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# АСТРОНОМИЧЕСКИЙ КАЛЕНДАРЬ

## 2017

выпуск тринадцатый

2017 год

Начало сезонов года

(по данным US Naval Observatory - время всемирное)

Весна - 20 марта, 10 ч 28 м Лето - 21 июня, 04 ч 24 м  
Осень - 22 сентября, 20 ч 02 м Зима - 21 декабря, 16 ч 28 м

Земля в перигелии - 4 января 14 ч 00 м

Земля в афелии - 3 июля 20 ч 00 м

АСТРОНОМИЧЕСКИЙ КАЛЕНДАРЬ НА 2017 ГОД

СПРАВОЧНОЕ ИЗДАНИЕ

Серия «Астробиблиотека»

Астрономический календарь на 2017 год, составитель Козловский Александр Николаевич, «АстроКА», 2016 год, 88 стр. + приложения.

Ежегодник (эта версия адаптирована для печати и для просмотра на экране монитора), составленный с использованием программ Guide 8.0 <http://www.projectpluto.com>, <http://www.calsky.com/>, Starry Night Backyard 3.1, Occult v4.0, описывающий избранные астрономические явления, которые должны произойти в 2017 году. Календарь содержит эфемериды Солнца, Луны, больших планет, комет и астероидов, доступных для наблюдений любительскими средствами (биноклями и небольшими телескопами). Кроме этого, даны карты-схемы солнечных и лунных затмений, приведены сведения о покрытиях звезд и планет Луной, метеорных потоках и т.п. О явлениях других лет расскажет книга «Астрономические явления до 2050 года» <http://astronet.ru/db/msg/1280744>, а также Краткий Астрономический календарь на 2016 - 2050 годы <http://www.astronet.ru/db/msg/1335637> и Краткий АК на 2051 - 2200 годы <http://www.astronet.ru/db/msg/1336920>. Целью данного календаря является охват многих явлений года, представленных, по большей части, в виде таблиц, для последующего определения подробных обстоятельств явлений при помощи программы-планетариев. Но, при желании, можно ограничиться только данным календарем, для уточнения дат тех или иных явлений. Более подробное освещение явлений будет ежемесячно и еженедельно даваться в Календаре наблюдателя и Астрономической неделе на Астронет <http://astronet.ru>. Следите за обновлениями!

Для наблюдателей, членов астрономических кружков, любителей астрономии, студентов, преподавателей школ и ВУЗов.

Уважаемые любители астрономии!



Надеюсь, что АК-2017 послужит Вам надежным спутником при астрономических наблюдениях. В серии «Астробиблиотека» вышли книги: «Астрономические явления до 2050 года», «Астрономический календарь на 2005 (2006 - 2016) годы, Краткий Астрономический календарь на 2017 -2050 и 2051 - 2200 годы, «Солнечное затмение 29 марта 2006 года (1 августа 2008 года) и его наблюдение», «Кометы и методы их наблюдений», «Астрономические хроники: год 2004 (2005 - 2007)», «Противостояния Марса». Скачать их можно на <http://astronet.ru>. Автором выпускаются также периодические издания: журнал «Небосвод» и «Календарь наблюдателя» ( выкладка ежемесячно на <http://astronet.ru> ). E-mail: [nebosvod\\_journal@mail.ru](mailto:nebosvod_journal@mail.ru).

Искренне Ваш. Александр Козловский

Набрано и сверстано в 2016 году  
MSOffice-2003

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Корректор: Козловский Алексей Александрович

Редактор: Демин Николай

Обложка: Кушнир Николай

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ТАБЕЛЬ-КАЛЕНДАРЬ

Январь 2017							Февраль 2017							Март 2017												
пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс						
					1	2						1	2	3	4	5						1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12	6	7	8	9	10	11	12						
9	10	11	12	13	14	15	13	14	15	16	17	18	19	13	14	15	16	17	18	19						
16	17	18	19	20	21	22	20	21	22	23	24	25	26	20	21	22	23	24	25	26						
23	24	25	26	27	28	29	27	28					27	28	29	30	31									
30	31																									

Апрель 2017							Май 2017							Июнь 2017													
пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс							
					1	2						1	2	3	4	5	6	7						1	2	3	4
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11							
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18							
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25							
24	25	26	27	28	29	30	29	30	31				26	27	28	29	30										

Июль 2017							Август 2017							Сентябрь 2017											
пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс					
					1	2						1	2	3	4	5	6						1	2	3
3	4	5	6	7	8	9	7	8	9	10	11	12	13	4	5	6	7	8	9	10					
10	11	12	13	14	15	16	14	15	16	17	18	19	20	11	12	13	14	15	16	17					
17	18	19	20	21	22	23	21	22	23	24	25	26	27	18	19	20	21	22	23	24					
24	25	26	27	28	29	30	28	29	30	31			25	26	27	28	29	30							
31																									

Октябрь 2017							Ноябрь 2017							Декабрь 2017										
пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс	пн	вт	ср	чт	пт	сб	вс				
					1	2						1	2	3	4	5						1	2	3
2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10				
9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14	15	16	17				
16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24				
23	24	25	26	27	28	29	27	28	29	30			25	26	27	28	29	30	31					
30	31																							

20 - короткий день

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[www.abc2home.ru](http://www.abc2home.ru)

## Список созвездий

Созвездие	Сокращение	Созвездие	Сокращение
Andromeda, Андромеда	And	Lacerta, Ящерица	Lac
Antlia, Насос	Ant	Leo, Лев	Leo
Aquarius, Водолей	Aqr	Leo Minor, Малый Лев	LMI
Arus, Райская Птица	Aps	Lepus, Заяц	Lep
Aquila, Орёл	Aql	Libra, Весы	Lib
Ara, Жертвенник	Ara	Lupus, Волк	Lup
Aries, Овен	Ari	Lynx, Рысь	Lyn
Auriga, Возничий	Aur	Lyra, Лира	Lyr
Bootes, Волопас	Boo	Mensa, Столовая Гора	Men
Camelopardalis, Жираф	Cam	Microscopum, Микроскоп	Mic
Caelum, Резец	Caе	Monoceros, Единорог	Mon
Cancer, Рак	Cnc	Musca, Муха	Mus
Canes Venatici, Гончие Псы	CVn	Norma, Наугольник	Nor
Canis Major, Большой Пес	CMa	Octant, Октант	Oct
Canis Minor, Малый Пес	CMi	Ophiurus, Змееносец	Oph
Capricornus, Козерог	Cap	Orion, Орион	Ori
Carina, Киль	Car	Pavo, Павлин	Pav
Cassiopeia, Кассиопея	Cas	Pegasus, Пегас	Peg
Centaurus, Центавр	Cen	Perseus, Персей	Per
Cepheus, Цефей	Cep	Phoenix, Феникс	Phe
Cetus, Кит	Cet	Pictor, Живописец	Pic
Chameleon, Хамелеон	Cha	Pisces, Рыбы	Psc
Circinus, Циркуль	Cir	iscis Austrinus, Южная Рыба	PsA
Columba, Голубь	Col	Puppis, Корма	Pup
Coma Berenices, Волосы Вероники	Com	Pyxis, Компас	Pyx
Corona Borealis, Северная Корона	CrB	Reticulum, Сетка	Ret
Corona Australis, Южная Корона	CrA	Sagitta, Стрела	Sge
Corvus, Ворон	Crv	Sagittarius, Стрелец	Sgr
Crater, Чаша	Crt	Scorpius, Скорпион	Sco
Cruх, Южный Крест	Cru	Sculptor, Скульптор	Scl
Cygnis, Лебедь	Cyg	Scutum, Щит	Sct
Delphinus, Дельфин	Del	Serpens, Змея	Ser
Dorado, Золотая Рыба	Dor	Sextans, Секстант	Sex
Draco, Дракон	Dra	Taurus, Телец	Tau
Equuleus, Малый Конь	Equ	Telescopum, Телескоп	Tel
Eridanus, Эридан	Eri	Triangulum, Треугольник	Tri
Fomax, Печь	For	Triangulum Australe, Южный Треугольник	TrA
Gemini, Близнецы	Gem	Tucana, Тукан	Tuc
Gruus, Журавль	Gru	Ursa Major, Большая Медведица	UMa
Hercules, Геркулес	Her	Ursa Minor, Малая Медведица	UMi
Horologium, Часы	Hor	Vela, Паруса	Vel
Hydra, Гидра	Hya	Virgo, Дева	Vir
Hydrus, Южная Гидра	Hyi	Volan, Летучая Рыба	Vol
Indus, Индеец	Ind	Vulpecula, Лисичка	Vul

## О счете времени

В настоящем выпуске Астрономического Календаря моменты явлений, за исключением особо оговариваемых случаев, даются по всемирному времени. Переход от одной системы счета времени к другой выполняется по формулам

$$UT = T_m - \lambda, \quad T_p = UT + n(\text{ч}) = T_m + n(\text{ч}) - \lambda.$$

В этих формулах  $UT$  — всемирное время;  $T_m$  — местное среднее солнечное время;  $T_p$  — поясное время;  $n(\text{ч})$  — номер часового пояса (на территории России к номеру часового пояса прибавляется еще 1 час декретного времени);  $\lambda$  — географическая долгота в единицах времени, считаваемая положительной к востоку от Гринвича.

Поясное время второго часового пояса, в котором расположена Москва, называется московским временем и обозначается  $T_m$ . Поясное время других пунктов на территории РФ получается прибавлением к московскому времени целого числа часов  $\Delta T$ , которое равно разности номеров часового пояса данного пункта и часового пояса Москвы:  $T = T_m + \Delta T$ .

В весенне-летний период на территории России до 2011 года вводилось летнее время, т. е. все часы переводились на один час вперед. Перевод осуществлялся в два часа ночи последнего воскресенья марта.

В начале осенне-зимнего периода, в три часа ночи последнего воскресенья октября, часы снова переводились на один час назад: вводилось зимнее время. Таким образом, в весенне-летний период время было  $T_m = UT + 4^{\text{ч}}$  и  $T = T_m - \lambda + 4^{\text{ч}} + \Delta T$ , в осенне-зимний период  $T_m = UT + 3^{\text{ч}}$  и  $T = T_m - \lambda + 3^{\text{ч}} + \Delta T$ .

В 2011 году стрелки часов перевелись в марте на летнее время, и это время было оставлено основным, т.е. переход на зимнее время не осуществлялся. Поэтому разница по времени с Гринвичем стала постоянной в течение всего года и составляла для Москвы 4 часа.

Но в 2014 году 26 октября постановлением Правительства РФ стрелки часов вновь перевелись на 1 час назад. Тем самым, страна вернулась к зимнему времени, а разница с Гринвичем сократилась для Москвы до 3 часов. Таким образом, поправка по времени стала вновь вычисляться по формулам  $T_m = UT + 3^{\text{ч}}$  и  $T = T_m - \lambda + 3^{\text{ч}} + \Delta T$ .

Моменты восходов и заходов светил в данном календаре даны для пункта с координатами **0 градусов долготы и 56 градусов северной широты** (для удобства перерасчета моментов восходов и заходов светил для любых других населенных пунктов). Зная моменты восходов и заходов светил и наступления других явлений, вы можете вычислить или уточнить время события в вашем пункте при помощи программ-планетариев или из непосредственных наблюдений.

В АК\_2017 счет времени ведется по Григорианскому календарю.

## Краткий обзор явлений 2017 года

2017 год будет **достаточно интересным** в отношении солнечных и лунных затмений, а также комет и покрытий.

Главным астрономическим событием 2017 года будет **полное солнечное затмение**, полоса полной фазы которого пройдет по Северной Америке. Всего же в этом году произойдут два солнечных и два лунных затмения. Два затмения приходятся на февральское новолуние и полнолуние, а другие два - на августовское новолуние и полнолуние.

**Первое затмение года будет полутеневым лунным** и произойдет в полнолуние 11 февраля. Затмение смогут наблюдать жители большей части территории России (за исключением восточных районов), а максимальная полутеневая фаза его составит 1,014 при прохождении Луны через южную часть земной полутени. При такой фазе Луна почти коснется земной тени (максимальная теневая фаза составит -0,03), поэтому затмение хорошо будет наблюдаться даже невооруженным глазом.

**Второе затмение 2017 года будет кольцеобразным солнечным.** Оно произойдет при новолунии 26 февраля, а полоса кольцеобразной фазы пройдет по акватории Тихого и Атлантического океанов, а также по территории юга Южной Америки и юга Африки. Продолжительность кольцеобразной фазы в максимуме явления достигнет всего 44 секунды при фазе 0,992. При этом будет наблюдаться самое тонкое кольцо этого затмения. На территории нашей страны затмение видно не будет.

**Третье затмение года будет частным лунным** и произойдет в полнолуние 7 августа. Это затмение будет наблюдаться почти на всей территории России и стран СНГ (за исключением самых северных и самых восточных районов страны), а его максимальная фаза достигнет 0,25. Естественный спутник Земли пройдет в это затмение через северную часть земной тени. С Луны в это время наблюдается частное и полное солнечное затмение.

**Четвертое затмение 2017 года будет полным солнечным.** Оно произойдет при новолунии 21 августа, а полоса полной фазы пройдет по акватории Тихого и Атлантического океанов, пересекая североамериканский континент с запада на восток. Максимальная продолжительность полной фазы достигнет 2 минуты 40 секунд при фазе 1,03. Частные фазы увидят жители восточных районов нашей страны, стран Северной и Южной Америки, а также самых западных стран Западной Европы и Африки. Подробное описание затмения и его обстоятельства можно прочитать на Астрофоруме в теме Астрономические наблюдения. К затмению будет опубликована статья в журнале Небосвод <http://www.astronet.ru/db/msg/1332434>, а также выложена ее веб-версия на Астронет <http://www.astronet.ru/>. Будет описано также и честное теневое лунное затмение, как хорошо видимое в России.

**Статьи** (рекомендации к наблюдениям) о полных солнечных затмениях 2006 года <http://www.astronet.ru/db/msg/1211545> и 2008 года <http://www.astronet.ru/db/msg/1228001>, а также лунном затмении 2005 года <http://www.astronet.ru/db/msg/1208455>, наблюдавшиеся на территории России и стран СНГ.

Видимость планет в 2017 году достаточно благоприятна. **Меркурий** в течение года достигнет 3 утренних (январь, май, сентябрь) и 3 вечерних (апрель, июль, ноябрь) элонгаций, не отходя от Солнца более чем на 27 градусов.

Для **Венеры** в 2017 году благоприятным временем для наблюдений будет весь год (12 января - вечерняя элонгация 47 градусов, а 25 марта - нижнее соединение с Солнцем). Для **Марса** 2017 год - неблагоприятное время для наблюдений, т.к. видимый диаметр планеты не превышает 6 угловых секунд (соединение 27 июля). Наилучшая видимость **Юпитера** (созвездие Девы - близ Спики) относится к первой половине года с противостоянием 7 апреля. **Сатурн** (созвездие Змееносца) также лучше всего виден в первом полугодии с противостоянием 15 июня. **Уран** (созвездие Рыб) и **Нептун** (созвездие Водолея) являются «осенними» планетами, т.к. вступают в противостояние с Солнцем, соответственно, 19 октября и 5 сентября.

Из 22 **сближений планет** друг с другом в 2017 году самыми близкими (менее 5 угловых минут) будут 3 явления (1 января - Марс и Нептун, 28 апреля - Меркурий и Уран, 16 сентября - Меркурий и Марс). Менее 1 градуса станет угловое расстояние между: Венерой и Нептуном 12 января, Марсом и Ураном 26 февраля, Меркурием и Марсом 28 июня, Венерой и Марсом 5 октября, Меркурием и Юпитером 18 октября и Венерой и Юпитером 13 ноября. Соединения других планет можно найти в календаре событий АК\_2017.

Среди 18 **покрытий Луной больших планет** Солнечной системы в 2017 году: Меркурий покроется 2 раза (25 июля и 19 сентября), Венера - 1 раз (18 сентября), Марс - 2 раза (3 января, 18 сентября). Юпитер, Сатурн и Уран проведут этот год без покрытий Луной, зато Нептун покроется 13 раз (!), причем 2 покрытия будут иметь место в октябре. Очередная серия покрытий Юпитера начнется 28 ноября 2019 года, а Сатурна - 9 декабря 2018 года. Серия покрытий Урана закончилась в 2015 году, и теперь придется ждать до 7 февраля 2022 года

Из **покрытий звезд Луной** интересны будут покрытия звезды Альдебаран (альфа Тельца), серия которых началась 29 января 2015 года и продолжится до 3 сентября 2018 года. В 2017 году Альдебаран покроется 14 раз (по два раза в апреле и декабре). Еще одна яркая звезда - Регул (альфа Льва) - в начавшейся серии покрытий покроется 13 раз (дважды - в мае)

**Астероид** Веста станет самым ярким в этом году. Его блеск в период противостояния 18 января достигнет 6,2m (созвездие Рака). Блеска 7,4m в конце года достигнет Церера (созвездие Льва). Астероид Ирида вступит в противостояние с Солнцем 30 октября при блеске 6,9m (созвездие Овна). Из других астероидов яркими (около 9m) будут Метидда, Ирена, Геба и Евномия.

Среди **комет** доступными для малых и средних телескопов станут: возвращающаяся в очередной раз Энке, а также кометы P/Honda-Mrkos-Pajdusakova (45P), P/Harrington-Wilson, Johnson (C/2015 V2) и P/Tuttle-Giacobini-Kresak (41P), ожидаемый блеск которых составит ярче 10m. Комета Энке **возможно** будет видна невооруженным глазом на вечернем небе февраля. Следует отметить, что **приведенный список может значительно меняться**, ввиду открытия новых комет и увеличения блеска ожидаемых, а также потерь известных комет. Следите за обновлениями на Астронет <http://www.astronet.ru/> в Календаре наблюдателя и Астрономической неделе.

Из метеорных потоков лучшими для наблюдений будут Лириды, Ориониды, Леониды и Геминиды.

Оперативные сведения о явлениях - на <http://www.astronet.ru/>, <http://astronomy.ru/forum/>, <http://astroalert.ka-dar.ru>, <http://meteoweb.ru>, <http://aerith.net/comet/weekly/current.htm>, <http://biguniverse.ru>, <http://www.starlab.ru/forumdisplay.php?f=58>, <http://edu.zelenogorsk.ru/astron/calendar/2017/mycal2017.htm>, <http://shvedun.ru>

