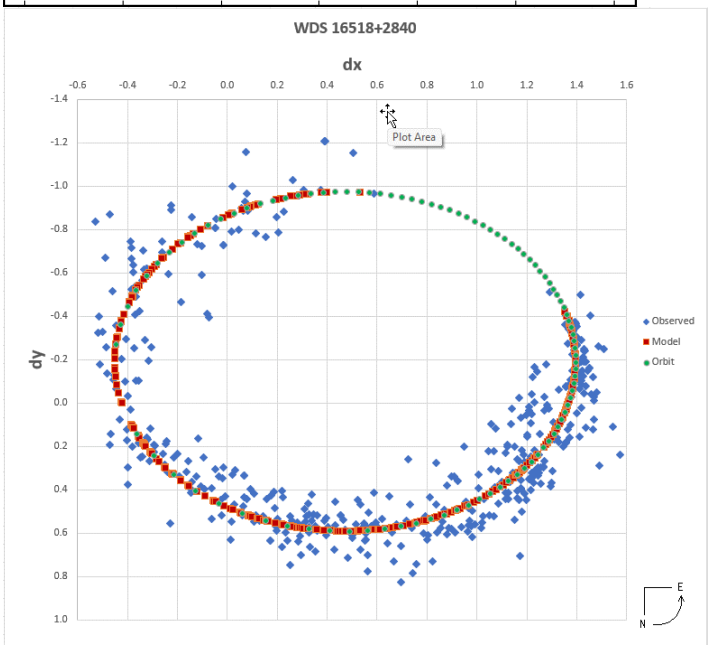
WDS 16518+2840, BD+28 2624, Dyson Catalogue of Double Stars – 17







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	154.5	6.783	0.387	316.7	34.3	0.6	1900.39		
WDS	274	1.04	0.579	250	32	46	1896.2		
FA	267	1.013	0.567	243	31.2	53	1896.3	2330	5
±	2	0.004	0.003	1	0.7	1	0.1		

WDS orbital elements from: Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019).

Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses 2.70 +/- 1.48, 2.16, and 1.35 Msun
mag1 6.90, mag 2 8.50, F5 IV

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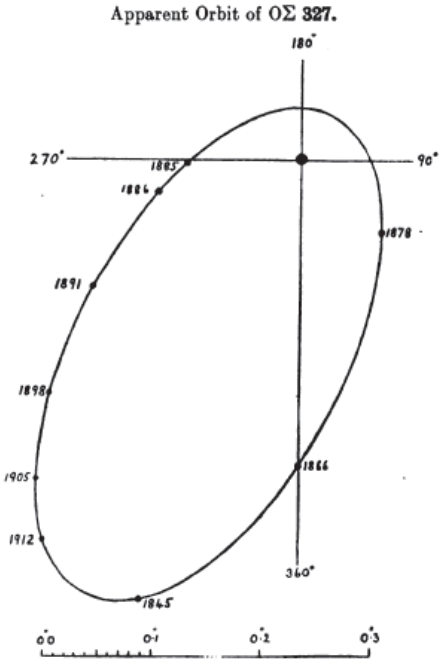
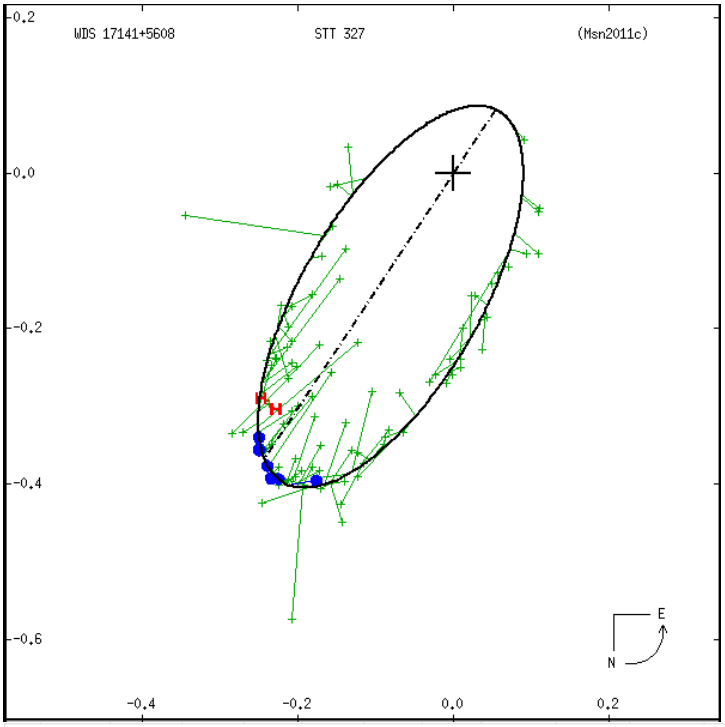
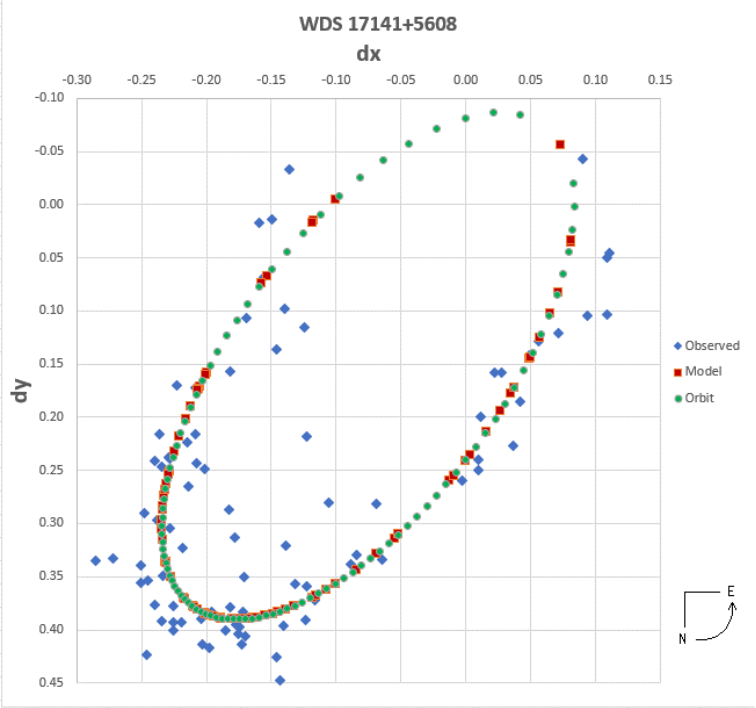
WDS 17141+5608, BD+56 1959, Dyson Catalogue of Double Stars – 18







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	-	-	-	-	-	-	-		
WDS	88.4	0.278	0.653	12.3	57.3	146.4	1968.19		
FA	87	0.265	0.643	8	57	149	1968	78	1

±	1	0.008	0.02	8	3	4	1		

WDS Orbital elements from: Mason, B.D & Hartkopf, W.I., IAUDS circular 174, 1, 2011.
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses of 1.77 +/- 0.57, 2.53, and 1.35 Msun
mag 1 8.29, mag 2 8.95, F2

