

Messier and Caldwell List Slews from Bright Stars - Constellation Order and Messier Caldwell Number Order

For N41 Observing Points to S40 Declination

Cat_Id	M_Name	Caldwell_Name	Ref_star_id	HD_no_ref_star	SAO_no_ref_star	ProperName_ref_star	V_mag_ref_star	Slew_RA	Slew_Dec	Angle_refstar to	J2000_Position_obj	J2000_Position_ref_star	Type	V_mag_target	Con
NGC224	M031		mu. And	5448	54281		3.86	-1400.84	13939	3.1	J004244.16+411536.0	J005645.10+382957.3	LIN	4.3	And
NGC221	M032		mu. And	5448	54281		3.86	-1403.24	11539	2.9	J004241.76+405136.0	J005645.10+382957.3	IG	9.2	And
NGC205	M110		mu. And	5448	54281		3.86	-1623.16	20451	3.7	J004021.84+414048.0	J005645.10+382957.3	G	9.4	And
NGC7662		C022	iot And	222173	53216		4.29	-1215.2	-12817	2.6	J232552.80+423148.0	J233808.18+431605.1	PN	12	And
NGC891		C023	gam01 And	12533	37734	Almach	2.1	1838.88	-11424	3.6	J022232.88+422024.0	J020353.92+421947.5	G	10.8	And
NGC752		C028	bet Tri	13161	55306		3	-1151.2	21533	3.2	J015740.80+374648.0	J020932.52+345914.6	OpC	5.7	And
NGC7089	M002		bet Aqr	204867	145457	Sadalsuud	2.9	152.4	45153.2	4.8	J213326.40-004922.8	J213133.52-053416.2	GIC	6.3	Aqr
NGC6981	M072		eps Aqr	198001	144810	Albali	3.78	546.4	-15704	2.4	J205326.40-123148.0	J204740.53-092944.5	GIC	9.95	Aqr
NGC6994	M073		eps Aqr	198001	144810	Albali	3.78	1120	-20304	3.4	J205900.00-123748.0	J204740.53-092944.5	CI*	8.9	Aqr
NGC7009		C055	nu. Aqr	201381	164182		4.5	-526.4	-18	1.3	J210409.60-112136.0	J210935.59-112218.0	PN	12.78	Aqr
NGC7293		C063	del Aqr	216627	165375	Skat	3.27	-2500.6	-41833	7.3	J222938.40-204948.0	J225439.04-154914.7	PN	13.54	Aqr
Helix Neb (STScI-PRC2003-1996)		C063	del Aqr	216627	165375	Skat	3.27	-2500.6	-41833	7.3	J222938.40-204948.0	J225439.04-154914.7	PN	13.54	Aqr
Helix Neb (STScI-PRC1996-1996)		C063	del Aqr	216627	165375	Skat	3.27	-2500.6	-41833	7.3	J222938.40-204948.0	J225439.04-154914.7	PN	13.54	Aqr
NGC1960	M036		bet Aur	40183	40750	Menkalinan	1.9	-2320	-105727	11.8	J053612.00+340824.0	J055931.77+445650.8	OpC	6	Aur
NGC2099	M037		bet Aur	40183	40750	Menkalinan	1.9	-713.04	-123251	12.6	J055218.96+323300.0	J055931.77+445650.8	OpC	5.6	Aur
NGC1912	M038		bet Aur	40183	40750	Menkalinan	1.9	-3049.04	-91451	10.9	J052842.96+355100.0	J055931.77+445650.8	CI*	6.4	Aur
IC405		C031	iot Aur	31398	57522	Hassaleh	2.69	2024	-1310	4.2	J051724.00+342248.0	J045659.62+330958.1	Rad	99.9	Aur
NGC5248		C045	ups Boo	120477	100725		4.05	-1157.8	-72249.6	7.9	J133731.20+085302.4	J134928.70+154752.1	G	11.4	Boo
IC342		C005	alf Cam	30614	13298		4.26	-10714.04	20150	6.8	J034648.96+680524.0	J045403.01+662033.6	G	10.5	Cam
NGC2403		C007	omi UMa	71369	14573	Muscida(also HD20065)	3.35	-5325.6	50554	7.8	J073650.40+653600.0	J083016.03+604306.4	G	19.2	Cam
NGC7099	M030		zet Cap	204075	190341		3.77	1341.6	-2531	3.1	J214021.60-231012.0	J212640.03-222441.0	GIC	7.7	Cap
NGC7654	M052		iot Cep	216228	20268		3.5	3507	-44515	6.1	J232448.00+613448.0	J224940.91+661202.6	OpC	99.9	Cas
NGC581	M103		del Cas	8538	22268	Ruchbah(also HD11415)	2.66	735	-108	0.9	J013324.00+603900.0	J012548.60+601407.5	OpC	7.4	Cas
NGC559		C008	del Cas	8538	22268	Ruchbah(also HD11415)	2.66	332.6	23640	2.6	J012921.60+631648.0	J012548.60+601407.5	OpC	9.5	Cas
