

# Mutual asteroidal occultations since 2001 January 01 to 2101 December 31

Conditions of geocentric Conjunction in Right Asc.		(within 0.5000°)		Err		RA (°) Dec		r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)					
#1	#2	Date	TT	JD2000	Dm	(°)	Dl	Err	RA (°)	Dec	r1	r2	p (°)	e	m1	m2	tm(s)	tw(h)		
-5	545	2003/08/30	07:27:44	1336.81093	0.00278	0.00434	0.00001	152.99	12.02	6.378	4.657	180	-6	-1.6	15.4	5938	128.2	Jupiter	Messalina	
-2	169	2004/05/14	18:54:04	1595.28755	0.01167	0.01211	0.00001	85.45	27.46	0.371	3.326	180	32	-4.4	14.7	909.0	38.1	Venus	Zelia	
-2	585	2006/01/11	12:12:31	2202.00869	0.00221	0.01717	0.00001	296.21	-16.20	0.267	3.660	180	6	-1.5	15.8	1409	11.4	Venus	Bilkis	
-2	95	2006/01/22	01:03:00	2212.54375	0.00466	0.01655	0.00002	289.69	-15.40	0.278	4.124	0	-14	-3.2	13.8	1636	14.2	Venus	Arethusa	
-2	394	2009/06/27	10:20:03	3464.93060	0.00049	0.00462	0.00002	49.78	15.47	0.873	2.938	180	-45	-4.1	14.4	737.7	19.4	Venus	Arduina	
279	434	2012/08/08	11:12:01	4602.96668	0.00001	0.00124	0.00002	29.41	9.75	3.919	1.318	360	-106	15.2	13.9	6.1	42.6	Thule	Hungaria	
-1	179	2013/10/06	20:05:57	5027.33746	0.00182	0.00264	0.00001	215.52	-16.95	1.043	4.040	360	25	0.1	14.2	151.4	16.2	Mercury	Klytaemne	
-1	223	2015/01/09	06:10:19	5486.75717	0.00174	0.00246	0.00005	309.04	-20.17	1.119	4.348	180	18	-0.7	16.0	93.5	11.0	Mercury	Rosa	
424	502	2017/06/11	17:37:40	6371.23449	0.00020	0.00021	0.00002	127.84	23.32	3.279	2.562	360	44	15.0	14.9	2.1	75.3	Gratia	Sigune	
-2	208	2018/05/13	03:51:37	6706.66085	0.00062	0.00278	0.00004	81.57	24.56	1.385	3.689	360	30	-3.8	14.6	344.6	14.6	Venus	Lacrimosa	
-5	22	2019/02/08	08:52:55	6977.87008	0.00017	0.00491	0.00005	258.09	-22.36	5.759	3.572	360	-60	-1.8	12.3	6557	98.0	Jupiter	Kalliope	
-1	87	2019/05/31	13:36:46	7090.06720	0.00192	0.00220	0.00001	80.83	24.92	1.237	4.542	0	12	-1.2	13.3	37.8	7.0	Mercury	Sylvia	
5	511	2019/10/16	02:57:56	7227.62357	0.00011	0.00023	0.00048	115.97	16.48	2.029	2.414	180	-88	10.7	10.8	54.9	115.7	Astraea	Davida	
97	253	2020/05/16	13:08:46	7441.04775	0.00017	0.00026	0.00007	110.22	17.28	2.671	3.657	360	53	12.0	16.0	6.1	64.1	Klotho	Mathilde	
-9	207	2023/12/21	02:54:01	8754.62084	0.00072	0.00074	0.00006	301.79	-23.05	35.760	3.078	360	30	14.5	14.6	1.1	26.0	Pluto	Hedda	
-9	302	2024/03/16	04:16:13	8840.67792	0.00011	0.00075	0.00004	304.52	-22.63	35.544	3.044	360	-55	14.5	15.9	6.3	33.4	Pluto	Clarissa	
-1	389	2024/08/23	20:14:33	9001.34344	0.00008	0.00442	0.00029	144.17	10.51	0.659	3.485	180	-9	1.9	13.0	224.9	11.0	Mercury	Industria	
-2	548	2024/12/18	22:05:45	9118.42067	0.00286	0.00476	0.00027	316.41	-18.84	0.846	2.831	0	46	-4.2	15.9	561.4	17.8	Venus	Kressida	
72	462	2025/06/21	21:17:31	9303.38717	0.00003	0.00063	0.00020	209.02	-8.21	1.489	2.384	180	119	12.1	14.0	35.1	175.3	Feronia	Eriphyla	
-2	577	2026/01/24	13:52:52	9520.07838	0.00199	0.00212	0.00002	311.63	-19.23	1.706	3.623	0	4	-3.9	14.8	101.7	15.0	Venus	Rhea	
-1	19	2026/11/06	03:15:13	9805.63556	0.00101	0.00431	0.00001	217.85	-14.74	0.682	3.814	180	-4	3.3	12.7	137.9	7.2	Mercury	Fortuna	
144	503	2028/01/16	12:03:38	10242.00253	0.00012	0.00026	0.00056	7.65	-0.09	2.156	2.733	360	71	11.8	13.9	17.7	75.4	Vibilia	Evelyn	
-6	261	2029/05/14	04:46:21	10725.69886	0.00223	0.00267	0.00005	43.89	14.54	10.172	3.421	180	-8	0.5	14.4	617.3	35.7	Saturn	Prymno	

