Comets reaching within 3 degrees of zero phase angle

Comet name	Designation	Approximate opposition							mag
PANSTARRS	C/2012 A1	2013	12	6	to	2014	1	7	18.9
Oukaimeden	C/2013 V5	2013	12	20	to	2014	1	7	17.4
Tenagra	P/2012 TK8	2013	12	28	to	2014	1	13	16.1
Gehrels	270P/2012 S5	2013	12	29	to	2014	1	18	16.1
Hug-Bell	178P/	2013	12	30	to	2014	1	11	18.1
Spacewatch	C/2013 TW5	2014	1	17	to	2014	2	18	18.8
Neujmin	25D/	2014	1	22	to	2014	2	1	9.7
Shoemaker-Levy	129P/	2014	1	23	to	2014	2	12	19.3
LINEAR	P/2004 FYE0	2014	2	2	to	2014	2	24	18.4
Helin-Roman-Crockett	111P/	2014	2	7	to	2014	2	25	19.1
Echeclus (60558)	174P/	2014	2	11	to	2014	2	13	17.7
McNaught	C/2013 E1	2014	2	15	to	2014	3	23	18.8
Christensen	266P/2012 P1	2014	2	20	to	2014	3	4	17.2
Palomar	C/2013 P3	2014	2	21	to	2014	3	7	19.9
Shoemaker-Levy	135P/	2014	3	17	to	2014	3	29	17.3
Catalina	C/2013 US10	2014	3	28	to	2014	3	32	16.1
Palomar	C/2013 P3	2014	3	31	to	2014	4	14	19.8
PANSTARRS	C/2012 F3	2014	4	6	to	2014	4	26	16
Christensen	P/2013 XX	2014	4	11	to	2014	4	15	19.7
Kowal-Vavrova	134P/	2014	4	16	to	2014	4	30	12.2
Tenagra	C/2013 G9	2014	4	16	to	2014	5	12	17.9
Catalina	C/2013 V4	2014	4	21	to	2014	4	23	18.5
Harrington	51P/	2014	4	27	to	2014	5	15	18.1
PANSTARRS	P/2012 B1	2014	5	13	to	2014	6	4	17.8
PANSTARRS	P/2012 B1	2014	5	13	to	2014	6	4	15.5
Finlay	15P/	2014	5	17	to	2014	5	21	19.5
Lovejoy	C/2013 R1	2014	5	28	to	2014	6	7	13.9
PANSTARRS	C/2012 A1	2014	5	29	to	2014	6	30	19.6
Catalina	C/2013 V4	2014	5	31	to	2014	6	2	18.3
Reinmuth	44P/	2014	6	3	to	2014	6	17	16.8
Shajn-Schaldach	61P/	2014	6	15	to	2014	6	27	17.7
Bus	87P/	2014	6	16	to	2014	6	26	16.8
Churyumov-Gerasimenko	67P/	2014	7	3	to	2014	7	15	17.4
Larsen	280P/2013 C1	2014	7	7	to	2014	7	19	18.8
Echeclus (60558)	174P/	2014	7	23	to	2014	8	24	16.8
McNaught	C/2013 E1	2014	7	31	to	2014	8	8	19.5
Kowalski	P/2013 G1	2014	8	2	to	2014	8	18	18.9
Zhao	P/2007 S1	2014	8	3	to	2014	8	19	19.2
Encke	2P/	2014	8	9	to	2014	8	23	17.2
Catalina	C/2013 F2	2014	8	10	to	2014	8	14	20
LINEAR	P 2014 XX	2014	8	14	to	2014	8	26	16.1
NEAT	P 2014 XX	2014	8	16	to	2014	8	28	16.9
McNaught	P/2013 XX	2014	8	26	to	2014	9	11	16.7
Palomar	C/2013 P3	2014	8	28	to	2014	10	15	19.3
LINEAR-NEAT	204P/	2014	8	31	to	2014	9	14	17.7
Catalina	C/2013 US10	2014	8	31	to	2014	9	12	14.1
Spitaler	113P/	2014	9	10	to	2014	9	22	15.7
McNaught	C/2013 E1	2014	9	15	to	2014	9	23	19.5
PANSTARRS	C/2013 P4	2014	9	21	to	2014	10	25	18.8
Ikeya-Murakami	P/2010 V1	2014	9	27	to	2014	10	17	16