NGC663		C010	del Cas	8538	22268	Ruchbah(also HD11415)	2.66	2023	3340	2.5	J014612.00+611348.0	J012548.60+601407.5	OpC	7.1	Cas
NGC7635		C011	iot Cep	216228	20268		3.5	3107	-50803	6.1	J232048.00+611200.0	J224940.91+661202.6	HII	99.9	Cas
NGC457		C013	del Cas	8538	22268	Ruchbah(also HD11415)	2.66	-609.16	-22320	2.5	J011939.84+581648.0	J012548.60+601407.5	OpC	6.4	Cas
NGC147		C017	zet Cas	3360	21566		3.69	-346.22	-50449	5.1	J003311.78+483000.0	J003658.27+535349.0	G	12	Cas
NGC185		C018	zet Cas	3360	21566		3.69	159.38	-51501	5.2	J003857.38+481948.0	J003658.27+535349.0	Sy2	11	Cas
NGC188		C001	alf UMi	8890	308	Polaris	1.97	-14321.08	-44051	4.6	J004825.92+851500.0	J023147.08+891550.9	OpC	8.1	Cep
NGC40		C002	gam Cep	222404	10818	Alrai	3.21	-3340.01	-54443	6.1	J001301.01+723112.0	J233920.98+773755.1	PN	11.4	Cep
NGC7023		C004	bet Cep	205021	10057	Alfirk; Alphirk	3.23	-2704	-22402	3.3	J210136.00+680936.0	J212839.58+703338.5	OpC	7.2	Cep
Sh2-155		C009	iot Cep	216228	20268		3.5	811.8	-34927	3.9	J225752.80+623036.0	J224940.91+661202.6	HII	99.9	Cep
NGC6946		C012	eta Cep	198149	19019		3.41	-1026.6	-5212	1.5	J203450.40+600900.0	J204517.27+615012.5	IG	10.5	Cep
NGC1068	M077		del Cet	16582	110665		4.08	311.8	-13529.8	1.7	J024240.80-000046.8	J023928.95+001942.7	Sy2	8.91	Cet
IC1613		C051	eps Psc	6186	109627		4.27	157	-52425.2	5.4	J010454.00+020758.8	J010256.66+075324.3	G	10.7	Cet
NGC246		C056	bet Cet	4128	147420	Diphda	2.04	328.12	63900	6.7	J004703.12-115212.0	J004335.23-175912.1	PN	11.78	Cet
NGC247		C062	bet Cet	4128	147420	Diphda	2.04	333.4	-21424	2.3	J004708.40-204536.0	J004335.23-175912.1	LSB	9.64	Cet
NGC2287	M041		alf CMa	48915	151881	Sirius	-1.44	51	-42049	4.3	J064600.00-204536.0	J064509.25-164247.3	OpC	4.5	CMa
NGC2360		C058	gam CMa	53244	152303	Muliphein	4.11	1355.8	3812	3.4	J071740.80-153748.0	J070345.49-153759.7	OpC	7.2	CMa
NGC2362		C064	del CMa	54605	173047	Wezen; Wesen; Alwazn	1.83	1013	13448	2.7	J071836.00-245848.0	J070823.49-262335.5	OpC	4.1	CMa
NGC2632	M044		del Cnc	74442	98087	Asellus Australis	3.94	-417	930	1	J084024.00+194048.0	J084441.11+180917.5	OpC	3.1	Cnc
NGC2682	M067		alf Cnc	76756	98267	Sartan; Acubens	4.26	-712.2	3532	1.8	J085116.80+114800.0	J085829.20+115128.0	OpC	6.9	Cnc
NGC2775		C048	zet Hya	76294	117264		3.11	1455.2	5732.8	3.8	J091019.20+070216.8	J085523.68+055643.9	G	11.4	Cnc
NGC1851		C073	alf Col	37795	196059	Phakt	2.65	-2532.76	-51957	7.3	J051406.24-400224.0	J053938.94-340426.6	GIC	8.05	Col
NGC5024	M053		alf Com	114378	100443	Diadem	4.32	255.2	5451	1.1	J131255.20+180936.0	J130959.55+173144.8	GIC	8.33	Com
NGC4826	M064		alf Com	114378	100443	Diadem	4.32	-1316.8	42603	5.4	J125643.20+214048.0	J130959.55+173144.8	SyG	8.9	Com

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NGC4382	M085		bet Leo	102647	99809	Denebola	2.14	3620	32904	9.3	J122524.00+181124.0	J114903.88+143420.4	GiP	10.2	Com
NGC4501	M088		bet Leo	102647	99809	Denebola	2.14	4253.6	-1708	10.3	J123157.60+142512.0	J114903.88+143420.4	Sy2	10.6	Com
NGC4548	M091		bet Leo	102647	99809	Denebola	2.14	4622.4	-1256	11.2	J123526.40+142924.0	J114903.88+143420.4	LIN	11.5	Com
NGC4192	M098		bet Leo	102647	99809	Denebola	2.14	2444	1104	5.9	J121348.00+145324.0	J114903.88+143420.4	LIN	11	Com