**Ясного неба и успешных наблюдений в 2017 году!**

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
АПРЕЛЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	0:41:14.8	+4:26:04	Psc	32.01	5h31m	12h04m	39	18h39m
2	0:44:53.5	+4:49:13	Psc	32.00	5h28m	12h04m	39	18h41m
3	0:48:32.4	+5:12:16	Psc	31.99	5h26m	12h04m	40	18h43m
4	0:52:11.3	+5:35:13	Psc	31.99	5h23m	12h04m	40	18h45m
5	0:55:50.5	+5:58:04	Psc	31.98	5h21m	12h03m	40	18h47m
6	0:59:29.7	+6:20:49	Psc	31.97	5h18m	12h03m	41	18h49m
7	1:03:09.2	+6:43:28	Psc	31.96	5h15m	12h03m	41	18h51m
8	1:06:48.8	+7:05:59	Psc	31.95	5h13m	12h02m	41	18h53m
9	1:10:28.7	+7:28:24	Psc	31.94	5h10m	12h02m	42	18h56m
10	1:14:08.8	+7:50:40	Psc	31.93	5h08m	12h02m	42	18h58m
11	1:17:49.2	+8:12:49	Psc	31.92	5h05m	12h02m	43	19h00m
12	1:21:29.9	+8:34:49	Psc	31.91	5h03m	12h01m	43	19h02m
13	1:25:10.8	+8:56:41	Psc	31.90	5h00m	12h01m	43	19h04m
14	1:28:52.1	+9:18:24	Psc	31.89	4h57m	12h01m	44	19h06m
15	1:32:33.8	+9:39:57	Psc	31.89	4h55m	12h01m	44	19h08m
16	1:36:15.7	+10:01:21	Psc	31.88	4h52m	12h00m	44	19h10m
17	1:39:58.1	+10:22:36	Psc	31.87	4h50m	12h00m	45	19h12m
18	1:43:40.9	+10:43:39	Psc	31.86	4h47m	12h00m	45	19h14m
19	1:47:24.0	+11:04:33	Ari	31.85	4h45m	12h00m	45	19h16m
20	1:51:07.6	+11:25:15	Ari	31.84	4h42m	12h00m	46	19h18m
21	1:54:51.7	+11:45:47	Ari	31.83	4h40m	11h59m	46	19h20m
22	1:58:36.2	+12:06:06	Ari	31.82	4h38m	11h59m	46	19h22m
23	2:02:21.1	+12:26:14	Ari	31.81	4h35m	11h59m	47	19h24m
24	2:06:06.5	+12:46:10	Ari	31.81	4h33m	11h59m	47	19h26m
25	2:09:52.4	+13:05:53	Ari	31.80	4h30m	11h59m	47	19h28m
26	2:13:38.8	+13:25:23	Ari	31.79	4h28m	11h58m	48	19h30m
27	2:17:25.7	+13:44:40	Ari	31.78	4h26m	11h58m	48	19h32m
28	2:21:13.1	+14:03:44	Ari	31.77	4h23m	11h58m	48	19h34m
29	2:25:00.9	+14:22:34	Ari	31.76	4h21m	11h58m	49	19h36m
30	2:28:49.3	+14:41:09	Ari	31.76	4h19m	11h58m	49	19h38m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ЯНВАРЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	18:45:46.0	-23:01:18	Sgr	32.53	8h32m	12h04m	11	15h37m
2	18:50:10.8	-22:56:15	Sgr	32.53	8h32m	12h05m	11	15h38m
3	18:54:35.3	-22:50:44	Sgr	32.53	8h31m	12h05m	11	15h40m
4	18:58:59.5	-22:44:46	Sgr	32.53	8h31m	12h06m	11	15h41m
5	19:03:23.2	-22:38:21	Sgr	32.53	8h30m	12h06m	12	15h42m
6	19:07:46.4	-22:31:30	Sgr	32.53	8h30m	12h07m	12	15h44m
7	19:12:09.2	-22:24:11	Sgr	32.53	8h29m	12h07m	12	15h45m
8	19:16:31.4	-22:16:26	Sgr	32.53	8h28m	12h07m	12	15h47m
9	19:20:53.2	-22:08:15	Sgr	32.53	8h28m	12h08m	12	15h49m
10	19:25:14.3	-21:59:38	Sgr	32.53	8h27m	12h08m	12	15h50m
11	19:29:35.0	-21:50:35	Sgr	32.53	8h26m	12h09m	12	15h52m
12	19:33:55.0	-21:41:07	Sgr	32.53	8h25m	12h09m	13	15h54m
13	19:38:14.4	-21:31:13	Sgr	32.52	8h24m	12h09m	13	15h55m
14	19:42:33.2	-21:20:55	Sgr	32.52	8h23m	12h10m	13	15h57m
15	19:46:51.3	-21:10:11	Sgr	32.52	8h22m	12h10m	13	15h59m
16	19:51:08.8	-20:59:04	Sgr	32.52	8h20m	12h11m	13	16h01m
17	19:55:25.6	-20:47:32	Sgr	32.52	8h19m	12h11m	13	16h03m
18	19:59:41.7	-20:35:37	Sgr	32.51	8h18m	12h11m	14	16h05m
19	20:03:57.2	-20:23:18	Sgr	32.51	8h17m	12h11m	14	16h07m
20	20:08:11.9	-20:10:36	Cap	32.51	8h15m	12h12m	14	16h09m
21	20:12:25.9	-19:57:31	Cap	32.50	8h14m	12h12m	14	16h11m
22	20:16:39.2	-19:44:04	Cap	32.50	8h12m	12h12m	14	16h13m
23	20:20:51.7	-19:30:15	Cap	32.50	8h11m	12h13m	15	16h15m
24	20:25:03.4	-19:16:04	Cap	32.49	8h09m	12h13m	15	16h17m
25	20:29:14.4	-19:01:32	Cap	32.49	8h08m	12h13m	15	16h19m
26	20:33:24.6	-18:46:39	Cap	32.49	8h06m	12h13m	15	16h21m
27	20:37:34.0	-18:31:25	Cap	32.48	8h04m	12h13m	16	16h23m
28	20:41:42.6	-18:15:52	Cap	32.48	8h03m	12h14m	16	16h25m
29	20:45:50.4	-17:59:58	Cap	32.48	8h01m	12h14m	16	16h28m
30	20:49:57.4	-17:43:45	Cap	32.47	7h59m	12h14m	17	16h30m
31	20:54:03.5	-17:27:14	Cap	32.47	7h57m	12h14m	17	16h32m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ФЕВРАЛЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	20:58:08.9	-17:10:23	Cap	32.46	7h55m	12h14m	17	16h34m
2	21:02:13.4	-16:53:15	Cap	32.46	7h53m	12h14m	17	16h36m
3	21:06:17.0	-16:35:49	Cap	32.45	7h51m	12h15m	18	16h38m
4	21:10:19.8	-16:18:05	Cap	32.45	7h49m	12h15m	18	16h41m
5	21:14:21.8	-16:00:05	Cap	32.44	7h47m	12h15m	18	16h43m
6	21:18:23.0	-15:41:49	Cap	32.44	7h45m	12h15m	19	16h45m
7	21:22:23.3	-15:23:16	Cap	32.43	7h43m	12h15m	19	16h47m
8	21:26:22.8	-15:04:27	Cap	32.43	7h41m	12h15m	19	16h49m
9	21:30:21.5	-14:45:24	Cap	32.42	7h39m	12h15m	20	16h52m
10	21:34:19.4	-14:26:05	Cap	32.42	7h37m	12h15m	20	16h54m
11	21:38:16.5	-14:06:32	Cap	32.41	7h35m	12h15m	20	16h56m
12	21:42:12.9	-13:46:46	Cap	32.41	7h32m	12h15m	21	16h58m
13	21:46:08.5	-13:26:45	Cap	32.40	7h30m	12h15m	21	17h00m
14	21:50:03.4	-13:06:31	Cap	32.39	7h28m	12h15m	21	17h03m
15	21:53:57.5	-12:46:05	Cap	32.39	7h26m	12h15m	22	17h05m
16	21:57:51.0	-12:25:26	Cap	32.38	7h23m	12h15m	22	17h07m
17	22:01:43.7	-12:04:35	Aqr	32.37	7h21m	12h15m	22	17h09m
18	22:05:35.7	-11:43:32	Aqr	32.37	7h19m	12h15m	23	17h11m
19	22:09:27.1	-11:22:18	Aqr	32.36	7h16m	12h14m	23	17h14m
20	22:13:17.8	-11:00:54	Aqr	32.35	7h14m	12h14m	23	17h16m
21	22:17:07.9	-10:39:19	Aqr	32.34	7h12m	12h14m	24	17h18m
22	22:20:57.3	-10:17:34	Aqr	32.34	7h09m	12h14m	24	17h20m
23	22:24:46.2	-9:55:40	Aqr	32.33	7h07m	12h14m	24	17h22m
24	22:28:34.4	-9:33:36	Aqr	32.32	7h04m	12h14m	25	17h24m
25	22:32:22.0	-9:11:24	Aqr	32.31	7h02m	12h14m	25	17h27m
26	22:36:09.1	-8:49:04	Aqr	32.31	6h59m	12h14m	25	17h29m
27	22:39:55.6	-8:26:35	Aqr	32.30	6h57m	12h13m	26	17h31m
28	22:43:41.5	-8:04:00	Aqr	32.29	6h54m	12h13m	26	17h33m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
МАРТ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	22:47:26.9	-7:41:17	Aqr	32.28	6h52m	12h13m	27	17h35m
2	22:51:11.8	-7:18:27	Aqr	32.28	6h49m	12h13m	27	17h37m
3	22:54:56.2	-6:55:31	Aqr	32.27	6h47m	12h13m	27	17h39m
4	22:58:40.1	-6:32:30	Aqr	32.26	6h44m	12h12m	28	17h41m
5	23:02:23.5	-6:09:23	Aqr	32.25	6h42m	12h12m	28	17h44m
6	23:06:06.5	-5:46:11	Aqr	32.24	6h39m	12h12m	29	17h46m
7	23:09:49.0	-5:22:55	Aqr	32.24	6h37m	12h12m	29	17h48m
8	23:13:31.1	-4:59:34	Aqr	32.23	6h34m	12h11m	29	17h50m
9	23:17:12.8	-4:36:10	Aqr	32.22	6h31m	12h11m	30	17h52m
10	23:20:54.1	-4:12:42	Aqr	32.21	6h29m	12h11m	30	17h54m
11	23:24:35.1	-3:49:10	Aqr	32.20	6h26m	12h11m	31	17h56m
12	23:28:15.7	-3:25:37	Aqr	32.19	6h24m	12h10m	31	17h58m
13	23:31:56.1	-3:02:00	Psc	32.19	6h21m	12h10m	31	18h00m
14	23:35:36.1	-2:38:22	Psc	32.18	6h18m	12h10m	32	18h02m
15	23:39:15.9	-2:14:42	Psc	32.17	6h16m	12h10m	32	18h04m
16	23:42:55.5	-1:51:01	Psc	32.16	6h13m	12h09m	32	18h06m
17	23:46:34.9	-1:27:19	Psc	32.15	6h11m	12h09m	33	18h09m
18	23:50:14.1	-1:03:36	Psc	32.14	6h08m	12h09m	33	18h11m
19	23:53:53.1	-0:39:53	Psc	32.13	6h05m	12h08m	34	18h13m
20	23:57:32.0	-0:16:10	Psc	32.12	6h03m	12h08m	34	18h15m
21	0:01:10.8	+0:07:33	Psc	32.11	6h00m	12h08m	34	18h17m
22	0:04:49.5	+0:31:14	Psc	32.10	5h57m	12h07m	35	18h19m
23	0:08:28.1	+0:54:55	Psc	32.09	5h55m	12h07m	35	18h21m
24	0:12:06.6	+1:18:33	Psc	32.09	5h52m	12h07m	36	18h23m
25	0:15:45.1	+1:42:10	Psc	32.08	5h49m	12h07m	36	18h25m
26	0:19:23.5	+2:05:45	Psc	32.07	5h47m	12h06m	36	18h27m
27	0:23:02.0	+2:29:17	Psc	32.06	5h44m	12h06m	37	18h29m
28	0:26:40.5	+2:52:46	Psc	32.05	5h42m	12h06m	37	18h31m
29	0:30:19.0	+3:16:12	Psc	32.04	5h39m	12h05m	38	18h33m
30	0:33:57.5	+3:39:33	Psc	32.03	5h36m	12h05m	38	18h35m
31	0:37:36.1	+4:02:51	Psc	32.02	5h34m	12h05m	38	18h37m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
АВГУСТ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	8:44:32.5	+18:04:47	Cnc	31.52	4h05m	12h07m	52	20h08m
2	8:48:25.2	+17:49:37	Cnc	31.52	4h07m	12h07m	52	20h06m
3	8:52:17.4	+17:34:10	Cnc	31.52	4h09m	12h07m	51	20h04m
4	8:56:08.9	+17:18:26	Cnc	31.53	4h10m	12h07m	51	20h02m
5	8:59:59.8	+17:02:25	Cnc	31.53	4h12m	12h07m	51	20h00m
6	9:03:50.1	+16:46:07	Cnc	31.54	4h14m	12h07m	51	19h57m
7	9:07:39.8	+16:29:34	Cnc	31.54	4h16m	12h06m	50	19h55m
8	9:11:28.9	+16:12:44	Cnc	31.55	4h18m	12h06m	50	19h53m
9	9:15:17.4	+15:55:39	Cnc	31.55	4h20m	12h06m	50	19h51m
10	9:19:05.4	+15:38:18	Cnc	31.56	4h22m	12h06m	49	19h49m
11	9:22:52.7	+15:20:43	Leo	31.56	4h24m	12h06m	49	19h46m
12	9:26:39.6	+15:02:52	Leo	31.57	4h26m	12h06m	49	19h44m
13	9:30:25.8	+14:44:47	Leo	31.57	4h28m	12h05m	49	19h42m
14	9:34:11.6	+14:26:28	Leo	31.58	4h30m	12h05m	48	19h39m
15	9:37:56.8	+14:07:56	Leo	31.58	4h32m	12h05m	48	19h37m
16	9:41:41.5	+13:49:09	Leo	31.59	4h34m	12h05m	48	19h35m
17	9:45:25.7	+13:30:10	Leo	31.59	4h36m	12h05m	47	19h32m
18	9:49:09.4	+13:10:57	Leo	31.60	4h38m	12h04m	47	19h30m
19	9:52:52.6	+12:51:32	Leo	31.61	4h40m	12h04m	47	19h27m
20	9:56:35.4	+12:31:54	Leo	31.61	4h42m	12h04m	46	19h25m
21	10:00:17.6	+12:12:05	Leo	31.62	4h44m	12h04m	46	19h23m
22	10:03:59.4	+11:52:04	Leo	31.62	4h46m	12h04m	46	19h20m
23	10:07:40.8	+11:31:52	Leo	31.63	4h47m	12h03m	45	19h18m
24	10:11:21.7	+11:11:29	Leo	31.64	4h49m	12h03m	45	19h15m
25	10:15:02.1	+10:50:55	Leo	31.64	4h51m	12h03m	45	19h13m
26	10:18:42.2	+10:30:11	Leo	31.65	4h53m	12h02m	44	19h10m
27	10:22:21.8	+10:09:17	Leo	31.66	4h55m	12h02m	44	19h08m
28	10:26:01.0	+9:48:14	Leo	31.67	4h57m	12h02m	44	19h05m
29	10:29:39.9	+9:27:01	Leo	31.67	4h59m	12h02m	43	19h03m
30	10:33:18.4	+9:05:39	Leo	31.68	5h01m	12h01m	43	19h00m
31	10:36:56.5	+8:44:08	Leo	31.69	5h03m	12h01m	42	18h57m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
МАИ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	2:32:38.2	+14:59:30	Ari	31.75	4h17m	11h58m	49	19h40m
2	2:36:27.6	+15:17:35	Ari	31.74	4h14m	11h58m	50	19h42m
3	2:40:17.6	+15:35:26	Ari	31.73	4h12m	11h58m	50	19h44m
4	2:44:08.0	+15:53:01	Ari	31.73	4h10m	11h57m	50	19h46m
5	2:47:59.0	+16:10:20	Ari	31.72	4h08m	11h57m	50	19h48m
6	2:51:50.6	+16:27:23	Ari	31.71	4h06m	11h57m	51	19h50m
7	2:55:42.6	+16:44:09	Ari	31.70	4h03m	11h57m	51	19h52m
8	2:59:35.3	+17:00:39	Ari	31.70	4h01m	11h57m	51	19h54m
9	3:03:28.5	+17:16:51	Ari	31.69	3h59m	11h57m	51	19h56m
10	3:07:22.2	+17:32:47	Ari	31.68	3h57m	11h57m	52	19h58m
11	3:11:16.6	+17:48:24	Ari	31.67	3h55m	11h57m	52	20h00m
12	3:15:11.5	+18:03:44	Ari	31.67	3h53m	11h57m	52	20h02m
13	3:19:06.9	+18:18:45	Ari	31.66	3h51m	11h57m	53	20h04m
14	3:23:03.0	+18:33:28	Ari	31.65	3h50m	11h57m	53	20h06m
15	3:26:59.6	+18:47:52	Tau	31.65	3h48m	11h57m	53	20h08m
16	3:30:56.9	+19:01:57	Tau	31.64	3h46m	11h57m	53	20h09m
17	3:34:54.7	+19:15:43	Tau	31.63	3h44m	11h57m	53	20h11m
18	3:38:53.0	+19:29:09	Tau	31.63	3h42m	11h57m	54	20h13m
19	3:42:52.0	+19:42:16	Tau	31.62	3h41m	11h57m	54	20h15m
20	3:46:51.5	+19:55:02	Tau	31.61	3h39m	11h57m	54	20h17m
21	3:50:51.6	+20:07:28	Tau	31.61	3h37m	11h57m	54	20h18m
22	3:54:52.2	+20:19:34	Tau	31.60	3h36m	11h57m	54	20h20m
23	3:58:53.4	+20:31:19	Tau	31.59	3h34m	11h57m	55	20h22m
24	4:02:55.1	+20:42:42	Tau	31.59	3h33m	11h58m	55	20h23m
25	4:06:57.3	+20:53:45	Tau	31.58	3h31m	11h58m	55	20h25m
26	4:11:00.0	+21:04:25	Tau	31.58	3h30m	11h58m	55	20h27m
27	4:15:03.3	+21:14:44	Tau	31.57	3h29m	11h58m	55	20h28m
28	4:19:06.9	+21:24:41	Tau	31.57	3h27m	11h58m	56	20h30m
29	4:23:11.1	+21:34:16	Tau	31.56	3h26m	11h58m	56	20h31m
30	4:27:15.6	+21:43:28	Tau	31.56	3h25m	11h58m	56	20h33m
31	4:31:20.6	+21:52:18	Tau	31.55	3h24m	11h58m	56	20h34m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ИЮНЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	4:35:26.0	+22:00:44	Tau	31.55	3h23m	11h59m	56	20h35m
2	4:39:31.7	+22:08:48	Tau	31.54	3h22m	11h59m	56	20h37m
3	4:43:37.8	+22:16:28	Tau	31.54	3h21m	11h59m	56	20h38m
4	4:47:44.3	+22:23:45	Tau	31.53	3h20m	11h59m	56	20h39m
5	4:51:51.1	+22:30:39	Tau	31.53	3h19m	11h59m	57	20h40m
6	4:55:58.2	+22:37:08	Tau	31.52	3h18m	11h59m	57	20h41m
7	5:00:05.7	+22:43:14	Tau	31.52	3h17m	12h00m	57	20h42m
8	5:04:13.4	+22:48:56	Tau	31.52	3h17m	12h00m	57	20h43m
9	5:08:21.3	+22:54:14	Tau	31.51	3h16m	12h00m	57	20h44m
10	5:12:29.5	+22:59:08	Tau	31.51	3h15m	12h00m	57	20h45m
11	5:16:38.0	+23:03:37	Tau	31.51	3h15m	12h00m	57	20h46m
12	5:20:46.7	+23:07:43	Tau	31.50	3h15m	12h01m	57	20h47m
13	5:24:55.5	+23:11:23	Tau	31.50	3h14m	12h01m	57	20h48m
14	5:29:04.6	+23:14:39	Tau	31.50	3h14m	12h01m	57	20h48m
15	5:33:13.8	+23:17:31	Tau	31.49	3h14m	12h01m	57	20h49m
16	5:37:23.1	+23:19:58	Tau	31.49	3h14m	12h01m	57	20h49m
17	5:41:32.6	+23:22:00	Tau	31.49	3h14m	12h02m	57	20h50m
18	5:45:42.1	+23:23:38	Tau	31.48	3h14m	12h02m	57	20h50m
19	5:49:51.7	+23:24:50	Tau	31.48	3h14m	12h02m	57	20h51m
20	5:54:01.4	+23:25:38	Tau	31.48	3h14m	12h02m	57	20h51m
21	5:58:11.1	+23:26:02	Tau	31.48	3h14m	12h03m	57	20h51m
22	6:02:20.7	+23:26:00	Gem	31.47	3h14m	12h03m	57	20h51m
23	6:06:30.4	+23:25:34	Gem	31.47	3h14m	12h03m	57	20h51m
24	6:10:40.0	+23:24:43	Gem	31.47	3h15m	12h03m	57	20h51m
25	6:14:49.5	+23:23:27	Gem	31.47	3h15m	12h03m	57	20h51m
26	6:18:58.8	+23:21:46	Gem	31.47	3h16m	12h04m	57	20h51m
27	6:23:08.1	+23:19:41	Gem	31.47	3h16m	12h04m	57	20h51m
28	6:27:17.1	+23:17:11	Gem	31.47	3h17m	12h04m	57	20h51m
29	6:31:26.0	+23:14:17	Gem	31.46	3h18m	12h04m	57	20h50m
30	6:35:34.6	+23:10:58	Gem	31.46	3h18m	12h04m	57	20h50m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ИЮЛЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	6:39:43.0	+23:07:15	Gem	31.46	3h19m	12h05m	57	20h50m
2	6:43:51.0	+23:03:08	Gem	31.46	3h20m	12h05m	57	20h49m
3	6:47:58.9	+22:58:36	Gem	31.46	3h21m	12h05m	57	20h48m
4	6:52:06.3	+22:53:40	Gem	31.46	3h22m	12h05m	57	20h48m
5	6:56:13.5	+22:48:21	Gem	31.46	3h23m	12h05m	57	20h47m
6	7:00:20.3	+22:42:38	Gem	31.46	3h24m	12h05m	57	20h46m
7	7:04:26.8	+22:36:31	Gem	31.46	3h25m	12h06m	57	20h45m
8	7:08:32.9	+22:30:00	Gem	31.46	3h26m	12h06m	56	20h45m
9	7:12:38.5	+22:23:06	Gem	31.46	3h28m	12h06m	56	20h44m
10	7:16:43.8	+22:15:49	Gem	31.47	3h29m	12h06m	56	20h43m
11	7:20:48.7	+22:08:09	Gem	31.47	3h30m	12h06m	56	20h41m
12	7:24:53.1	+22:00:06	Gem	31.47	3h31m	12h06m	56	20h40m
13	7:28:57.0	+21:51:41	Gem	31.47	3h33m	12h06m	56	20h39m
14	7:33:00.5	+21:42:53	Gem	31.47	3h34m	12h07m	56	20h38m
15	7:37:03.6	+21:33:43	Gem	31.47	3h36m	12h07m	55	20h37m
16	7:41:06.1	+21:24:11	Gem	31.47	3h37m	12h07m	55	20h35m
17	7:45:08.2	+21:14:16	Gem	31.47	3h39m	12h07m	55	20h34m
18	7:49:09.8	+21:04:01	Gem	31.47	3h40m	12h07m	55	20h32m
19	7:53:10.8	+20:53:24	Gem	31.48	3h42m	12h07m	55	20h31m
20	7:57:11.4	+20:42:25	Gem	31.48	3h44m	12h07m	55	20h29m
21	8:01:11.3	+20:31:06	Cnc	31.48	3h45m	12h07m	54	20h28m
22	8:05:10.8	+20:19:26	Cnc	31.48	3h47m	12h07m	54	20h26m
23	8:09:09.7	+20:07:26	Cnc	31.49	3h49m	12h07m	54	20h25m
24	8:13:08.0	+19:55:05	Cnc	31.49	3h50m	12h07m	54	20h23m
25	8:17:05.7	+19:42:25	Cnc	31.49	3h52m	12h07m	54	20h21m
26	8:21:02.8	+19:29:24	Cnc	31.49	3h54m	12h07m	53	20h19m
27	8:24:59.3	+19:16:05	Cnc	31.50	3h56m	12h07m	53	20h18m
28	8:28:55.2	+19:02:26	Cnc	31.50	3h57m	12h07m	53	20h16m
29	8:32:50.4	+18:48:29	Cnc	31.50	3h59m	12h07m	53	20h14m
30	8:36:45.1	+18:34:13	Cnc	31.51	4h01m	12h07m	52	20h12m
31	8:40:39.1	+18:19:39	Cnc	31.51	4h03m	12h07m	52	20h10m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ДЕКАБРЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	16:28:02.3	-21:45:25	Oph	32.44	8h08m	11h50m	12	15h31m
2	16:32:21.3	-21:54:39	Oph	32.44	8h09m	11h50m	12	15h31m
3	16:36:40.8	-22:03:28	Oph	32.45	8h11m	11h51m	12	15h30m
4	16:41:01.0	-22:11:51	Oph	32.45	8h12m	11h51m	12	15h29m
5	16:45:21.7	-22:19:49	Oph	32.46	8h14m	11h51m	12	15h28m
6	16:49:43.0	-22:27:20	Oph	32.46	8h15m	11h52m	12	15h28m
7	16:54:04.9	-22:34:25	Oph	32.47	8h17m	11h52m	11	15h27m
8	16:58:27.2	-22:41:04	Oph	32.47	8h18m	11h53m	11	15h27m
9	17:02:50.1	-22:47:17	Oph	32.48	8h19m	11h53m	11	15h27m
10	17:07:13.5	-22:53:02	Oph	32.48	8h21m	11h54m	11	15h26m
11	17:11:37.3	-22:58:20	Oph	32.48	8h22m	11h54m	11	15h26m
12	17:16:01.5	-23:03:12	Oph	32.49	8h23m	11h54m	11	15h26m
13	17:20:26.1	-23:07:35	Oph	32.49	8h24m	11h55m	11	15h26m
14	17:24:51.0	-23:11:32	Oph	32.49	8h25m	11h55m	11	15h26m
15	17:29:16.3	-23:15:00	Oph	32.50	8h26m	11h56m	11	15h26m
16	17:33:41.8	-23:18:01	Oph	32.50	8h27m	11h56m	11	15h26m
17	17:38:07.6	-23:20:34	Oph	32.50	8h28m	11h57m	11	15h26m
18	17:42:33.6	-23:22:39	Oph	32.51	8h29m	11h57m	11	15h26m
19	17:46:59.7	-23:24:16	Sgr	32.51	8h29m	11h58m	11	15h26m
20	17:51:26.0	-23:25:25	Sgr	32.51	8h30m	11h58m	11	15h27m
21	17:55:52.4	-23:26:05	Sgr	32.51	8h30m	11h59m	11	15h27m
22	18:00:18.8	-23:26:17	Sgr	32.52	8h31m	11h59m	11	15h28m
23	18:04:45.3	-23:26:01	Sgr	32.52	8h31m	12h00m	11	15h28m
24	18:09:11.7	-23:25:17	Sgr	32.52	8h32m	12h00m	11	15h29m
25	18:13:38.1	-23:24:05	Sgr	32.52	8h32m	12h01m	11	15h30m
26	18:18:04.4	-23:22:24	Sgr	32.52	8h32m	12h01m	11	15h31m
27	18:22:30.6	-23:20:15	Sgr	32.53	8h32m	12h02m	11	15h32m
28	18:26:56.6	-23:17:38	Sgr	32.53	8h32m	12h02m	11	15h32m
29	18:31:22.4	-23:14:33	Sgr	32.53	8h32m	12h03m	11	15h33m
30	18:35:48.0	-23:11:00	Sgr	32.53	8h32m	12h03m	11	15h35m
31	18:40:13.3	-23:06:59	Sgr	32.53	8h32m	12h04m	11	15h36m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
СЕНТЯБРЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	10:40:34.3	+8:22:30	Leo	31.70	5h05m	12h01m	42	18h55m
2	10:44:11.7	+8:00:43	Leo	31.70	5h07m	12h00m	42	18h52m
3	10:47:48.9	+7:38:49	Leo	31.71	5h09m	12h00m	41	18h50m
4	10:51:25.8	+7:16:47	Leo	31.72	5h11m	12h00m	41	18h47m
5	10:55:02.4	+6:54:38	Leo	31.73	5h13m	11h59m	41	18h44m
6	10:58:38.8	+6:32:22	Leo	31.73	5h15m	11h59m	40	18h42m
7	11:02:15.0	+6:10:00	Leo	31.74	5h17m	11h59m	40	18h39m
8	11:05:51.0	+5:47:32	Leo	31.75	5h19m	11h58m	40	18h37m
9	11:09:26.8	+5:24:59	Leo	31.76	5h21m	11h58m	39	18h34m
10	11:13:02.5	+5:02:19	Leo	31.77	5h23m	11h58m	39	18h31m
11	11:16:38.0	+4:39:35	Leo	31.77	5h25m	11h57m	38	18h29m
12	11:20:13.4	+4:16:45	Leo	31.78	5h27m	11h57m	38	18h26m
13	11:23:48.8	+3:53:51	Leo	31.79	5h29m	11h57m	38	18h23m
14	11:27:24.1	+3:30:53	Leo	31.80	5h30m	11h56m	37	18h21m
15	11:30:59.3	+3:07:50	Leo	31.81	5h32m	11h56m	37	18h18m
16	11:34:34.6	+2:44:45	Leo	31.82	5h34m	11h55m	36	18h15m
17	11:38:09.8	+2:21:36	Vir	31.82	5h36m	11h55m	36	18h13m
18	11:41:45.0	+1:58:24	Vir	31.83	5h38m	11h55m	36	18h10m
19	11:45:20.3	+1:35:09	Vir	31.84	5h40m	11h54m	35	18h07m
20	11:48:55.6	+1:11:52	Vir	31.85	5h42m	11h54m	35	18h05m
21	11:52:30.9	+0:48:34	Vir	31.86	5h44m	11h54m	35	18h02m
22	11:56:06.3	+0:25:14	Vir	31.87	5h46m	11h53m	34	17h59m
23	11:59:41.9	+0:01:52	Vir	31.88	5h48m	11h53m	34	17h57m
24	12:03:17.5	-0:21:30	Vir	31.88	5h50m	11h53m	33	17h54m
25	12:06:53.2	-0:44:52	Vir	31.89	5h52m	11h52m	33	17h51m
26	12:10:29.1	-1:08:14	Vir	31.90	5h54m	11h52m	33	17h49m
27	12:14:05.2	-1:31:37	Vir	31.91	5h56m	11h52m	32	17h46m
28	12:17:41.4	-1:54:58	Vir	31.92	5h58m	11h51m	32	17h44m
29	12:21:17.9	-2:18:19	Vir	31.93	6h00m	11h51m	31	17h41m
30	12:24:54.6	-2:41:38	Vir	31.94	6h02m	11h51m	31	17h38m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ОКТЯБРЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	12:28:31.5	-3:04:55	Vir	31.95	6h04m	11h50m	31	17h36m
2	12:32:08.7	-3:28:11	Vir	31.96	6h06m	11h50m	30	17h33m
3	12:35:46.2	-3:51:24	Vir	31.97	6h08m	11h50m	30	17h30m
4	12:39:23.9	-4:14:34	Vir	31.98	6h10m	11h49m	30	17h28m
5	12:43:02.1	-4:37:41	Vir	31.99	6h12m	11h49m	29	17h25m
6	12:46:40.6	-5:00:45	Vir	32.00	6h14m	11h49m	29	17h23m
7	12:50:19.4	-5:23:45	Vir	32.00	6h16m	11h48m	28	17h20m
8	12:53:58.7	-5:46:41	Vir	32.01	6h18m	11h48m	28	17h17m
9	12:57:38.4	-6:09:33	Vir	32.02	6h20m	11h48m	28	17h15m
10	13:01:18.6	-6:32:19	Vir	32.03	6h22m	11h48m	27	17h12m
11	13:04:59.2	-6:55:01	Vir	32.04	6h24m	11h47m	27	17h10m
12	13:08:40.4	-7:17:37	Vir	32.05	6h26m	11h47m	26	17h07m
13	13:12:22.0	-7:40:07	Vir	32.06	6h28m	11h47m	26	17h05m
14	13:16:04.3	-8:02:31	Vir	32.07	6h30m	11h47m	26	17h02m
15	13:19:47.0	-8:24:49	Vir	32.08	6h32m	11h46m	25	17h00m
16	13:23:30.3	-8:46:59	Vir	32.09	6h34m	11h46m	25	16h57m
17	13:27:14.2	-9:09:02	Vir	32.09	6h36m	11h46m	25	16h55m
18	13:30:58.7	-9:30:57	Vir	32.10	6h38m	11h46m	24	16h52m
19	13:34:43.9	-9:52:44	Vir	32.11	6h40m	11h46m	24	16h50m
20	13:38:29.6	-10:14:23	Vir	32.12	6h43m	11h45m	24	16h47m
21	13:42:16.0	-10:35:52	Vir	32.13	6h45m	11h45m	23	16h45m
22	13:46:03.0	-10:57:12	Vir	32.14	6h47m	11h45m	23	16h43m
23	13:49:50.7	-11:18:23	Vir	32.15	6h49m	11h45m	22	16h40m
24	13:53:39.1	-11:39:22	Vir	32.16	6h51m	11h45m	22	16h38m
25	13:57:28.1	-12:00:12	Vir	32.17	6h53m	11h45m	22	16h36m
26	14:01:17.9	-12:20:50	Vir	32.18	6h55m	11h45m	21	16h33m
27	14:05:08.4	-12:41:17	Vir	32.18	6h57m	11h45m	21	16h31m
28	14:08:59.6	-13:01:32	Vir	32.19	6h59m	11h44m	21	16h29m
29	14:12:51.5	-13:21:34	Vir	32.20	7h02m	11h44m	20	16h26m
30	14:16:44.1	-13:41:24	Vir	32.21	7h04m	11h44m	20	16h24m
31	14:20:37.6	-14:01:01	Vir	32.22	7h06m	11h44m	20	16h22m