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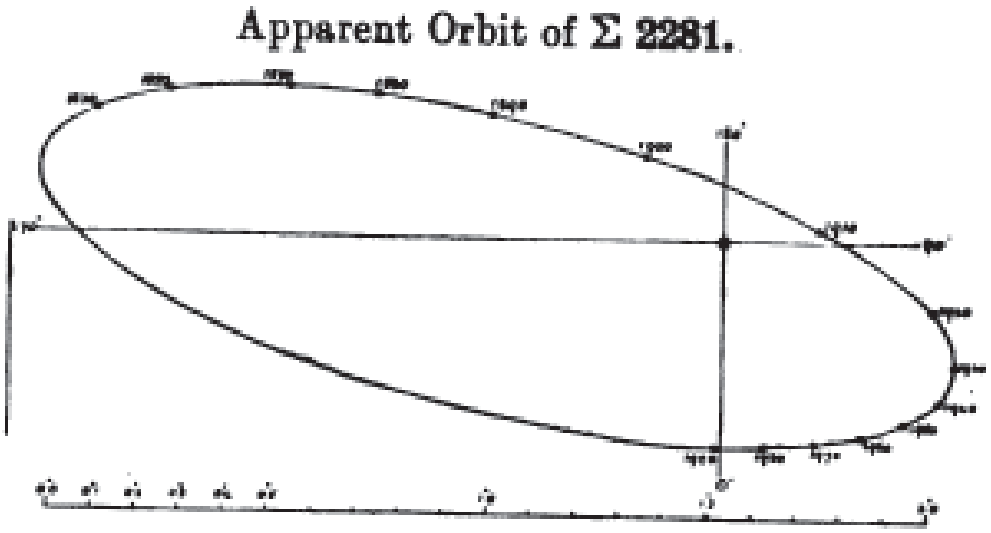
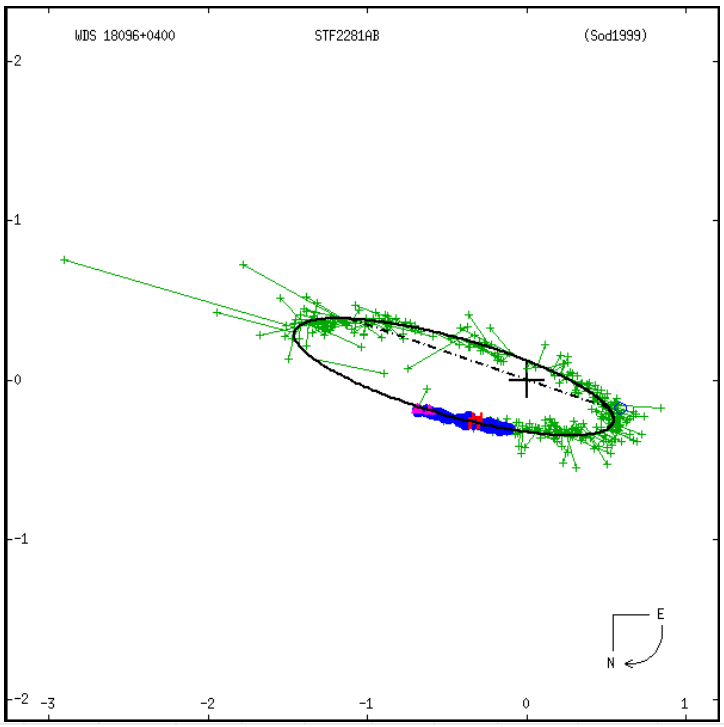
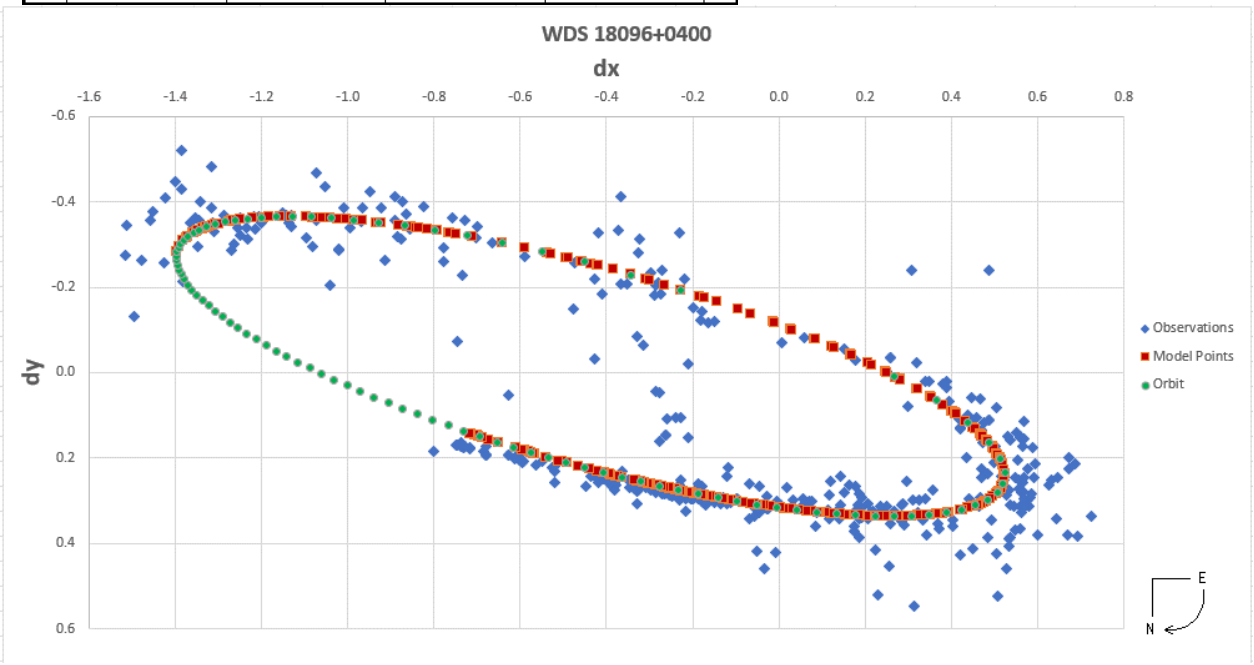
WDS 18096+0400, 73 Oph, BD+03 3610, Dyson Catalogue of Double Stars - 19
(Gamma Dor type)







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	426.5	1.33	0.7	60.1	73.7	71.1	1910		
WDS	294	1.19	0.610	307	103	71	1912.8		
FA	288	1.151	0.620	305	102.9	71	1914.1	5418	13
±	4	0.008	0.005	0.5	0.2	0.3	0.2		

WDS orbital elements from: Soderhjelm, S., A&A 341, 121, 1999.
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses 3.21 +/- 1.75, 3.00, and 1.35 Msun
mag1 5.97, mag 2 7.52, F2 V