LONEOS-Christensen	P/2005 RV25	2014	10	10	to	2014	10	22	17.6

Catalina	C/2013 V4	2014	11	5	to	2014	12	3	16.9
McNaught	P/2013 J2	2014	12	2	to	2014	12	14	19.4
LINEAR	C/2010 S1	2014	12	9	to	2014	12	15	15
PANSTARRS	C/2013 X1	2014	12	13	to	2014	12	31	17.6
NEAT	180P/	2014	12	20	to	2015	1	3	17.9
Palomar	C/2012 LP26	2014	12	22	to	2014	12	32	19.2
Hartley	110P/	2014	12	26	to	2015	1	7	11.7
McNaught	191P/	2014	12	26	to	2015	1	7	18.6
van Houten-Lemmon	271P/2012 TB36	2014	12	30	to	2015	1	23	19.2
Spacewatch	C/2011 KP36	2015	1	5	to	2015	1	7	16.5
Ory	P 2014 XX	2015	1	10	to	2015	1	16	19.7
Palomar	C/2012 LP26	2015	1	11	to	2015	1	19	19.2
Jedicke	269P/2012 R2	2015	1	14	to	2015	1	32	16.6
NEAT	P/2001 H5	2015	1	15	to	2015	1	29	18.9
Brooks	16P/	2015	1	16	to	2015	1	26	16.4
Parker-Hartley	119P/	2015	1	18	to	2015	1	32	15.2
PANSTARRS	C/2013 W2	2015	1	19	to	2015	2	10	19.4
Helin-Roman-Alu	132P/	2015	1	23	to	2015	1	31	16
Wilson-Harrington	107P/	2015	2	10	to	2015	2	26	19.7
NEAT	291P/2013 N2	2015	2	10	to	2015	2	24	19.5
Palomar	C/2013 P3	2015	2	16	to	2015	2	26	19.8
Spacewatch	C/2013 TW5	2015	2	27	to	2015	3	13	18.9
LINEAR	P/2014 XX	2015	3	9	to	2015	3	17	19.1
Shoemaker-Levy	129P/	2015	3	19	to	2015	4	8	19.5
Van Biesbroeck	53P/	2015	3	25	to	2015	4	10	18.8
LINEAR	P/2004 FYE0	2015	3	25	to	2015	4	16	18
PANSTARRS	C/2013 P4	2015	3	28	to	2015	3	30	19.6
Palomar	C/2013 P3	2015	4	7	to	2015	4	17	19.8
Blanpain	289P/	2015	4	11	to	2015	4	21	16.2
Boattini	P/2008 T1	2015	5	4	to	2015	5	24	19.4
ISON	C/2012 S1	2015	6	18	to	2015	6	28	17.5
Mueller	136P/	2015	7	16	to	2015	8	1	18.1
Palomar	C/2012 LP26	2015	7	16	to	2015	7	32	18.4
Neujmin	25D/	2015	7	24	to	2015	8	13	19
Kowal-Vavrova	134P/	2015	7	28	to	2015	8	17	15.9
Spacewatch	C/2011 KP36	2015	8	5	to	2015	8	25	14.9
LINEAR	218P/	2015	8	7	to	2015	8	13	17.9
Echeclus (60558)	174P/	2015	8	27	to	2015	9	28	16.8
Encke	2P/	2015	8	28	to	2015	9	15	17.5
Palomar	C/2013 P3	2015	8	29	to	2015	10	10	19.5
Arend	50P/	2015	9	5	to	2015	9	9	15.6
Helin	151P/	2015	9	10	to	2015	9	22	16.8
Neujmin	42P/	2015	9	17	to	2015	9	25	20
du Toit-Neujmin-Delporte	57P/	2015	9	23	to	2015	10	3	17.6
Shoemaker-Levy	118P/	2015	9	29	to	2015	10	3	14.7
Hill	P/2007 V2	2015	10	3	to	2015	10	15	18.7
Helin-Roman-Alu	117P/	2015	10	5	to	2015	10	21	16.8
PANSTARRS	C/2013 P4	2015	10	22	to	2015	11	27	19.3
Howell	88P/	2015	10	23	to	2015	11	4	19.4
LONEOS	P/2004 VR8	2015	11	4	to	2015	11	14	17.9
Reinmuth	44P/	2015	11	21	to	2015	11	29	16.5