NGC4254	M099		bet Leo	102647	99809	Denebola	2.14	2944	-1744	7.2	J121848.00+142436.0	J114903.88+143420.4	G	10.2	Com
NGC4321	M100		bet Leo	102647	99809	Denebola	2.14	3348.8	10652	8.2	J122252.80+154912.0	J114903.88+143420.4	GiC	10.6	Com
NGC4889		C035	bet Com	114710	82706		4.23	-1145.8	3438	2.6	J130007.20+275812.0	J131152.92+275233.7	GiC	13.05	Com
NGC4559		C036	gam Com	108381	82313		4.35	901.6	-10307	2.2	J123557.60+275700.0	J122656.33+281607.0	GiC	10.7	Com
NGC4565		C038	gam Com	108381	82313		4.35	923.2	-30119	3.6	J123619.20+255848.0	J122656.33+281607.0	LIN	10.3	Com
NGC6729		C068	gam CrA	177474	210928		4.23	-439.4	3710	1.1	J190145.60-365736.0	J190625.04-370345.9	Neb	99.9	CrA
NGC4038		C060	gam Crv	106625	157176	Gienah(also HD197989)	2.58	-1357.6	-12805	3.6	J120150.40-185136.0	J121548.47-173231.1	IG	11	Crv
NGC4039		C061	gam Crv	106625	157176	Gienah(also HD197989)	2.58	-1357.6	-12805	3.6	J120150.40-185136.0	J121548.47-173231.1	IG	11	Crv
Antennae Galaxies (STScI-PRC1997-034d)		C061	gam Crv	106625	157176	Gienah(also HD197989)	2.58	-1357.6	-12805	3.6	J120150.40-185136.0	J121548.47-173231.1	IG	11	Crv
NGC5272	M003		bet Com	114710	82706		4.23	3016.6	5838	6.7	J134209.60+282212.0	J131152.92+275233.7	GIC	6.2	CVn
NGC5194	M051		eta UMa	120315	44752	Alkaid	1.85	-1741.6	-31324	4.3	J132950.40+471124.0	J134732.55+491847.9	Sy2	8.8	CVn
M51 (STScI-PRC2005-21b)	M051		eta UMa	120315	44752	Alkaid	1.85	-1741.6	-31324	4.3	J132950.40+471124.0	J134732.55+491847.9	Sy2	8.8	CVn
NGC5055	M063		alf02 CVn	112413	63257	Cor Caroli	2.89	1946	23106	4.5	J131548.00+420112.0	J125601.84+381905.7	LIN	9.7	CVn
NGC4736	M094		alf02 CVn	112413	63257	Cor Caroli	2.89	-511.6	13630	1.8	J125050.40+410636.0	J125601.84+381905.7	SyG	8.7	CVn
NGC4258	M106		chi UMa	102224	43886	Alkaphrah; El Koprak	3.69	3252.2	-4646	5.5	J121855.20+471800.0	J114603.13+474645.6	Sy1	9.6	CVn
NGC4449		C021	bet CVn	109358	44230	Chara; Asterion; Venatici	4.24	-535.4	25260	3	J122809.60+440524.0	J123345.09+412124.4	EmG	10	CVn
NGC4244		C026	bet CVn	109358	44230	Chara; Asterion; Venatici	4.24	-1616.2	-32424	4.6	J121728.80+374800.0	J123345.09+412124.4	G	10.8	CVn
NGC5005		C029	alf02 CVn	112413	63257	Cor Caroli	2.89	1453.2	-22706	3.8	J131055.20+370300.0	J125601.84+381905.7	LIN	10.6	CVn
NGC4631		C032	gam Com	108381	82313		4.35	1511.2	33217	4.8	J124207.20+323224.0	J122656.33+281607.0	IG	9.8	CVn
NGC6913	M029		gam Cyg	194093	49528	Sadir; Sadr	2.23	141.2	-22112	2.3	J202355.20+383112.0	J202213.70+401524.1	OpC	6.6	Cyg
NGC7092	M039		pi.02 Cyg	207330	51293		4.23	-1500	-15634	3.1	J213148.00+482700.0	J214647.61+491834.5	CI*	4.6	Cyg
NGC6826		C015	iot Cyg	184006	31702		3.76	1506	-10334	2.5	J194448.00+503112.0	J192942.34+514346.1	PN	10	Cyg
IC5146		C019	pi.02 Cyg	207330	51293		4.23	643.2	-30758	3.3	J215331.20+471536.0	J214647.61+491834.5	OpC	7.2	Cyg
NGC7000		C020	ksi Cyg	200905	50424		3.72	-610.4	2508	1.1	J205845.60+441948.0	J210455.86+435540.3	HII	99.9	Cyg
NGC6888		C027	gam Cyg	194093	49528	Sadir; Sadr	2.23	-945.2	-22748	3	J201228.80+382436.0	J202213.70+401524.1	WR*	7.44	Cyg
NGC6992		C033	eps Cyg	197989	70474	Gienah(see HD106625); Gienakh; Gienah Cygni	2.48	1007.2	-23946	3.4	J205619.20+314124.0	J204612.43+335810.0	sh	99.9	Cyg