**СОЛНЦЕ 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
НОЯБРЬ**

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	диам	восход	ВК	Вс	заход
1	14:24:31.8	-14:20:25	Lib	32.23	7h08m	11h44m	19	16h20m
2	14:28:26.7	-14:39:34	Lib	32.24	7h10m	11h44m	19	16h18m
3	14:32:22.5	-14:58:29	Lib	32.25	7h12m	11h44m	19	16h16m
4	14:36:19.1	-15:17:10	Lib	32.25	7h14m	11h44m	19	16h13m
5	14:40:16.5	-15:35:36	Lib	32.26	7h16m	11h44m	18	16h11m
6	14:44:14.7	-15:53:46	Lib	32.27	7h19m	11h44m	18	16h09m
7	14:48:13.8	-16:11:40	Lib	32.28	7h21m	11h44m	18	16h07m
8	14:52:13.7	-16:29:18	Lib	32.29	7h23m	11h44m	17	16h05m
9	14:56:14.5	-16:46:40	Lib	32.29	7h25m	11h45m	17	16h03m
10	15:00:16.1	-17:03:44	Lib	32.30	7h27m	11h45m	17	16h02m
11	15:04:18.6	-17:20:31	Lib	32.31	7h29m	11h45m	17	16h00m
12	15:08:22.0	-17:37:01	Lib	32.32	7h31m	11h45m	16	15h58m
13	15:12:26.3	-17:53:12	Lib	32.32	7h33m	11h45m	16	15h56m
14	15:16:31.4	-18:09:05	Lib	32.33	7h35m	11h45m	16	15h54m
15	15:20:37.4	-18:24:38	Lib	32.34	7h37m	11h45m	15	15h53m
16	15:24:44.2	-18:39:53	Lib	32.34	7h39m	11h45m	15	15h51m
17	15:28:51.9	-18:54:47	Lib	32.35	7h42m	11h46m	15	15h49m
18	15:33:00.4	-19:09:22	Lib	32.36	7h44m	11h46m	15	15h48m
19	15:37:09.8	-19:23:36	Lib	32.36	7h46m	11h46m	14	15h46m
20	15:41:20.0	-19:37:29	Lib	32.37	7h48m	11h46m	14	15h45m
21	15:45:31.0	-19:51:00	Lib	32.38	7h50m	11h47m	14	15h43m
22	15:49:42.8	-20:04:10	Lib	32.38	7h51m	11h47m	14	15h42m
23	15:53:55.3	-20:16:58	Lib	32.39	7h53m	11h47m	14	15h40m
24	15:58:08.7	-20:29:23	Sco	32.40	7h55m	11h47m	13	15h39m
25	16:02:22.8	-20:41:26	Sco	32.40	7h57m	11h48m	13	15h38m
26	16:06:37.6	-20:53:06	Sco	32.41	7h59m	11h48m	13	15h37m
27	16:10:53.2	-21:04:22	Sco	32.42	8h01m	11h48m	13	15h35m
28	16:15:09.5	-21:15:14	Sco	32.42	8h03m	11h49m	13	15h34m
29	16:19:26.4	-21:25:42	Sco	32.43	8h04m	11h49m	13	15h33m
30	16:23:44.1	-21:35:46	Oph	32.43	8h06m	11h49m	12	15h32m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
АПРЕЛЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	4:11:07.4	+15:01:27	Tau	-8.4	19.7	32.71	8h11m	16h14m	51	--h--m
2	5:10:42.5	+17:10:04	Tau	-9.1	29.8	32.51	8h56m	17h13m	52	0h28m
3	6:10:31.5	+18:09:05	Ori	-9.7	40.9	32.25	9h50m	18h10m	52	1h33m
4	7:09:40.0	+17:56:36	Gem	-10.3	52.3	31.95	10h53m	19h06m	51	2h27m
5	8:07:18.1	+16:36:55	Cnc	-10.7	63.4	31.65	12h02m	20h00m	49	3h11m
6	9:02:52.6	+14:19:07	Cnc	-11.1	73.6	31.34	13h15m	20h51m	46	3h46m
7	9:56:12.3	+11:15:03	Leo	-11.5	82.5	31.04	14h28m	21h40m	42	4h14m
8	10:47:25.3	+7:37:38	Leo	-11.8	89.7	30.76	15h41m	22h27m	38	4h37m
9	11:36:53.5	+3:39:40	Leo	-12.1	95.1	30.49	16h53m	23h12m	34	4h59m
10	12:25:05.6	-0:26:47	Vir	-12.4	98.5	30.24	18h03m	23h56m	29	5h18m
11	13:12:32.8	-4:30:34	Vir	-12.7	99.9	30.01	19h13m	--h--m		5h38m
12	13:59:44.6	-8:21:35	Vir	-12.5	99.3	29.81	20h21m	0h41m	25	5h58m
13	14:47:06.4	-11:50:45	Lib	-12.2	96.8	29.65	21h27m	1h25m	22	6h20m
14	15:34:57.8	-14:50:01	Lib	-11.9	92.7	29.53	22h31m	2h10m	19	6h46m
15	16:23:31.0	-17:12:24	Oph	-11.6	87.0	29.47	23h31m	2h56m	17	7h15m
16	17:12:50.2	-18:52:04	Oph	-11.2	80.1	29.47	--h--m	3h43m	15	7h51m
17	18:02:51.8	-19:44:32	Sgr	-10.9	72.2	29.56	0h26m	4h30m	14	8h34m
18	18:53:26.9	-19:46:43	Sgr	-10.6	63.3	29.73	1h14m	5h18m	14	9h24m
19	19:44:23.8	-18:57:10	Sgr	-10.1	53.9	29.99	1h55m	6h07m	15	10h22m
20	20:35:32.8	-17:16:09	Cap	-9.6	44.2	30.33	2h30m	6h56m	17	11h27m
21	21:26:49.8	-14:45:45	Cap	-9.1	34.4	30.75	3h00m	7h45m	20	12h38m
22	22:18:19.1	-11:30:09	Aqr	-8.5	24.9	31.23	3h27m	8h34m	24	13h53m
23	23:10:14.1	-7:35:59	Aqr	-7.8	16.3	31.74	3h51m	9h24m	28	15h12m
24	0:02:56.4	-3:12:47	Psc	-6.9	9.0	32.24	4h13m	10h16m	33	16h33m
25	0:56:52.9	+1:26:24	Cet	-4.8	3.6	32.68	4h36m	11h09m	38	17h58m
26	1:52:30.1	+6:04:54	Psc	-1.2	0.6	33.01	5h01m	12h04m	43	19h24m
27	2:50:06.3	+10:23:08	Cet	-2.0	0.5	33.21	5h30m	13h02m	47	20h50m
28	3:49:41.5	+14:00:34	Tau	-5.6	3.4	33.24	6h04m	14h01m	50	22h11m
29	4:50:48.5	+16:38:43	Tau	-7.4	9.0	33.11	6h47m	15h02m	52	23h23m
30	5:52:31.8	+18:04:51	Ori	-8.3	17.1	32.84	7h40m	16h02m	53	--h--m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ЯНВАРЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	20:52:50.5	-16:01:18	Cap	-7.0	6.9	30.53	10h01m	14h41m	19	19h30m
2	21:44:06.4	-13:13:41	Cap	-7.9	13.0	30.80	10h29m	15h30m	23	20h43m
3	22:35:00.9	-9:46:40	Aqr	-8.5	20.7	31.09	10h53m	16h19m	27	21h58m
4	23:25:49.3	-5:49:01	Aqr	-9.1	30.0	31.39	11h15m	17h08m	31	23h15m
5	0:17:00.1	-1:31:01	Psc	-9.6	40.4	31.71	11h37m	17h58m	36	--h--m
6	1:09:10.4	+2:55:27	Psc	-10.1	51.5	32.03	12h00m	18h49m	41	0h33m
7	2:03:00.8	+7:16:32	Psc	-10.6	62.8	32.34	12h25m	19h42m	45	1h54m
8	2:59:06.3	+11:16:12	Ari	-11.0	73.6	32.60	12h56m	20h39m	48	3h15m
9	3:57:44.9	+14:36:43	Tau	-11.3	83.4	32.79	13h33m	21h37m	51	4h35m
10	4:58:44.8	+17:00:21	Tau	-11.7	91.3	32.88	14h20m	22h38m	52	5h51m
11	6:01:15.6	+18:12:49	Ori	-12.1	96.8	32.85	15h18m	23h38m	52	6h59m
12	7:03:55.4	+18:07:05	Gem	-12.5	99.6	32.68	16h25m	--h--m		7h55m
13	8:05:13.5	+16:45:46	Cnc	-12.6	99.5	32.40	17h39m	0h37m	51	8h39m
14	9:03:58.8	+14:20:01	Cnc	-12.2	96.7	32.01	18h56m	1h34m	48	9h14m
15	9:59:36.6	+11:06:06	Leo	-11.8	91.7	31.56	20h11m	2h26m	45	9h42m
16	10:52:08.1	+7:21:12	Leo	-11.5	84.9	31.10	21h25m	3h16m	41	10h06m
17	11:41:59.5	+3:20:45	Vir	-11.2	76.7	30.65	22h36m	4h03m	37	10h27m
18	12:29:50.7	-0:42:43	Vir	-10.9	67.8	30.25	23h45m	4h48m	32	10h47m
19	13:16:25.7	-4:39:21	Vir	-10.5	58.4	29.93	--h--m	5h31m	28	11h06m
20	14:02:28.0	-8:21:13	Vir	-10.1	48.9	29.69	0h53m	6h15m	25	11h27m
21	14:48:37.2	-11:41:33	Lib	-9.7	39.6	29.55	1h59m	6h58m	21	11h49m
22	15:35:26.2	-14:34:03	Lib	-9.3	30.7	29.50	3h04m	7h43m	18	12h15m
23	16:23:19.3	-16:52:22	Oph	-8.8	22.5	29.54	4h07m	8h29m	16	12h47m
24	17:12:29.6	-18:30:15	Oph	-8.2	15.2	29.67	5h06m	9h17m	15	13h25m
25	18:02:56.7	-19:21:47	Sgr	-7.4	9.0	29.86	6h00m	10h06m	14	14h11m
26	18:54:27.1	-19:22:15	Sgr	-6.0	4.2	30.10	6h48m	10h55m	15	15h05m
27	19:46:37.1	-18:29:02	Sgr	-3.2	1.2	30.37	7h29m	11h46m	16	16h08m
28	20:38:59.7	-16:42:24	Cap	0.1	0.0	30.66	8h04m	12h37m	18	17h17m
29	21:31:12.1	-14:05:57	Cap	-2.9	1.0	30.95	8h33m	13h27m	22	18h30m
30	22:23:02.6	-10:46:26	Aqr	-5.8	4.1	31.22	8h59m	14h16m	25	19h46m
31	23:14:33.6	-6:53:16	Aqr	-7.3	9.4	31.47	9h22m	15h06m	30	21h03m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ФЕВРАЛЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	0:06:01.6	-2:37:49	Psc	-8.1	16.7	31.70	9h44m	15h56m	34	22h22m
2	0:57:54.0	+1:47:11	Cet	-8.7	25.8	31.89	10h06m	16h46m	39	23h41m
3	1:50:44.2	+6:07:53	Psc	-9.3	36.2	32.07	10h31m	17h38m	43	--h--m
4	2:45:05.2	+10:09:30	Cet	-9.8	47.5	32.21	10h58m	18h32m	47	1h01m
5	3:41:20.7	+13:36:41	Tau	-10.4	59.0	32.32	11h32m	19h28m	50	2h20m
6	4:39:36.0	+16:14:20	Tau	-10.8	70.1	32.38	12h13m	20h26m	52	3h35m
7	5:39:28.9	+17:49:21	Tau	-11.2	80.2	32.38	13h04m	21h24m	52	4h44m
8	6:40:09.1	+18:13:06	Gem	-11.6	88.6	32.32	14h06m	22h22m	51	5h43m
9	7:40:28.1	+17:23:40	Gem	-12.0	94.9	32.17	15h15m	23h19m	49	6h31m
10	8:39:18.7	+15:26:43	Cnc	-12.4	98.7	31.95	16h30m	--h--m		7h10m
11	9:35:53.3	+12:34:06	Leo	-12.7	100.0	31.66	17h46m	0h13m	46	7h41m
12	10:29:52.8	+9:01:11	Leo	-12.4	98.7	31.31	19h01m	1h04m	43	8h07m
13	11:21:23.7	+5:03:55	Leo	-12.1	95.3	30.94	20h15m	1h53m	39	8h30m
14	12:10:50.3	+0:56:49	Vir	-11.8	89.9	30.56	21h26m	2h39m	34	8h50m
15	12:58:46.6	-3:07:52	Vir	-11.5	83.1	30.22	22h36m	3h24m	30	9h10m
16	13:45:49.5	-7:00:14	Vir	-11.2	75.2	29.93	23h43m	4h08m	26	9h30m
17	14:32:35.1	-10:32:15	Lib	-10.9	66.5	29.71	--h--m	4h52m	23	9h52m
18	15:19:36.0	-13:37:05	Lib	-10.5	57.3	29.58	0h49m	5h37m	20	10h17m
19	16:07:18.5	-16:08:38	Sco	-10.1	48.0	29.54	1h53m	6h22m	17	10h46m
20	16:56:01.1	-18:01:10	Oph	-9.7	38.7	29.60	2h53m	7h09m	15	11h21m
21	17:45:51.9	-19:09:14	Sgr	-9.1	29.7	29.75	3h49m	7h57m	14	12h03m
22	18:36:48.4	-19:28:08	Sgr	-8.6	21.4	29.99	4h40m	8h46m	14	12h53m
23	19:28:37.9	-18:54:24	Sgr	-7.9	14.0	30.29	5h24m	9h36m	15	13h52m
24	20:21:01.4	-17:26:44	Cap	-7.0	7.8	30.64	6h01m	10h27m	17	14h59m
25	21:13:39.1	-15:06:38	Cap	-5.2	3.2	31.01	6h33m	11h18m	20	16h11m
26	22:06:16.6	-11:58:58	Aqr	-1.8	0.5	31.37	7h01m	12h08m	24	17h27m
27	22:58:49.2	-8:11:55	Aqr	-1.0	0.1	31.70	7h25m	12h59m	28	18h46m
28	23:51:23.9	-3:56:49	Aqr	-4.4	2.2	31.98	7h48m	13h50m	33	20h06m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
МАРТ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	0:44:17.6	+0:32:37	Cet	-6.7	6.8	32.18	8h11m	14h42m	37	21h28m
2	1:37:53.6	+5:00:56	Psc	-7.8	13.6	32.31	8h35m	15h34m	42	22h49m
3	2:32:35.8	+9:11:57	Cet	-8.5	22.5	32.36	9h02m	16h28m	46	--h--m
4	3:28:41.4	+12:49:36	Tau	-9.1	32.9	32.35	9h34m	17h24m	49	0h09m
5	4:26:13.7	+15:39:09	Tau	-9.7	44.1	32.29	10h12m	18h20m	51	1h25m
6	5:24:55.5	+17:28:33	Tau	-10.3	55.7	32.18	11h00m	19h18m	52	2h36m
7	6:24:09.3	+18:10:06	Gem	-10.8	66.8	32.04	11h56m	20h15m	52	3h37m
8	7:23:03.9	+17:41:37	Gem	-11.2	77.0	31.87	13h01m	21h10m	50	4h28m
9	8:20:47.7	+16:06:53	Cnc	-11.5	85.7	31.67	14h13m	22h04m	48	5h09m
10	9:16:42.2	+13:34:56	Cnc	-11.9	92.6	31.44	15h27m	22h55m	44	5h42m
11	10:10:29.3	+10:18:13	Leo	-12.2	97.2	31.18	16h41m	23h44m	40	6h09m
12	11:02:10.9	+6:30:49	Leo	-12.6	99.6	30.90	17h55m	--h--m		6h32m
13	11:52:04.3	+2:26:43	Vir	-12.6	99.8	30.61	19h07m	0h31m	36	6h53m
14	12:40:35.6	-1:41:09	Vir	-12.3	97.8	30.32	20h18m	1h17m	32	7h13m
15	13:28:14.9	-5:41:29	Vir	-12.0	94.0	30.05	21h27m	2h01m	28	7h34m
16	14:15:32.2	-9:24:39	Vir	-11.7	88.5	29.82	22h34m	2h46m	24	7h55m
17	15:02:54.6	-12:42:30	Lib	-11.4	81.7	29.65	23h39m	3h30m	21	8h18m
18	15:50:44.5	-15:28:04	Lib	-11.1	73.8	29.54	--h--m	4h15m	18	8h45m
19	16:39:17.9	-17:35:24	Oph	-10.8	65.2	29.52	0h41m	5h01m	16	9h17m
20	17:28:43.3	-18:59:17	Oph	-10.4	56.1	29.60	1h39m	5h49m	15	9h56m
21	18:19:01.2	-19:35:25	Sgr	-9.9	46.6	29.76	2h32m	6h37m	14	10h42m
22	19:10:05.1	-19:20:33	Sgr	-9.4	37.2	30.02	3h18m	7h26m	15	11h36m
23	20:01:44.2	-18:12:57	Sgr	-8.9	28.0	30.36	3h57m	8h15m	16	12h39m
24	20:53:46.7	-16:12:53	Cap	-8.3	19.5	30.76	4h31m	9h06m	19	13h48m
25	21:46:04.8	-13:23:07	Cap	-7.4	12.0	31.21	5h00m	9h56m	22	15h02m
26	22:38:37.3	-9:49:23	Aqr	-6.1	5.9	31.66	5h26m	10h47m	26	16h20m
27	23:31:31.7	-5:40:46	Aqr	-3.3	1.8	32.08	5h50m	11h38m	31	17h41m
28	0:25:03.3	-1:09:45	Psc	0.2	0.1	32.44	6h13m	12h31m	35	19h04m
29	1:19:32.2	+3:28:03	Psc	-3.1	1.1	32.69	6h37m	13h24m	40	20h28m
30	2:15:17.6	+7:54:46	Cet	-6.1	4.8	32.81	7h03m	14h20m	45	21h52m
31	3:12:30.7	+11:51:42	Ari	-7.6	11.1	32.82	7h34m	15h16m	48	23h13m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
АВГУСТ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	15:28:55.9	-14:21:57	Lib	-10.5	63.0	29.62	14h57m	19h29m	17	23h54m
2	16:16:58.8	-16:56:46	Sco	-10.9	71.9	29.52	16h00m	20h15m	15	--h--m
3	17:06:03.3	-18:50:41	Oph	-11.2	80.0	29.50	16h58m	21h03m	14	0h27m
4	17:56:12.0	-19:58:07	Sgr	-11.5	87.0	29.55	17h50m	21h51m	14	1h06m
5	18:47:14.4	-20:14:35	Sgr	-11.8	92.8	29.68	18h35m	22h40m	14	1h53m
6	19:38:49.9	-19:37:25	Sgr	-12.2	97.0	29.85	19h13m	23h29m	16	2h48m
7	20:30:33.6	-18:06:32	Cap	-12.5	99.4	30.07	19h45m	--h--m		3h50m
8	21:22:03.3	-15:44:45	Cap	-12.7	99.9	30.32	20h12m	0h17m	18	4h57m
9	22:13:06.6	-12:37:51	Aqr	-12.3	98.4	30.58	20h35m	1h06m	22	6h09m
10	23:03:44.1	-8:54:03	Aqr	-12.0	94.7	30.85	20h57m	1h53m	26	7h23m
11	23:54:10.0	-4:43:34	Aqr	-11.7	89.0	31.12	21h17m	2h41m	30	8h38m
12	0:44:50.2	-0:18:05	Cet	-11.4	81.4	31.40	21h38m	3h29m	34	9h55m
13	1:36:18.4	+4:09:30	Psc	-11.1	72.2	31.66	22h01m	4h18m	39	11h13m
14	2:29:10.5	+8:25:08	Cet	-10.7	61.7	31.92	22h27m	5h09m	43	12h33m
15	3:23:58.1	+12:13:45	Tau	-10.2	50.5	32.15	23h00m	6h02m	47	13h52m
16	4:20:58.7	+15:19:41	Tau	-9.7	39.1	32.36	23h40m	6h58m	50	15h08m
17	5:20:05.7	+17:28:02	Tau	-9.1	28.2	32.52	--h--m	7h56m	52	16h19m
18	6:20:42.4	+18:26:49	Gem	-8.4	18.3	32.61	0h32m	8h56m	53	17h19m
19	7:21:45.0	+18:09:52	Gem	-7.5	10.1	32.62	1h34m	9h56m	52	18h09m
20	8:21:59.6	+16:38:39	Cnc	-5.8	4.2	32.52	2h47m	10h54m	50	18h48m
21	9:20:23.0	+14:02:24	Cnc	-2.5	0.8	32.32	4h05m	11h50m	47	19h19m
22	10:16:19.2	+10:35:48	Leo	-0.6	0.1	32.03	5h25m	12h43m	43	19h45m
23	11:09:41.6	+6:35:53	Leo	-4.0	1.9	31.66	6h44m	13h33m	38	20h07m
24	12:00:46.7	+2:19:19	Vir	-6.4	6.0	31.25	8h01m	14h21m	34	20h27m
25	12:50:05.0	-1:59:20	Vir	-7.6	12.0	30.84	9h15m	15h07m	29	20h47m
26	13:38:12.6	-6:08:03	Vir	-8.3	19.5	30.44	10h27m	15h53m	25	21h08m
27	14:25:46.0	-9:57:12	Lib	-8.8	28.0	30.10	11h37m	16h38m	21	21h30m
28	15:13:18.0	-13:18:57	Lib	-9.3	37.1	29.83	12h44m	17h23m	18	21h55m
29	16:01:15.7	-16:06:42	Lib	-9.8	46.6	29.65	13h48m	18h09m	16	22h25m
30	16:49:58.0	-18:14:39	Oph	-10.3	56.1	29.56	14h48m	18h56m	15	23h02m
31	17:39:33.8	-19:37:40	Oph	-10.7	65.4	29.56	15h42m	19h44m	14	23h45m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
МАЙ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	6:53:39.4	+18:14:19	Gem	-9.0	26.8	32.48	8h42m	17h01m	52	0h24m
2	7:53:02.7	+17:10:56	Gem	-9.6	37.6	32.07	9h51m	17h56m	50	1h12m
3	8:49:55.7	+15:04:44	Cnc	-10.2	48.7	31.64	11h04m	18h49m	47	1h50m
4	9:44:02.7	+12:09:03	Leo	-10.6	59.5	31.22	12h18m	19h38m	43	2h20m
5	10:35:34.0	+8:37:49	Leo	-11.0	69.7	30.84	13h31m	20h25m	39	2h45m
6	11:24:57.4	+4:44:04	Leo	-11.3	78.7	30.50	14h43m	21h11m	35	3h06m
7	12:12:49.3	+0:39:31	Vir	-11.6	86.3	30.21	15h53m	21h55m	31	3h25m
8	12:59:47.8	-3:25:21	Vir	-11.9	92.4	29.96	17h02m	22h38m	27	3h44m
9	13:46:28.7	-7:20:57	Vir	-12.2	96.7	29.76	18h10m	23h22m	23	4h04m
10	14:33:22.6	-10:58:20	Lib	-12.5	99.2	29.60	19h18m	--h--m		4h25m
11	15:20:52.8	-14:09:07	Lib	-12.7	99.8	29.49	20h23m	0h07m	20	4h48m
12	16:09:13.3	-16:45:32	Sco	-12.4	98.7	29.43	21h24m	0h52m	17	5h16m
13	16:58:27.5	-18:40:48	Oph	-12.1	95.8	29.41	22h21m	1h39m	15	5h49m
14	17:48:28.8	-19:49:29	Sgr	-11.7	91.3	29.45	23h12m	2h26m	14	6h29m
15	18:39:02.3	-20:07:55	Sgr	-11.4	85.3	29.55	23h56m	3h14m	14	7h16m
16	19:29:49.9	-19:34:29	Sgr	-11.1	77.9	29.72	--h--m	4h02m	15	8h11m
17	20:20:35.5	-18:09:39	Cap	-10.8	69.5	29.97	0h33m	4h50m	16	9h13m
18	21:11:10.4	-15:55:48	Cap	-10.4	60.2	30.29	1h04m	5h38m	19	10h20m
19	22:01:36.9	-12:57:04	Aqr	-9.9	50.2	30.69	1h30m	6h26m	22	11h32m
20	22:52:09.2	-9:19:13	Aqr	-9.4	40.0	31.16	1h54m	7h14m	26	12h47m
21	23:43:12.6	-5:09:55	Aqr	-8.9	29.8	31.66	2h16m	8h04m	30	14h05m
22	0:35:20.6	-0:39:19	Cet	-8.3	20.3	32.18	2h38m	8h54m	35	15h26m
23	1:29:10.6	+3:59:20	Psc	-7.4	11.9	32.67	3h01m	9h47m	40	16h51m
24	2:25:16.4	+8:29:04	Cet	-5.9	5.4	33.07	3h27m	10h43m	45	18h17m
25	3:23:57.3	+12:29:51	Tau	-2.7	1.4	33.34	3h57m	11h42m	49	19h42m
26	4:25:05.4	+15:40:34	Tau	-0.7	0.3	33.44	4h36m	12h43m	51	21h02m
27	5:27:55.1	+17:42:57	Tau	-4.8	2.2	33.36	5h24m	13h46m	53	22h11m
28	6:31:06.8	+18:26:02	Gem	-7.1	7.1	33.11	6h23m	14h48m	52	23h07m
29	7:33:07.8	+17:48:56	Gem	-8.1	14.4	32.73	7h32m	15h47m	51	23h50m
30	8:32:41.8	+16:00:13	Cnc	-8.9	23.5	32.26	8h47m	16h43m	48	--h--m
31	9:29:08.4	+13:14:21	Leo	-9.4	33.7	31.76	10h03m	17h35m	45	0h24m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ИЮНЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	10:22:24.6	+9:47:35	Leo	-10.0	44.4	31.27	11h18m	18h23m	41	0h51m
2	11:12:55.4	+5:55:07	Leo	-10.4	55.0	30.81	12h32m	19h09m	37	1h14m
3	12:01:20.1	+1:49:57	Vir	-10.8	65.0	30.41	13h43m	19h54m	32	1h34m
4	12:48:23.4	-2:17:03	Vir	-11.1	74.2	30.08	14h53m	20h38m	28	1h52m
5	13:34:48.8	-6:16:36	Vir	-11.4	82.3	29.82	16h01m	21h21m	24	2h11m
6	14:21:14.9	-10:00:18	Vir	-11.7	89.0	29.62	17h08m	22h05m	21	2h31m
7	15:08:13.1	-13:20:13	Lib	-12.0	94.2	29.49	18h14m	22h50m	18	2h53m
8	15:56:05.1	-16:08:39	Lib	-12.3	97.8	29.42	19h17m	23h36m	16	3h19m
9	16:45:00.6	-18:18:22	Oph	-12.6	99.6	29.39	20h16m	--h--m		3h50m
10	17:34:56.3	-19:43:02	Oph	-12.6	99.7	29.42	21h10m	0h23m	14	4h27m
11	18:25:37.0	-20:17:51	Sgr	-12.3	97.9	29.50	21h56m	1h11m	14	5h12m
12	19:16:39.7	-20:00:15	Sgr	-11.9	94.5	29.62	22h36m	1h59m	14	6h04m
13	20:07:39.9	-18:50:11	Cap	-11.6	89.3	29.80	23h08m	2h47m	15	7h04m
14	20:58:19.4	-16:50:03	Cap	-11.3	82.6	30.04	23h36m	3h35m	18	8h09m
15	21:48:31.3	-14:04:23	Cap	-11.0	74.5	30.33	24h00m	4h23m	21	9h18m
16	22:38:22.9	-10:39:21	Aqr	-10.6	65.3	30.69	0h00m	5h10m	24	10h31m
17	23:28:15.5	-6:42:30	Aqr	-10.2	55.1	31.10	0h22m	5h57m	28	11h45m
18	0:18:41.6	-2:22:53	Psc	-9.8	44.5	31.55	0h43m	6h46m	33	13h03m
19	1:10:21.7	+2:08:30	Cet	-9.2	33.8	32.02	1h04m	7h36m	38	14h23m
20	2:03:58.4	+6:38:01	Psc	-8.7	23.5	32.48	1h27m	8h28m	42	15h46m
21	3:00:08.5	+10:48:57	Ari	-7.9	14.4	32.89	1h54m	9h24m	47	17h10m
22	3:59:10.1	+14:21:56	Tau	-6.9	7.1	33.19	2h27m	10h23m	50	18h33m
23	5:00:48.4	+16:57:12	Tau	-4.3	2.2	33.36	3h09m	11h25m	52	19h49m
24	6:04:06.6	+18:18:31	Ori	-0.2	0.2	33.35	4h02m	12h28m	53	20h53m
25	7:07:33.6	+18:17:52	Gem	-3.4	1.3	33.16	5h08m	13h30m	52	21h44m
26	8:09:30.9	+16:57:51	Cnc	-6.5	5.2	32.83	6h22m	14h29m	50	22h23m
27	9:08:44.1	+14:30:24	Cnc	-7.7	11.6	32.39	7h40m	15h25m	47	22h54m
28	10:04:39.8	+11:12:33	Leo	-8.5	19.9	31.88	8h59m	16h16m	43	23h19m
29	10:57:23.5	+7:22:03	Leo	-9.1	29.4	31.36	10h15m	17h05m	38	23h40m
30	11:47:26.5	+3:14:39	Vir	-9.6	39.5	30.87	11h29m	17h51m	34	23h59m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ИЮЛЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	12:35:32.2	-0:56:50	Vir	-10.0	49.7	30.43	12h40m	18h36m	30	--h--m
2	13:22:27.4	-5:02:07	Vir	-10.5	59.7	30.07	13h50m	19h19m	26	0h19m
3	14:08:56.5	-8:52:42	Vir	-10.8	69.0	29.79	14h58m	20h03m	22	0h38m
4	14:55:38.1	-12:21:01	Lib	-11.1	77.5	29.59	16h04m	20h48m	19	0h59m
5	15:43:02.4	-15:19:57	Lib	-11.4	84.9	29.47	17h09m	21h33m	16	1h24m
6	16:31:28.8	-17:42:34	Oph	-11.7	91.1	29.43	18h10m	22h20m	15	1h52m
7	17:21:03.2	-19:22:20	Oph	-12.0	95.7	29.45	19h05m	23h08m	14	2h27m
8	18:11:37.8	-20:13:41	Sgr	-12.4	98.7	29.52	19h55m	23h56m	14	3h09m
9	19:02:52.4	-20:12:46	Sgr	-12.7	99.9	29.64	20h37m	--h--m		3h59m
10	19:54:20.3	-19:18:15	Sgr	-12.5	99.3	29.81	21h12m	0h45m	15	4h56m
11	20:45:35.5	-17:31:36	Cap	-12.2	96.8	30.01	21h42m	1h33m	17	6h00m
12	21:36:20.7	-14:57:04	Cap	-11.8	92.4	30.24	22h07m	2h21m	19	7h08m
13	22:26:32.1	-11:41:09	Aqr	-11.5	86.2	30.51	22h29m	3h08m	23	8h20m
14	23:16:21.0	-7:52:04	Aqr	-11.2	78.4	30.82	22h50m	3h55m	27	9h33m
15	0:06:12.2	-3:39:19	Psc	-10.9	69.2	31.16	23h10m	4h43m	31	10h49m
16	0:56:41.2	+0:46:18	Cet	-10.5	58.9	31.52	23h32m	5h31m	36	12h06m
17	1:48:29.1	+5:12:32	Psc	-10.1	47.9	31.90	23h56m	6h21m	41	13h26m
18	2:42:17.2	+9:25:06	Cet	-9.5	36.8	32.27	--h--m	7h13m	45	14h47m
19	3:38:37.0	+13:07:43	Tau	-9.0	26.1	32.60	0h25m	8h09m	48	16h08m
20	4:37:38.6	+16:02:44	Tau	-8.3	16.4	32.87	1h01m	9h07m	51	17h25m
21	5:38:57.9	+17:53:31	Tau	-7.3	8.6	33.03	1h47m	10h08m	53	18h34m
22	6:41:32.6	+18:28:00	Gem	-5.4	3.1	33.06	2h45m	11h10m	53	19h31m
23	7:43:54.3	+17:42:27	Gem	-1.5	0.3	32.95	3h55m	12h11m	51	20h17m
24	8:44:35.7	+15:42:49	Cnc	-1.9	0.5	32.69	5h12m	13h09m	48	20h52m
25	9:42:36.4	+12:42:58	Leo	-5.5	3.5	32.32	6h32m	14h04m	45	21h20m
26	10:37:34.1	+9:00:40	Leo	-7.2	8.8	31.87	7h51m	14h55m	41	21h44m
27	11:29:39.7	+4:53:43	Leo	-8.0	16.0	31.38	9h08m	15h44m	36	22h04m
28	12:19:25.0	+0:37:38	Vir	-8.7	24.6	30.91	10h23m	16h30m	32	22h24m
29	13:07:31.6	-3:35:02	Vir	-9.2	33.9	30.47	11h35m	17h15m	27	22h44m
30	13:54:42.8	-7:34:23	Vir	-9.7	43.7	30.11	12h44m	17h59m	24	23h04m
31	14:41:39.3	-11:12:20	Lib	-10.1	53.5	29.82	13h52m	18h44m	20	23h27m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ДЕКАБРЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	2:03:46.8	+6:45:26	Psc	-11.8	89.7	32.49	14h57m	22h15m	45	4h26m
2	3:00:41.3	+11:11:15	Ari	-12.1	95.7	32.93	15h26m	23h13m	49	5h51m
3	4:00:51.6	+14:59:02	Tau	-12.5	99.1	33.25	16h03m	--h--m		7h16m
4	5:03:57.3	+17:46:02	Tau	-12.6	99.6	33.40	16h50m	0h14m	52	8h37m
5	6:08:49.8	+19:13:43	Ori	-12.2	97.0	33.38	17h50m	1h17m	53	9h48m
6	7:13:43.6	+19:13:19	Gem	-11.8	91.5	33.18	19h01m	2h20m	53	10h45m
7	8:16:48.9	+17:48:25	Cnc	-11.3	83.7	32.85	20h19m	3h21m	52	11h29m
8	9:16:48.2	+15:12:46	Cnc	-11.0	74.2	32.42	21h39m	4h18m	49	12h02m
9	10:13:12.3	+11:44:59	Leo	-10.6	63.8	31.94	22h57m	5h12m	45	12h29m
10	11:06:13.8	+7:43:54	Leo	-10.1	53.0	31.46	--h--m	6h02m	41	12h51m
11	11:56:30.4	+3:25:53	Vir	-9.6	42.5	31.01	0h13m	6h49m	36	13h10m
12	12:44:50.1	-0:55:46	Vir	-9.1	32.6	30.61	1h27m	7h35m	32	13h29m
13	13:32:01.4	-5:10:13	Vir	-8.6	23.6	30.27	2h40m	8h19m	27	13h47m
14	14:18:48.0	-9:08:20	Vir	-8.1	15.9	29.99	3h50m	9h04m	23	14h07m
15	15:05:45.4	-12:41:55	Lib	-7.3	9.5	29.76	4h59m	9h49m	20	14h29m
16	15:53:18.7	-15:43:24	Lib	-6.1	4.7	29.59	6h06m	10h34m	17	14h56m
17	16:41:40.5	-18:05:52	Oph	-3.6	1.6	29.48	7h10m	11h21m	15	15h27m
18	17:30:49.7	-19:43:20	Oph	-0.5	0.2	29.40	8h09m	12h09m	13	16h06m
19	18:20:33.1	-20:31:23	Sgr	-2.0	0.5	29.38	9h01m	12h56m	13	16h52m
20	19:10:28.7	-20:27:43	Sgr	-5.2	2.5	29.40	9h45m	13h44m	14	17h46m
21	20:00:12.5	-19:32:23	Sgr	-6.9	6.3	29.47	10h22m	14h32m	15	18h47m
22	20:49:25.6	-17:47:44	Cap	-7.8	11.6	29.60	10h52m	15h18m	18	19h52m
23	21:37:59.8	-15:17:57	Cap	-8.4	18.3	29.80	11h17m	16h04m	21	21h00m
24	22:26:00.6	-12:08:29	Aqr	-9.0	26.4	30.06	11h39m	16h49m	24	22h11m
25	23:13:47.2	-8:25:44	Aqr	-9.5	35.5	30.40	11h59m	17h35m	29	23h24m
26	0:01:51.6	-4:16:54	Psc	-9.9	45.5	30.80	12h17m	18h21m	33	--h--m
27	0:50:55.4	+0:09:32	Cet	-10.4	56.0	31.27	12h37m	19h09m	38	0h39m
28	1:41:47.3	+4:43:02	Psc	-10.8	66.6	31.78	12h58m	20h00m	43	1h57m
29	2:35:17.2	+9:09:57	Cet	-11.1	76.8	32.30	13h23m	20h54m	47	3h19m
30	3:32:07.2	+13:12:45	Tau	-11.5	85.9	32.78	13h54m	21h52m	50	4h42m
31	4:32:35.0	+16:30:27	Tau	-11.9	93.2	33.17	14h34m	22h54m	53	6h05m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
СЕНТЯБРЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	18:30:01.7	-20:11:22	Sgr	-11.0	74.1	29.65	16h30m	20h32m	14	--h--m
2	19:21:10.8	-19:52:39	Sgr	-11.3	82.1	29.82	17h11m	21h21m	15	0h37m
3	20:12:44.2	-18:40:12	Cap	-11.7	88.9	30.06	17h45m	22h10m	17	1h36m
4	21:04:24.4	-16:35:09	Cap	-12.0	94.4	30.35	18h14m	22h59m	20	2h42m
5	21:55:58.3	-13:41:20	Cap	-12.3	98.1	30.66	18h39m	23h48m	24	3h53m
6	22:47:22.4	-10:05:35	Aqr	-12.7	99.9	30.98	19h01m	--h--m		5h07m
7	23:38:43.9	-5:57:28	Aqr	-12.5	99.3	31.29	19h22m	0h36m	28	6h24m
8	0:30:20.6	-1:29:00	Cet	-12.2	96.4	31.57	19h44m	1h25m	33	7h42m
9	1:22:37.7	+3:05:43	Psc	-11.8	91.2	31.81	20h06m	2h15m	38	9h01m
10	2:16:03.3	+7:31:13	Cet	-11.5	83.9	32.00	20h31m	3h06m	42	10h21m
11	3:11:02.0	+11:31:14	Ari	-11.1	74.7	32.14	21h02m	3h59m	46	11h41m
12	4:07:46.9	+14:49:44	Tau	-10.7	64.2	32.24	21h39m	4h53m	50	12h58m
13	5:06:11.9	+17:12:13	Tau	-10.3	52.9	32.29	22h26m	5h50m	52	14h10m
14	6:05:46.8	+18:27:33	Ori	-9.7	41.4	32.29	23h23m	6h48m	53	15h13m
15	7:05:40.6	+18:29:49	Gem	-9.1	30.4	32.26	--h--m	7h47m	52	16h05m
16	8:04:53.5	+17:19:37	Cnc	-8.4	20.5	32.17	0h31m	8h44m	51	16h46m
17	9:02:33.6	+15:03:53	Cnc	-7.6	12.2	32.03	1h45m	9h39m	48	17h19m
18	9:58:08.6	+11:54:35	Leo	-6.2	5.8	31.83	3h03m	10h32m	44	17h46m
19	10:51:30.4	+8:06:28	Leo	-3.4	1.8	31.58	4h21m	11h23m	40	18h09m
20	11:42:50.4	+3:55:04	Vir	-0.1	0.1	31.28	5h38m	12h12m	36	18h30m
21	12:32:32.8	-0:24:52	Vir	-2.5	0.7	30.96	6h54m	12h59m	31	18h50m
22	13:21:07.7	-4:40:13	Vir	-5.4	3.5	30.62	8h08m	13h45m	27	19h10m
23	14:09:05.9	-8:39:49	Vir	-7.0	8.2	30.30	9h19m	14h30m	23	19h32m
24	14:56:55.6	-12:14:23	Lib	-7.9	14.4	30.01	10h28m	15h16m	20	19h56m
25	15:44:59.8	-15:16:14	Lib	-8.5	21.9	29.78	11h35m	16h02m	17	20h24m
26	16:33:34.6	-17:39:05	Oph	-9.1	30.2	29.62	12h37m	16h49m	15	20h57m
27	17:22:48.4	-19:17:46	Oph	-9.6	39.2	29.55	13h34m	17h36m	14	21h37m
28	18:12:41.7	-20:08:14	Sgr	-10.0	48.6	29.57	14h24m	18h24m	14	22h25m
29	19:03:08.0	-20:07:38	Sgr	-10.5	58.1	29.68	15h07m	19h13m	15	23h21m
30	19:53:57.2	-19:14:29	Sgr	-10.9	67.4	29.89	15h44m	20h01m	16	--h--m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
ОКТЯБРЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	20:44:58.6	-17:29:01	Cap	-11.2	76.2	30.18	16h14m	20h49m	19	0h24m
2	21:36:05.5	-14:53:29	Cap	-11.5	84.2	30.53	16h41m	21h38m	22	1h33m
3	22:27:18.3	-11:32:29	Aqr	-11.9	90.9	30.92	17h04m	22h27m	26	2h45m
4	23:18:46.2	-7:33:19	Aqr	-12.2	96.0	31.33	17h25m	23h16m	31	4h02m
5	0:10:46.8	-3:06:19	Psc	-12.5	99.1	31.72	17h47m	--h--m		5h20m
6	1:03:43.9	+1:35:04	Cet	-12.6	99.8	32.06	18h09m	0h06m	36	6h41m
7	1:58:03.2	+6:14:30	Psc	-12.3	97.8	32.32	18h33m	0h58m	41	8h03m
8	2:54:05.6	+10:33:35	Ari	-11.9	93.2	32.49	19h02m	1h52m	45	9h26m
9	3:51:59.0	+14:13:30	Tau	-11.5	86.2	32.56	19h38m	2h47m	49	10h47m
10	4:51:29.8	+16:57:08	Tau	-11.2	77.2	32.54	20h22m	3h45m	51	12h03m
11	5:51:59.5	+18:31:47	Ori	-10.8	66.7	32.44	21h16m	4h44m	53	13h09m
12	6:52:30.0	+18:51:10	Gem	-10.3	55.5	32.28	22h21m	5h42m	53	14h05m
13	7:51:58.5	+17:56:18	Gem	-9.7	44.2	32.09	23h33m	6h40m	52	14h48m
14	8:49:34.7	+15:54:37	Cnc	-9.1	33.3	31.87	--h--m	7h35m	49	15h23m
15	9:44:51.9	+12:57:58	Leo	-8.5	23.4	31.63	0h48m	8h27m	46	15h51m
16	10:37:48.5	+9:20:19	Leo	-7.7	14.9	31.37	2h05m	9h18m	42	16h14m
17	11:28:41.6	+5:16:01	Leo	-6.8	8.2	31.11	3h22m	10h06m	37	16h35m
18	12:17:59.5	+0:58:47	Vir	-4.8	3.4	30.84	4h37m	10h52m	33	16h54m
19	13:06:14.6	-3:18:44	Vir	-1.7	0.7	30.57	5h50m	11h38m	29	17h14m
20	13:53:58.8	-7:25:11	Vir	-0.8	0.2	30.30	7h03m	12h24m	24	17h34m
21	14:41:39.6	-11:10:27	Lib	-3.8	1.6	30.05	8h13m	13h09m	21	17h57m
22	15:29:37.9	-14:25:47	Lib	-6.2	4.8	29.83	9h21m	13h56m	18	18h23m
23	16:18:06.9	-17:03:47	Sco	-7.4	9.7	29.65	10h26m	14h42m	15	18h54m
24	17:07:10.9	-18:58:31	Oph	-8.2	15.9	29.53	11h26m	15h30m	14	19h31m
25	17:56:46.2	-20:05:34	Sgr	-8.8	23.4	29.48	12h19m	16h17m	13	20h16m
26	18:46:43.1	-20:22:08	Sgr	-9.3	31.7	29.52	13h05m	17h05m	14	21h08m
27	19:36:49.8	-19:47:03	Sgr	-9.8	40.8	29.64	13h43m	17h53m	15	22h07m
28	20:26:56.5	-18:20:43	Cap	-10.3	50.3	29.86	14h15m	18h40m	17	23h12m
29	21:16:59.1	-16:05:03	Cap	-10.7	60.0	30.17	14h43m	19h28m	20	--h--m
30	22:07:02.6	-13:03:32	Aqr	-11.0	69.5	30.56	15h06m	20h16m	24	0h22m
31	22:57:21.3	-9:21:22	Aqr	-11.3	78.5	31.01	15h28m	21h04m	28	1h36m