-2	287	2030/01/03 11:42:46	10959.98804	0.00918	0.01713	0.00001	289.10	-18.46	0.266	3.278	360	6	-1.5	13.1	1126	10.6	Venus	Nephtys
-5	88	2032/02/29 19:42:44	11747.32135	0.00496	0.00502	0.00008	295.32	-21.49	5.809	2.934	360	-47	-1.9	11.7	480.0	44.7	Jupiter	Thisbe
-2	453	2032/08/13 05:18:01	11912.72085	0.00141	0.00218	0.00009	162.67	8.90	1.589	2.981	180	20	-3.9	15.0	279.2	17.4	Venus	Tea
27	297	2034/05/27 19:30:14	12565.31267	0.00023	0.00042	0.00010	130.60	19.43	2.393	3.969	360	61	11.1	15.8	9.6	49.1	Euterpe	Caecilia
-2	378	2034/08/22 20:27:14	12652.35224	0.00696	0.00719	0.00007	193.09	-8.22	0.608	3.757	360	45	-4.4	15.6	286.3	21.0	Venus	Holmia
183	554	2035/06/23 08:53:07	12956.87022	0.00002	0.00002	0.00008	344.16	-5.09	1.877	1.888	0	-108	13.6	12.9	8.1	72.0	Istria	Peraga
-2	394	2035/11/05 08:52:37	13091.86988	0.00102	0.00240	0.00005	243.66	-21.81	1.530	3.443	180	23	-3.9	14.9	295.9	15.0	Venus	Arduina
-7	261	2040/09/09 17:02:25	14862.21001	0.00003	0.00120	0.00008	128.87	19.24	19.300	2.852	0	-41	5.6	13.9	185.2	27.4	Uranus	Prymno
-5	80	2041/08/22 18:31:47	15209.27207	0.00388	0.00494	0.00007	206.00	-9.60	5.910	2.937	180	58	-1.7	12.9	2483	61.4	Jupiter	Sappho
131	382	2042/08/29 06:13:42	15580.75951	0.00009	0.00016	0.00017	121.62	22.74	3.241	4.087	180	-37	15.0	14.9	6.8	107.6	Vala	Dodona
-1	27	2043/02/02 23:46:10	15738.49039	0.00051	0.00229	0.00007	292.50	-21.98	1.141	3.620	180	-23	-0.0	12.4	154.5	13.3	Mercury	Euterpe
5	245	2049/08/17 00:43:02	18125.52989	0.00002	0.00028	0.00097	182.41	2.57	2.988	4.419	180	37	11.4	14.3	9.0	56.8	Astraea	Vera
124	285	2049/08/25 17:34:24	18134.23222	0.00005	0.00015	0.00030	142.96	12.84	3.687	4.688	180	-12	13.5	17.1	7.5	94.4	Alkeste	Regina
-2	40	2050/12/24 13:02:04	18620.04310	0.00307	0.00646	0.00016	224.55	-13.63	0.653	2.924	0	-47	-4.4	11.7	970.8	21.5	Venus	Harmonia
-1	437	2051/08/01 01:49:54	18839.57632	0.00211	0.00502	0.00051	140.10	10.56	0.599	3.967	180	11	1.9	16.2	252.2	12.4	Mercury	Rhodia
-2	133	2052/04/18 02:06:58	19100.58817	0.00979	0.00993	0.00016	66.12	26.83	0.453	4.194	360	40	-4.6	14.3	633.6	51.9	Venus	Cyrene