NGC6960		C034	eps Cyg	197989	70474	Gienah(see HD106625); Gienakh; Gienah Cygni	2.48	-36	-33910	3.6	J204536.00+304200.0	J204612.43+335810.0	Neb	99.9	Cyg
NGC7006		C042	gam02 Del	197964	106477		4.27	1448.8	-10141	3.6	J210128.80+161048.0	J204639.52+160729.2	GIC	11.4	Del
NGC6934		C047	eps Del	195810	106230	Deneb Dulfim; Deneb el	4.03	56.6	-45657.6	4.9	J203409.60+072414.4	J203312.76+111812.0	GIC	9.75	Del
NGC5866	M102		iot Dra	137759	29520	Ed Asich; Edasich; Eldsich; Al Dhiba; Al Dhihi	3.29	-1827.2	-33022	4.2	J150628.80+554536.0	J152455.78+585757.7	SyG	11.1	Dra
NGC4236		C003	kap Dra	109387	7593		3.85	-1648.2	-4342	1.6	J121640.80+692736.0	J123329.04+694717.6	G	10.7	Dra
NGC6543		C006	phi Dra	170000	9084	Aldhibah; Eldsib; Nod;	4.22	-2213.8	-42328	4.8	J175831.20+663748.0	J182045.44+712015.8	PN	9.8	Dra
Cats Eye Neb (STScI-PRC2004-027a)		C006	phi Dra	170000	9084	Aldhibah; Eldsib; Nod; Nodus	4.22	-2213.8	-42328	4.8	J175831.20+663748.0	J182045.44+712015.8	PN	9.8	Dra
NGC1097		C067	bet For	17652	193931		4.45	-246.04	22611	2.5	J024618.96-301612.0	J024905.36-322422.6	LIN	9.25	For
NGC2168	M035		eta Gem	42995	78135	Tejat Prior; Praepes	3.31	-547	21835	2.6	J060906.00+242100.0	J061452.70+223024.6	CI*	5.1	Gem
NGC2392		C039	del Gem	56986	79294	Wasat	3.5	902.6	-13120	2.5	J072909.60+205436.0	J072007.39+215856.4	PN	10.1	Gem
Eskimo Neb (STScI-PRC2000-007a)		C039	del Gem	56986	79294	Wasat	3.5	902.6	-13120	2.5	J072909.60+205436.0	J072007.39+215856.4	PN	10.1	Gem
NGC6205	M013		eta Her	150997	65504		3.48	-113.2	-22445	2.4	J164140.80+362736.0	J164253.74+385520.9	GIC	5.8	Her
NGC6341	M092		iot Her	160762	46872		3.82	-2220.8	-25435	4.9	J171707.20+430748.0	J173927.89+460022.8	GIC	6.3	Her

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NGC2548	M048		zet Mon	67594	135551		4.36	504.8	-21458	2.5	J081340.80-054500.0	J080835.66-025901.6	Cl*	5.8	Hya
NGC4590	M068		bet Crv	109379	180915	Kraz	2.65	503.4	-30936	3.3	J123926.40-264424.0	J123423.23-232347.8	GIC	9.67	Hya
NGC5236	M083		pi. Hya	123123	182244		3.25	-2922	-34541	7.4	J133700.00-295136.0	J140622.27-264055.3	SBG	7.89	Hya
NGC3242		C059	mu. Hya	90432	155980		3.83	-120.4	-23814	2.6	J102445.60-183824.0	J102605.51-165009.9	PN	7	Hya
NGC5694		C066	sig Lib	133216	183139	Brachium; Cornu; Zuben el Genubi; Zuban al Akrab; Zuben Hakrabi(also HD122774)	3.25	-2428	-2553	5.4	J143936.00-263148.0	J150404.26-251654.7	GIC	10.89	Hya
NGC7243		C016	bet Lac	212496	34395		4.42	-829.2	-24046	2.9	J221504.80+495400.0	J222333.64+521346.2	Cl*	6.4	Lac
NGC3623	M065		the Leo	97633	99512	Chertan; Coxa; Chort	3.33	441.2	-24923	3	J111855.20+130524.0	J111414.44+152547.1	LIN	9.6	Leo
NGC3627	M066		the Leo	97633	99512	Chertan; Coxa; Chort	3.33	600.4	-25559	3.2	J112014.40+125848.0	J111414.44+152547.1	LIN	8.9	Leo
NGC3351	M095		rho Leo	91316	118355		3.84	1108.6	11936	3	J104357.60+114200.0	J103248.68+091823.7	GiG	11.2	Leo
NGC3368	M096		rho Leo	91316	118355		3.84	1356.6	12612	3.7	J104645.60+114836.0	J103248.68+091823.7	GiG	10	Leo
NGC3379	M105		rho Leo	91316	118355		3.84	1459	21224	4.2	J104748.00+123448.0	J103248.68+091823.7	LIN	9.6	Leo
NGC3626		C040	del Leo	97603	81727	Zozma; Zosca; Zozca; Duhur; Dhur; Zuba	2.56	556.4	-15126	2.3	J112002.40+182100.0	J111406.41+203126.5	G	11.2	Leo