ЛУНА 2017 ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )  
НОЯБРЬ

Д	$\alpha$ (2000.0)	$\delta$ (2000.0)	созв	блеск	фаза	диам	восход	ВК	Вс	заход
1	23:48:19.0	-5:06:03	Aqr	-11.7	86.6	31.50	15h49m	21h53m	33	2h53m
2	0:40:26.4	-0:28:01	Cet	-12.0	93.2	31.98	16h10m	22h44m	38	4h12m
3	1:34:17.4	+4:18:41	Psc	-12.3	97.7	32.41	16h33m	23h38m	43	5h35m
4	2:30:22.2	+8:56:08	Cet	-12.7	99.7	32.76	17h00m	--h--m		7h00m
5	3:28:57.1	+13:03:27	Tau	-12.4	98.8	32.98	17h33m	0h34m	47	8h25m
6	4:29:52.7	+16:19:15	Tau	-12.0	95.1	33.05	18h14m	1h33m	51	9h46m
7	5:32:24.8	+18:25:27	Tau	-11.6	88.7	32.98	19h06m	2h33m	53	11h00m
8	6:35:18.4	+19:11:22	Gem	-11.2	80.1	32.79	20h10m	3h34m	53	12h02m
9	7:37:06.9	+18:36:02	Gem	-10.8	70.0	32.50	21h21m	4h34m	52	12h50m
10	8:36:38.7	+16:47:25	Cnc	-10.3	59.1	32.16	22h37m	5h31m	50	13h28m
11	9:33:15.9	+13:59:12	Leo	-9.8	48.0	31.79	23h54m	6h25m	47	13h58m
12	10:26:55.1	+10:27:10	Leo	-9.3	37.3	31.43	--h--m	7h16m	43	14h22m
13	11:17:59.0	+6:26:39	Leo	-8.7	27.4	31.08	1h10m	8h04m	39	14h43m
14	12:07:04.2	+2:11:23	Vir	-8.1	18.7	30.76	2h25m	8h50m	35	15h02m
15	12:54:51.7	-2:06:34	Vir	-7.4	11.5	30.47	3h38m	9h35m	30	15h20m
16	13:42:01.2	-6:16:30	Vir	-6.2	6.0	30.21	4h50m	10h20m	26	15h39m
17	14:29:06.8	-10:08:46	Lib	-3.9	2.2	29.99	6h00m	11h05m	22	16h00m
18	15:16:34.6	-13:34:31	Lib	-0.9	0.4	29.79	7h09m	11h51m	19	16h25m
19	16:04:40.7	-16:25:44	Sco	-1.6	0.4	29.63	8h16m	12h37m	16	16h53m
20	16:53:29.8	-18:35:35	Oph	-4.7	2.1	29.51	9h18m	13h25m	14	17h28m
21	17:42:56.0	-19:58:41	Oph	-6.7	5.6	29.43	10h14m	14h12m	13	18h09m
22	18:32:44.4	-20:31:34	Sgr	-7.7	10.6	29.41	11h03m	15h00m	13	18h58m
23	19:22:36.3	-20:12:49	Sgr	-8.4	17.0	29.46	11h44m	15h48m	14	19h55m
24	20:12:15.0	-19:03:03	Cap	-8.9	24.6	29.59	12h18m	16h35m	16	20h57m
25	21:01:30.9	-17:04:37	Cap	-9.5	33.2	29.80	12h47m	17h21m	19	22h04m
26	21:50:25.5	-14:21:14	Cap	-9.9	42.5	30.09	13h11m	18h08m	22	23h14m
27	22:39:12.5	-10:57:45	Aqr	-10.4	52.4	30.47	13h32m	18h54m	26	--h--m
28	23:28:17.5	-7:00:12	Aqr	-10.8	62.6	30.93	13h52m	19h41m	31	0h28m
29	0:18:16.1	-2:36:21	Psc	-11.1	72.5	31.44	14h12m	20h30m	35	1h44m
30	1:09:51.0	+2:03:30	Cet	-11.4	81.7	31.97	14h33m	21h21m	40	3h03m



## Краткий астрономический календарь на 2017 год по Occult v4.0, время - UT

May			
d	h		
2	14	Mercury stationary	
3	2	FIRST QUARTER	
4	9	Regulus 0.5N of Moon	Occn
7	23	Jupiter 2.0S of Moon	
9	23	Mercury 2.3S of Uranus	
10	21	FULL MOON	
12	19	Moon at apogee	
13	22	Saturn 3.1S of Moon	
14	19	Moon furthest South (-19.2)	
15	20	Pluto 2.4S of Moon	
18	1	Mercury greatest elong W(26)	

June			
d	h		
1	12	FIRST QUARTER	
3	7	Venus 1.7S of Uranus	
3	13	Venus greatest elong W(46)	
4	1	Jupiter 2.2S of Moon	
8	22	Moon at apogee	
9	13	FULL MOON	
10	1	Saturn 3.1S of Moon	
10	5	Jupiter stationary	
11	2	Moon furthest South (-19.4)	
12	1	Mercury 4.9N of Aldebaran	
12	10	Pluto 2.3S of Moon	
15	10	Saturn at opposition	
16	13	Neptune 0.7N of Moon	Occn
16	23	Neptune stationary	

July			
d	h		
1	0	FIRST QUARTER	
1	9	Jupiter 2.6S of Moon	
2	14	Mercury 4.8S of Pollux	
3	21	Earth at aphelion	
6	4	Moon at apogee	
7	3	Saturn 3.2S of Moon	
8	10	Moon furthest South (-19.5)	
9	4	FULL MOON	
9	6	Pluto 2.3S of Moon	
10	4	Pluto at opposition	
10	9	Mars 5.6S of Pollux	
13	18	Neptune 0.8N of Moon	Occn
14	1	Venus 3.1N of Aldebaran	
16	19	LAST QUARTER	

August			
d	h		
2	18	Moon at apogee	
3	7	Saturn 3.4S of Moon	
3	9	Uranus stationary	
4	17	Moon furthest South (-19.4)	
5	11	Pluto 2.4S of Moon	
7	18	FULL MOON	Eclipse
9	23	Neptune 0.8N of Moon	Occn
12	5	Mercury stationary	
13	7	Uranus 4.1N of Moon	
15	1	LAST QUARTER	
16	6	Aldebaran 0.4S of Moon	Occn
18	6	Moon furthest North (19.4)	
18	13	Moon at perigee	

## Краткий астрономический календарь на 2017 год по Occult v4.0, время - UT

September			
d	h		
1	2	Moon furthest South (-19.4)	
1	18	Pluto 2.5S of Moon	
3	16	Mercury 3.3S of Mars	
4	14	Mercury stationary	
5	5	Neptune at opposition	
5	12	Mars 0.7N of Regulus	
6	5	Neptune 0.7N of Moon	Occn
6	6	FULL MOON	
9	12	Uranus 4.0N of Moon	
10	4	Mercury 0.7S of Regulus	
11	23	Jupiter 3.1N of Spica	
12	12	Aldebaran 0.5S of Moon	Occn
12	12	Mercury greatest elong W(18)	
13	6	LAST QUARTER	
13	16	Moon at perigee	
14	13	Moon furthest North (19.5)	

October			
d	h		
3	12	Neptune 0.7N of Moon	Occn
5	16	Venus 0.2N of Mars	
5	18	FULL MOON	
6	18	Uranus 4.0N of Moon	
8	21	Mercury superior conjunction	
9	6	Moon at perigee	
9	18	Aldebaran 0.6S of Moon	Occn
11	18	Moon furthest North (19.6)	
12	12	LAST QUARTER	
13	18	Mercury 2.7N of Spica	
15	11	Regulus 0.2S of Moon	Occn
17	11	Mars 1.7S of Moon	
18	1	Venus 1.9S of Moon	

November			
d	h		
2	18	Venus 3.5N of Spica	
3	3	Uranus 4.0N of Moon	
4	5	FULL MOON	
6	0	Moon at perigee	
6	2	Aldebaran 0.8S of Moon	Occn
8	1	Moon furthest North (19.8)	
10	20	LAST QUARTER	
11	16	Regulus 0.4S of Moon	Occn
12	20	Mercury 2.2N of Antares	
13	8	Venus 0.3N of Jupiter	
15	3	Mars 3.1S of Moon	
17	0	Jupiter 3.9S of Moon	
17	8	Venus 3.8S of Moon	

December			
d	h		
3	3	Mercury stationary	
3	13	Aldebaran 0.8S of Moon	Occn
3	15	FULL MOON	
4	9	Moon at perigee	
5	11	Moon furthest North (19.9)	
6	2	Mercury 1.4S of Saturn	
8	23	Regulus 0.6S of Moon	Occn!!
9	8	Venus 5.0N of Antares	
10	7	LAST QUARTER	
13	1	Mercury inferior conjunction	
13	19	Mars 4.0S of Moon	
14	16	Jupiter 4.1S of Moon	
15	15	Mercury 2.2N of Venus	
17	9	Mercury 1.8S of Moon	

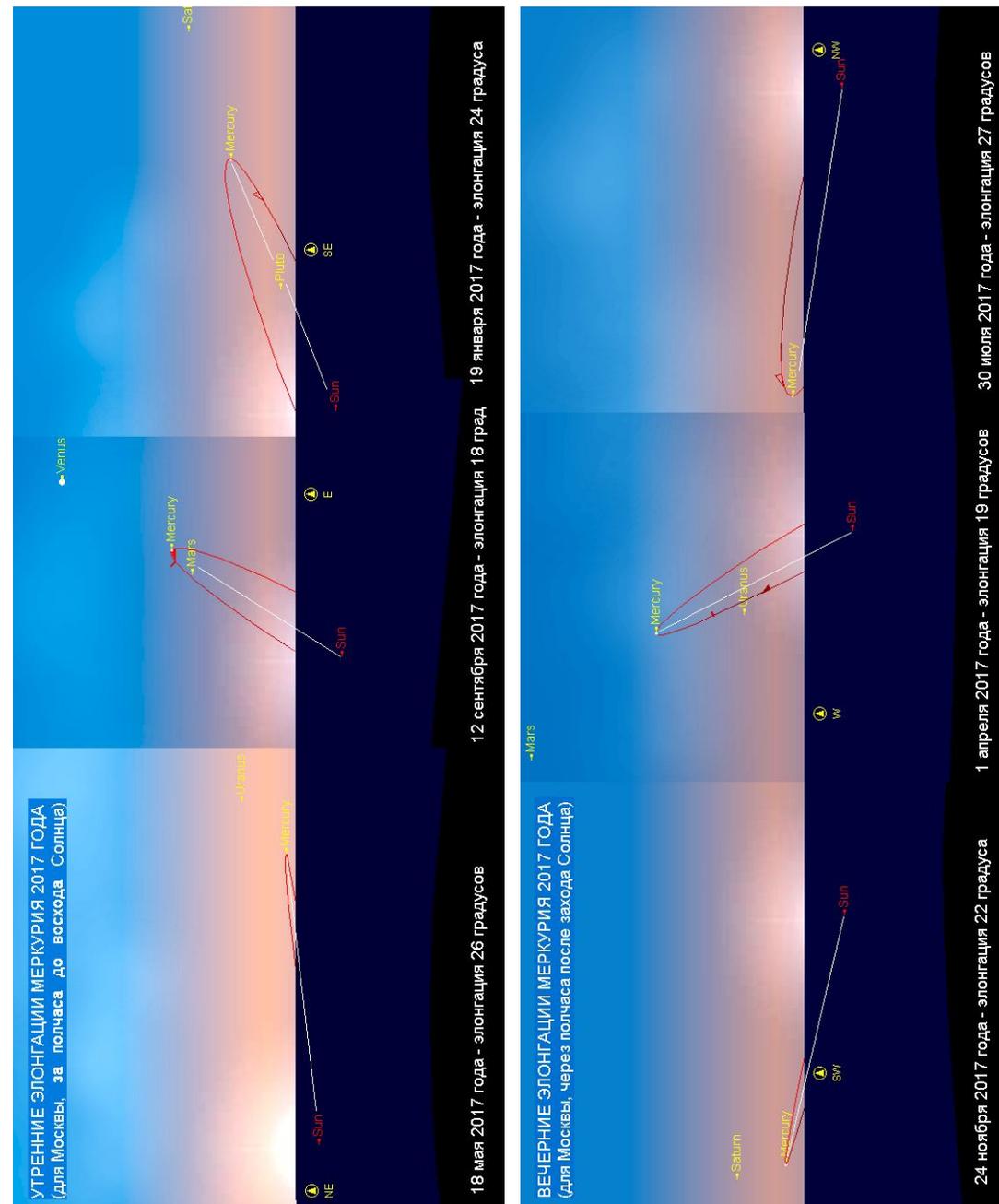
## Конфигурации Меркурия в 2017 году

- 19 января - утренняя элонгация 24 градуса**  
**7 марта - верхнее соединение**  
**1 апреля - вечерняя элонгация 19 градусов**  
**20 апреля - нижнее соединение**  
**18 мая - утренняя элонгация 26 градусов**  
**21 июня - верхнее соединение**  
**30 июля - вечерняя элонгация 27 градусов**  
**26 августа - нижнее соединение**  
**12 сентября - утренняя элонгация 18 градусов**  
**8 октября - верхнее соединение**  
**24 ноября - вечерняя элонгация 22 градуса**  
**13 декабря - нижнее соединение**

**Пояснение для эфемерид больших планет.** В эфемеридах планет приводятся: Дата (год, месяц, день), Пр. восх. – прямое восхождение, Склонение – склонение, Расстояние - геоцентрическое расстояние от Земли до планеты в астрономических единицах, dia – видимый диаметр в секундах дуги, mag - звездная величина, Elong – видимое угловое удаление (элонгация) от Солнца в градусах, I - фазовый угол (угол при центре планеты между направлениями на Солнце и Землю), Фаза - величина освещенной части диска планеты (от 0 до 100%), Limb - позиционный угол средней точки светлого лимба в градусах (отсчитывается от точки севера против часовой стрелки от 0° до 360°), De - угол наклона оси планеты к картинной плоскости перпендикулярной лучу зрения в градусах, причем знак указывает наклон северного «+» или южного «-» полюса планеты к Земле (для Сатурна это также наклон колец), Pp – позиционный угол северного полюса планеты по отношению к полюсу мира в градусах (отсчитывается при центре планеты против часовой стрелки от 0° до 360°). Годичные эфемериды планет и таблицы восходов и заходов планет – программой *Ossult v4.0*, карты видимого движения – программой *Guide 8.0*, текстовое описание выполнено с помощью программы *Starry Night Backyard 3.1*.