Gibbs	P/2012 F5	2015	11	27	to	2015	12	5	18.1
Russell	94P/	2015	11	29	to	2015	12	15	17.7
LONEOS-	P/2005 RV25	2015	12	10	to	2015	12	28	17.1

Christensen									
Wild	81P/	2015	12	11	to	2015	12	23	12.3
Zhao	P/2007 S1	2015	12	16	to	2015	12	22	18.9
Christensen	170P/	2015	12	24	to	2016	1	1	20
Palomar	C/2012 LP26	2016	1	12	to	2016	1	16	19.1
Hill	211P/	2016	1	15	to	2016	1	25	16.9
LINEAR	P 2014 XX	2016	1	20	to	2016	2	9	19.6
LINEAR-NEAT	204P/	2016	1	21	to	2016	1	29	12.8
PANSTARRS	C/2012 K1	2016	2	11	to	2016	2	13	16.2
Spitaler	113P/	2016	2	18	to	2016	2	30	16.5
Palomar	C/2012 LP26	2016	2	25	to	2016	2	29	19.1
Jedicke	269P/2012 R2	2016	3	3	to	2016	3	25	17.9
Holvorcem	C/2013 U2	2016	3	3	to	2016	3	23	19.2
PANSTARRS	C/2012 K1	2016	3	12	to	2016	3	16	16.5
Longmore	77P/	2016	4	6	to	2016	4	14	15.1
Borisov	C/2013 V2	2016	4	18	to	2016	5	22	18.5
LINEAR	P/2004 FYE0	2016	5	18	to	2016	6	9	18.2
Boattini	P/2008 T1	2016	7	19	to	2016	8	4	17.5
Van Biesbroeck	53P/	2016	7	31	to	2016	8	14	15.2
Palomar	C/2012 LP26	2016	8	3	to	2016	9	12	18.9
LINEAR	176P/	2016	8	18	to	2016	9	1	18.4
PANSTARRS	C/2012 F3	2016	8	25	to	2016	9	26	17.6
Spacewatch	C/2011 KP36	2016	9	20	to	2016	10	14	14.5
Echeclus (60558)	174P/	2016	9	24	to	2016	10	30	17.2
Gibbs	P/2007 R3	2016	10	8	to	2016	10	22	19.1
La Sagra	279P/	2016	10	17	to	2016	10	23	18.1
Kopff	22P/	2016	11	2	to	2016	11	16	17.2
Tempel	10P/	2016	12	14	to	2016	12	24	14.8
Harrington	51P/	2017	1	15	to	2017	2	4	18.8
LINEAR	295P/	2017	1	15	to	2017	1	23	18.7
LINEAR	P/2010 A2	2017	1	15	to	2017	1	23	18.7
Catalina	P/2011 CR42	2017	1	19	to	2017	1	25	17.8
Shajn-Schaldach	61P/	2017	2	3	to	2017	2	21	18.1
Palomar	C/2012 LP26	2017	2	3	to	2017	2	9	19.9
Tuttle-Giacobini-Kresak	41P/	2017	2	12	to	2017	2	14	7.1
Forbes	37P/	2017	2	16	to	2017	3	4	18.2
Arend	50P/	2017	2	20	to	2017	2	26	19.8
LINEAR	234P/	2017	2	20	to	2017	3	2	18
Shoemaker-Levy	118P/	2017	3	22	to	2017	3	28	15
Palomar	C/2012 LP26	2017	3	23	to	2017	3	29	20
Kushida	144P/	2017	4	8	to	2017	4	20	19.5
Russell	94P/	2017	4	28	to	2017	5	8	16.2
LINEAR-NEAT	204P/	2017	5	3	to	2017	5	19	18.3
NEAT	243P/	2017	6	16	to	2017	7	4	19.9
Wild	81P/	2017	7	11	to	2017	7	29	14.3
NEAT	180P/	2017	7	15	to	2017	7	19	19.4
Schwassmann-Wachmann	29P/	2017	7	26	to	2017	8	27	12.1
Schwassmann-Wachmann	29P/2014	2017	8	20	to	2017	8	28	11.6
PANSTARRS	C/2013 X1	2017	9	26	to	2017	9	28	18.7
Boattini	P/2008 T1	2017	10	16	to	2017	11	3	18.5
PANSTARRS	C/2013 X1	2017	10	24	to	2017	10	28	18.9
Spacewatch	C/2011 KP36	2017	11	8	to	2017	11	14	16