-5	27	2052/10/10 22:36:30	19276.44201	0.00263	0.00450	0.00009	196.01	-5.63	6.451	3.372	180	-2	-1.6	11.9	2230	45.9	Jupiter	Euterpe
-6	474	2052/12/17 13:16:48	19344.05333	0.00019	0.00302	0.00005	330.46	-13.65	10.199	2.279	180	61	0.7	14.5	848.6	27.0	Saturn	Prudentia
-2	414	2053/06/20 11:59:31	19528.99967	0.00099	0.00259	0.00003	116.67	22.76	1.500	4.153	180	25	-3.8	15.6	285.5	13.8	Venus	Liriope
-2	240	2054/04/23 21:10:47	19836.38249	0.00000	0.00391	0.00007	352.84	-4.27	1.015	3.123	180	-42	-4.0	13.9	563.3	17.1	Venus	Vanadis
-2	77	2055/04/12 10:36:22	20189.94192	0.00215	0.00373	0.00006	61.03	22.64	1.048	2.988	0	41	-4.0	13.2	459.2	17.6	Venus	Frigga
58	190	2055/10/10 22:31:51	20371.43879	0.00010	0.00023	0.00008	205.76	-7.70	3.569	5.274	0	9	14.1	14.8	8.8	67.7	Concordia	Ismene
135	526	2061/03/11 00:45:54	22349.53187	0.00023	0.00031	0.00013	337.85	-9.73	2.873	4.488	180	-15	12.3	16.6	2.9	42.8	Hertha	Jena
-1	364	2061/07/27 21:10:00	22488.38194	0.00113	0.00172	0.00009	132.69	19.51	1.342	3.088	180	5	-1.6	14.3	60.1	7.9	Mercury	Isara
-1	67	2062/05/15 20:48:18	22780.36687	0.00434	0.00531	0.00087	45.66	15.60	0.559	3.367	180	-8	2.8	13.2	164.7	11.8	Mercury	Asia
-2	339	2062/09/30 07:07:18	22917.79673	0.00209	0.00220	0.00003	184.80	-0.57	1.718	4.277	0	-3	-3.9	15.3	83.3	13.4	Venus	Dorothea
-2	326	2063/03/05 05:16:31	23073.71981	0.00116	0.00297	0.00005	17.44	7.12	1.280	3.223	360	34	-3.9	14.4	368.3	15.3	Venus	Tamara
351	455	2064/03/23 10:11:06	23457.92437	0.00055	0.00056	0.00215	203.32	6.29	1.547	2.380	360	-159	12.4	13.8	30.1	732.6	Yrsa	Bruchsalii
-2	116	2065/06/02 20:46:35	23894.36569	0.00341	0.00525	0.00003	26.38	8.47	0.806	3.689	180	-45	-4.2	13.5	533.3	16.9	Venus	Sirona
-2	-5	2065/11/22 12:47:15	24067.03281	0.00411	0.00662	0.00000	230.77	-17.70	1.689	6.381	0	-8	-3.9	-1.6	726.1	11.6	Venus	Jupiter
-1	-8	2067/07/15 11:55:36	24666.99695	0.00266	0.00340	0.00000	95.11	22.29	1.057	30.859	180	-18	-0.4	8.0	80.1	7.7	Mercury	Neptune
-1	34	2069/06/07 05:56:04	25359.74727	0.00078	0.00278	0.00007	52.80	16.19	0.980	3.663	0	-23	0.1	13.9	158.3	12.0	Mercury	Circe
-1	103	2070/09/19 17:40:57	25829.23677	0.00160	0.00205	0.00012	168.38	6.97	1.260	3.892	180	-11	-1.3	13.4	55.8	8.3	Mercury	Hera