## ПЛАНЕТЫ

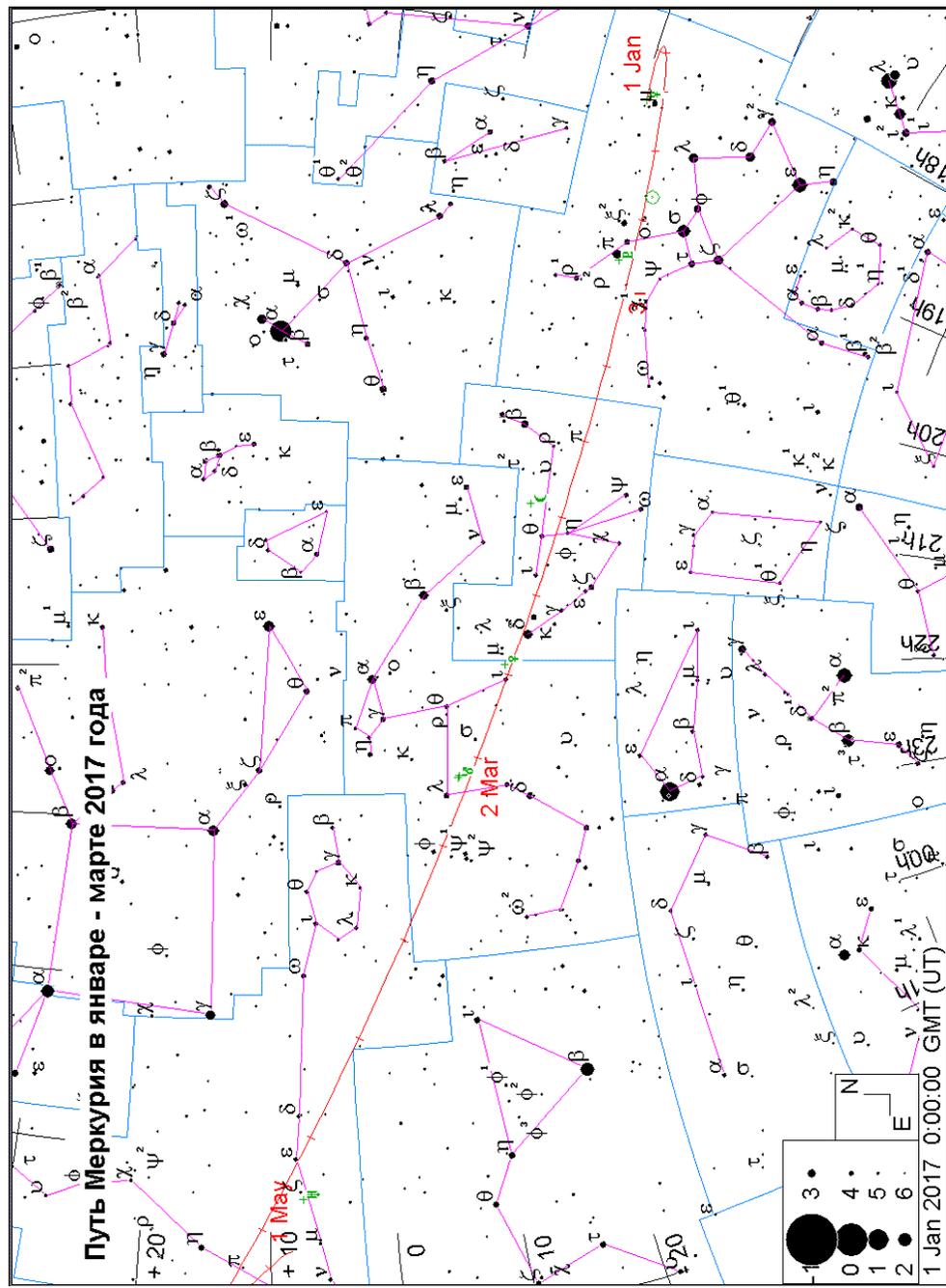
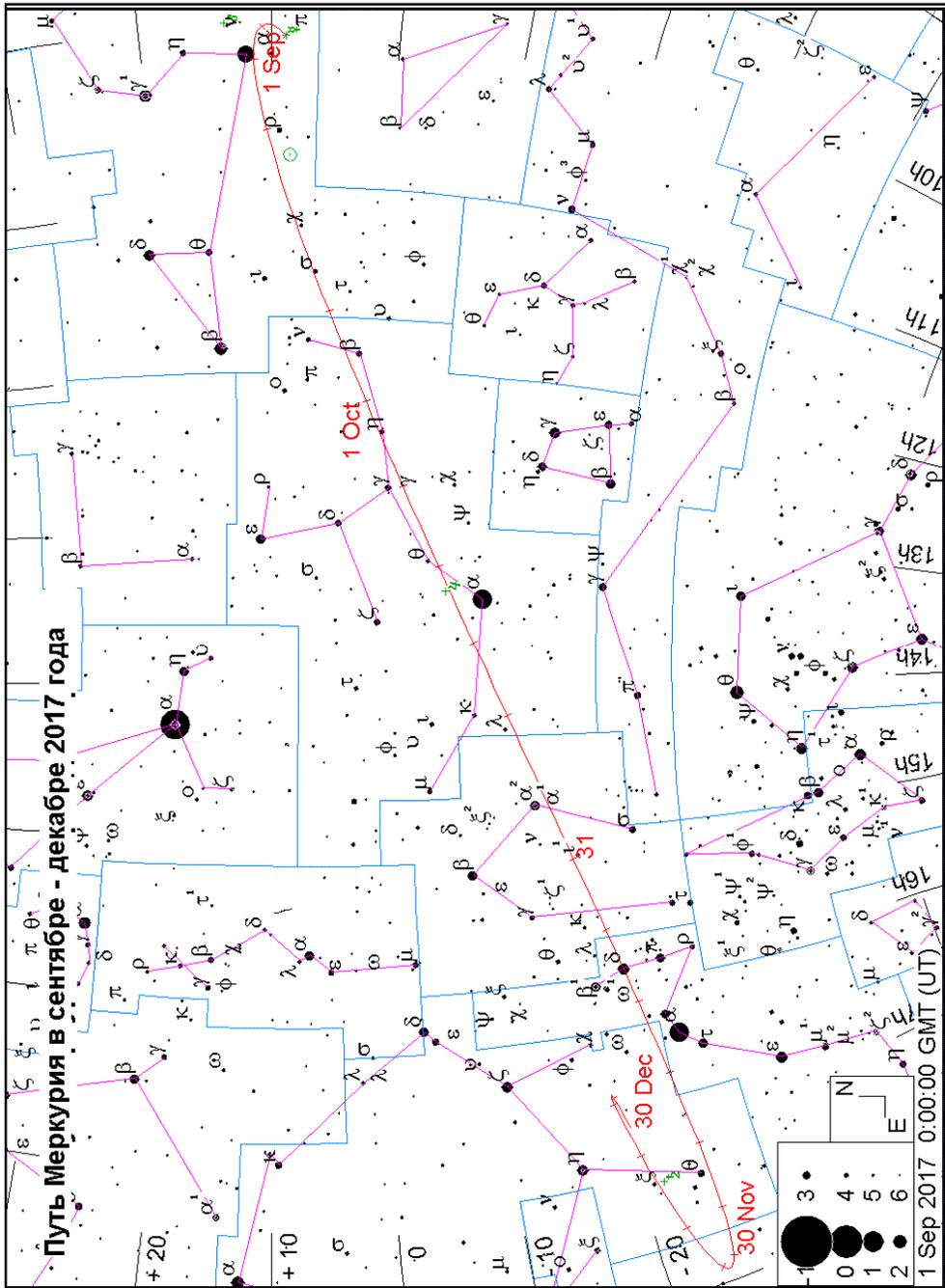
### Элонгации Меркурия в 2017 году

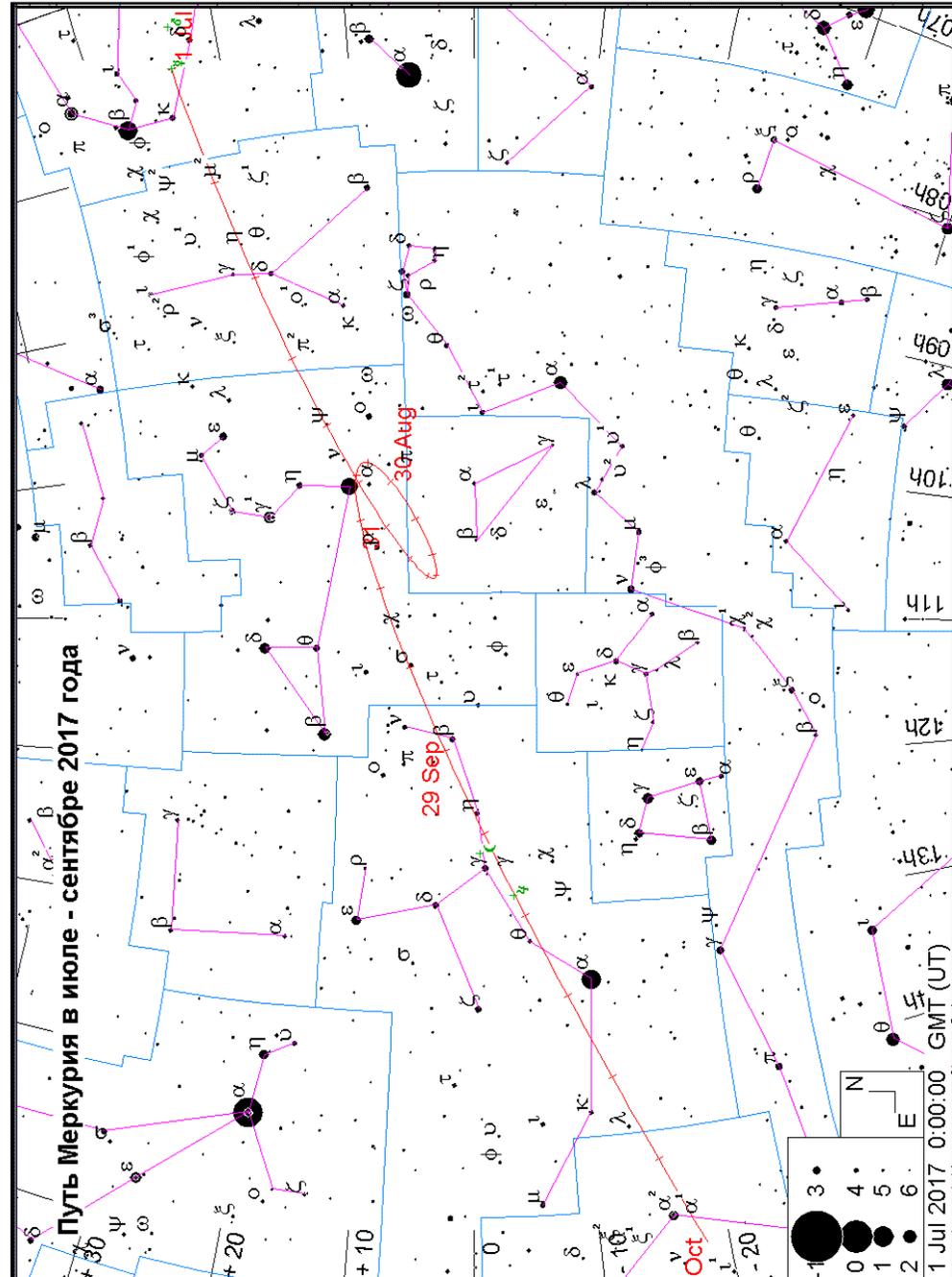
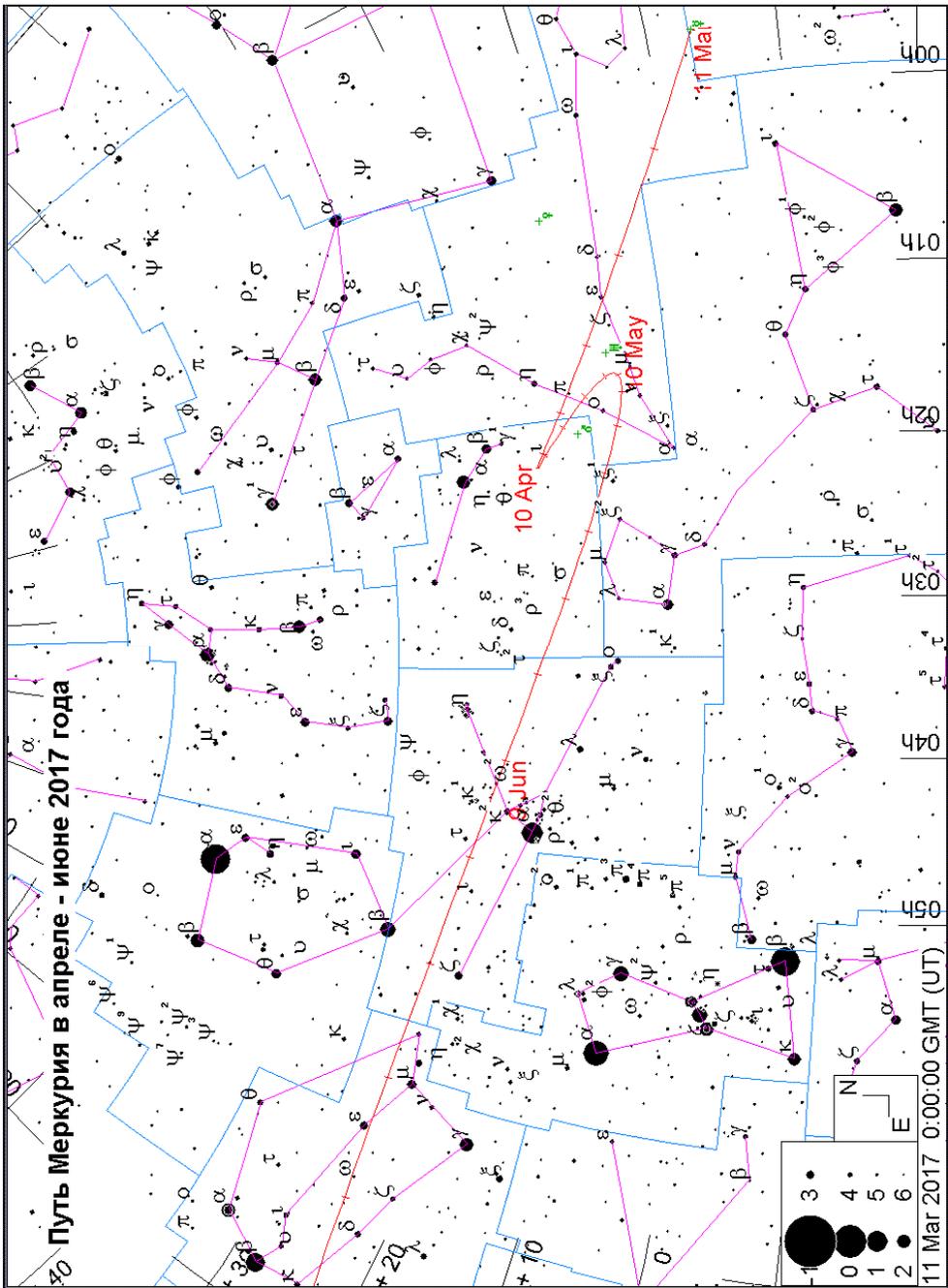


## МЕРКУРИЙ

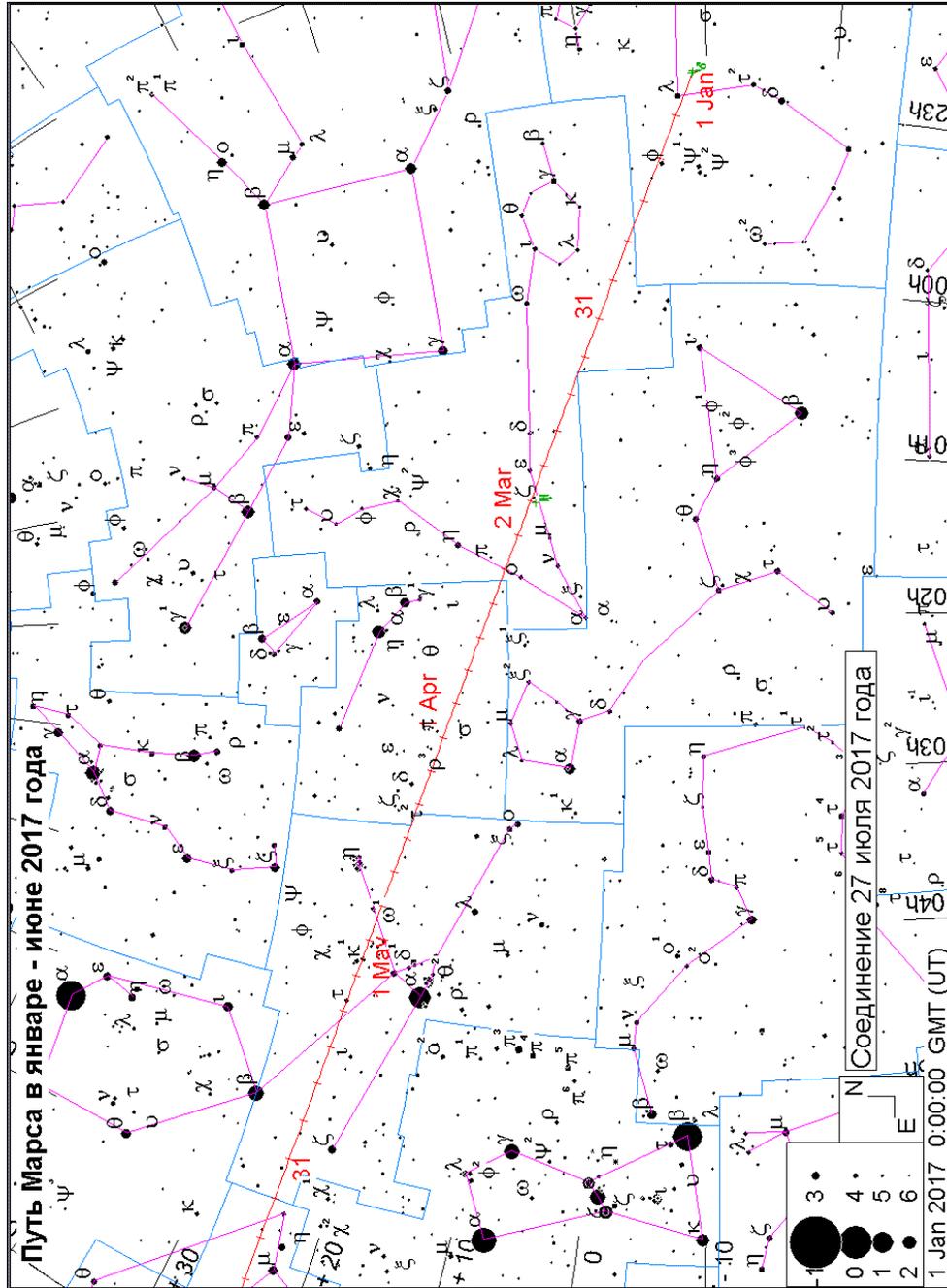
год	мес	д	Пр. восх. h m s	Склонение ° ' "	Расстояние АУ	dia "	mag	Elong °	I °	фаза	Limb °	De °	Pp °
2017	Jan	1	18 12 58.71	-20 21 41.7	0.684982	9.8	3.3	8.1w	154	4.9	110.7	-8	4
2017	Jan	4	18 0 43.08	-20 12 30.9	0.718656	9.3	1.6	13.8w	135	14.5	103.2	-8	5
2017	Jan	7	17 54 45.25	-20 19 4.3	0.767789	8.7	0.6	18.1w	119	26.1	100.1	-8	6
2017	Jan	10	17 54 52.18	-20 37 50.0	0.825088	8.1	0.1	21.1w	105	37.3	97.8	-7	6
2017	Jan	13	17 59 58.09	-21 3 28.3	0.885189	7.5	-0.1	22.9w	93	47.3	95.7	-7	5
2017	Jan	16	18 8 51.88	-21 30 53.1	0.944694	7.1	-0.2	23.8w	84	55.6	93.4	-7	4
2017	Jan	19	18 20 34.65	-21 56 0.4	1.001652	6.7	-0.2	24.1w	76	62.5	91.1	-6	3
2017	Jan	22	18 34 22.09	-22 15 51.4	1.055046	6.3	-0.2	24.0w	69	68.1	88.7	-6	1
2017	Jan	25	18 49 42.01	-22 28 19.5	1.104409	6.0	-0.2	23.5w	63	72.8	86.2	-6	359
2017	Jan	28	19 6 11.13	-22 31 56.4	1.149592	5.8	-0.2	22.8w	58	76.8	83.6	-6	357
2017	Jan	31	19 23 32.50	-22 25 39.9	1.190606	5.6	-0.2	21.8w	53	80.1	80.9	-6	355
2017	Feb	3	19 41 33.61	-22 8 46.4	1.227545	5.4	-0.2	20.7w	49	83.0	78.2	-6	353
2017	Feb	6	20 0 5.19	-21 40 44.9	1.260521	5.3	-0.2	19.5w	45	85.5	75.5	-5	351
2017	Feb	9	20 19 0.35	-21 1 13.1	1.289635	5.2	-0.3	18.1w	41	87.7	72.7	-5	349
2017	Feb	12	20 38 14.05	-20 9 54.9	1.314945	5.1	-0.3	16.6w	37	89.7	69.8	-5	347
2017	Feb	15	20 57 42.69	-19 6 39.0	1.336443	5.0	-0.4	14.9w	34	91.6	66.9	-5	345
2017	Feb	18	21 17 23.84	-17 51 17.6	1.354045	4.9	-0.5	13.2w	30	93.4	63.9	-5	343
2017	Feb	21	21 37 16.08	-16 23 45.9	1.367565	4.9	-0.7	11.3w	26	95.0	60.6	-5	341
2017	Feb	24	21 57 18.88	-14 44 2.6	1.376699	4.9	-0.9	9.2w	22	96.5	56.8	-5	339
2017	Feb	27	22 17 32.40	-12 52 10.7	1.380990	4.8	-1.1	7.1w	17	97.8	51.7	-5	337
2017	Mar	2	22 37 57.20	-10 48 20.0	1.379803	4.8	-1.4	4.8w	12	98.9	43.4	-5	336
2017	Mar	5	22 58 33.86	-8 32 52.2	1.372295	4.9	-1.7	2.6w	7	99.7	21.8	-5	335
2017	Mar	8	23 19 22.26	-6 6 28.6	1.357403	4.9	-1.9	1.8e	5	99.8	307.6	-4	333
2017	Mar	11	23 40 20.35	-3 30 23.1	1.333876	5.0	-1.8	3.9e	11	99.0	265.4	-4	333
2017	Mar	14	0 1 22.33	-0 46 40.5	1.300396	5.1	-1.6	6.7e	20	96.9	253.8	-4	332
2017	Mar	17	0 22 16.17	2 1 22.5	1.255872	5.3	-1.4	9.6e	31	92.8	248.8	-4	331
2017	Mar	20	0 42 41.31	4 49 2.5	1.199904	5.6	-1.3	12.4e	43	86.5	246.0	-4	331
2017	Mar	23	1 2 7.62	7 30 15.7	1.133317	5.9	-1.1	14.9e	56	77.7	244.4	-4	331
2017	Mar	26	1 19 57.48	9 58 17.5	1.058454	6.3	-0.9	17.0e	70	66.9	243.4	-5	332
2017	Mar	29	1 35 30.75	12 6 44.8	0.978930	6.8	-0.6	18.4e	84	55.0	242.6	-5	332
2017	Apr	1	1 48 10.64	13 50 26.4	0.898907	7.4	-0.2	19.0e	98	43.0	241.9	-5	333
2017	Apr	4	1 57 28.15	15 5 38.5	0.822336	8.1	0.3	18.6e	111	31.7	241.0	-5	333
2017	Apr	7	2 3 5.18	15 49 52.2	0.752500	8.9	1.0	17.3e	124	21.8	239.9	-5	333
2017	Apr	10	2 4 57.94	16 1 46.2	0.691924	9.7	1.9	14.9e	137	13.4	238.1	-5	333
2017	Apr	13	2 3 21.50	15 41 29.2	0.642444	10.4	3.1	11.5e	150	6.9	235.2	-5	333
2017	Apr	16	1 58 53.68	14 51 37.1	0.605275	11.0	4.5	7.3e	162	2.5	229.4	-4	333
2017	Apr	19	1 52 34.49	13 38 11.5	0.580990	11.5	6.0	2.8e	173	0.3	206.3	-4	333
2017	Apr	22	1 45 37.91	12 10 44.4	0.569475	11.7	6.0	3.2w	173	0.4	91.0	-4	333
2017	Apr	25	1 39 17.41	10 40 46.1	0.569943	11.7	4.6	7.9w	162	2.4	71.3	-3	332
2017	Apr	28	1 34 31.95	9 19 13.1	0.581085	11.5	3.4	12.4w	152	5.9	66.3	-2	332
2017	May	1	1 31 58.67	8 14 17.2	0.601327	11.1	2.5	16.3w	142	10.5	64.1	-2	332
2017	May	4	1 31 53.82	7 30 38.2	0.629085	10.6	1.9	19.6w	134	15.5	63.0	-1	332
2017	May	7	1 34 18.35	7 9 50.3	0.662934	10.1	1.4	22.1w	126	20.8	62.4	0	332
2017	May	10	1 39 4.36	7 11 20.2	0.701690	9.5	1.0	23.9w	118	26.2	62.2	0	332
2017	May	13	1 46 0.37	7 33 23.5	0.744414	9.0	0.8	25.1w	112	31.5	62.3	1	333
2017	May	16	1 54 54.75	8 13 44.3	0.790383	8.5	0.5	25.7w	105	36.7	62.6	1	333
2017	May	19	2 5 37.70	9 9 58.8	0.839027	8.0	0.4	25.8w	99	41.9	63.1	1	333
2017	May	22	2 18 2.14	10 19 45.1	0.889869	7.5	0.2	25.4w	93	47.1	63.9	2	334
2017	May	25	2 32 4.07	11 40 45.9	0.942453	7.1	0.0	24.5w	87	52.5	64.9	2	335
2017	May	28	2 47 42.55	13 10 45.4	0.996273	6.7	-0.1	23.3w	81	58.1	66.1	2	336
2017	May	31	3 4 59.53	14 47 23.8	1.050684	6.4	-0.3	21.7w	74	63.9	67.7	2	337
2017	Jun	3	3 23 59.36	16 28 7.6	1.104793	6.0	-0.5	19.6w	66	70.1	69.7	3	338
2017	Jun	6	3 44 47.62	18 9 58.2	1.157338	5.8	-0.7	17.3w	58	76.5	72.0	3	340
2017	Jun	9	4 7 29.13	19 49 18.7	1.206583	5.5	-0.9	14.5w	49	83.0	75.0	3	342
2017	Jun	12	4 32 4.74	21 21 45.5	1.250291	5.3	-1.2	11.4w	38	89.3	78.8	3	345
2017	Jun	15	4 58 26.96	22 42 12.2	1.285877	5.2	-1.5	8.0w	27	94.6	84.1	3	348
2017	Jun	18	5 26 15.85	23 45 18.7	1.310831	5.1	-1.9	4.5w	15	98.3	93.6	3	351
2017	Jun	21	5 54 58.02	24 26 28.4	1.323379	5.0	-2.4	1.2w	4	99.9	143.4	4	354
2017	Jun	24	6 23 51.09	24 42 52.9	1.323047	5.0	-2.0	3.3e	11	99.1	247.3	4	358
2017	Jun	27	6 52 12.45	24 34 7.0	1.310770	5.1	-1.6	6.8e	22	96.5	260.9	4	1
2017	Jun	30	7 19 27.49	24 1 55.1	1.288472	5.2	-1.2	10.1e	32	92.5	267.4	4	4

год	мес	д	Пр. восх. h m s	Склонение ° ' "	Расстояние АУ	dia "	mag	Elong °	I °	фаза	Limb °	De °	Pp °
2017	Jul	3	7 45 13.40	23 9 23.9	1.258435	5.3	-0.9	13.2e	41	87.9	272.0	5	7
2017	Jul	6	8 9 18.33	22 0 12.1	1.222799	5.5	-0.7	15.9e	49	83.0	275.8	5	10
2017	Jul	9	8 31 38.42	20 37 56.6	1.183322	5.6	-0.5	18.4e	56	78.1	279.1	5	13
2017	Jul	12	8 52 14.51	19 5 55.6	1.141332	5.9	-0.3	20.6e	62	73.4	281.9	5	15
2017	Jul	15	9 11 9.54	17 27 4.7	1.097783	6.1	-0.2	22.5e	68	68.9	284.3	6	17
2017	Jul	18	9 28 26.85	15 43 58.7	1.053338	6.3	-0.1	24.1e	73	64.5	286.5	6	18
2017	Jul	21	9 44 8.90	13 58 56.9	1.008453	6.6	0.0	25.4e	78	60.2	288.5	7	20
2017	Jul	24	9 58 16.48	12 14 9.8	0.963456	6.9	0.1	26.4e	83	55.9	290.3	7	21
2017	Jul	27	10 10 48.10	10 31 45.2	0.918615	7.3	0.2	27.0e	88	51.5	292.0	8	22
2017	Jul	30	10 21 39.59	8 53 55.7	0.874198	7.6	0.3	27.2e	94	46.9	293.6	8	23
2017	Aug	2	10 30 43.75	7 23 5.7	0.830531	8.0	0.4	27.0e	99	42.1	295.2	8	24
2017	Aug	5	10 37 50.16	6 1 59.3	0.788058	8.5	0.6	26.3e	105	37.0	296.8	9	24
2017	Aug	8	10 42 45.31	4 53 47.2	0.747409	8.9	0.8	25.1e	112	31.5	298.6	10	25
2017	Aug	11	10 45 13.59	4 2 11.1	0.709489	9.4	1.1	23.2e	119	25.7	300.6	10	25
2017	Aug	14	10 44 59.85	3 31 18.0	0.675570	9.9	1.5	20.6e	127	19.6	303.2	11	25
2017	Aug	17	10 41 54.58	3 25 14.2	0.647376	10.3	2.1	17.2e	137	13.5	306.7	11	25
2017	Aug	20	10 36 2.33	3 47 5.4	0.627115	10.7	2.9	13.1e	147	7.9	312.5	11	24
2017	Aug	23	10 27 52.60	4 37 15.1	0.617386	10.8	4.1	8.5e	159	3.4	324.5	11	24
2017	Aug	26	10 18 28.17	5 51 31.7	0.620865	10.8	5.3	4.6w	168	1.1	0.8	11	23
2017	Aug	29	10 9 23.02	7 20 20.3	0.639774	10.4	4.9	5.4w	165	1.6	66.8	11	22
2017	Sep	1	10 2 24.65	8 50 14.4	0.675271	9.9	3.3	9.4w	153	5.6	92.1	10	22
2017	Sep	4	9 59 7.17	10 7 20.0	0.727027	9.2	1.9	13.2w	138	13.0	101.3	9	21
2017	Sep	7	10 0 29.73	11 0 21.7	0.793094	8.4	0.8	16.0w	122	23.3	106.3	8	21
2017	Sep	10	10 6 48.78	11 22 5.9	0.870012	7.7	0.0	17.6w	107	35.8	109.8	7	22
2017	Sep	13	10 17 42.38	11 9 22.3	0.953116	7.0	-0.5	17.9w	91	49.3	112.6	6	23
2017	Sep	16	10 32 21.01	10 22 42.2	1.037117	6.4	-0.8	17.2w	76	62.5	115.2	6	24
2017	Sep	19	10 49 41.40	9 5 46.6	1.117009	6.0	-1.0	15.8w	61	74.1	117.7	5	25
2017	Sep	22	11 8 40.90	7 24 27.4	1.188982	5.6	-1.1	13.7w	48	83			