NGC1904	M079		bet Lep	36079	170457	Nihal	2.81	-404.44	-33739	3.7	J052410.56-243112.0	J052814.73-204533.2	GIC	8.56	Lep
NGC2419		C025	alf Gem	60178	60198	Castor	2.88	331.2	72129	7.3	J073807.20+385248.0	J073436.0+315319.9	GIC	99.9	Lyn
NGC6779	M056		bet01 Cyg	183912	87301	Albireo	3.05	-1409.4	15713	3.6	J191633.60+301048.0	J193043.29+275734.9	GIC	8.9	Lyr
NGC6720	M057		bet Lyr	174638	67451	Sheliak; Shelyak; Shiliak	3.52	328.6	-1334	0.7	J185333.60+330112.0	J185004.79+332145.6	PN	15	Lyr
M57 (STScI-PRC1999-01)	M057		bet Lyr	174638	67451	Sheliak; Shelyak; Shiliak	3.52	328.6	-1334	0.7	J185333.60+330112.0	J185004.79+332145.6	PN	15	Lyr
NGC2323	M050		alf Mon	61935	134986		3.94	-3827	10730.4	9.5	J070248.00-082233.6	J074114.88-093303.9	OpC	5.9	Mon
NGC2261		C046	ksi Gem	48737	96074	Alzirr	3.35	-607.16	-34946	4.1	J063909.84+084500.0	J064517.43+125345.8	RNe	99.9	Mon
NGC2237		C049	eps Mon	44769	113810		4.39	958.88	618.8	2.4	J063344.88+045952.8	J062346.10+043534.2	BNe	99.9	Mon
NGC2244		C050	eps Mon	44769	113810		4.39	808	224.8	2	J063154.00+045558.8	J062346.10+043534.2	OpC	4.8	Mon
NGC2506		C054	alf Mon	61935	134986		3.94	1845	-11608	4.7	J080000.00-104612.0	J074114.88-093303.9	OpC	7.6	Mon
NGC6333	M009		eta Oph	155125	160332	Sabik	2.43	846.6	-25706	3.6	J171909.60-183036.0	J171022.66-154330.5	GIC	8.42	Oph
NGC6254	M010		lam Oph	148857	121658	Marfic; Marfik; Marsic	3.82	2612.2	-63559.4	9.2	J165707.20-040556.4	J163054.84+015902.8	GIC	6.4	Oph
NGC6218	M012		lam Oph	148857	121658	Marfic; Marfik; Marsic	3.82	1619.4	-42652.2	6	J164714.40-015649.2	J163054.84+015902.8	GIC	7.68	Oph
NGC6402	M014		bet Oph	161096	122671	Cebalrai	2.76	-552	-75443	8	J173736.00-031442.0	J174328.38+043400.9	GIC	8.32	Oph
NGC6273	M019		the Oph	157056	185320		3.27	-1924	-3938	4.4	J170236.00-261536.0	J172200.58-245958.2	GIC	7.47	Oph
NGC6266	M062		the Oph	157056	185320		3.27	-2048	-43038	6.4	J170112.00-300636.0	J172200.58-245958.2	GIC	7.39	Oph
NGC6171	M107		zet Oph	149757	160006	Khan	2.54	-438.8	-22258	2.6	J163231.20-130300.0	J163709.53-103401.7	GIC	8.85	Oph
NGC1976	M042		iot Ori	37043	132323	Hatysa	2.75	-8.72	2008.4	0.3	J053517.28-052327.6	J053525.98-055435.6	HII	5	Ori
M42 (STScI-PRC2006-01a)	M042		iot Ori	37043	132323	Hatysa	2.75	-8.72	2008.4	0.3	J053517.28-052327.6	J053525.98-055435.6	HII	5	Ori
NGC1982	M043		iot Ori	37043	132323	Hatysa	2.75	4.96	2724	0.4	J053530.96-051612.0	J053525.98-055435.6	HII	99.9	Ori
NGC2068	M078		zet Ori	37742	132444	Alnitak	1.74	600.56	20419.8	2.5	J054646.56+000046.8	J054045.52-015633.3	RNe	99.9	Ori
NGC7078	M015		eps Peg	206778	#N/A	Enif	2.38	-1413.4	24606	4.4	J212957.60+120936.0	J214411.14+095230.0	GIC	3	Peg
NGC7331		C030	pi. Peg	210459	72077		4.28	2703.4	11954	5.7	J223702.40+342436.0	J220959.25+331041.8	LIN	10.4	Peg
NGC7814		C043	gam Peg	886	91781	Algenib	2.83	-959.1	5823	2.5	J000314.90+160824.0	J001314.15+151101.0	G	12	Peg
NGC7479		C044	alf Peg	218045	108378	Merkab	2.49	9.2	-30207	3	J230455.20+121912.0	J230445.62+151219.3	Sy1	11.7	Peg
NGC1039	M034		bet Per	19356	38592	Algol	2.09	-2604	13316	5	J024206.00+424536.0	J030810.13+405720.3	OpC	5.2	Per
NGC650	M076		51 And	9927	37375		3.59	419.92	21929	2.4	J014219.92+513412.0	J013759.50+483742.6	PN	15.9	Per