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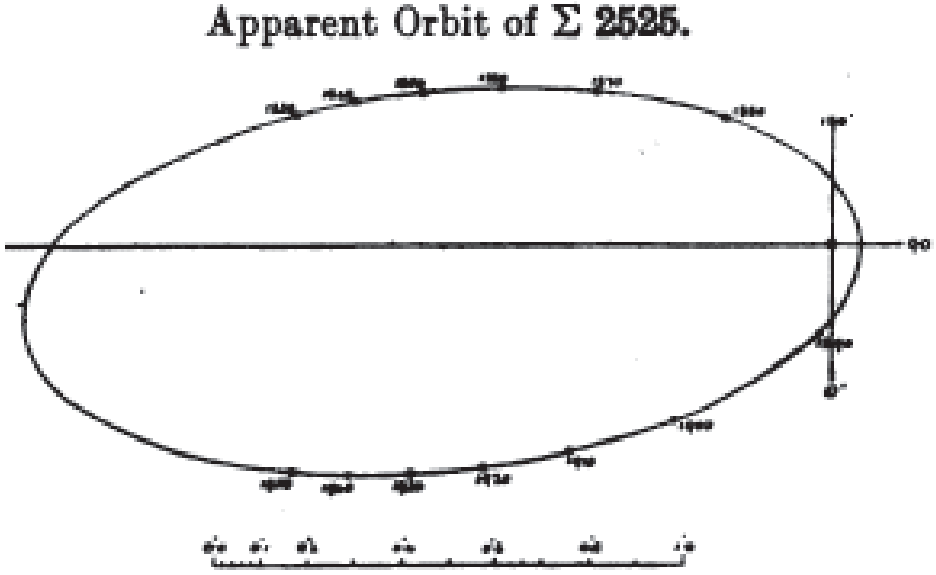
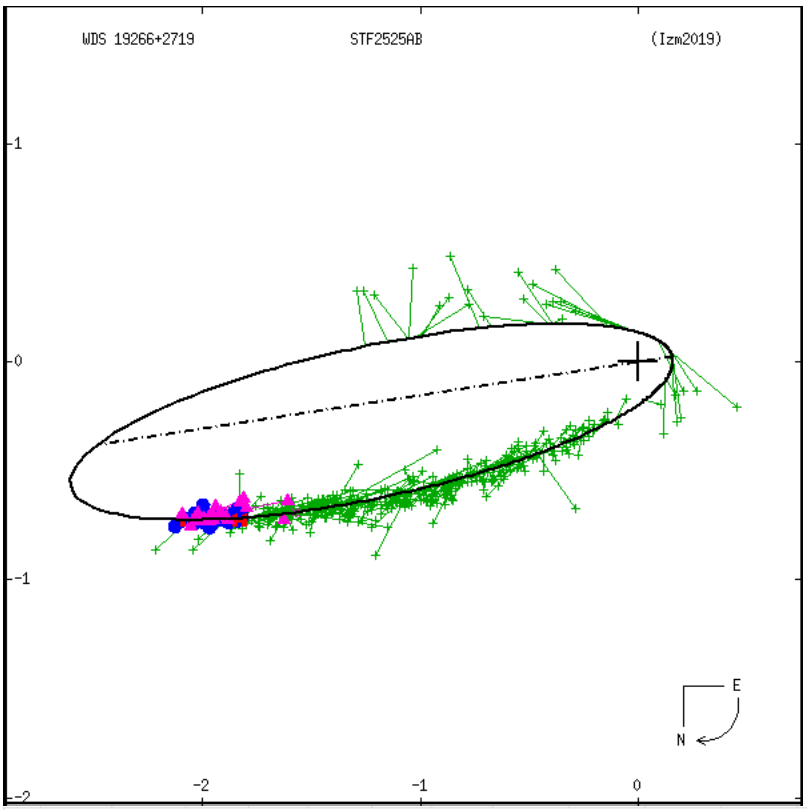
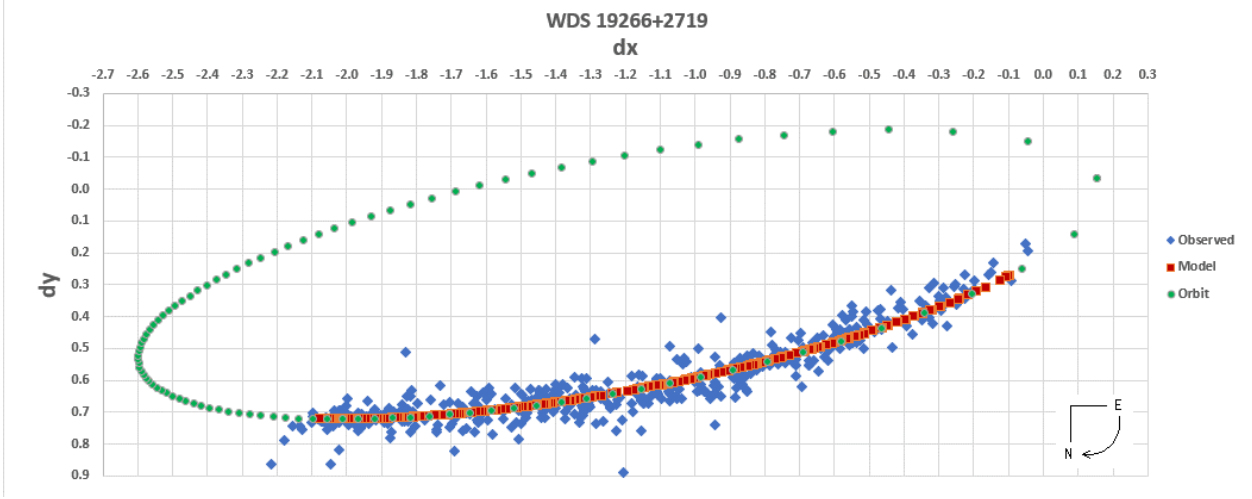
WDS 19266+2719, BD+27 3391, Dyson Catalogue of Double Stars – 20







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	355	1.205	0.933	93.4	37.5	3	1887.3		
WDS	509	1.42	0.886	352.0	122.0	98.0	1880.00		
FA	288	1.151	0.620	305	102.9	71	1914.1	5418	4
±	3	0.008	0.005	0.5	0.2	0.3	0.2		

WDS orbital elements from: Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019).
mag 1 8.19, mag 2, 8.39, F8

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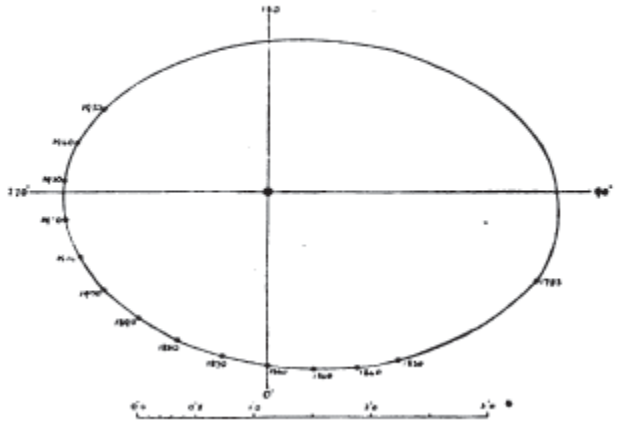
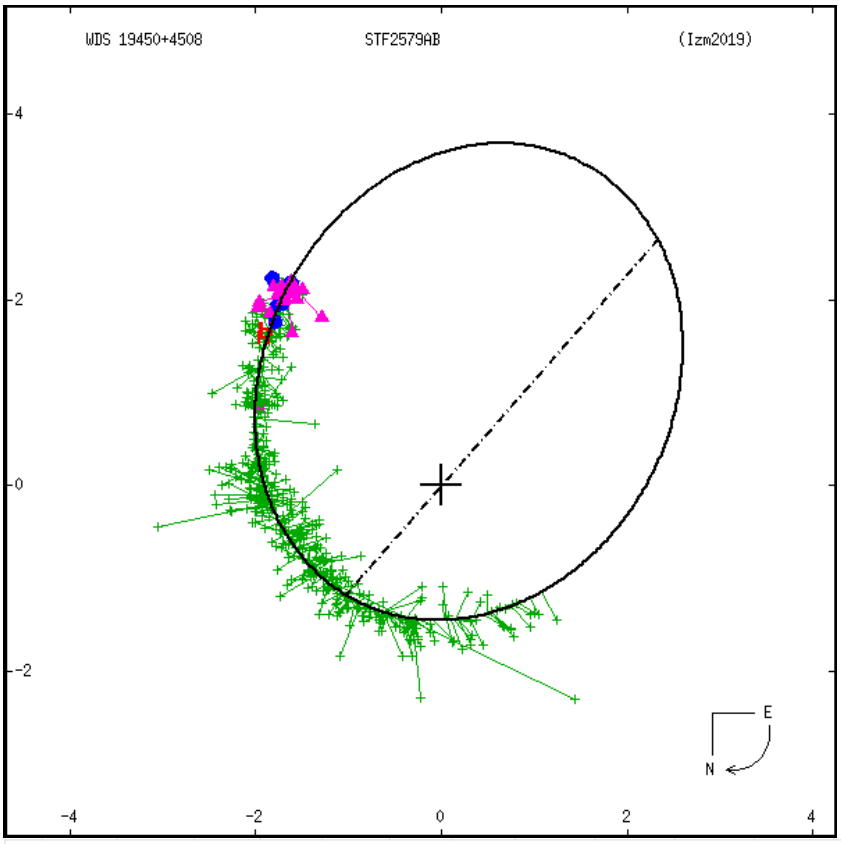
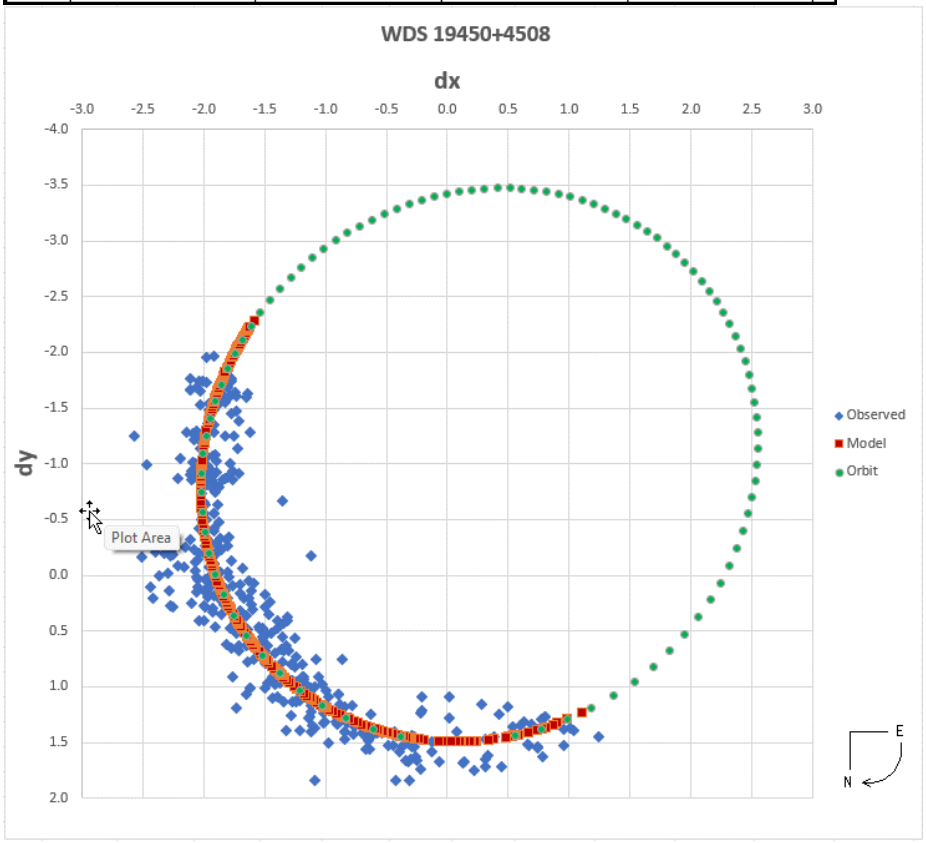
WDS 19450+4508, Del Cyg, 18 Cyg, BD+44 3234, Dyson Catalogue of Double Stars - 21