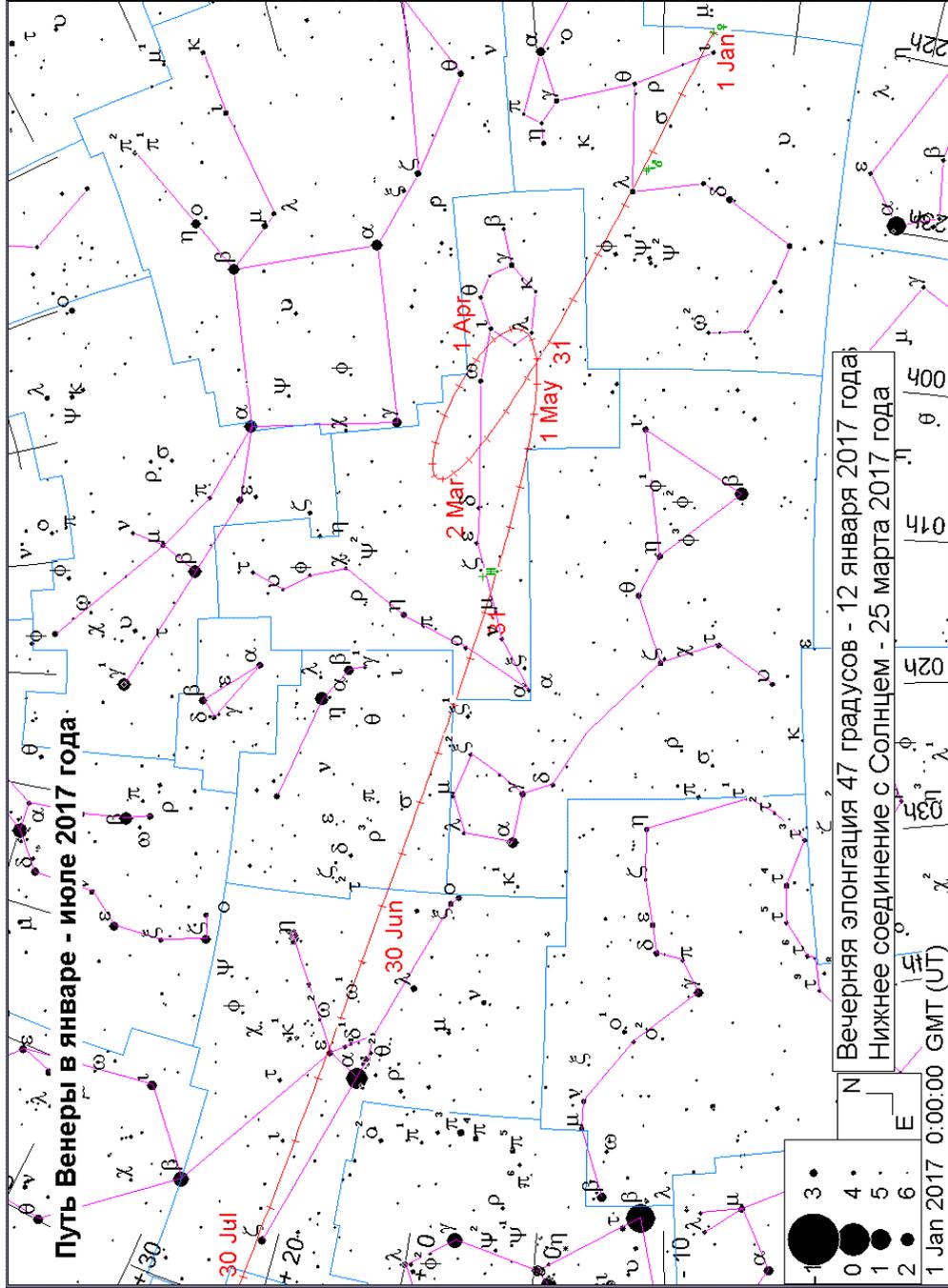


ВЕНЕРА

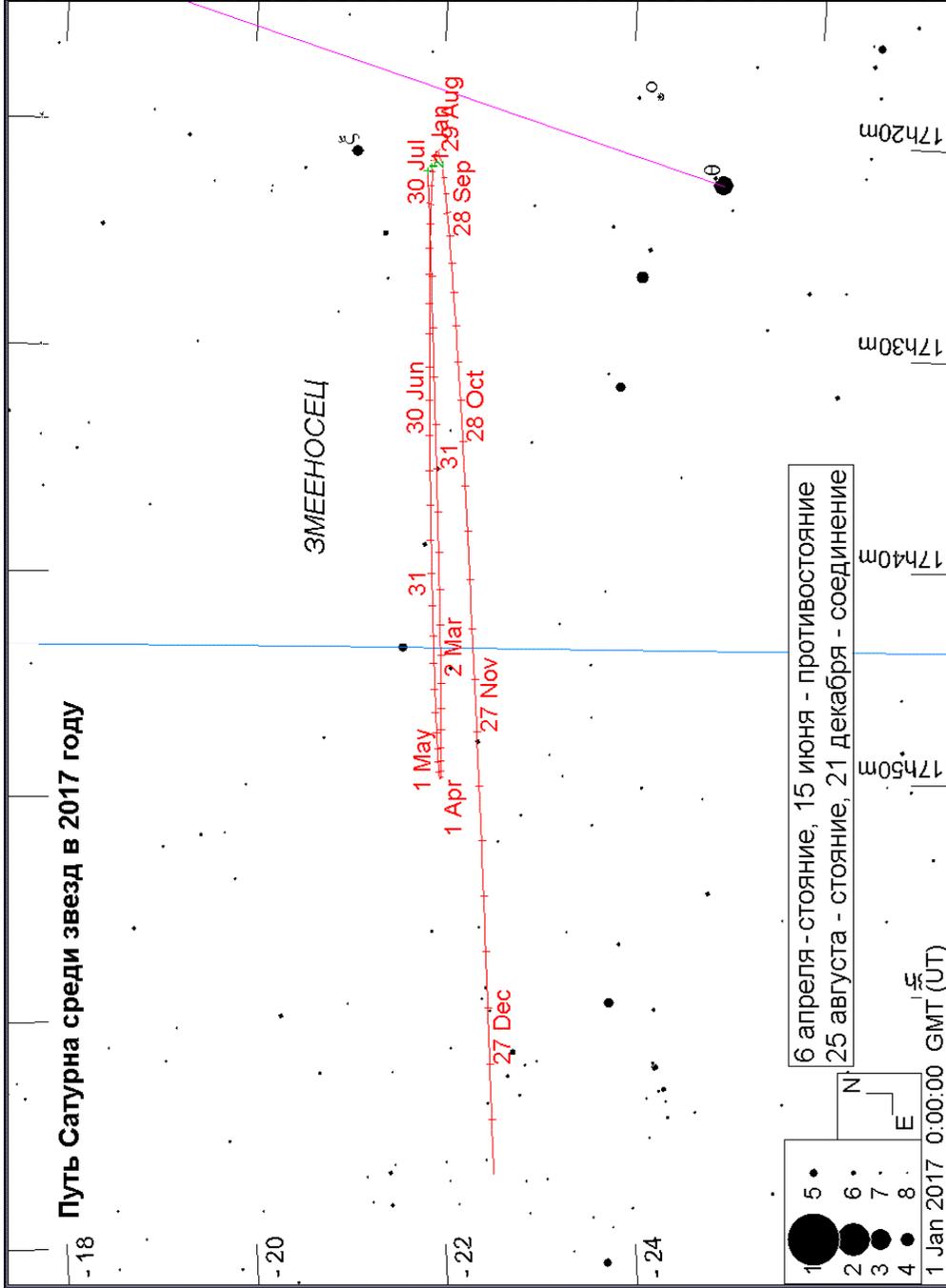


год	мес	д	Пр. восх.	Склонение	Расстояние	dia	mag	Elong	I	фаза	Limb	De	Pp
год	мес	д	h m s	o "	AU	"		o	o	o	o	o	o
2017	Jan	1	21 59 53.28	-13 46 43.0	0.769455	21.9	-4.4	46.8e	82	56.6	251.2	1	341
2017	Jan	6	22 19 56.42	-11 33 1.1	0.732597	23.0	-4.5	47.0e	85	54.3	249.9	0	340
2017	Jan	11	22 39 4.84	-9 14 27.6	0.695572	24.2	-4.5	47.1e	88	51.8	248.7	0	339
2017	Jan	16	22 57 16.42	-6 52 49.2	0.658495	25.5	-4.6	47.1e	91	49.2	247.7	-1	338
2017	Jan	21	23 14 28.67	-4 29 50.8	0.621480	27.1	-4.6	46.9e	94	46.4	246.7	-1	338
2017	Jan	26	23 30 37.47	-2 7 19.2	0.584633	28.8	-4.7	46.4e	97	43.5	245.8	-2	338
2017	Jan	31	23 45 35.99	0 12 52.7	0.548072	30.7	-4.7	45.7e	101	40.3	245.0	-3	337
2017	Feb	5	23 59 13.79	2 28 41.2	0.511967	32.9	-4.8	44.7e	105	36.9	244.2	-3	337
2017	Feb	10	0 11 16.35	4 37 45.8	0.476572	35.3	-4.8	43.3e	110	33.2	243.2	-4	337
2017	Feb	15	0 21 25.68	6 37 27.0	0.442240	38.0	-4.8	41.4e	115	29.3	242.1	-5	337
2017	Feb	20	0 29 20.27	8 24 38.6	0.409390	41.1	-4.8	39.0e	120	25.0	240.7	-6	337
2017	Feb	25	0 34 34.87	9 55 32.4	0.378530	44.4	-4.8	35.9e	126	20.5	238.8	-7	337
2017	Mar	2	0 36 42.36	11 5 24.6	0.350299	48.0	-4.8	32.0e	133	15.9	236.1	-8	337
2017	Mar	7	0 35 19.17	11 48 33.3	0.325524	51.7	-4.7	27.3e	141	11.3	232.2	-9	337
2017	Mar	12	0 30 17.50	11 59 0.5	0.305234	55.1	-4.5	21.8e	149	7.1	225.9	-9	337
2017	Mar	17	0 22 1.33	11 32 33.2	0.290549	57.9	-4.3	15.7e	158	3.6	214.7	-10	337
2017	Mar	22	0 11 35.53	10 29 37.7	0.282458	59.5	-4.2	10.1e	166	1.5	189.7	-10	337
2017	Mar	27	0 0 38.83	8 57 34.9	0.281600	59.7	-4.2	8.5w	168	1.1	138.9	-9	337
2017	Apr	1	23 50 58.61	7 9 59.3	0.288087	58.4	-4.2	12.8w	162	2.4	101.6	-9	337
2017	Apr	6	23 44 1.51	5 22 36.9	0.301520	55.8	-4.4	18.8w	153	5.3	86.1	-8	337
2017	Apr	11	23 40 37.72	3 48 52.6	0.321096	52.4	-4.6	24.6w	145	9.1	78.5	-6	337
2017	Apr	16	23 41 0.02	2 37 11.6	0.345791	48.6	-4.7	29.6w	137	13.6	74.2	-5	337
2017	Apr	21	23 44 54.03	1 50 56.9	0.374556	44.9	-4.7	33.7w	130	18.1	71.4	-4	337
2017	Apr	26	23 51 51.72	1 29 58.8	0.406462	41.4	-4.7	37.0w	123	22.6	69.5	-3	337
2017	May	1	0 1 21.60	1 32 11.9	0.440768	38.2	-4.7	39.7w	117	26.9	68.1	-2	337
2017	May	6	0 12 55.52	1 54 48.7	0.476925	35.3	-4.7	41.7w	112	31.0	67.1	-2	337
2017	May	11	0 26 10.86	2 34 57.2	0.514491	32.7	-4.7	43.2w	108	34.8	66.5	-1	337
2017	May	16	0 40 49.48	3 29 49.5	0.553091	30.4	-4.6	44.3w	104	38.3	66.0	0	337
2017	May	21	0 56 37.00	4 36 44.7	0.592403	28.4	-4.6	45.1w	100	41.6	66.0	0	338
2017	May	26	1 13 22.14	5 53 9.9	0.632167	26.6	-4.5	45.6w	96	44.7	66.1	1	338
2017	May	31	1 30 56.42	7 16 41.8	0.672195	25.0	-4.5	45.8w	93	47.6	66.4	1	339
2017	Jun	5	1 49 14.55	8 45 10.1	0.712366	23.6	-4.4	45.9w	90	50.4	67.0	1	339
2017	Jun	10	2 8 13.61	10 16 35.7	0.752556	22.4	-4.4	45.7w	87	53.0	67.8	1	340
2017	Jun	15	2 27 51.88	11 49 4.8	0.792636	21.2	-4.3	45.4w	84	55.5	68.8	1	341
2017	Jun	20	2 48 8.15	13 20 46.5	0.832473	20.2	-4.3	45.0w	81	57.9	70.1	2	343
2017	Jun	25	3 9 1.32	14 49 52.2	0.871952	19.3	-4.2	44.5w	78	60.1	71.5	2	344
2017	Jun	30	3 30 30.34	16 14 36.2	0.911002	18.5	-4.2	43.9w	76	62.3	73.2	2	346
2017	Jul	5	3 52 34.67	17 33 19.4	0.949586	17.7	-4.2	43.3w	73	64.4	75.1	2	347
2017	Jul	10	4 15 13.75	18 44 27.4	0.987646	17.0	-4.1	42.5w	71	66.4	77.2	1	349
2017	Jul	15	4 38 26.35	19 46 30.6	1.025109	16.4	-4.1	41.7w	69	68.3	79.4	1	351
2017	Jul	20	5 2 10.19	20 38 4.6	1.061886	15.8	-4.1	40.8w	66	70.2	81.8	1	353
2017	Jul	25	5 26 21.68	21 17 52.2	1.097902	15.3	-4.0	39.9w	64	72.0	84.4	1	356
2017	Jul	30	5 50 56.28	21 44 46.8	1.133123	14.8	-4.0	38.9w	62	73.7	87.0	1	358
2017	Aug	4	6 15 49.13	21 57 55.0	1.167535	14.4	-4.0	37.9w	60	75.4	89.7	1	0
2017	Aug	9	6 40 55.00	21 56 37.4	1.201107	14.0	-4.0	36.9w	57	77.0	92.5	1	3
2017	Aug	14	7 6 8.31	21 40 29.9	1.233790	13.6	-4.0	35.8w	55	78.6	95.3	1	5
2017	Aug	19	7 31 23.19	21 9 24.3	1.265516	13.3	-3.9	34.8w	53	80.1	98.0	0	8
2017	Aug	24	7 56 33.71	20 23 29.2	1.296229	13.0	-3.9	33.6w	51	81.5	100.7	0	10
2017	Aug	29	8 21 34.63	19 23 9.4	1.325918	12.7	-3.9	32.5w	49	82.9	103.2	0	12
2017	Sep	3	8 46 22.01	18 9 3.3	1.354583	12.4	-3.9	31.3w	47	84.2	105.6	0	14
2017	Sep	8	9 10 53.22	16 42 1.5	1.382215	12.2	-3.9	30.2w	45	85.5	107.8	0	16
2017	Sep	13	9 35 6.87	15 3 4.2	1.408781	11.9	-3.9	29.0w	43	86.8	109.9	0	18
2017	Sep	18	9 59 2.50	13 13 20.3	1.434231	11.7	-3.9	27.8w	41	87.9	111.7	0	19
2017	Sep	23	10 22 40.48	11 14 6.6	1.458531	11.5	-3.9	26.6w	39	89.0	113.3	0	20
2017	Sep	28	10 46 2.27	9 6 44.4	1.481683	11.4	-3.9	25.4w	37	90.1	114.7	0	21
2017	Oct	3	11 9 10.43	6 52 37.4	1.503707	11.2	-3.9	24.1w	35	91.1	115.8	0	22
2017	Oct	8	11 32 8.47	4 33 11.1	1.524614	11.0	-3.9	22.9w	33	92.0	116.6	0	22
2017	Oct	13	11 55 0.54	2 9 51.9	1.544389	10.9	-3.9	21.7w	31	92.9	117.2	0	23
2017	Oct	18	12 17 50.95	0 15 50.9	1.562997	10.8	-3.9	20.4w	29	93.8	117.5	0	23
2017	Oct	23	12 40 44.05	-1 42 25.1	1.580424	10.6	-3.9	19.2w	27	94.5	117.5	0	23
2017	Oct	28	13 3 44.39	-5 8 17.0	1.596690	10.5	-3.9	17.9w	25	95.3	117.2	0	22
2017	Nov	2	13 26 56.67	-7 31 51.9	1.611826	10.4	-3.9	16.7w	23	95.9	116.6	0	22
2017	Nov	7	13 50 25.64	-9 51 34.2	1.625863	10.3	-3.9	15.4w	21	96.5	115.7	0	21
2017	Nov	12	14 14 15.81	-12 5 47.3	1.638799	10.3	-3.9	14.2w	20	97.1	114.5	0	19
2017	Nov	17	14 38 30.87	-14 12 51.7	1.650614	10.2	-3.9	12.9w	18	97.6	113.0	0	18
2017	Nov	22	15 3 13.52	-16 11 6.0	1.661305	10.1	-3.9	11.7w	16	98.0	111.1	0	16
2017	Nov	27	15 28 25.43	-17 58 49.4	1.670898	10.1	-3.9	10.5w	14	98.4	108.9	0	15
2017	Dec	2	15 54 7.17	-19 34 24.1	1.679432	10.0	-3.9	9.2w	13	98.8	106.3	0	13
2017	Dec	7	16 20 18.05	-20 56 17.9	1.686948	10.0	-3.9	8.0w	11	99.1	103.3	0	10
2017	Dec	12	16 46 55.90	-22 3 6.8	1.693446	9.9	-3.9	6.8w	9	99.4	99.9	1	8
2017	Dec	17	17 13 56.57	-22 53 37.1	1.698907	9.9	-3.9	5.6w	8	99.6	95.8	1	5
2017	Dec	22	17 41 14.23	-23 26 49.3	1.703329	9.9	-3.9	4.4w	6	99.7	90.8	1	3
2017	Dec	27	18 8 41.75	-23 42 1.8	1.706731	9.9	-4.0	3.2w	4	99.9	84.1	1	0

MAPC



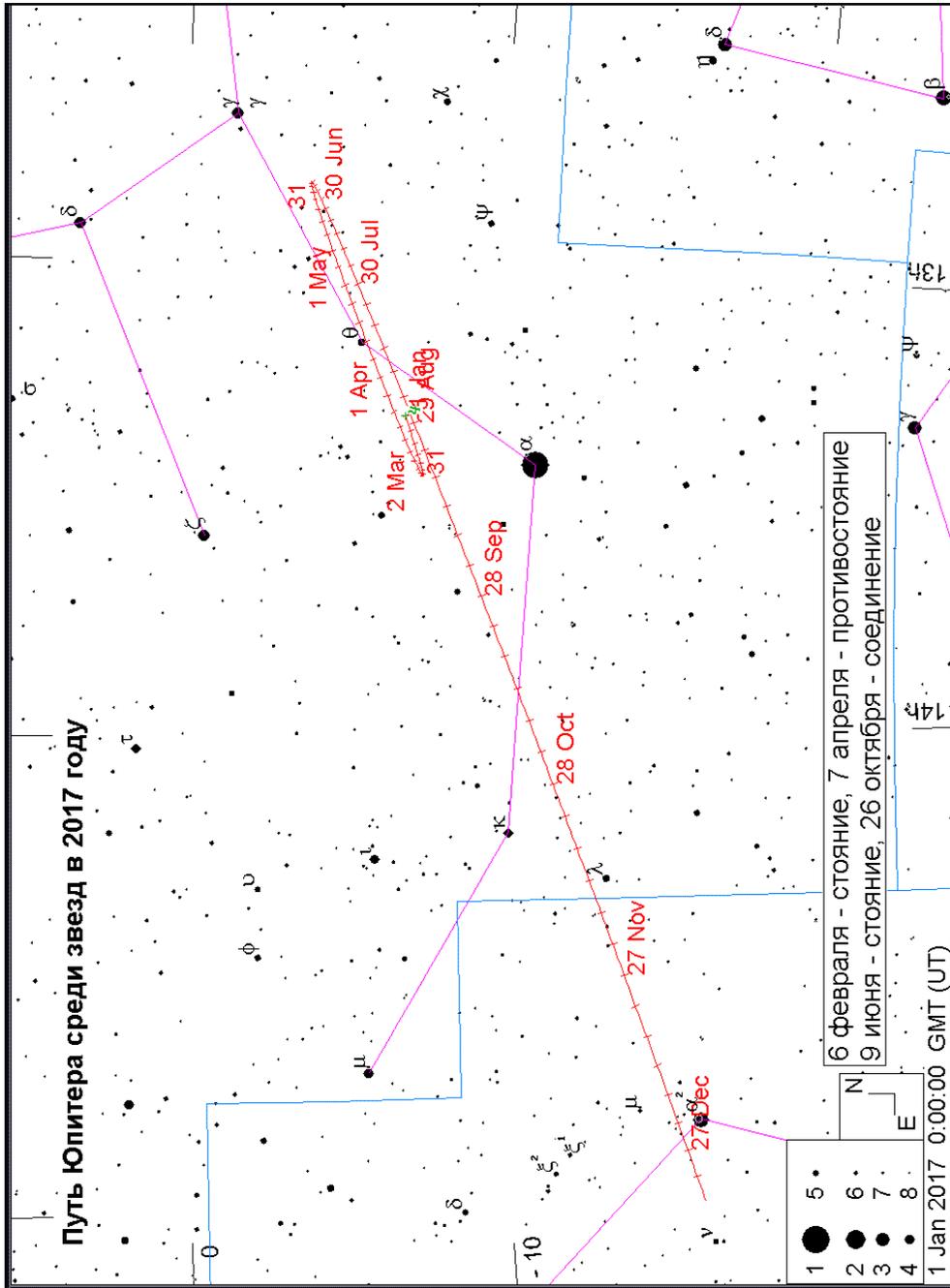
Дата	Пр. восх.	Склонение	Расстояние	dia	mag	Elong	I	фаза	Limb	De	Pp
год мес н	h m s	o "	AU	"		o	o		o	o	o
2017 Jan 1	22 44 49.23	- 8 53 54.0	1.640533	5.7	0.9	58.8e	37	90.1	248.4	-25	345
2017 Jan 6	22 58 47.76	- 7 23 4.0	1.673960	5.6	0.9	57.4e	36	90.5	247.9	-26	342
2017 Jan 11	23 12 39.77	- 5 50 59.7	1.707499	5.5	1.0	56.1e	35	90.9	247.6	-26	340
2017 Jan 16	23 26 25.96	- 4 18 4.2	1.741154	5.4	1.0	54.8e	34	91.3	247.3	-26	338
2017 Jan 21	23 40 7.38	- 2 44 38.8	1.774914	5.3	1.0	53.5e	34	91.6	247.1	-26	336
2017 Jan 26	23 53 45.15	0 11 4.3	1.808731	5.2	1.1	52.1e	33	92.0	246.9	-26	334
2017 Jan 31	0 7 20.18	0 22 18.5	1.842534	5.1	1.1	50.8e	32	92.4	246.9	-26	332
2017 Feb 5	0 20 53.23	1 55 8.3	1.876258	5.0	1.1	49.4e	31	92.8	246.9	-26	330
2017 Feb 10	0 34 24.96	3 27 3.7	1.909868	4.9	1.2	48.1e	30	93.1	247.1	-25	329
2017 Feb 15	0 47 56.24	4 57 45.0	1.943357	4.8	1.2	46.7e	30	93.5	247.3	-25	327
2017 Feb 20	1 1 28.17	6 26 54.3	1.976695	4.7	1.2	45.3e	29	93.8	247.5	-24	326
2017 Feb 25	1 15 1.73	7 54 14.2	2.009816	4.7	1.3	44.0e	28	94.2	247.9	-23	325
2017 Mar 2	1 28 37.69	9 19 26.9	2.042640	4.6	1.3	42.6e	27	94.5	248.3	-23	324
2017 Mar 7	1 42 16.57	10 42 14.4	2.075097	4.5	1.3	41.2e	26	94.9	248.9	-22	323
2017 Mar 12	1 55 58.81	12 2 19.0	2.107158	4.4	1.4	39.8e	25	95.2	249.4	-21	322
2017 Mar 17	2 9 45.03	13 19 24.6	2.138807	4.4	1.4	38.4e	24	95.5	250.1	-20	322
2017 Mar 22	2 23 35.89	14 33 16.4	2.170002	4.3	1.4	37.0e	24	95.8	250.8	-19	321
2017 Mar 27	2 37 31.90	15 43 40.3	2.200672	4.3	1.4	35.7e	23	96.1	251.6	-17	321
2017 Apr 1	2 51 33.28	16 50 22.2	2.230733	4.2	1.5	34.3e	22	96.4	252.5	-16	321
2017 Apr 6	3 5 39.93	17 53 7.8	2.260123	4.1	1.5	32.8e	21	96.7	253.4	-15	321
2017 Apr 11	3 19 51.73	18 51 43.6	2.288823	4.1	1.5	31.4e	20	97.0	254.4	-14	322
2017 Apr 16	3 34 8.66	19 45 58.1	2.316812	4.0	1.5	30.0e	19	97.2	255.4	-12	322
2017 Apr 21	3 48 30.67	20 35 41.2	2.344044	4.0	1.6	28.6e	18	97.5	256.5	-11	323
2017 Apr 26	4 2 57.49	21 20 43.6	2.370448	3.9	1.6	27.2e	17	97.7	257.6	-9	323
2017 May 1	4 17 28.54	22 0 56.6	2.395943	3.9	1.6	25.8e	16	98.0	258.7	-8	324
2017 May 6	4 32 2.93	22 36 12.3	2.420482	3.9	1.6	24.4e	15	98.2	259.9	-6	325
2017 May 11	4 46 39.87	23 6 24.2	2.444055	3.8	1.6	22.9e	15	98.4	261.1	-5	326
2017 May 16	5 1 18.64	23 31 28.0	2.466640	3.8	1.6	21.5e	14	98.6	262.3	-4	328
2017 May 21	5 15 58.50	23 51 20.9	2.488192	3.8	1.7	20.1e	13	98.8	263.4	-2	329
2017 May 26	5 30 38.57	24 6 1.5	2.508639	3.7	1.7	18.6e	12	98.9	264.6	-1	330
2017 May 31	5 45 17.67	24 15 29.5	2.527909	3.7	1.7	17.2e	11	99.1	265.7	1	332
2017 Jun 5	5 59 54.54	24 19 46.0	2.545976	3.7	1.7	15.7e	10	99.3	266.8	2	333
2017 Jun 10	6 14 28.14	24 18 53.6	2.562834	3.7	1.7	14.2e	9	99.4	267.8	4	335
2017 Jun 15	6 28 57.60	24 12 56.8	2.578464	3.6	1.7	12.8e	8	99.5	268.7	5	337
2017 Jun 20	6 43 22.13	24 2 1.1	2.592820	3.6	1.7	11.3e	7	99.6	269.4	7	339
2017 Jun 25	6 57 40.88	23 46 13.6	2.605833	3.6	1.7	9.8e	6	99.7	270.0	8	340
2017 Jun 30	7 11 52.84	23 25 42.2	2.617446	3.6	1.7	8.3e	5	99.8	270.1	9	342
2017 Jul 5	7 25 57.13	23 0 36.2	2.627650	3.6	1.7	6.8e	4	99.9	269.8	11	344
2017 Jul 10	7 39 53.17	22 31 5.2	2.636445	3.6	1.7	5.4e	3	99.9	268.4	12	346
2017 Jul 15	7 53 40.63	21 57 19.8	2.643814	3.5	1.7	3.9e	2	100.0	265.0	13	348
2017 Jul 20	8 7 19.29	21 19 31.1	2.649713	3.5	1.7	2.4e	2	100.0	255.8	15	350
2017 Jul 25	8 20 48.87	20 37 51.0	2.654076	3.5	1.7	1.3e	1	100.0	223.4	16	352
2017 Jul 30	8 34 9.00	19 52 32.0	2.656868	3.5	1.7	1.4w	1	100.0	154.5	17	354
2017 Aug 4	8 47 19.54	19 3 46.9	2.658097	3.5	1.7	2.7w	2	100.0	129.5	18	356
2017 Aug 9	9 0 20.64	18 11 48.1	2.657767	3.5	1.7	4.2w	3	99.9	121.8	19	358
2017 Aug 14	9 13 12.61	17 16 47.8	2.655867	3.5	1.7	5.8w	4	99.9	118.6	20	0
2017 Aug 19	9 25 55.86	16 18 58.6	2.652351	3.5	1.8	7.4w	5	99.8	117.0	21	2
2017 Aug 24	9 38 30.62	15 18 33.3	2.647170	3.5	1.8	9.0w	5	99.8	116.2	22	5
2017 Aug 29	9 50 57.09	14 15 45.3	2.640314	3.5	1.8	10.6w	6	99.7	115.9	22	7
2017 Sep 3	10 3 15.69	13 10 47.3	2.631802	3.6	1.8	12.3w	7	99.6	115.7	23	9
2017 Sep 8	10 15 27.02	12 3 51.4	2.621650	3.6	1.8	13.9w	8	99.5	115.6	24	11
2017 Sep 13	10 27 31.83	10 55 9.3	2.609853	3.6	1.8	15.6w	9	99.3	115.7	24	13
2017 Sep 18	10 39 30.79	9 44 52.6	2.596371	3.6	1.8	17.3w	10	99.2	115.7	25	15
2017 Sep 23	10 51 24.38	8 33 13.8	2.581179	3.6	1.8	19.0w	11	99.0	115.7	25	16
2017 Sep 28	11 3 13.11	7 20 25.6	2.564291	3.7	1.8	20.8w	12	98.8	115.8	25	18
2017 Oct 3	11 14 57.60	6 6 39.9	2.545746	3.7	1.8	22.5w	13	98.7	115.8	25	20
2017 Oct 8	11 26 38.67	4 52 7.8	2.525575	3.7	1.8	24.3w	14	98.5	115.8	26	22
2017 Oct 13	11 38 17.18	3 36 59.9	2.503778	3.7	1.8	26.0w	15	98.2	115.7	26	24
2017 Oct 18	11 49 53.84	2 21 27.5	2.480332	3.8	1.8	27.8w	16	98.0	115.6	25	25
2017 Oct 23	12 1 29.15	1 5 42.9	2.455244	3.8	1.8	29.7w	17	97.8	115.5	25	27
2017 Oct 28	12 13 3.66	- 0 10 1.9	2.428557	3.9	1.8	31.5w	18	97.5	115.3	25	28
2017 Nov 2	12 24 38.04	- 1 25 35.3	2.400329	3.9	1.8	33.3w	19	97.2	115.0	25	30
2017 Nov 7	12 36 13.10	- 2 40 46.6	2.370609	3.9	1.8	35.2w	20	97.0	114.7	24	31
2017 Nov 12	12 47 49.64	- 3 55 25.6	2.339409	4.0	1.8	37.0w	21	96.7	114.4	24	32
2017 Nov 17	12 59 28.20	- 5 9 20.6	2.306731	4.1	1.7	38.9w	22	96.4	114.0	23	34
2017 Nov 22	13 11 9.16	- 6 22 19.2	2.272616	4.1	1.7	40.8w	23	96.0	113.5	23	35
2017 Nov 27	13 22 52.95	- 7 34 9.2	2.237136	4.2	1.7	42.7w	24	95.7	113.0	22	35
2017 Dec 2	13 34 40.10	- 8 44 39.2	2.200372	4.3	1.7	44.6w	25	95.4	112.4	21	36
2017 Dec 7	13 46 31.26	- 9 53 38.8	2.162388	4.3	1.7	46.6w	26	95.0	111.8	21	37
2017 Dec 12	13 58 26.98	- 11 0 57.5	2.123210	4.4	1.6	48.5w	27	94.7	111.1	20	38
2017 Dec 17	14 10 27.44	- 12 6 23.4	2.082869	4.5	1.6	50.5w	28	94.3	110.4	19	38
2017 Dec 22	14 22 32.71	- 13 9 44.4	2.041437	4.6	1.6	52.4w	28	94.0	109.6	18	38
2017 Dec 27	14 34 42.87	- 14 10 48.7	1.999011	4.7	1.5	54.4w	29	93.6	108.8	17	38