NGC651	M076		51 And	9927	37375		3.59	419.92	21929	2.4	J014219.92+513412.0	J013759.50+483742.6	PN	15.9	Per
NGC869		C014	eta Per	17506	23655	Miram	3.77	-3136	13416	4.6	J021906.00+570900.0	J025041.79+555343.9	OpC	5.3	Per
NGC884		C014	eta Per	17506	23655	Miram	3.77	-2842	13304	4.2	J022200.00+570748.0	J025041.79+555343.9	OpC	6.1	Per
NGC1275		C024	bet Per	19356	38592	Algol	2.09	1138	1816	2.2	J031948.00+413036.0	J030810.13+405720.3	Sy1	12.48	Per
NGC628	M074		eta Psc	9270	92484	Alfarg	3.62	512.76	4203	1.4	J013641.76+154648.0	J013128.99+152045.0	G	10.5	Psc
NGC2437	M046		alf Mon	61935	134986		3.94	25.8	-51832	5.3	J074140.80-144836.0	J074114.88-093303.9	Cl*	6.1	Pup

Messier and Caldwell List Slews from Bright Stars - Constellation Order and Messier Caldwell Number Order

For N41 Observing Points to S40 Declination

Cat_Id	M_Name	Caldwell_Name	Ref_star_id	HD_no_ref_star	SAO_no_ref_star	ProperName	ref_star	V_mag_ref_star	Slew_RA	Slew_Dec	Angle_refstar to	J2000_Position_obj	J2000_Position_ref_star	Type	V_mag_target	Con
NGC2422	M047		alf Mon	61935	134986			3.94	-439	-45844	5.1	J073636.00-142848.0	J074114.88-093303.9	OpC	4.4	Pup
NGC2447	M093		ksi Pup	63700	174601	Azmidiske		3.34	-442	2159	1.1	J074436.00-235136.0	J074917.66-245135.2	Cl*	6.2	Pup
NGC2477		C071	pi. Pup	56855	197795			2.71	3456.8	-3557	6.8	J075204.80-383148.0	J071708.56-370551.0	OpC	5.8	Pup
NGC253		C065	alf Scl	5737	166716			4.3	-1102.88	35539	4.6	J004733.12-251648.0	J005836.35-292126.9	SyG	7.07	Scl
NGC300		C070	alf Scl	5737	166716			4.3	-342.72	-82821	8.5	J005453.28-374048.0	J005836.35-292126.9	G	8.7	Scl
NGC55		C072	alf Scl	5737	166716			4.3	-4327.6	-100045	13.4	J001508.40-391312.0	J005836.35-292126.9	G	8.22	Scl
NGC6121	M004		alf Sco	148478	184415	Antares		1.06	-550.4	2443	1.3	J162333.60-263112.0	J162924.47-262555.0	GIC	7.12	Sco
NGC6405	M006		ups Sco	158408	208896	Lesath(also HD145502)		2.7	930.8	60245	6.3	J174016.80-321200.0	J173045.84-371744.7	Cl*	4.2	Sco
NGC6475	M007		ups Sco	158408	208896	Lesath(also HD145502)		2.7	2302	32757	5.7	J175348.00-344648.0	J173045.84-371744.7	Cl*	3.3	Sco
NGC6093	M080		del Sco	143275	184014	Dschubba		2.29	1642.4	1306	3.8	J161702.40-225812.0	J160020.01-223717.8	GIC	7.87	Sco
NGC6302		C069	ups Sco	158408	208896	Lesath(also HD145502)		2.7	-1702.8	10845	3.5	J171343.20-370600.0	J173045.84-371744.7	PN	7.1	Sco
NGC6124		C075	mu1 Sco	151890	208102			3.1	-2635.2	-21309	5.5	J162516.80-403900.0	J165152.20-380251.0	Cl*	5.8	Sco
NGC6231		C076	mu1 Sco	151890	208102			3.1	215.2	-32321	3.4	J165407.20-414912.0	J165152.20-380251.0	OpC	2.6	Sco
NGC6705	M011		bet Sct	173764	142618			4.22	350	-13005.6	1.7	J185100.00-061557.6	J184710.48-044452.2	OpC	5.8	Sct
NGC6694	M026		alf Sct	171443	142408			3.85	1004.8	-3922.8	2.5	J184516.80-092258.8	J183512.44-081435.9	OpC	8.87	Sct
NGC5904	M005		109 Vir	130109	120648			3.73	3218.6	3120.2	8	J151833.60+020455.2	J144614.99+015334.6	GIC	6.65	Ser
NGC6611	M016		alf Sct	171443	142408			3.85	-1624	-50460	6.4	J181848.00-134836.0	J183512.44-081435.9	OpC	6	Ser
M16 (STScI-PRC1995-044a)	M016		alf Sct	171443	142408			3.85	-1624	-50460	6.4	J181848.00-134836.0	J183512.44-081435.9	OpC	6	Ser
NGC3115		C053	alf Sex	87887	137366			4.48	-244	-80422.8	8.1	J100512.00-074304.8	J100756.30-002217.9	GIC	11	Sex