(High proper motion star)

Apparent Orbit of Σ 2579.




WDS 19450+4508
STF2579AB
(Izm2019)
4
2
0
-2
-4
-2
0
2
4
E
N


WDS 19450+4508
dx
dy
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
Plot Area
Observed
Model
Orbit
E
N

	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	321	2.120	0.188	159	47.8	88	1941.6		
WDS	657	2.7	0.44	151	154	139	1866		
FA	618	2.560	0.369	152	164.0	135	1868.0	8531	18
±	5	0.02	0.005	2	2.0	2	1		

WDS orbital elements from: Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019).

Uniform disk diameter 0.874 +/- 0.062 mas, .
Limb darkened diameter 0.884 +/- 0.062 mas, .
Teff = 12000 +/- 1400 K based on LDD. .
Radius is 4.81 +/- 0.36 \rsun. Gorden, K.D. et al, ApJ 869, 37 (2018)

mag 12.89, mag 2 6.27, B9.5 V

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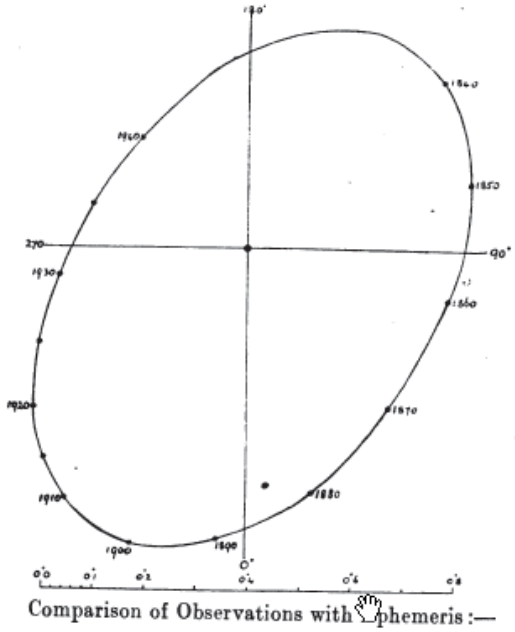
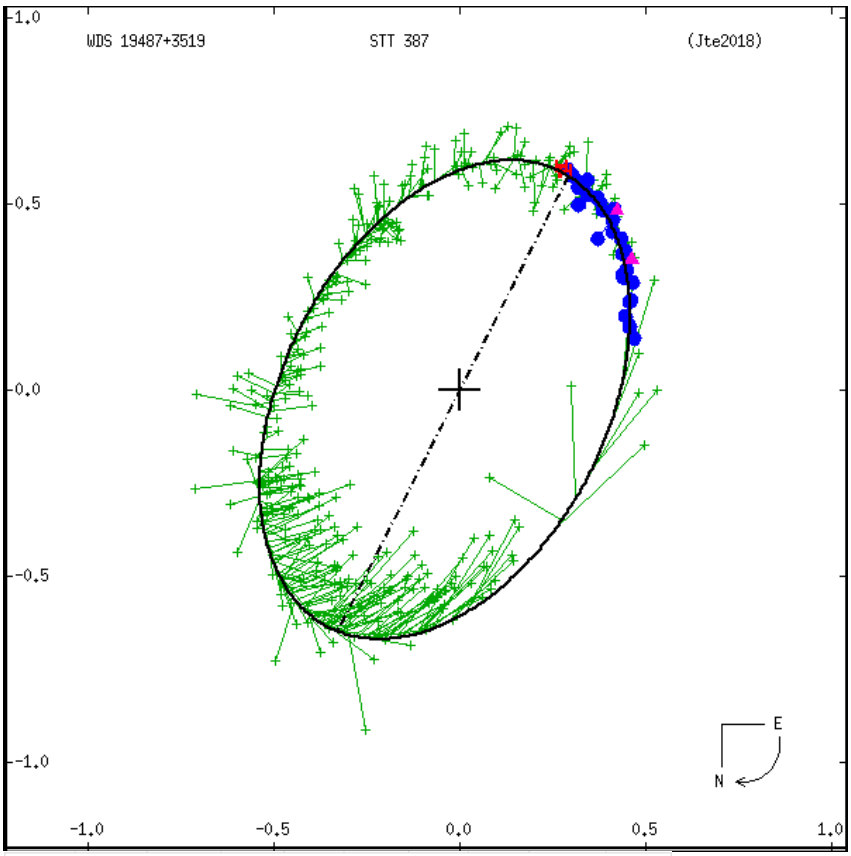
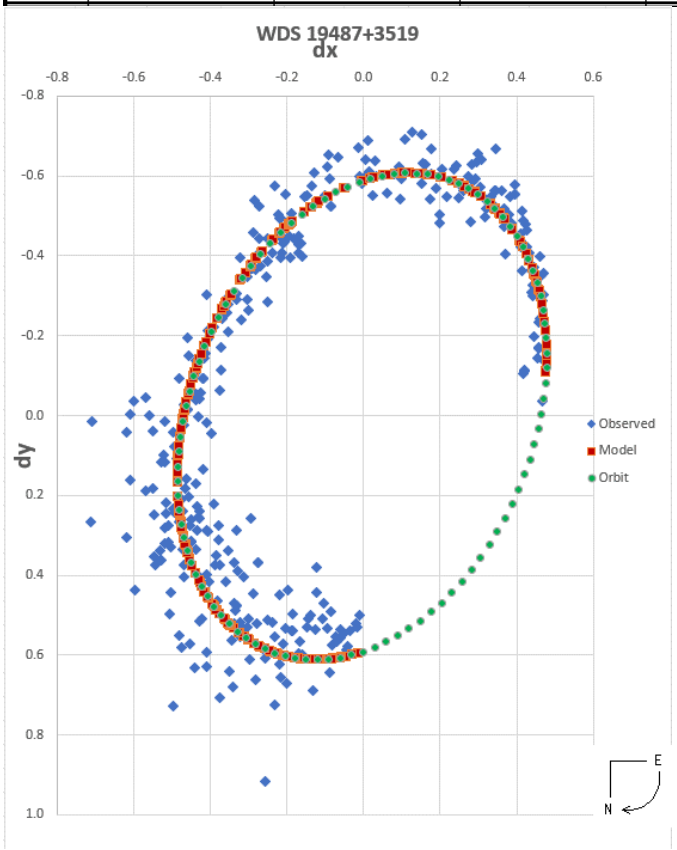
WDS 19487+3519, BD+34 3727, Dyson Catalogue of Double Stars – 22

Apparent Orbit of OΣ 387.