269	282	2071/05/22 21:55:46	26074.41373	0.00020	0.00023	0.00010	102.54	19.85	3.853	2.860	360	40	15.4	15.4	2.5	68.1	Justitia	Clorinde
-2	569	2071/10/16 13:03:01	26221.04377	0.00456	0.00551	0.00005	158.76	8.58	0.750	2.905	180	-46	-4.3	14.8	503.2	20.1	Venus	Misa
-8	43	2071/12/09 08:53:41	26274.87062	0.00154	0.00170	0.00005	105.91	21.74	29.061	1.655	180	-153	-7.8	11.5	121.4	65.2	Neptune	Ariadne
-2	307	2074/06/05 02:48:00	27183.61667	0.00231	0.00348	0.00059	115.72	23.49	1.133	3.374	0	39	-3.9	15.3	354.1	16.0	Venus	Nike
-1	310	2074/11/16 23:50:32	27348.49343	0.00155	0.00165	0.00004	230.06	-18.28	1.435	3.484	180	-3	-0.9	15.4	34.7	10.6	Mercury	Margarita
-2	358	2075/01/15 22:52:37	27408.45320	0.00015	0.00481	0.00017	249.75	-19.34	0.877	3.928	0	-45	-4.2	15.1	548.0	14.4	Venus	Apollonia
-1	515	2075/05/17 14:11:59	27530.09166	0.00102	0.00542	0.00006	49.64	16.82	0.554	3.613	0	-5	3.6	16.5	273.2	11.5	Mercury	Athalia
-6	263	2076/05/17 20:25:26	27896.35100	0.00028	0.00334	0.00011	268.54	-22.12	9.179	2.079	360	-149	0.5	14.8	5587	160.2	Saturn	Dresda
-2	83	2077/08/20 11:05:24	28355.96209	0.00227	0.00359	0.00005	188.01	-3.29	1.075	2.899	180	41	-3.9	13.3	431.4	17.9	Venus	Beatrix
-1	171	2077/09/18 22:53:50	28385.45405	0.00166	0.00186	0.00015	173.36	4.77	1.348	3.776	0	-5	-1.5	13.8	37.7	8.3	Mercury	Ophelia
-1	-4	2079/08/11 01:31:00	29076.56319	0.00033	0.00230	0.00000	130.08	19.47	1.230	2.614	180	-11	-1.3	1.6	161.7	9.1	Mercury	Mars
-2	472	2080/02/28 13:02:39	29278.04351	0.00116	0.00235	0.00009	321.93	-15.87	1.565	3.526	360	-21	-3.9	14.2	274.3	14.8	Venus	Roma
-5	358	2081/12/07 21:36:07	29926.40008	0.00525	0.00609	0.00031	350.57	-5.49	4.812	2.351	360	93	-2.4	13.6	3513	86.4	Jupiter	Apollonia
-4	569	2082/03/31 12:48:01	30040.03334	0.00039	0.00216	0.00006	290.50	-22.77	1.272	3.109	360	-82	0.5	15.6	405.1	28.0	Mars	Misa
-2	311	2082/12/08 10:16:11	30291.92791	0.00210	0.00715	0.00008	209.01	-9.28	0.606	3.471	0	-47	-4.5	15.4	1082	20.5	Venus	Claudia
-1	223	2083/10/11 19:13:47	30599.30124	0.00002	0.00177	0.00034	201.94	-8.61	1.421	4.044	180	5	-1.0	15.6	88.2	9.3	Mercury	Rosa
-1	198	2083/12/05 09:52:15	30653.91128	0.00161	0.00402	0.00003	263.24	-23.28	0.710	3.312	360	10	1.0	13.2	142.5	8.2	Mercury	Ampella