LINEAR	176P/	2017	12	15	to	2017	12	29	18.7
Mueller	136P/	2017	12	26	to	2018	1	13	19.6

Catalina	P/2011 CR42	2018	4	22	to	2018	5	2	16
LONEOS	P/2004 VR8	2018	5	16	to	2018	6	7	19.1
Catalina-PANSTARRS	P/2013 R3	2018	7	29	to	2018	8	10	18.2
Encke	2P/	2018	8	22	to	2018	9	11	17.5
Schwassmann-Wachmann	29P/2014	2018	8	25	to	2018	9	24	11.5
Schwassmann-Wachmann	29P/	2018	8	26	to	2018	9	25	12
Rinner	P/2011 W2	2018	11	3	to	2018	11	15	17.9
Hergenrother	175P/	2018	12	13	to	2018	12	25	19.8
Catalina	257P/	2019	4	8	to	2019	4	26	19.6
Schwassmann-Wachmann	29P/2014	2019	9	25	to	2019	10	21	11.5
Schwassmann-Wachmann	29P/	2019	9	26	to	2019	10	22	12
Christensen	266P/	2019	11	15	to	2019	11	25	16.9
Forbes	37P/	2019	11	23	to	2019	12	5	19.4
McNaught	278P/	2020	4	1	to	2020	4	13	18.5
Hergenrother	175P/	2020	6	15	to	2020	6	25	19.7
Faye	4P/	2020	6	22	to	2020	6	28	17.9
Lovas	184P/	2020	8	13	to	2020	8	17	16.2
Mueller	120P/	2020	8	16	to	2020	8	26	18.2
Tenagra	P/2012 TK8	2020	8	23	to	2020	9	8	16.6
Harrington-Abell	52P/	2020	9	18	to	2020	10	2	19.4
PANSTARRS	P/2011 W1	2020	10	2	to	2020	10	8	20
Schwassmann-Wachmann	29P/2014	2020	10	25	to	2020	11	18	11.6
Gibbs	P/2012 F5	2020	11	5	to	2020	11	19	18
Hug-Bell	178P/	2021	1	5	to	2021	1	17	18.2
Scotti	P/2013 A2	2021	1	17	to	2021	1	25	19.3
McNaught	260P/	2021	2	9	to	2021	2	27	19.8
Tenagra	P/2013 EW90	2021	2	16	to	2021	2	20	19
Hergenrother	168P/	2021	2	17	to	2021	3	7	17.5
Christensen	266P/	2021	3	25	to	2021	4	10	18.7
LINEAR-Grauer	P/2010 TO20	2021	6	5	to	2021	7	7	19.8
Parker-Hartley	119P/	2021	8	27	to	2021	9	4	14.7
Novichonok-Gerke	P/2011 R3	2021	9	10	to	2021	9	28	19.2
Scotti	244P/	2021	10	19	to	2021	11	8	17.7
MOSS	281P/	2021	11	11	to	2021	12	3	19.9
Tenagra	P/2012 TK8	2021	11	20	to	2021	12	2	15.3
PANSTARRS	P/2011 W1	2021	11	28	to	2021	12	12	18.6
Shoemaker-Levy	129P/	2021	12	9	to	2021	12	29	19.5
Tombaugh-Tenagra	274P/	2021	12	11	to	2021	12	25	18.1
Tenagra	P/2012 WX32	2021	12	16	to	2021	12	26	18
McNaught	191P/	2021	12	29	to	2022	1	12	19.3
Hartley	110P/	2022	1	18	to	2022	1	28	11.9
LINEAR-Grauer	P/2010 TO20	2022	7	8	to	2022	8	7	19.7
NEAT	291P/	2022	9	12	to	2022	9	18	17.8
Bressi	P/2011 U2	2022	10	10	to	2022	10	24	17.9
LINEAR	216P/	2022	11	7	to	2022	11	11	20
Scotti	244P/	2022	12	13	to	2023	1	2	17.3
MOSS	281P/	2022	12	32	to	2023	1	23	19.5
Parker-Hartley	119P/	2023	1	9	to	2023	1	21	13.3
Shoemaker-Levy	129P/	2023	2	2	to	2023	2	22	19.3
Tenagra	P/2012 TK8	2023	2	3	to	2023	2	21	17