ЮПИТЕР

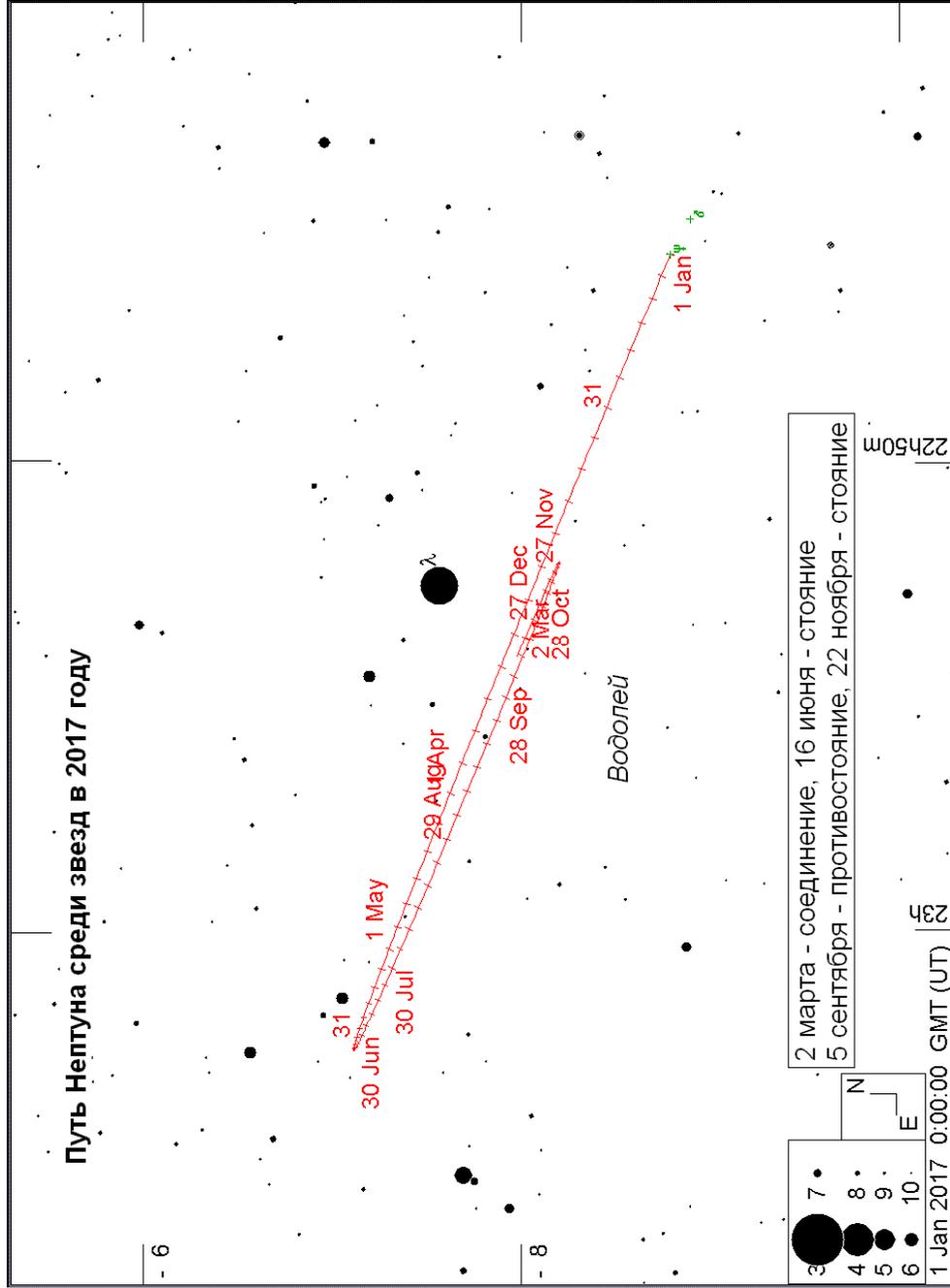
год	мес	д	Пр. восх.	Склонение	Расстояние	dia	mag	Elong	I	фаза	Limb	De	Pr
год	мес	д	h m s	o ' "	AU	"		o	o	o	o	o	o
2017	Jan	1	13 19 12.83	- 6 58 22.4	5.546772	35.5	-1.8	79.6w	10	99.2	112.2	-3	24
2017	Jan	6	13 21 5.64	- 7 8 26.5	5.466727	36.0	-1.8	84.2w	10	99.2	112.0	-3	24
2017	Jan	11	13 22 43.85	- 7 16 58.4	5.386064	36.6	-1.9	88.9w	10	99.2	111.9	-3	23
2017	Jan	16	13 24 6.76	- 7 23 55.0	5.305283	37.1	-1.9	93.6w	10	99.2	111.7	-3	23
2017	Jan	21	13 25 13.65	- 7 29 13.3	5.224884	37.7	-1.9	98.4w	10	99.2	111.6	-3	23
2017	Jan	26	13 26 3.78	- 7 32 50.4	5.145430	38.3	-2.0	103.3w	10	99.2	111.4	-3	23
2017	Jan	31	13 26 36.59	- 7 34 43.9	5.067528	38.9	-2.0	108.2w	10	99.3	111.2	-3	23
2017	Feb	5	13 26 51.72	- 7 34 52.8	4.991811	39.5	-2.0	113.2w	10	99.3	111.1	-3	23
2017	Feb	10	13 26 49.09	- 7 33 17.4	4.918885	40.0	-2.1	118.3w	9	99.4	110.9	-3	23
2017	Feb	15	13 26 28.73	- 7 29 58.8	4.849313	40.6	-2.1	123.5w	9	99.4	110.7	-3	23
2017	Feb	20	13 25 50.78	- 7 24 58.7	4.783670	41.2	-2.1	128.7w	8	99.5	110.5	-3	23
2017	Feb	25	13 24 55.62	- 7 18 19.8	4.722554	41.7	-2.2	134.0w	8	99.6	110.3	-3	23
2017	Mar	2	13 23 43.98	- 7 10 7.1	4.666567	42.2	-2.2	139.3w	7	99.6	110.0	-3	23
2017	Mar	7	13 22 17.00	- 7 0 27.3	4.616265	42.7	-2.2	144.7w	6	99.7	109.7	-3	23
2017	Mar	12	13 20 36.09	- 6 49 29.4	4.572110	43.1	-2.2	150.2w	5	99.8	109.2	-3	24
2017	Mar	17	13 18 42.84	- 6 37 22.9	4.534500	43.4	-2.3	155.6w	4	99.9	108.6	-3	24
2017	Mar	22	13 16 38.99	- 6 24 18.9	4.503808	43.7	-2.3	161.1w	3	99.9	107.5	-3	24
2017	Mar	27	13 14 26.62	- 6 10 29.8	4.480369	44.0	-2.3	166.7w	2	100.0	105.5	-3	24
2017	Apr	1	13 12 8.07	- 5 56 9.9	4.464447	44.1	-2.3	172.2w	1	100.0	100.7	-3	24
2017	Apr	6	13 9 45.91	- 5 41 35.0	4.456179	44.2	-2.3	177.4w	0	100.0	75.4	-3	24
2017	Apr	11	13 7 22.67	- 5 27 0.5	4.455579	44.2	-2.3	176.2e	1	100.0	317.0	-3	24
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2017	Apr	21	13 2 42.60	- 4 58 53.0	4.477131	44.0	-2.3	165.4e	3	99.9	298.6	-3	24
2017	Apr	26	13 0 30.47	- 4 45 49.1	4.499023	43.8	-2.3	160.0e	4	99.9	296.9	-3	24
2017	May	1	12 58 26.69	- 4 33 43.7	4.528015	43.5	-2.3	154.6e	5	99.8	295.9	-3	24
2017	May	6	12 56 33.27	- 4 22 49.2	4.563726	43.2	-2.2	149.2e	5	99.8	295.3	-3	24
2017	May	11	12 54 51.86	- 4 13 15.7	4.605719	42.8	-2.2	144.0e	6	99.7	294.8	-3	25
2017	May	16	12 53 23.78	- 4 5 11.2	4.653548	42.3	-2.2	138.8e	7	99.6	294.5	-3	25
2017	May	21	12 52 10.14	- 3 58 42.1	4.707656	41.8	-2.2	133.6e	8	99.5	294.2	-3	25
2017	May	26	12 51 11.91	- 3 53 53.8	4.764856	41.3	-2.1	128.6e	8	99.5	294.0	-3	25
2017	May	31	12 50 29.83	- 3 50 50.2	4.827296	40.8	-2.1	123.6e	9	99.4	293.8	-3	25
2017	Jun	5	12 50 4.28	- 3 49 33.0	4.893480	40.2	-2.1	118.7e	9	99.3	293.6	-3	25
2017	Jun	10	12 49 55.33	- 3 50 2.2	4.962843	39.7	-2.0	113.9e	10	99.3	293.5	-3	25
2017	Jun	15	12 50 2.92	- 3 52 16.6	5.034856	39.1	-2.0	109.2e	10	99.2	293.3	-3	25
2017	Jun	20	12 50 26.89	- 3 56 14.2	5.109013	38.5	-2.0	104.5e	10	99.2	293.2	-3	25
2017	Jun	25	12 51 7.04	- 4 1 52.9	5.184794	38.0	-1.9	99.9e	11	99.1	293.1	-3	25
2017	Jun	30	12 52 3.01	- 4 9 9.7	5.261646	37.4	-1.9	95.4e	11	99.1	292.9	-3	25
2017	Jul	5	12 53 14.25	- 4 18 0.2	5.339035	36.9	-1.9	91.0e	11	99.1	292.8	-3	25
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2017	Jul	20	12 58 13.20	- 4 53 6.3	5.569928	35.4	-1.8	78.0e	11	99.2	292.4	-3	24
2017	Jul	25	13 0 19.31	- 5 7 24.2	5.645065	34.9	-1.8	73.8e	10	99.2	292.2	-3	24
2017	Jul	30	13 2 37.60	- 5 22 51.9	5.718566	34.4	-1.7	69.7e	10	99.2	292.1	-3	24
2017	Aug	4	13 5 7.31	- 5 39 23.7	5.790044	34.0	-1.7	65.6e	10	99.3	291.9	-3	24
2017	Aug	9	13 7 47.72	- 5 56 54.3	5.859170	33.6	-1.7	61.5e	9	99.3	291.7	-3	24
2017	Aug	14	13 10 38.20	- 6 15 18.4	5.925646	33.2	-1.7	57.5e	9	99.4	291.5	-3	24
2017	Aug	19	13 13 38.19	- 6 34 31.4	5.989170	32.9	-1.6	53.5e	9	99.4	291.3	-3	24
2017	Aug	24	13 16 47.12	- 6 54 28.6	6.049415	32.6	-1.6	49.5e	8	99.5	291.1	-3	24
2017	Aug	29	13 20 4.30	- 7 15 4.9	6.106071	32.3	-1.6	45.6e	8	99.6	290.9	-3	24
2017	Sep	3	13 23 29.07	- 7 36 14.9	6.158891	32.0	-1.6	41.7e	7	99.6	290.6	-3	23
2017	Sep	8	13 27 0.79	- 7 57 53.7	6.207671	31.7	-1.6	37.8e	7	99.7	290.3	-3	23
2017	Sep	13	13 30 38.96	- 8 19 56.8	6.252220	31.5	-1.6	33.9e	6	99.7	289.9	-3	23
2017	Sep	18	13 34 23.08	- 8 42 20.0	6.292328	31.3	-1.5	30.0e	5	99.8	289.5	-3	23
2017	Sep	23	13 38 12.58	- 9 4 59.0	6.327770	31.1	-1.5	26.2e	5	99.8	289.1	-3	23
2017	Sep	28	13 42 6.84	- 9 27 48.8	6.358369	31.0	-1.5	22.3e	4	99.9	288.5	-3	22
2017	Oct	3	13 46 5.24	- 9 50 44.9	6.384001	30.8	-1.5	18.4e	3	99.9	287.7	-3	22
2017	Oct	8	13 50 7.24	-10 13 43.0	6.404576	30.7	-1.5	14.6e	3	99.9	286.7	-3	22
2017	Oct	13	13 54 12.34	-10 36 39.1	6.420003	30.7	-1.5	10.7e	2	100.0	285.0	-3	22
2017	Oct	18	13 58 20.06	-10 59 29.6	6.430163	30.6	-1.5	6.9e	1	100.0	281.8	-3	22
2017	Oct	23	14 2 29.76	-11 22 10.4	6.434955	30.6	-1.5	3.1e	1	100.0	270.9	-3	21
2017	Oct	28	14 6 40.80	-11 44 37.1	6.434338	30.6	-1.5	1.4w	0	100.0	156.1	-3	21
2017	Nov	2	14 10 52.54	-12 6 45.8	6.428317	30.6	-1.5	5.0w	1	100.0	121.3	-3	21
2017	Nov	7	14 15 4.41	-12 28 32.9	6.416924	30.7	-1.5	8.9w	2	100.0	115.8	-3	20
2017	Nov	12	14 19 15.87	-12 49 55.1	6.400171	30.8	-1.5	12.8w	2	100.0	113.5	-3	20
2017	Nov	17	14 23 26.27	-13 10 49.2	6.378061	30.9	-1.5	16.7w	3	99.9	112.2	-3	20
2017	Nov	22	14 27 34.88	-13 31 11.6	6.350643	31.0	-1.5	20.7w	4	99.9	111.2	-3	20
2017	Nov	27	14 31 40.92	-13 50 58.5	6.318028	31.2	-1.5	24.7w	4	99.9	110.5	-3	19
2017	Dec	2	14 35 43.68	-14 10 6.9	6.280368	31.4	-1.6	28.7w	5	99.8	109.9	-3	19
2017	Dec	7	14 39 42.46	-14 28 34.1	6.237827	31.6	-1.6	32.8w	6	99.8	109.3	-3	19
2017	Dec	12	14 43 36.57	-14 46 17.5	6.190543	31.8	-1.6	36.9w	6	99.7	108.9	-3	18
2017	Dec	17	14 47 25.14	-15 3 14.4	6.138676	32.1	-1.6	41.0w	7	99.6	108.4	-3	18
2017	Dec	22	14 51 7.28	-15 19 22.0	6.082449	32.4	-1.6	45.2w	7	99.6	108.0	-3	18
2017	Dec	27	14 54 42.06	-15 34 37.6	6.022140	32.7	-1.6	49.4w	8	99.5	107.6	-3	18

SATURN



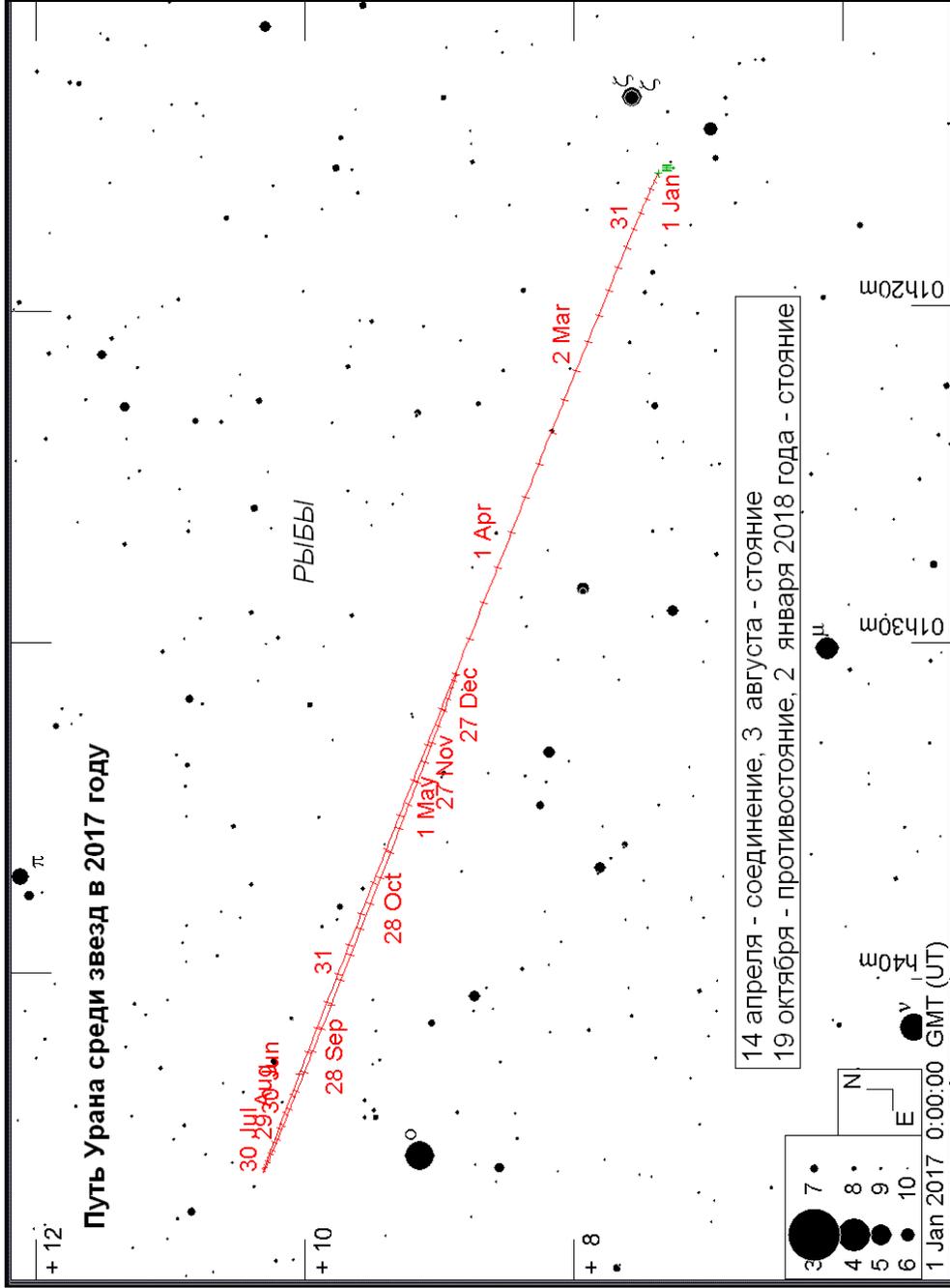
год	мес	д	Пр. восх. h m s	Склонение ° ' "	Расстояние AU	dia "	mag	Elong °	I	фаза	Limb	De	Pr
2017	Jan	1	17 21 47.96	-21 51 40.5	10.970055	15.2	0.5	19.4w	2	100.0	97.4	27	5
2017	Jan	6	17 24 13.28	-21 53 54.8	10.939100	15.2	0.5	24.0w	2	100.0	96.4	27	5
2017	Jan	11	17 26 35.34	-21 55 55.5	10.902134	15.3	0.5	28.5w	3	99.9	95.7	27	5
2017	Jan	16	17 28 53.56	-21 57 42.7	10.859394	15.3	0.5	33.0w	3	99.9	95.1	27	5
2017	Jan	21	17 31 7.37	-21 59 16.9	10.811101	15.4	0.5	37.6w	3	99.9	94.5	27	5
2017	Jan	26	17 33 16.13	-22 0 38.4	10.757512	15.5	0.5	42.2w	4	99.9	94.1	27	5
2017	Jan	31	17 35 19.17	-22 1 47.7	10.698943	15.6	0.5	46.8w	4	99.9	93.7	27	5
2017	Feb	5	17 37 15.89	-22 2 45.4	10.635784	15.7	0.5	51.4w	4	99.9	93.3	27	5
2017	Feb	10	17 39 5.72	-22 3 32.2	10.568465	15.8	0.5	56.1w	5	99.8	92.9	27	5
2017	Feb	15	17 40 48.17	-22 4 9.0	10.497403	15.9	0.5	60.7w	5	99.8	92.6	27	5
2017	Feb	20	17 42 22.73	-22 4 36.6	10.423015	16.0	0.5	65.4w	5	99.8	92.3	27	5
2017	Feb	25	17 43 48.84	-22 4 56.0	10.345757	16.1	0.5	70.1w	5	99.8	92.1	27	5
2017	Mar	2	17 45 5.99	-22 5 7.9	10.266149	16.2	0.5	74.8w	5	99.8	91.8	27	5
2017	Mar	7	17 46 13.75	-22 5 13.2	10.184761	16.4	0.5	79.6w	6	99.8	91.6	27	5
2017	Mar	12	17 47 11.79	-22 5 12.7	10.102162	16.5	0.5	84.3w	6	99.8	91.4	26	5
2017	Mar	17	17 47 59.81	-22 5 7.5	10.018890	16.6	0.5	89.1w	6	99.8	91.2	26	5
2017	Mar	22	17 48 37.54	-22 4 58.2	9.935491	16.8	0.5	94.0w	6	99.8	91.0	26	5
2017	Mar	27	17 49 4.70	-22 4 45.6	9.852547	16.9	0.4	98.8w	6	99.8	90.9	26	5
2017	Apr	1	17 49 21.13	-22 4 30.1	9.770687	17.1	0.4	103.7w	6	99.8	90.7	26	5
2017	Apr	6	17 49 26.81	-22 4 12.3	9.690548	17.2	0.4	108.6w	5	99.8	90.6	26	5
2017	Apr	11	17 49 21.83	-22 3 52.7	9.612717	17.3	0.4	113.5w	5	99.8	90.5	26	5
2017	Apr	16	17 49 6.32	-22 3 31.5	9.537746	17.5	0.3	118.5w	5	99.8	90.3	26	5
2017	Apr	21	17 48 40.48	-22 3 9.0	9.466187	17.6	0.3	123.5w	5	99.8	90.2	26	5
2017	Apr	26	17 48 4.59	-22 2 45.3	9.398613	17.7	0.3	128.5w	4	99.8	90.1	26	5
2017	May	1	17 47 19.06	-22 2 20.3	9.335601	17.9	0.3	133.5w	4	99.9	90.0	26	5
2017	May	6	17 46 24.53	-22 1 54.0	9.277674	18.0	0.2	138.6w	4	99.9	89.8	26	5
2017	May	11	17 45 21.68	-22 1 26.6	9.225273	18.1	0.2	143.6w	3	99.9	89.6	26	5
2017	May	16	17 44 11.25	-22 0 57.9	9.178795	18.2	0.2	148.7w	3	99.9	89.3	26	5
2017	May	21	17 42 54.06	-22 0 27.8	9.138622	18.2	0.1	153.8w	3	100.0	88.9	27	5
2017	May	26	17 41 31.01	-21 59 56.4	9.105122	18.3	0.1	159.0w	2	100.0	88.3	27	5
2017	May	31	17 40 3.17	-21 59 23.7	9.078614	18.4	0.1	164.1w	2	100.0	87.2	27	5
2017	Jun	5	17 38 31.74	-21 58 50.0	9.059305	18.4	0.1	169.2w	1	100.0	85.0	27	5
2017	Jun	10	17 36 57.85	-21 58 15.7	9.047315	18.4	0.0	174.3w	1	100.0	78.6	27	5
2017	Jun	15	17 35 22.65	-21 57 41.3	9.042725	18.4	0.0	178.6w	0	100.0	20.1	27	5
2017	Jun	20	17 33 47.29	-21 57 7.1	9.045582	18.4	0.0	175.1e	0	100.0	288.5	27	5
2017	Jun	25	17 32 12.99	-21 56 33.9	9.055895	18.4	0.0	170.1e	1	100.0	280.4	27	5
2017	Jun	30	17 30 40.99	-21 56 2.6	9.073579	18.4	0.1	165.0e	2	100.0	277.9	27	5
2017	Jul	5	17 29 12.48	-21 55 34.2	9.098435	18.3	0.1	159.9e	2	100.0	276.7	27	5
2017	Jul	10	17 27 48.53	-21 55 9.7	9.130211	18.3	0.1	154.8e	2	100.0	276.0	27	5
2017	Jul	15	17 26 30.08	-21 54 50.0	9.168633	18.2	0.2	149.7e	3	99.9	275.5	27	5
2017	Jul	20	17 25 18.06	-21 54 36.1	9.213406	18.1	0.2	144.7e	3	99.9	275.3	27	5
2017	Jul	25	17 24 13.35	-21 54 28.9	9.264184	18.0	0.2	139.7e	4	99.9	275.0	27	5
2017	Jul	30	17 23 16.79	-21 54 29.5	9.320526	17.9	0.2	134.7e	4	99.9	274.9	27	5
2017	Aug	4	17 22 29.00	-21 54 38.7	9.381934	17.8	0.3	129.7e	4	99.8	274.8	27	5
2017	Aug	9	17 21 50.47	-21 54 57.0	9.447904	17.6	0.3	124.8e	5	99.8	274.6	27	5
2017	Aug	14	17 21 21.61	-21 55 25.0	9.517941	17.5	0.3	119.9e	5	99.8	274.5	27	5
2017	Aug	19	17 21 2.75	-21 56 2.7	9.591547	17.4	0.4	115.0e	5	99.8	274.4	27	5
2017	Aug	24	17 20 54.20	-21 56 50.6	9.668174	17.2	0.4	110.1e	5	99.8	274.3	27	5
2017	Aug	29	17 20 56.13	-21 57 48.5	9.747216	17.1	0.4	105.3e	6	99.8	274.2	27	5
2017	Sep	3	17 21 8.55	-21 58 56.3	9.828073	17.0	0.4	100.5e	6	99.8	274.1	27	5
2017	Sep	8	17 21 31.40	-22 0 13.3	9.910175	16.8	0.4	95.8e	6	99.8	273.9	27	5
2017	Sep	13	17 22 4.54	-22 1 38.9	9.992987	16.7	0.5	91.1e	6	99.7	273.8	27	5
2017	Sep	18	17 22 47.86	-22 3 12.3	10.075968	16.5	0.5	86.3e	6	99.8	273.6	27	5
2017	Sep	23	17 23 41.18	-22 4 52.7	10.158537	16.4	0.5	81.7e	6	99.8	273.4	27	5
2017	Sep	28	17 24 44.21	-22 6 39.0	10.240106	16.3	0.5	77.0e	6	99.8	273.2	27	5
2017	Oct	3	17 25 56.56	-22 8 30.1	10.320131	16.1	0.5	72.4e	5	99.8	273.0	27	5
2017	Oct	8	17 27 17.82	-22 10 24.6	10.398117	16.0	0.5	67.8e	5	99.8	272.8	27	5
2017	Oct	13	17 28 47.60	-22 12 21.1	10.473609	15.9	0.5	63.2e	5	99.8	272.6	27	5
2017	Oct	18	17 30 25.50	-22 14 18.5	10.546133	15.8	0.5	58.6e	5	99.8	272.3	27	5
2017	Oct	23	17 32 11.07	-22 16 15.5	10.615196	15.7	0.5	54.0e	5	99.8	272.0	27	5
2017	Oct	28	17 34 3.78	-22 18 10.6	10.680344	15.6	0.5	49.5e	4	99.9	271.7	27	5
2017	Nov	2	17 36 3.05	-22 20 2.5	10.741183	15.5	0.5	45.0e	4	99.9	271.4	27	5
2017	Nov	7	17 38 8.32	-22 21 49.9	10.797377	15.4	0.5	40.4e	4	99.9	271.0	27	5
2017	Nov	12	17 40 19.09	-22 23 31.6	10.848611	15.4	0.5	35.9e	3	99.9	270.6	27	5
2017	Nov	17	17 42 34.83	-22 25 6.5	10.894549	15.3	0.5	31.4e	3	99.9	270.2	27	5
2017	Nov	22	17 44 54.94	-22 26 33.6	10.934876	15.2	0.5	26.9e	3	100.0	269.6	27	5
2017	Nov	27	17 47 18.78	-22 27 52.0	10.969336	15.2	0.5	22.4e	2	100.0	269.0	27	5
2017	Dec	2	17 49 45.70	-22 29 0.9	10.997741	15.2	0.5	17.9e	2	100.0	268.1	27	5
2017	Dec	7	17 52 15.10	-22 29 59.4	11.019957	15.1	0.5	13.4e	1	100.0	266.9	27	5
2017	Dec	12	17 54 46.43	-22 30 47.3	11.035851	15.1	0.5	8.9e	1	100.0	264.7	27	5
2017	Dec	17	17 57 19.07	-22 31 24.2	11.045283	15.1	0.5	4.5e	0	100.0	258.6	27	5
2017	Dec	22	17 59 52.37	-22 31 49.9	11.048165	15.1	0.4	0.9w	0	100.0	173.2	27	5
2017	Dec	27	18 2 25.64	-22 32 4.2	11.044482	15.1	0.5	4.7w	0	100.0	100.8	27	6