287	320	2083/12/18 17:03:27	30667.21073	0.00006	0.00014	0.00011	269.87	-17.90	3.271	4.014	0	6	13.1	16.5	7.0	97.2	Nephtys	Katharina
557	577	2084/09/27 09:18:54	30950.88813	0.00010	0.00021	0.00003	171.12	2.35	3.184	4.387	0	-14	16.5	15.8	2.4	66.5	Violetta	Rhea
254	333	2085/02/09 04:57:49	31085.70682	0.00013	0.00029	0.00086	290.00	-25.07	2.677	3.884	180	-33	16.2	15.3	3.3	54.0	Augusta	Badenia
177	541	2085/07/30 17:52:24	31257.24472	0.00010	0.00018	0.00014	87.87	24.45	2.911	3.663	180	-40	14.1	15.7	8.6	91.9	Irma	Deborah
79	308	2085/11/15 05:51:15	31364.74393	0.00016	0.00093	0.00130	95.35	17.29	1.156	2.022	360	-138	10.4	12.5	68.9	199.7	Eurynome	Polyxo
-2	379	2085/12/17 21:55:51	31397.41379	0.00496	0.01736	0.00022	270.26	-22.16	0.265	3.947	360	4	-0.4	14.6	1407	11.6	Venus	Huenna
-1	104	2086/03/28 10:14:49	31497.92696	0.00012	0.00268	0.00010	343.99	-8.99	1.028	4.017	0	-26	0.2	14.2	168.5	12.8	Mercury	Klymene
-2	257	2087/02/28 21:12:53	31835.38394	0.00167	0.00310	0.00009	14.24	5.70	1.261	3.581	180	35	-3.9	15.0	327.4	14.7	Venus	Silesia
-5	525	2088/08/03 21:30:42	32357.39632	0.00285	0.00508	0.00017	193.26	-4.39	5.864	2.597	180	61	-1.7	17.0	2428	44.7	Jupiter	Adelaide
-2	27	2088/08/21 22:31:14	32375.43835	0.00109	0.00246	0.00016	176.63	2.71	1.480	3.167	180	26	-3.8	11.8	332.9	16.4	Venus	Euterpe
476	584	2088/09/09 08:33:26	32393.85655	0.00009	0.00017	0.00004	121.25	20.80	3.413	2.780	180	-49	14.0	13.2	17.5	136.3	Hedwig	Semiramis
-1	-5	2088/10/27 13:45:40	32442.07338	0.00575	0.00619	0.00000	208.81	-10.69	1.396	6.435	0	-5	-1.1	-1.6	210.5	8.2	Mercury	Jupiter
-2	346	2089/08/01 06:53:29	32719.78714	0.00202	0.00299	0.00050	96.20	22.24	1.287	3.400	180	-34	-3.8	12.3	298.0	15.5	Venus	Hermentar
-5	149	2089/08/08 08:58:24	32726.87389	0.00056	0.00561	0.00030	218.60	-14.08	5.410	2.183	360	84	-1.9	15.0	4023	56.8	Jupiter	Medusa
-2	309	2090/06/07 10:16:01	33029.92779	0.00332	0.00373	0.00009	119.65	22.86	1.083	3.679	180	40	-3.9	16.1	211.1	15.0	Venus	Fraternit
-5	243	2091/10/25 13:19:15	33535.05503	0.00367	0.00535	0.00025	287.29	-22.80	5.336	3.061	180	74	-2.1	15.2	4663	88.9	Jupiter	Ida