Comparison of Observations with Ephemeris :—


WDS 19487+3519
STT 387
(Jte2018)
1.0
0.5
0.0
-0.5
-1.0
-1.0
-0.5
0.0
0.5
1.0
E
N


WDS 19487+3519
dx
dy
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4
0.6
0.8
1.0
Observed
Model
Orbit
E
N

	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	128.0	0.566	0.179	55.00	51.50	146.40	1946.70		
WDS	178.1	0.688	0.081	41.2	129.4	153.2	1831.36		
FA	174.0	0.635	0.007	32	134.7	157	1830.0	375	1
±	1	0.005	0.006	2	0.6	1	1		

WDS Orbital elements from: Josties, J., Mason, B.M., IAUDS, 196.
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses of 2.53 +/- 0.32, 2.74, and 1.17 Msun
mag 1 7.12, mag2 7.90, F6 V

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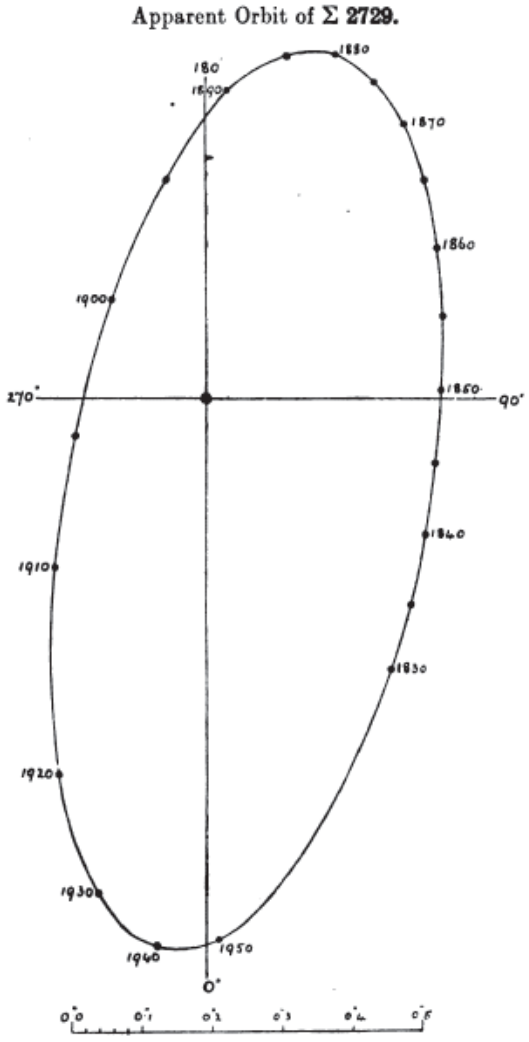
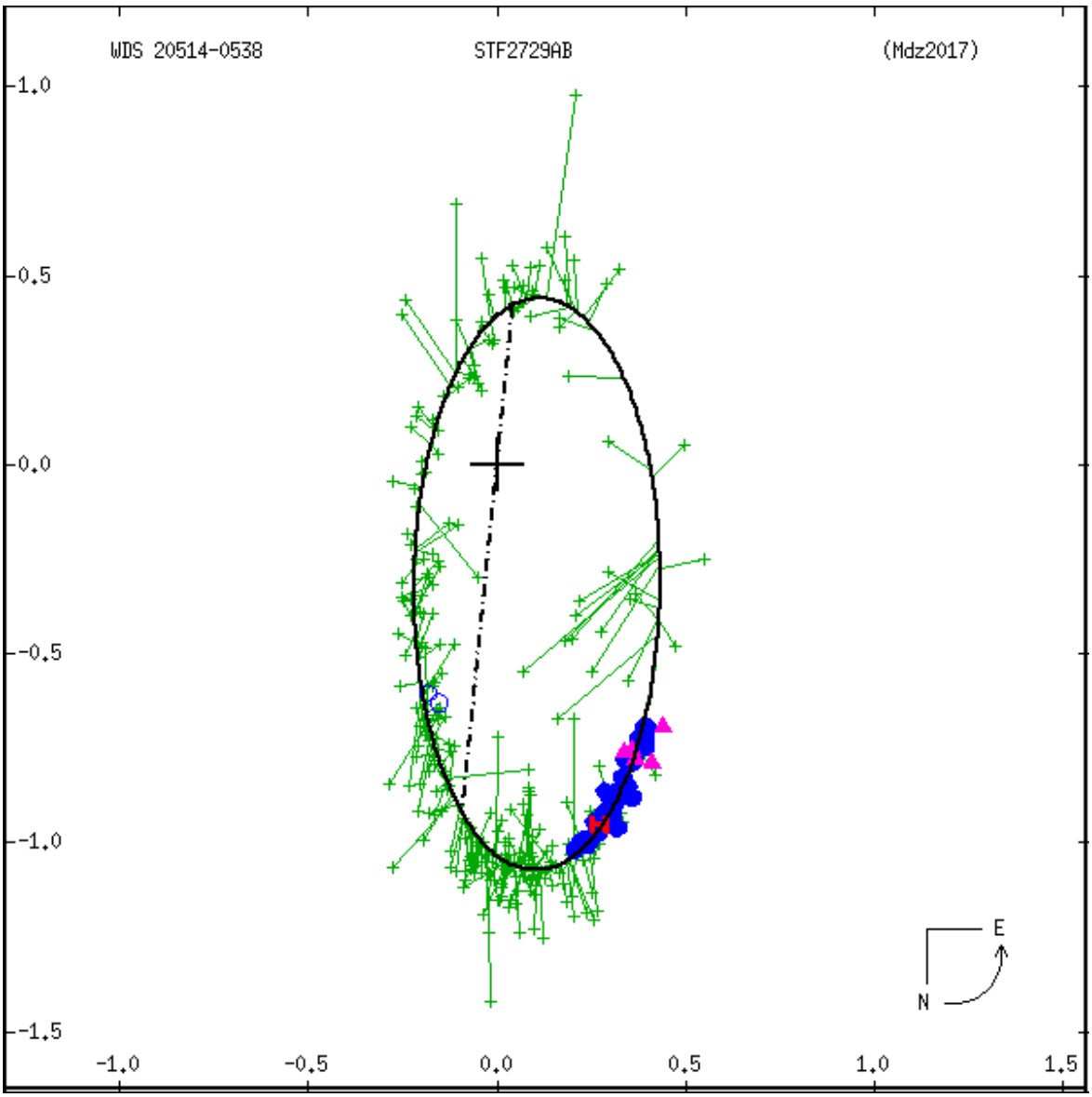
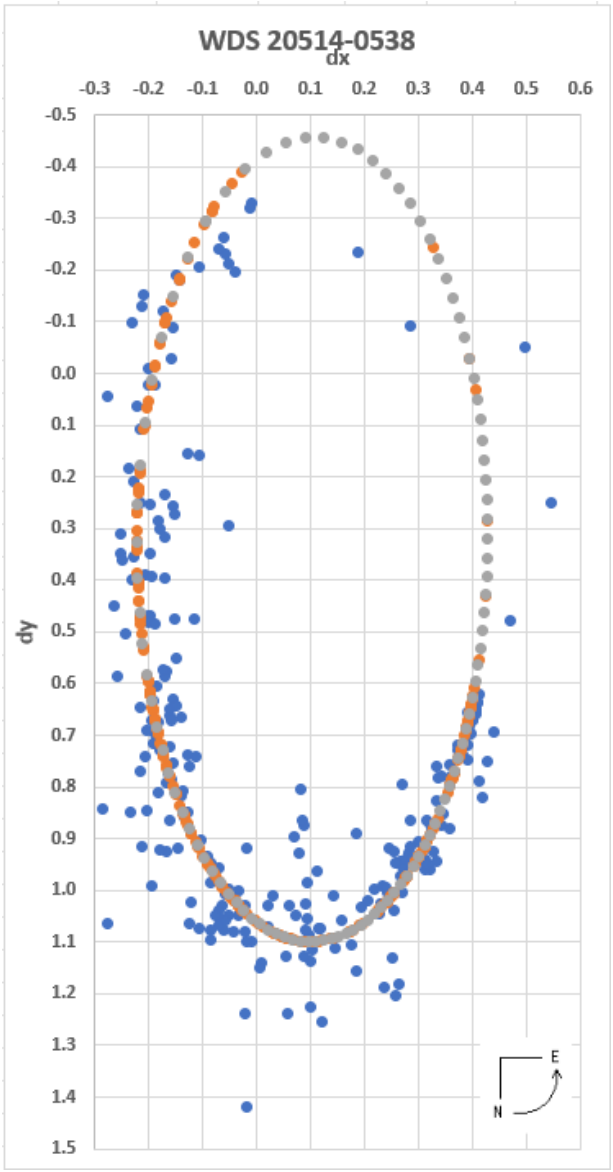
WDS 20514-0538, 4 Aqr, BD-6 5604, Dyson Catalogue of Double Stars – 23




WDS 20514-0538
STF2729AB
(Mdz2017)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
E
N