PANSTARRS	P/2011 W1	2023	2	7	to	2023	2	27	19.6
Faye	4P/	2023	3	7	to	2023	3	29	19.2
Mueller	136P/	2023	6	9	to	2023	6	21	19.4
LINEAR-Grauer	P/2010 TO20	2023	8	10	to	2023	9	9	19.7
Christensen	287P/	2023	8	31	to	2023	9	4	17.4
Spahr	242P/	2023	9	18	to	2023	10	10	17.1
Comas Sola	32P/	2023	11	7	to	2023	11	19	14.2
Bressi	P/2011 U2	2023	11	24	to	2023	12	16	17.7
NEAT	291P/	2024	1	11	to	2024	1	21	18.1
Scotti	244P/	2024	2	4	to	2024	2	28	17.9
MOSS	281P/	2024	2	23	to	2024	3	14	19.9
LINEAR	216P/	2024	3	13	to	2024	3	25	16.3
Shoemaker-Levy	129P/	2024	3	24	to	2024	4	15	19.6
Larsen	280P/	2024	7	32	to	2024	8	9	20
Mueller	136P/	2024	8	20	to	2024	9	3	17.3
Vorobjov	276P/	2024	10	30	to	2024	11	17	19.7
Vorobjov	P/2012 T7	2024	10	30	to	2024	11	17	19.7
Bressi	P/2011 U2	2025	1	13	to	2025	1	31	18
Comas Sola	32P/	2025	4	14	to	2025	4	30	18.8
Boattini	P/2010 U1	2025	8	10	to	2025	9	3	19.6
LONEOS	P/2004 A1	2025	12	31	to	2026	1	32	17.3
Boattini	P/2010 U1	2026	9	24	to	2026	10	12	19.3
PANSTARRS	P/2012 T2	2026	10	4	to	2026	10	14	19.7
LONEOS	P/2004 A1	2027	2	4	to	2027	3	4	17
Gibbs	P/2007 K2	2027	4	24	to	2027	5	2	19.2
PANSTARRS	P/2012 T3	2027	7	23	to	2027	8	4	19.4
Boattini	P/2010 U1	2027	10	31	to	2027	11	26	19.7
PANSTARRS	P/2012 T2	2027	11	6	to	2027	11	30	19.9
LONEOS	P/2004 A1	2028	3	14	to	2028	4	3	17
Kowal-Vavrova	134P/	2029	2	4	to	2029	2	22	14.7
PANSTARRS	P/2012 B1	2029	2	4	to	2029	2	20	18.1
PANSTARRS	P/2012 B1	2029	2	4	to	2029	2	20	15.8
McNaught	P/2011 P1	2029	7	14	to	2029	8	11	19.6
Gehrels	270P/	2029	10	4	to	2029	10	26	16.4
PANSTARRS	P/2012 B1	2030	4	4	to	2030	4	24	17.2
PANSTARRS	P/2012 B1	2030	4	4	to	2030	4	24	14.9
Kowal-Vavrova	134P/	2030	6	11	to	2030	6	23	13.2
van Houten-Lemmon	271P/	2030	8	21	to	2030	9	16	19.1
McNaught	P/2011 P1	2030	8	22	to	2030	9	19	19.1
Gehrels	270P/	2030	12	20	to	2031	1	7	15.8
Gibbs	P/2011 C2	2031	1	30	to	2031	2	23	19.7
Kowalski	P/2013 G1	2031	4	28	to	2031	5	18	18.9
PANSTARRS	P/2012 B1	2031	6	2	to	2031	6	24	18.5
PANSTARRS	P/2012 B1	2031	6	2	to	2031	6	24	16.2
McNaught	P/2011 P1	2031	10	2	to	2031	10	30	19.3
van Houten-Lemmon	271P/	2031	10	7	to	2031	10	31	18
Gehrels	270P/	2032	2	9	to	2032	3	6	17.8
Gibbs	P/2011 C2	2032	3	3	to	2032	3	31	19.5
Kowalski	P/2013 G1	2032	7	27	to	2032	8	10	18.8
Jedicke	269P/	2032	11	26	to	2032	12	18	16.7
van Houten-Lemmon	271P/	2032	12	2	to	2032	12	20	18.3
Gibbs	P/2011 C2	2033	4	5	to	2033	5	7	19.9
Jedicke	269P/	2034	1	28	to	2034	2	13	16.8
PANSTARRS	P/2013 P1	2038	8	12	to	2038	8	26	19.5