140	515	2092/06/09 12:20:28	33763.01422	0.00003	0.00009	0.00046	85.92	22.58	4.151	3.628	180	7	14.3	16.5	12.7	130.7	Siwa	Athalia
-1	449	2092/08/17 15:49:36	33832.15945	0.00027	0.00181	0.00058	142.58	16.46	1.307	3.137	360	-6	-1.7	14.0	82.3	8.0	Mercury	Hamburga
-1	-5	2094/04/07 10:47:56	34429.94995	0.00202	0.00659	0.00000	15.82	5.57	1.342	5.953	0	-2	-1.7	-2.0	471.1	6.6	Mercury	Jupiter
-7	126	2097/04/12 17:44:57	35531.23955	0.00058	0.00109	0.00015	9.88	3.53	21.022	3.150	180	-13	5.9	13.9	134.3	25.5	Uranus	Velleda
-2	206	2097/05/22 02:33:14	35570.60641	0.00464	0.00534	0.00063	15.63	4.72	0.785	3.347	180	-46	-4.2	14.0	387.0	18.4	Venus	Hersilia
-4	60	2097/12/20 12:14:14	35783.00989	0.00006	0.00213	0.00023	355.03	-2.72	1.143	2.135	180	85	0.2	12.3	541.8	33.1	Mars	Echo
-5	296	2098/06/17 18:55:46	35962.28873	0.00082	0.00492	0.00018	142.02	15.83	5.925	2.976	360	52	-1.8	17.5	3468	54.2	Jupiter	Phaetusa
-2	493	2098/09/04 22:18:09	36041.42927	0.00267	0.01203	0.00019	193.12	-12.23	0.378	4.409	180	34	-4.5	16.7	6336	73.6	Venus	Griseldis
-2	86	2098/12/29 02:36:30	36156.60868	0.00197	0.00540	0.00012	230.22	-15.39	0.800	4.390	180	-46	-4.3	15.0	554.1	14.2	Venus	Semele
-1	569	2100/03/02 23:25:57	36585.47636	0.00242	0.00311	0.00006	317.90	-16.09	0.902	3.835	180	-27	0.3	15.8	216.5	23.0	Mercury	Misa
196	512	2101/07/02 01:44:48	37071.57278	0.00035	0.00106	0.00054	10.22	-4.01	2.880	1.289	0	-92	11.8	13.3	5.5	32.6	Philomela	Taurinens
16	291	2101/08/23 10:37:13	37123.94251	0.00020	0.00022	0.00042	141.29	14.52	4.023	3.001	360	-11	11.7	15.7	5.5	64.4	Psyche	Alice
48	433	2101/11/19 17:41:47	37212.23735	0.00005	0.00113	0.00013	180.83	-2.19	3.543	1.351	360	-56	12.6	13.2	4.3	19.2	Doris	Eros
8	143	2101/12/17 09:14:44	37239.88523	0.00000	0.00020	0.00073	308.13	-21.24	2.721	3.429	180	40	10.8	14.4	18.9	90.1	Flora	Adria
222	245	2101/12/25 09:57:19	37247.91480	0.00009	0.00045	0.00042	23.79	8.21	2.922	1.924	360	112	14.6	11.8	19.0	117.2	Lucia	Vera

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2009 April 07

## Main Abbreviations

*Dm*: Minimum *apparent* angular separation (degrees).

*Err*: Estimated angular uncertainty (degrees) of *Dm*.

*r1* & *r2*: Geocentric (or planetocentric) distances (AU) of the two bodies at the epoch of minimum separation.

*p* : Position angle (degrees) of body #2 with respect to the center of body #1 at the minimum angular separation, measured clockwise from South = 0.

*e*: Elongation (degrees) from the Sun of body #1.

*m1* & *m2*: Approximate visual magnitudes of the two bodies.

*tm*: Maximum observable occultation time, in seconds (only present in the case of an occultation, when  $Dm < Dl$ ).

*tw*: Approximate time half-window (in hours) within which the angular distance is smaller than the selected value.

***We strongly recommend to read with attention the Handbook!***

SOLEX 10.10 is used by <http://digilander.libero.it/occultazioni>