NGC6838	M071		gam Sge	189319	105500			3.51	-459.4	-14720	2.1	J195345.60+184612.0	J195845.39+192931.5	GIC	6.1	Sge
NGC6523	M008		mu. Sgr	166937	186497	Polis		3.84	-1034	-24916	3.7	J180312.00-242248.0	J181345.81-210331.8	Cl*	99.9	Sgr
M8 (STScI-PRC1996-038b)	M008		mu. Sgr	166937	186497	Polis		3.84	-1034	-24916	3.7	J180312.00-242248.0	J181345.81-210331.8	Cl*	99.9	Sgr
NGC6618	M017		mu. Sgr	166937	186497	Polis		3.84	638	52320	5.6	J182024.00-161012.0	J181345.81-210331.8	OpC	6	Sgr
M17 (STScI-PRC2003-13a)	M017		mu. Sgr	166937	186497	Polis		3.84	638	52320	5.6	J182024.00-161012.0	J181345.81-210331.8	OpC	6	Sgr
NGC6613	M018		mu. Sgr	166937	186497	Polis		3.84	614	42732	4.6	J182000.00-170600.0	J181345.81-210331.8	OpC	6.9	Sgr
NGC6514	M020		mu. Sgr	166937	186497	Polis		3.84	-1124.4	-12816	3	J180221.60-230148.0	J181345.81-210331.8	HII	6.3	Sgr
NGC6531	M021		mu. Sgr	166937	186497	Polis		3.84	-934	-5516	2.4	J180412.00-222848.0	J181345.81-210331.8	OpC	5.9	Sgr
NGC6656	M022		lam Sgr	169916	186841	Kaus Borealis		2.82	826	15716	2.7	J183624.00-235400.0	J182758.27-252516.5	GIC	6.17	Sgr
NGC6494	M023		mu. Sgr	166937	186497	Polis		3.84	-1646	23444	4.7	J175700.00-185848.0	J181345.81-210331.8	Cl*	5.5	Sgr
NGC6603	M024		mu. Sgr	166937	186497	Polis		3.84	438	30744	3.3	J181824.00-182548.0	J181345.81-210331.8	OpC	11.1	Sgr
M24	M024		mu. Sgr	166937	186497	Polis		3.84	438	30744	3.3	J181824.00-182548.0	J181345.81-210331.8	OpC	11.1	Sgr
IC4725	M025		mu. Sgr	166937	186497	Polis		3.84	1754.8	22656	4.8	J183140.80-190636.0	J181345.81-210331.8	Cl*	4.6	Sgr
NGC6626	M028		lam Sgr	169916	186841	Kaus Borealis		2.82	-326.8	5940	1.2	J182431.20-245136.0	J182758.27-252516.5	GIC	7.66	Sgr
NGC6715	M054		zet Sgr	176687	187600	Ascella; Askela; Astsella		2.6	-734.6	-10324	1.9	J185502.40-302812.0	J190236.72-295248.4	GIC	8.37	Sgr
NGC6809	M055		zet Sgr	176687	187600	Ascella; Askela; Astsella		2.6	3720.6	-13248	8.2	J193957.60-305736.0	J190236.72-295248.4	GIC	7.42	Sgr
NGC6637	M069		zet Sgr	176687	187600	Ascella; Askela; Astsella		2.6	-3115.4	-25536	7.3	J183121.60-322024.0	J190236.72-295248.4	GIC	8.31	Sgr
NGC6681	M070		zet Sgr	176687	187600	Ascella; Askela; Astsella		2.6	-1925	-25236	5	J184312.00-321724.0	J190236.72-295248.4	GIC	9.06	Sgr
NGC6864	M075		bet Cap	193495	163481	Dabih; Dabikh; Dikhabda		3.05	-1458.6	-64919	7.6	J200602.40-215512.0	J202100.65-144653.0	GIC	9.18	Sgr
NGC6822		C057	alf01 Cap	192876	163422	Prima Giedi; Algiedi Prima; Algedi(with HD192947)		4.3	-3241.4	-24530	8.4	J194457.60-144800.0	J201738.86-123029.6	G	18	Sgr
NGC1952	M001		zet Tau	37202	77336			2.97	-307.08	-2257	0.8	J053431.92+220036.0	J053738.68+210833.3	SNR	99.9	Tau
M1 (STScI-PRC2005-37)	M001		zet Tau	37202	77336			2.97	-307.08	-2257	0.8	J053431.92+220036.0	J053738.68+210833.3	SNR	99.9	Tau
M45	M045		zet Per	24398	56799	Atik(also HD23180)		2.84	-644	-72325	7.5	J034724.00+240636.0	J035407.92+315301.2	OpC	99.9	Tau
Cl Melotte 25		C041	the02 Tau	28319	93957			3.4	-146	3021	0.6	J042654.00+155136.0	J042839.67+155215.4	OpC	99.9	Tau
NGC598	M033		alf Tri	11443	74996	Metallah(see HD150798); Mothallah		3.42	-1914.12	5450	4.2	J013350.88+303936.0	J015304.90+293445.8	G	6.26	Tri
M40	M040		del UMa	106591	28315	Megrez		3.32	659	4851	1.2	J122224.00+580448.0	J121525.45+570157.4	**	99.9	UMa