	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**
DCDS	152	0.095	0.375	59.7	67.4	168	1897.2		
WDS	201	0.816	0.535	45.9	64.1	174.3	1896.80		
FA	199	0.834	0.522	45	64.8	175.1	1896.5	670	3
±	2	0.007	0.009	1	0.5	0.7	0.5		

WDS orbital elements from: Mendez, R.A. et al, AJ 154, 187, 2017.
See also Baize & Petit, A&AS 77, 497, 1989
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses 3.78 +/- 2.08, 2.50, and 1.27 Msun
mag1 6.40, mag2 7.43, F5 V + F7 V

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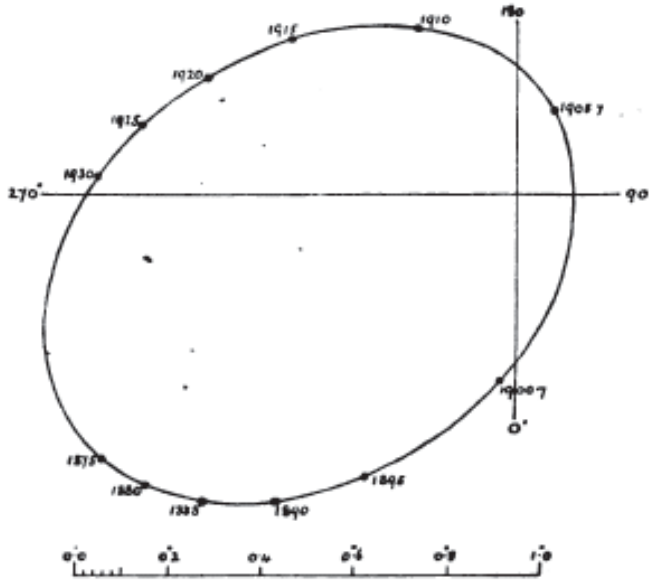
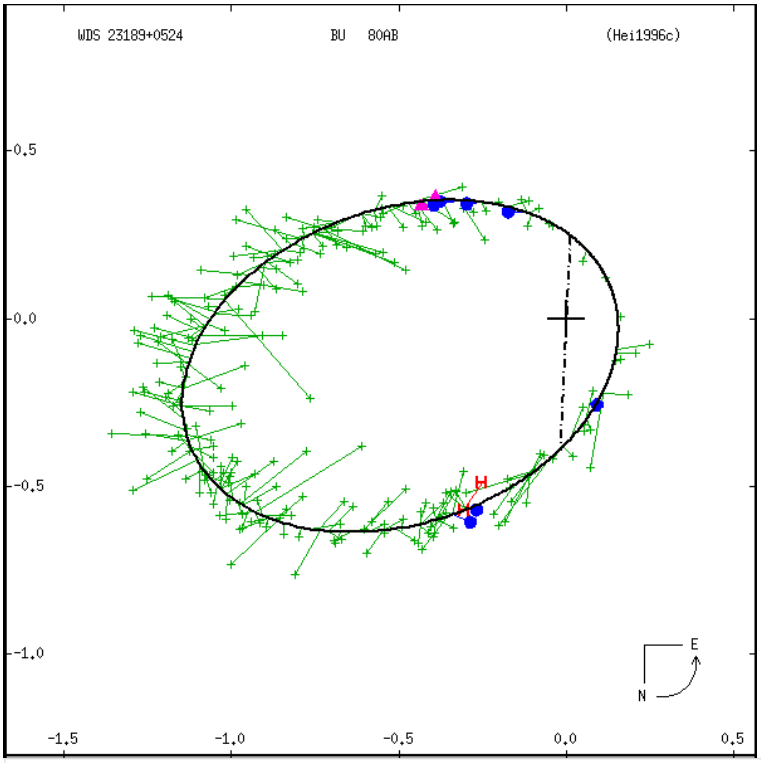
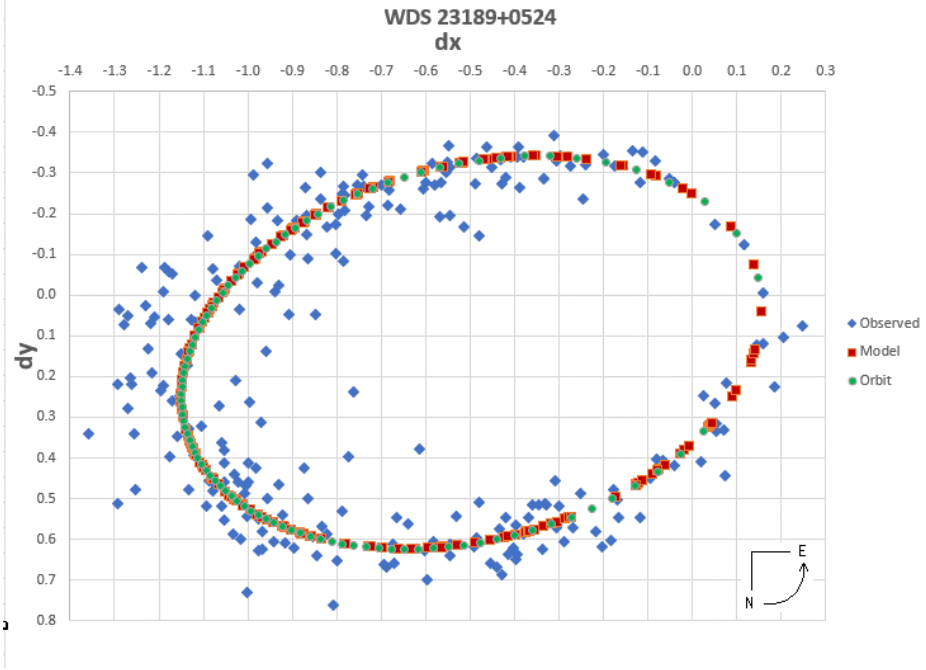
WDS 23189+0524, BD+4 4994, Dyson Catalogue of Double Stars – 24

Apparent Orbit of β 80.







	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**
DCDS	85.7	0.790	0.773	288.9	43.0	174.1	1904.7		
WDS	97	0.743	0.770	287.0	27.0	177.0	1905.00		
FA	96.1	0.722	0.769	287	23	177	1905.3	1024	4
±	0.2	0.009	0.004	5	2	6	0.1		

WDS orbital elements from: Heintz, W.D., AJ 111, 412, 1996.
The Heintz (1996) orbit predicts a separation of 0.374"; however, the secondary may have been too faint for the CHARA camera. Hartkopf, W.I. & Mason, B.D., AJ 138, 813, 2009.
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses 1.44 +/- 0.44, 1.71, and 0.85 Msun
mag 1 8.18, mag 2 9.39. K0