Messier and Caldwell List Slews from Bright Stars - Constellation Order and Messier Caldwell Number Order

For N41 Observing Points to S40 Declination

Cat_Id	M_Name	Caldwell_Name	Ref_star_id	HD_no_ref_star	SAO_no_ref_star	ProperName ref_star	V_mag_ref_star	Slew_RA	Slew_Dec	Angle_refstar to	J2000_Position_obj	J2000_Position_ref_star	Type	V_mag_target	Con
NGC3031	M081		lam Dra	100029	15532	Gianfar; Giansar; Gaiusar; Giauza; Juza	3.82	-13552.8	-13216	8.3	J095531.20+690336.0	J113124.29+691952.0	LIN	8.1	UMa
NGC3034	M082		lam Dra	100029	15532	Gianfar; Giansar; Gaiusar; Giauza; Juza	3.82	-13533.6	-5504	8.1	J095550.40+694048.0	J113124.29+691952.0	IG	9.2	UMa
NGC3587	M097		bet UMa	95418	27876	Merak; Mirak	2.34	1255.6	-12520	2.3	J111445.60+550036.0	J110150.39+562256.4	PN	16.04	UMa
NGC5457	M101		zet UMa	116656	28737	Mizar(also HD6860,129989)	2.23	3917	-3308	5.7	J140312.00+542024.0	J132355.42+545531.5	IG	8.7	UMa
NGC3556	M108		bet UMa	95418	27876	Merak; Mirak	2.34	941.2	-4544	1.5	J111131.20+554012.0	J110150.39+562256.4	G	10.7	UMa
NGC3992	M109		gam UMa	103287	28179	Phad(also HD37795); Phecda; Phacd	2.41	343.6	731	0.5	J115733.60+532212.0	J115349.74+534141.0	G	10.7	UMa
NGC3132		C074	alf Ant	90610	201405		4.28	-2009	-84544	9.6	J100700.00-402548.0	J102709.16-310404.1	PN	9.87	Vel
NGC4472	M049		omi Vir	104979	119213		4.12	2432.6	-3601.6	6.1	J122945.60+075956.4	J120512.67+084358.2	Sy2	10.2	Vir
NGC4579	M058		eps Vir	113226	100384	Vindematrix	2.85	-2427.8	3503	6	J123743.20+114836.0	J130210.76+105732.8	LIN	11.5	Vir
NGC4621	M059		eps Vir	113226	100384	Vindematrix	2.85	-2011	2451	4.9	J124200.00+113824.0	J130210.76+105732.8	GiC	11	Vir
NGC4649	M060		eps Vir	113226	100384	Vindematrix	2.85	-1832.6	1927	4.5	J124338.40+113300.0	J130210.76+105732.8	GiP	10.3	Vir
NGC4303	M061		omi Vir	104979	119213		4.12	1639.8	-40731.6	5.8	J122152.80+042826.4	J120512.67+084358.2	Sy2	10.9	Vir
NGC4374	M084		eps Vir	113226	100384	Vindematrix	2.85	-3708.6	13915	9.2	J122502.40+125248.0	J130210.76+105732.8	Sy2	8.67	Vir
NGC4406	M086		eps Vir	113226	100384	Vindematrix	2.85	-3559	14251	8.9	J122612.00+125624.0	J130210.76+105732.8	GiC	10.9	Vir
NGC4486	M087		eps Vir	113226	100384	Vindematrix	2.85	-3123	10951	7.7	J123048.00+122324.0	J130210.76+105732.8	LIN	12.86	Vir
NGC4552	M089		eps Vir	113226	100384	Vindematrix	2.85	-2632.6	11927	6.6	J123538.40+123300.0	J130210.76+105732.8	Sy2	11.1	Vir
NGC4569	M090		eps Vir	113226	100384	Vindematrix	2.85	-2523	15603	6.4	J123648.00+130936.0	J130210.76+105732.8	Sy2	11.8	Vir
NGC4594	M104		del Crv	108767	157323	Algorab	2.94	1005.6	42842	5.1	J123957.60-113712.0	J122951.98-163054.3	LIN	9	Vir
NGC4697		C052	the Vir	114330	139189		4.38	-2123.4	-2540	5.3	J124833.60-054800.0	J130957.01-053220.1	GiC	11	Vir
NGC6853	M027		gam Sge	189319	105500		3.51	51	20940	2.1	J195936.00+224312.0	J195845.39+192931.5	PN	7.5	Vul
NGC6885		C037	gam Sge	189319	105500		3.51	1315	55516	6.6	J201200.00+262848.0	J195845.39+192931.5	CI*	8.1	Vul

Notes: Named stars may not have SAO numbers in many handcontrollers. Access named stars using the hand controller named star list and not the SAO number.

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