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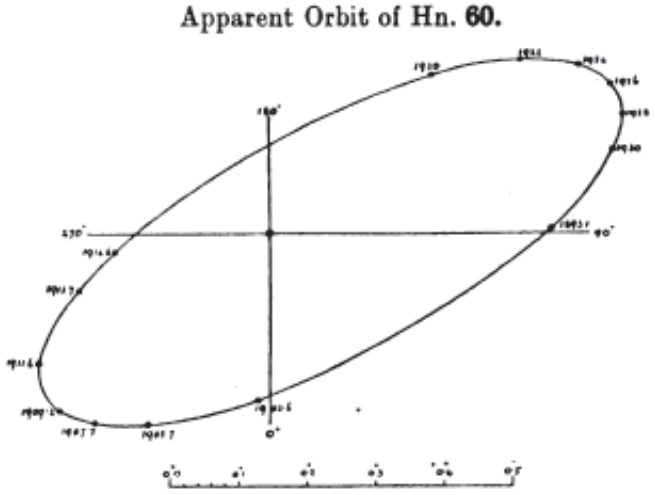
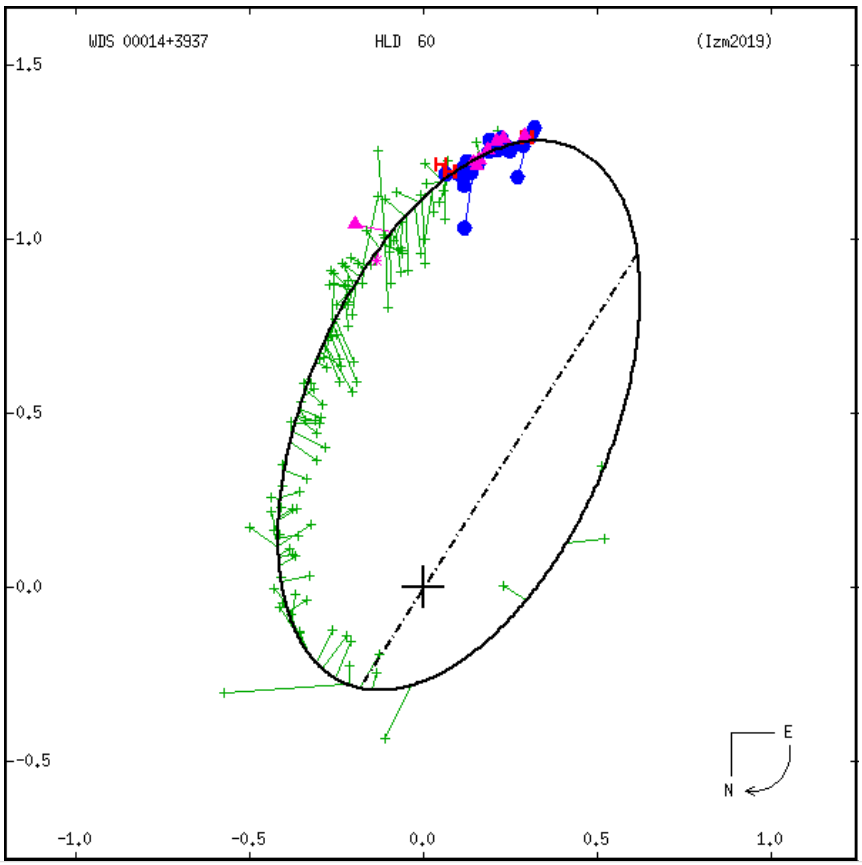
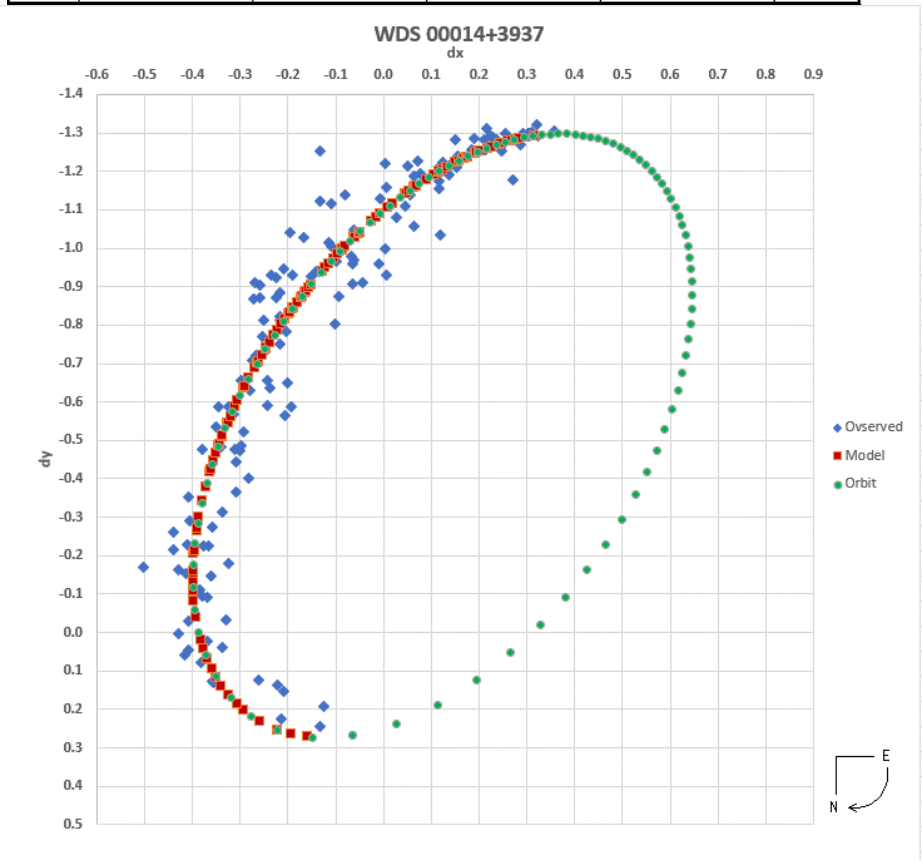
WDS 00014+3937, BD+38 5112, Dyson Catalogue of Double Stars – 25




WDS 00014+3937
HLD 60
(Izm2019)
1.5
1.0
0.5
0.0
-0.5
-1.0
-0.5
0.0
0.5
1.0
E
N


WDS 00014+3937
dx
dy
Ovserved
Model
Orbit
E
N

	1	*2*	*3*	*4*	*5*	*6*	*7*		
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**$\chi 2$**	**$\chi 2/n$**
DCDS	40.76	0.5	0.350	114.2	69.7	119.1	1915		
WDS	217	0.88	0.63	148	128	147	1903		
FA	234	0.885	0.656	148	128.0	145	1903	301	2
±	24	0.02	0.03	9	4	2	6		

WDS orbital elements from: Izmailov, I.S. The Orbits of 451 Wide Visual Double Stars. Astron. Lett. 45, 30–38 (2019).
Malkov et al. (2012) derive dynamical, photometric, and spectroscopic masses of 1.67 +/- 0.29, 1.79, and 1.65 Msun
mag 1 9.04, mag 2 9.77, K0 V + K1 V

Three of the DCDS Orbits of 25 Double Stars, (1, 2, and 17) where the FitAstrometry program finds two different optimal solutions depending on the initial values of the orbital parameters.

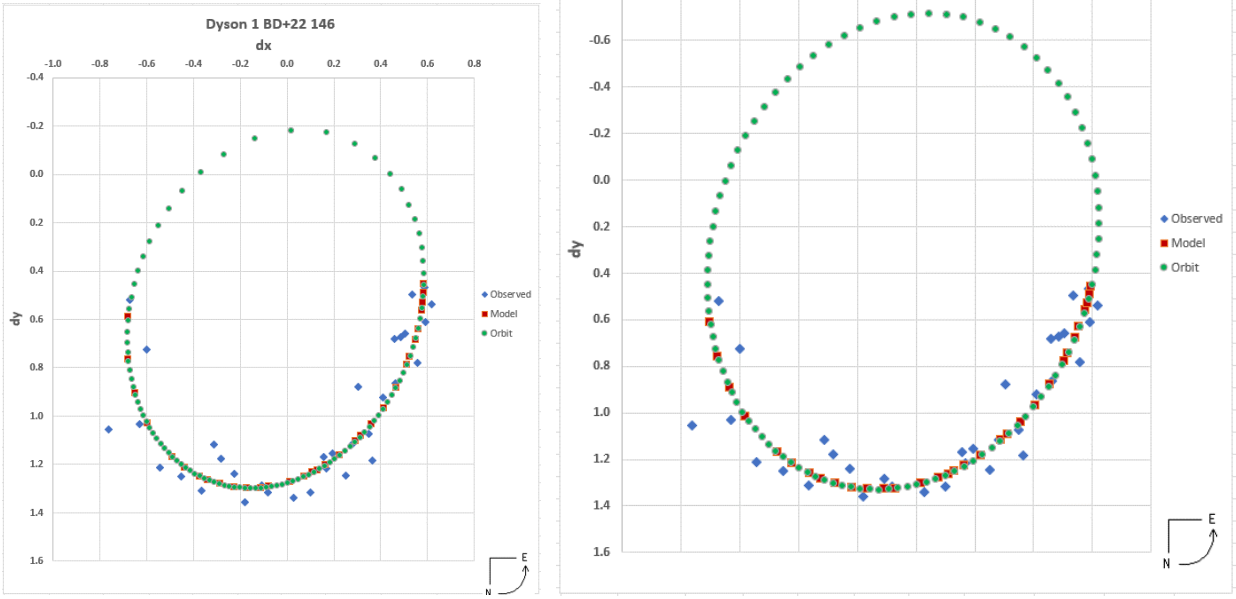
Dyson *Catalogue of Double Stars*, Orbits of 25 Double Stars – 1
BD+22 146 (WDS 0055+2338)
Date, angle, and separation data from Dyson.

Initial values of parameters P, a, e, ω, i, Ω, and T_0 taken from Dyson

	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**	**Δl**
DCDS	**124.20**	**0.97**	**0.708**	**76.5**	**41.2**	**105.7**	**1815.93**			
WDS	167.510	0.9837	0.306	358.62	44.57	173.66	1956.2	1574		
FA	**116±8**	**0.978±0.2**	**0.75±0.09**	**73±9**	**43±13**	**106±10**	**1817±5**	**83**	**3.0**	**0.09**

Initial values of parameters P, a, e, ω, i, Ω, and T_0 taken from WDS

	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**	**Δl**
DCDS	124.20	0.97	0.708	76.5	41.2	105.7	1815.93			
WDS	**167.510**	**0.9837**	**0.306**	**358.62**	**44.57**	**173.66**	**1956.2**			
FA	**170±60**	**1.0±0.3**	**0.3±0.3**	**358±29**	**46±16**	**172±10**	**1954±20**	**89**	**3.0**	**0.1**



Note that FA finds two different optimal solutions depending on the initial values of the orbital parameters

Dyson *Catalogue of Double Stars*, Orbits of 25 Double Stars – 2
BD+22 146 (WDS 0055+2338)
Date, angle, and separation data from Dyson.

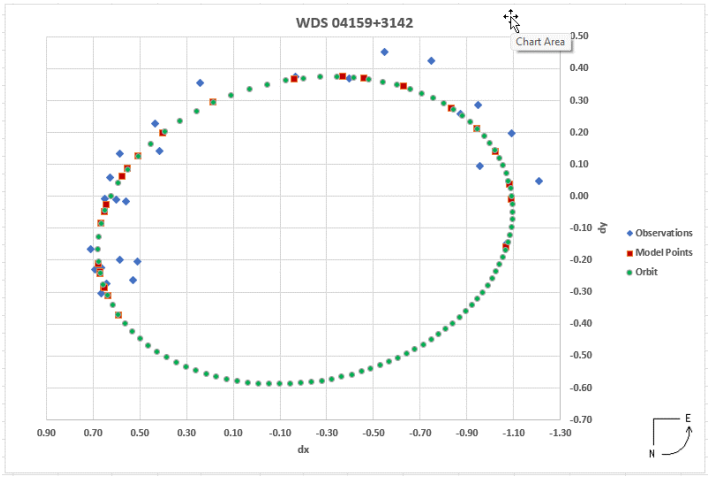
Initial values of parameters P, a, e, ω, i, Ω, and T_0 taken from Dyson

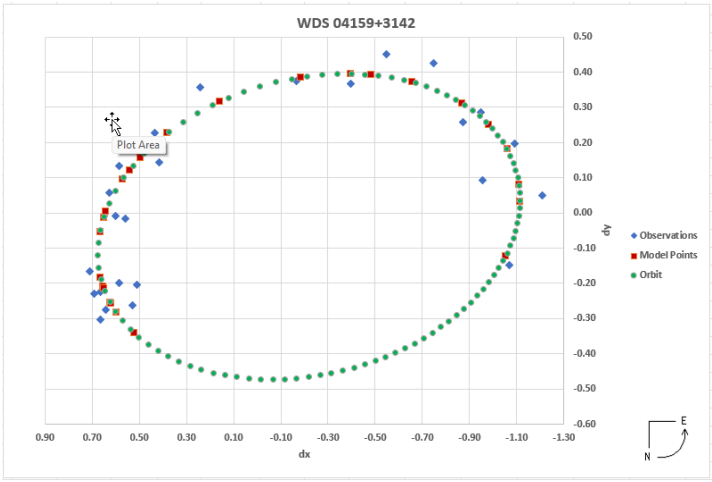
	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**	**Δl**
DCDS	**167.40**	**0.97**	**0.31**	**393.70**	**61.30**	**99.70**	**1894.50**			
WDS	145.4	0.89	0.263	322.7	63.8	99.1	1899.1			
FA	**167±6**	**0.93±0.02**	**0.35±0.01**	**306±2**	**58±2**	**98±2**	**1888±10**	**83**	**4**	**0.1**

Initial values of parameters P, a, e, ω, i, Ω, and T_0 taken from WDS

	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ2**	**χ2/n**	**Δl**

DCDS	167.40	0.97	0.31	393.70	61.30	99.70	1894.50			
WDS	**145.4**	**0.89**	**0.263**	**322.7**	**63.8**	**99.1**	**1899.1**			
FA	**145±7**	**0.91±0.01**	**0.28±0.02**	**327±7**	**61±2**	**98±2**	**1900±2**	**62**	**3**	**0.09**





Note again that FA finds two different optimal solutions depending on the initial values of the orbital parameters

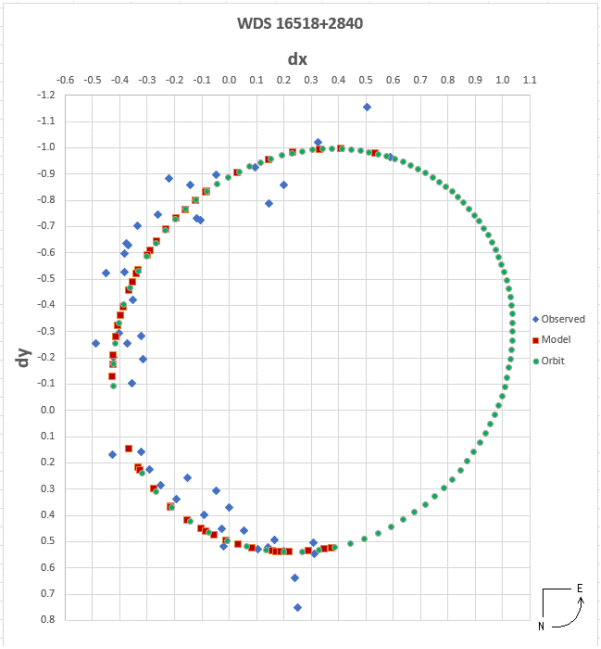
Dyson *Catalogue of Double Stars*, Orbits of 25 Double Stars – 17
BD+28 2624 (WDS 16518+2840)
Date, angle, and separation data from Dyson.

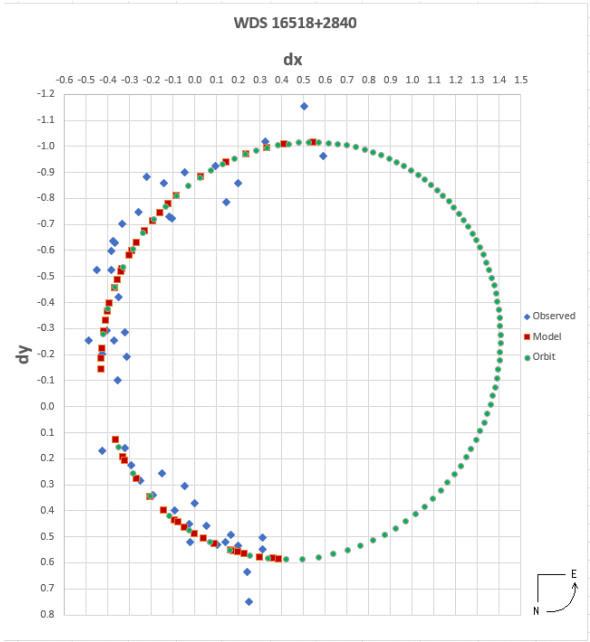
Initial values of parameters P, a, e, ω, i, Ω, and T_0 taken from Dyson

	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**	**Δl**
DCDS	154.5	0.783	0.387	316.7	34.3	0.6	1900.39			
WDS	274	1.04	0.579	250	32	46	1896.2			
FA	204±2	0.842±0.02	0.490±0.02	298±10	25±5	6±9	1897.6±0.6	164	4.2	0.1

Initial values of parameters P, a, e, ω, i, Ω, and T_0 taken from WDS

	P	**a**	**e**	**ω °**	**i °**	**Ω °**	**T_0**	**χ^2**	**χ^2/n**	**Δl**
DCDS	154.5	6.783	0.387	316.7	34.3	0.6	1900.39			
WDS	274	1.04	0.579	250	32	46	1896.2			
FA	274±51	0.999±0.1	0.581±0.5	249±19	25±5	47±16	1896.0±0.7	161	4.1	0.1





Note again that FA finds two different optimal solutions depending on the initial values of the orbital parameters.

It would appear that number of data points as well as scatter play a role in this ambiguity.