УРАН



Дата			Пр. восх.			Склонение		Расстояние	dia	mag	Elong	I	фаза	Limb	De	Pp
год	мес	д	h	m	s	o	'	АУ	"		o	o	o	o	o	o
2017	Jan	1	1	15	59.50	7	22	51.8	19.749603	3.5	5.8	99.8e	3	99.9	247.8	32 257
2017	Jan	6	1	16	4.26	7	23	32.4	19.834928	3.5	5.8	94.7e	3	99.9	247.9	32 257
2017	Jan	11	1	16	13.90	7	24	42.5	19.920834	3.4	5.8	89.7e	3	99.9	247.9	32 257
2017	Jan	16	1	16	28.33	7	26	21.4	20.006683	3.4	5.8	84.6e	3	99.9	248.0	32 257
2017	Jan	21	1	16	47.50	7	28	28.7	20.091864	3.4	5.8	79.6e	3	99.9	248.0	33 257
2017	Jan	26	1	17	11.31	7	31	3.5	20.175746	3.4	5.8	74.7e	3	99.9	248.1	33 257
2017	Jan	31	1	17	39.62	7	34	5.0	20.257682	3.4	5.8	69.7e	3	99.9	248.2	33 257
2017	Feb	5	1	18	12.25	7	37	32.0	20.337044	3.4	5.9	64.8e	3	99.9	248.3	33 257
2017	Feb	10	1	18	48.97	7	41	22.8	20.413267	3.4	5.9	59.9e	2	100.0	248.3	33 257
2017	Feb	15	1	19	29.55	7	45	36.1	20.485860	3.3	5.9	55.0e	2	100.0	248.4	33 257
2017	Feb	20	1	20	13.76	7	50	10.2	20.554350	3.3	5.9	50.2e	2	100.0	248.5	33 257
2017	Feb	25	1	21	1.35	7	55	3.6	20.618263	3.3	5.9	45.3e	2	100.0	248.7	34 257
2017	Mar	2	1	21	52.06	8	0	14.5	20.677142	3.3	5.9	40.5e	2	100.0	248.8	34 257
2017	Mar	7	1	22	45.58	8	5	40.9	20.730586	3.3	5.9	35.8e	2	100.0	248.9	34 257
2017	Mar	12	1	23	41.57	8	11	20.8	20.778285	3.3	5.9	31.0e	1	100.0	249.1	34 257
2017	Mar	17	1	24	39.74	8	17	12.3	20.819987	3.3	5.9	26.3e	1	100.0	249.4	35 257
2017	Mar	22	1	25	39.80	8	23	13.5	20.855446	3.3	5.9	21.6e	1	100.0	249.7	35 257
2017	Mar	27	1	26	41.44	8	29	22.5	20.884432	3.3	5.9	16.9e	1	100.0	250.2	35 257
2017	Apr	1	1	27	44.33	8	35	37.3	20.906749	3.3	5.9	12.3e	1	100.0	250.9	35 258
2017	Apr	6	1	28	48.11	8	41	55.8	20.922285	3.3	5.9	7.6e	0	100.0	252.6	36 258
2017	Apr	11	1	29	52.45	8	48	16.0	20.931011	3.3	5.9	3.0e	0	100.0	259.1	36 258
2017	Apr	16	1	30	57.05	8	54	36.0	20.932921	3.3	5.9	1.7w	0	100.0	49.6	36 258
2017	Apr	21	1	32	1.60	9	0	54.0	20.928015	3.3	5.9	6.3w	0	100.0	63.4	37 258
2017	Apr	26	1	33	5.78	9	7	8.2	20.916312	3.3	5.9	10.8w	1	100.0	65.6	37 258
2017	May	1	1	34	9.26	9	13	16.6	20.897887	3.3	5.9	15.4w	1	100.0	66.6	37 258
2017	May	6	1	35	11.70	9	19	17.5	20.872905	3.3	5.9	20.0w	1	100.0	67.1	37 258
2017	May	11	1	36	12.80	9	25	9.0	20.841578	3.3	5.9	24.5w	1	100.0	67.5	38 258
2017	May	16	1	37	12.28	9	30	49.6	20.804117	3.3	5.9	29.1w	1	100.0	67.7	38 258
2017	May	21	1	38	9.86	9	36	17.8	20.760743	3.3	5.9	33.7w	2	100.0	67.9	38 258
2017	May	26	1	39	5.24	9	41	32.0	20.711701	3.3	5.9	38.2w	2	100.0	68.1	38 258
2017	May	31	1	39	58.11	9	46	30.6	20.657308	3.3	5.9	42.8w	2	100.0	68.3	39 258
2017	Jun	5	1	40	48.21	9	51	12.1	20.597955	3.3	5.9	47.4w	2	100.0	68.4	39 258
2017	Jun	10	1	41	35.29	9	55	35.3	20.534040	3.3	5.9	51.9w	2	100.0	68.5	39 259
2017	Jun	15	1	42	19.12	9	59	39.0	20.465952	3.3	5.9	56.5w	2	100.0	68.6	39 259
2017	Jun	20	1	42	59.48	10	3	22.1	20.394088	3.4	5.9	61.1w	3	100.0	68.7	39 259
2017	Jun	25	1	43	36.14	10	6	43.5	20.318886	3.4	5.9	65.7w	3	99.9	68.8	40 259
2017	Jun	30	1	44	8.85	10	9	41.9	20.240859	3.4	5.8	70.4w	3	99.9	68.9	40 259
2017	Jul	5	1	44	37.47	10	12	16.6	20.160552	3.4	5.8	75.0w	3	99.9	68.9	40 259
2017	Jul	10	1	45	1.85	10	14	27.0	20.078488	3.4	5.8	79.7w	3	99.9	69.0	40 259
2017	Jul	15	1	45	21.87	10	16	12.4	19.995180	3.4	5.8	84.3w	3	99.9	69.1	40 259
2017	Jul	20	1	45	37.41	10	17	32.4	19.911151	3.4	5.8	89.0w	3	99.9	69.1	40 259
2017	Jul	25	1	45	48.34	10	18	26.4	19.826977	3.5	5.8	93.8w	3	99.9	69.2	40 259
2017	Jul	30	1	45	54.61	10	18	54.1	19.743280	3.5	5.8	98.5w	3	99.9	69.2	40 259
2017	Aug	4	1	45	56.23	10	18	55.7	19.660667	3.5	5.8	103.3w	3	99.9	69.3	40 259
2017	Aug	9	1	45	53.21	10	18	31.4	19.579705	3.5	5.8	108.1w	3	99.9	69.3	40 259
2017	Aug	14	1	45	45.60	10	17	41.4	19.500944	3.5	5.8	112.9w	3	99.9	69.4	40 259
2017	Aug	19	1	45	33.45	10	16	26.2	19.424947	3.5	5.8	117.8w	3	99.9	69.4	40 259
2017	Aug	24	1	45	16.88	10	14	46.3	19.352316	3.5	5.7	122.7w	2	100.0	69.5	40 259
2017	Aug	29	1	44	56.04	10	12	42.8	19.283645	3.6	5.7	127.6w	2	100.0	69.6	40 259
2017	Sep	3	1	44	31.17	10	10	16.8	19.219469	3.6	5.7	132.5w	2	100.0	69.6	40 259
2017	Sep	8	1	44	2.51	10	7	29.8	19.160267	3.6	5.7	137.5w	2	100.0	69.7	40 259
2017	Sep	13	1	43	30.32	10	4	23.3	19.106488	3.6	5.7	142.5w	2	100.0	69.8	40 259
2017	Sep	18	1	42	54.90	10	0	58.9	19.058590	3.6	5.7	147.6w	2	100.0	69.9	39 259
2017	Sep	23	1	42	16.59	9	57	18.6	19.017024	3.6	5.7	152.6w	1	100.0	70.1	39 259
2017	Sep	28	1	41	35.81	9	53	24.6	18.982169	3.6	5.7	157.7w	1	100.0	70.4	39 259
2017	Oct	3	1	40	53.00	9	49	19.4	18.954318	3.6	5.7	162.8w	1	100.0	70.8	39 258
2017	Oct	8	1	40	8.59	9	45	5.5	18.933690	3.6	5.7	167.9w	1	100.0	71.7	39 258
2017	Oct	13	1	39	23.03	9	40	45.5	18.920474	3.6	5.7	173.0w	0	100.0	73.8	38 258
2017	Oct	18	1	38	36.77	9	36	21.9	18.914845	3.6	5.7	178.1w	0	100.0	87.4	38 258
2017	Oct	23	1	37	50.34	9	31	57.7	18.916914	3.6	5.7	176.6e	0	100.0	238.8	38 258
2017	Oct	28	1	37	4.26	9	27	35.9	18.926684	3.6	5.7	171.4e	0	100.0	244.8	38 258
2017	Nov	2	1	36	19.03	9	23	19.5	18.944067	3.6	5.7	166.2e	1	100.0	246.3	38 258
2017	Nov	7	1	35	35.13	9	19	11.1	18.968907	3.6	5.7	161.0e	1	100.0	246.9	37 258
2017	Nov	12	1	34	53.01	9	15	13.5	19.001033	3.6	5.7	155.8e	1	100.0	247.3	37 258
2017	Nov	17	1	34	13.13	9	11	29.2	19.040233	3.6	5.7	150.6e	1	100.0	247.6	37 258
2017	Nov	22	1	33	35.95	9	8	1.1	19.086202	3.6	5.7	145.4e	2	100.0	247.7	37 258
2017	Nov	27	1	33	1.89	9	4	51.4	19.138543	3.6	5.7	140.2e	2	100.0	247.9	37 258
2017	Dec	2	1	32	31.32	9	2	2.5	19.196788	3.6	5.7	135.0e	2	100.0	248.0	37 258
2017	Dec	7	1	32	4.54	8	59	36.1	19.260447	3.6	5.7	129.8e	2	100.0	248.0	37 258
2017	Dec	12	1	31	41.84	8	57	33.8	19.329035	3.5	5.7	124.6e	2	100.0	248.1	36 258
2017	Dec	17	1	31	23.47	8	55	57.1	19.402020	3.5	5.8	119.4e	2	100.0	248.2	36 258
2017	Dec	22	1	31	9.68	8	54	47.4	19.478793	3.5	5.8	114.3e	3	99.9	248.2	36 258
2017	Dec	27	1	31	0.61	8	54	5.6	19.558695	3.5	5.8	109.2e	3	99.9	248.3	36 258

НЕПТУН



год	мес	д	Пр. восх.	Склонение	Расстояние	dia	mag	Elong	I	фаза	Limb	De	Pp
год	мес	д	h m s	o ' "	AU	"		o			o	o	o
2017	Jan	1	22 45 34.27	- 8 47 50.4	30.446497	2.4	7.9	59.0e	2	100.0	248.4	-26	327
2017	Jan	6	22 46 1.22	- 8 45 2.9	30.518854	2.4	7.9	54.0e	2	100.0	248.5	-26	327
2017	Jan	11	22 46 30.64	- 8 42 0.8	30.586827	2.4	7.9	49.0e	1	100.0	248.6	-26	327
2017	Jan	16	22 47 2.36	- 8 38 45.3	30.649968	2.4	7.9	44.1e	1	100.0	248.7	-26	327
2017	Jan	21	22 47 36.18	- 8 35 17.3	30.707851	2.4	7.9	39.2e	1	100.0	248.8	-26	327
2017	Jan	26	22 48 11.91	- 8 31 38.2	30.760048	2.4	8.0	34.2e	1	100.0	249.0	-26	327
2017	Jan	31	22 48 49.34	- 8 27 49.2	30.806161	2.4	8.0	29.3e	1	100.0	249.3	-26	327
2017	Feb	5	22 49 28.22	- 8 23 51.8	30.845860	2.4	8.0	24.4e	1	100.0	249.6	-25	326
2017	Feb	10	22 50 8.31	- 8 19 47.4	30.878909	2.4	8.0	19.5e	1	100.0	250.1	-25	326
2017	Feb	15	22 50 49.37	- 8 15 37.6	30.905133	2.4	8.0	14.7e	0	100.0	250.9	-25	326
2017	Feb	20	22 51 31.18	- 8 11 23.6	30.924370	2.4	8.0	9.8e	0	100.0	252.6	-25	326
2017	Feb	25	22 52 13.49	- 8 7 6.9	30.936477	2.4	8.0	5.0e	0	100.0	257.4	-25	326
2017	Mar	2	22 52 56.07	- 8 2 49.1	30.941362	2.4	8.0	0.9e	0	100.0	330.2	-25	326
2017	Mar	7	22 53 38.64	- 7 58 31.8	30.939025	2.4	8.0	4.8w	0	100.0	57.4	-25	326
2017	Mar	12	22 54 20.96	- 7 54 16.4	30.929550	2.4	8.0	9.6w	0	100.0	62.5	-25	326
2017	Mar	17	22 55 2.81	- 7 50 4.4	30.913050	2.4	8.0	14.3w	0	100.0	64.2	-25	326
2017	Mar	22	22 55 43.96	- 7 45 57.1	30.889643	2.4	8.0	19.1w	1	100.0	65.1	-25	325
2017	Mar	27	22 56 24.19	- 7 41 55.9	30.859480	2.4	8.0	23.9w	1	100.0	65.6	-25	325
2017	Apr	1	22 57 3.26	- 7 38 2.3	30.822774	2.4	8.0	28.7w	1	100.0	65.9	-25	325
2017	Apr	6	22 57 40.94	- 7 34 17.7	30.779831	2.4	8.0	33.4w	1	100.0	66.2	-25	325
2017	Apr	11	22 58 17.04	- 7 30 43.3	30.731001	2.4	7.9	38.2w	1	100.0	66.4	-25	325
2017	Apr	16	22 58 51.37	- 7 27 20.3	30.676633	2.4	7.9	42.9w	1	100.0	66.5	-25	325
2017	Apr	21	22 59 23.76	- 7 24 9.6	30.617082	2.4	7.9	47.7w	1	100.0	66.6	-25	325
2017	Apr	26	22 59 54.02	- 7 21 12.6	30.552738	2.4	7.9	52.4w	2	100.0	66.7	-25	325
2017	May	1	23 0 21.99	- 7 18 30.1	30.484057	2.4	7.9	57.1w	2	100.0	66.8	-25	325
2017	May	6	23 0 47.49	- 7 16 3.2	30.411565	2.4	7.9	61.9w	2	100.0	66.9	-25	325
2017	May	11	23 1 10.43	- 7 13 52.6	30.335781	2.4	7.9	66.6w	2	100.0	67.0	-25	325
2017	May	16	23 1 30.69	- 7 11 58.9	30.257208	2.4	7.9	71.3w	2	100.0	67.1	-25	325
2017	May	21	23 1 48.16	- 7 10 22.7	30.176355	2.4	7.9	76.1w	2	100.0	67.1	-25	325
2017	May	26	23 2 2.76	- 7 9 4.7	30.093765	2.4	7.9	80.8w	2	100.0	67.2	-25	324
2017	May	31	23 2 14.39	- 7 8 5.2	30.010042	2.4	7.9	85.6w	2	100.0	67.3	-25	324
2017	Jun	5	23 2 23.01	- 7 7 24.5	29.925807	2.4	7.9	90.3w	2	100.0	67.3	-25	324
2017	Jun	10	23 2 28.61	- 7 7 2.6	29.841639	2.5	7.9	95.1w	2	100.0	67.4	-25	324
2017	Jun	15	23 2 31.19	- 7 6 59.6	29.758095	2.5	7.9	99.8w	2	100.0	67.5	-25	324
2017	Jun	20	23 2 30.74	- 7 7 15.3	29.675733	2.5	7.9	104.6w	2	100.0	67.6	-25	324
2017	Jun	25	23 2 27.27	- 7 7 49.6	29.595145	2.5	7.9	109.4w	2	100.0	67.7	-25	324
2017	Jun	30	23 2 20.84	- 7 8 42.1	29.516953	2.5	7.9	114.2w	2	100.0	67.7	-25	324
2017	Jul	5	23 2 11.54	- 7 9 52.1	29.441733	2.5	7.9	119.0w	2	100.0	67.8	-25	324
2017	Jul	10	23 1 59.47	- 7 11 19.0	29.370007	2.5	7.9	123.8w	2	100.0	68.0	-25	324
2017	Jul	15	23 1 44.74	- 7 13 1.9	29.302266	2.5	7.8	128.7w	2	100.0	68.1	-25	325
2017	Jul	20	23 1 27.49	- 7 14 59.9	29.239000	2.5	7.8	133.5w	1	100.0	68.2	-25	325
2017	Jul	25	23 1 7.85	- 7 17 12.1	29.180716	2.5	7.8	138.4w	1	100.0	68.4	-25	325
2017	Jul	30	23 0 46.02	- 7 19 37.2	29.127895	2.5	7.8	143.3w	1	100.0	68.6	-25	325
2017	Aug	4	23 0 22.22	- 7 22 13.7	29.080935	2.5	7.8	148.1w	1	100.0	68.9	-25	325
2017	Aug	9	22 59 56.66	- 7 25 0.2	29.040168	2.5	7.8	153.0w	1	100.0	69.2	-25	325
2017	Aug	14	22 59 29.58	- 7 27 55.3	29.005893	2.5	7.8	158.0w	1	100.0	69.7	-25	325
2017	Aug	19	22 59 1.21	- 7 30 57.4	28.978405	2.5	7.8	162.9w	1	100.0	70.5	-25	325
2017	Aug	24	22 58 31.81	- 7 34 4.8	28.957980	2.5	7.8	167.8w	0	100.0	71.8	-25	325
2017	Aug	29	22 58 1.68	- 7 37 15.7	28.944810	2.5	7.8	172.8w	0	100.0	74.9	-25	325
2017	Sep	3	22 57 31.12	- 7 40 28.2	28.938993	2.5	7.8	177.6w	0	100.0	90.5	-25	325
2017	Sep	8	22 57 0.40	- 7 43 40.5	28.940567	2.5	7.8	177.1e	0	100.0	228.8	-25	325
2017	Sep	13	22 56 29.82	- 7 46 50.9	28.949539	2.5	7.8	172.2e	0	100.0	240.6	-25	325
2017	Sep	18	22 55 59.66	- 7 49 57.5	28.965904	2.5	7.8	167.2e	0	100.0	243.4	-25	325
2017	Sep	23	22 55 30.22	- 7 52 58.7	28.989592	2.5	7.8	162.2e	1	100.0	244.6	-25	326
2017	Sep	28	22 55 1.81	- 7 55 52.5	29.020432	2.5	7.8	157.2e	1	100.0	245.3	-25	326
2017	Oct	3	22 54 34.72	- 7 58 37.2	29.058172	2.5	7.8	152.1e	1	100.0	245.8	-25	326
2017	Oct	8	22 54 9.20	- 8 1 11.3	29.102516	2.5	7.8	147.1e	1	100.0	246.1	-25	326
2017	Oct	13	22 53 45.50	- 8 3 33.3	29.153157	2.5	7.8	142.0e	1	100.0	246.4	-25	326
2017	Oct	18	22 53 23.85	- 8 5 41.9	29.209761	2.5	7.8	137.0e	1	100.0	246.6	-25	326
2017	Oct	23	22 53 4.51	- 8 7 35.7	29.271910	2.5	7.8	131.9e	1	100.0	246.8	-25	326
2017	Oct	28	22 52 47.69	- 8 9 13.4	29.339102	2.5	7.8	126.9e	2	100.0	246.9	-25	326
2017	Nov	2	22 52 33.56	- 8 10 34.1	29.410793	2.5	7.9	121.8e	2	100.0	247.0	-25	326
2017	Nov	7	22 52 22.25	- 8 11 37.1	29.486430	2.5	7.9	116.8e	2	100.0	247.2	-25	326
2017	Nov	12	22 52 13.89	- 8 12 21.5	29.565471	2.5	7.9	111.7e	2	100.0	247.3	-25	326
2017	Nov	17	22 52 8.61	- 8 12 46.9	29.647340	2.5	7.9	106.6e	2	100.0	247.4	-25	326
2017	Nov	22	22 52 6.50	- 8 12 52.7	29.731388	2.5	7.9	101.6e	2	100.0	247.4	-25	326
2017	Nov	27	22 52 7.60	- 8 12 38.7	29.816935	2.5	7.9	96.5e	2	100.0	247.5	-25	326
2017	Dec	2	22 52 11.94	- 8 12 4.9	29.903303	2.4	7.9	91.5e	2	100.0	247.6	-25	326
2017	Dec	7	22 52 19.49	- 8 11 11.5	29.989853	2.4	7.9	86.5e	2	100.0	247.7	-25	326
2017	Dec	12	22 52 30.23	- 8 9 58.6	30.075971	2.4	7.9	81.4e	2	100.0	247.8	-25	326
2017	Dec	17	22 52 44.14	- 8 8 26.6	30.161005	2.4	7.9	76.4e	2	100.0	247.8	-25	326
2017	Dec	22	22 53 1.13	- 8 6 35.8	30.244282	2.4	7.9	71.4e	2	100.0	247.9	-25	326
2017	Dec	27	22 53 21.11	- 8 4 27.1	30.325148	2.4	7.9	66.4e	2	100.0	248.0	-25	326

Восходы и заходы Солнца и планет ( $\varphi=56^\circ$ ,  $\lambda=0^\circ$ )

ДАТА	Солнце		Меркурий		Венера		Марс		Юпитер		Сатурн		Уран		Нептун	
	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход
2017 Oct 2 6 6	17 37	5 28	17 40	3 35	17 12	3 49	17 14	7 59	18 10	13 8	20 23	17 53	8 4	16 58	3 33	
2017 Oct 4 6 10	17 32	5 43	17 36	3 42	17 8	3 49	17 8	7 54	18 3	13 1	20 16	17 45	7 56	16 50	3 25	
2017 Oct 6 6 14	17 27	5 57	17 31	3 49	17 4	3 49	17 2	7 49	17 56	12 54	20 9	17 37	7 47	16 42	3 17	
2017 Oct 8 6 18	17 21	6 11	17 27	3 56	16 59	3 48	16 56	7 43	17 48	12 46	20 1	17 29	7 39	16 34	3 9	
2017 Oct 10 6 22	17 16	6 25	17 23	4 3	16 55	3 48	16 49	7 38	17 41	12 39	19 54	17 21	7 31	16 26	3 1	
2017 Oct 12 6 26	17 11	6 38	17 18	4 10	16 50	3 48	16 43	7 33	17 34	12 32	19 46	17 13	7 22	16 18	2 52	
2017 Oct 14 6 30	17 6	6 52	17 14	4 17	16 46	3 48	16 37	7 27	17 27	12 25	19 39	17 5	7 14	16 10	2 44	
2017 Oct 16 6 34	17 1	7 5	17 9	4 24	16 41	3 47	16 31	7 22	17 19	12 18	19 31	16 57	7 5	16 2	2 36	
2017 Oct 18 6 38	16 56	7 18	17 5	4 31	16 37	3 47	16 24	7 17	17 12	12 11	19 24	16 53	7 1	15 54	2 28	
2017 Oct 20 6 42	16 51	7 31	17 0	4 38	16 32	3 47	16 18	7 12	17 5	12 4	19 17	16 45	6 52	15 46	2 20	
2017 Oct 22 6 47	16 46	7 43	16 56	4 45	16 28	3 47	16 12	7 6	16 58	11 56	19 9	16 37	6 44	15 38	2 12	
2017 Oct 24 6 51	16 42	7 56	16 52	4 52	16 23	3 47	16 5	7 1	16 51	11 49	19 2	16 29	6 36	15 30	2 4	
2017 Oct 26 6 55	16 37	8 8	16 48	4 59	16 19	3 46	15 59	6 56	16 43	11 42	18 55	16 21	6 27	15 22	1 56	
2017 Oct 28 6 59	16 32	8 21	16 44	5 6	16 14	3 46	15 53	6 51	16 36	11 35	18 48	16 12	6 19	15 14	1 48	
2017 Oct 30 7 4	16 28	8 33	16 40	5 14	16 10	3 46	15 47	6 45	16 29	11 28	18 40	16 4	6 10	15 6	1 39	
2017 Nov 1 7 8	16 23	8 45	16 37	5 21	16 5	3 45	15 40	6 40	16 22	11 21	18 33	15 56	6 2	14 58	1 31	
2017 Nov 3 7 12	16 19	8 56	16 34	5 28	16 1	3 45	15 34	6 35	16 15	11 14	18 26	15 48	5 54	14 51	1 23	
2017 Nov 5 7 16	16 15	9 7	16 31	5 35	15 57	3 45	15 28	6 30	16 8	11 7	18 19	15 40	5 45	14 43	1 15	
2017 Nov 7 7 21	16 11	9 18	16 29	5 43	15 52	3 45	15 22	6 24	16 0	11 0	18 12	15 32	5 37	14 35	1 7	
2017 Nov 9 7 25	16 7	9 29	16 27	5 50	15 48	3 44	15 15	6 19	15 53	10 53	18 5	15 24	5 29	14 27	0 59	
2017 Nov 11 7 29	16 3	9 38	16 25	5 57	15 44	3 44	15 9	6 14	15 46	10 46	17 57	15 16	5 20	14 19	0 51	
2017 Nov 13 7 33	15 59	9 48	16 24	6 5	15 40	3 44	15 3	6 8	15 39	10 40	17 50	15 8	5 12	14 11	0 43	
2017 Nov 15 7 37	15 56	9 56	16 23	6 12	15 37	3 44	14 57	6 3	15 32	10 33	17 43	15 0	5 4	14 3	0 35	
2017 Nov 17 7 42	15 52	10 3	16 23	6 20	15 33	3 43	14 51	5 58	15 25	10 26	17 36	14 52	4 55	13 55	0 27	
2017 Nov 19 7 46	15 49	10 9	16 24	6 27	15 29	3 43	14 44	5 52	15 17	10 19	17 29	14 44	4 47	13 47	0 20	
2017 Nov 21 7 50	15 46	10 14	16 24	6 35	15 26	3 43	14 38	5 47	15 10	10 12	17 22	14 36	4 39	13 39	0 12	
2017 Nov 23 7 53	15 43	10 17	16 25	6 42	15 23	3 42	14 32	5 42	15 3	10 5	17 15	14 28	4 30	13 31	0 4	
2017 Nov 25 7 57	15 40	10 18	16 27	6 49	15 20	3 42	14 26	5 36	14 56	9 58	17 8	14 20	4 22	13 23	23 56	
2017 Nov 27 8 1	15 38	10 17	16 27	6 57	15 17	3 42	14 20	5 31	14 49	9 51	17 1	14 12	4 14	13 15	23 48	
2017 Nov 29 8 4	15 36	10 13	16 28	7 4	15 14	3 42	14 14	5 26	14 42	9 44	16 54	14 4	4 6	13 8	23 40	
2017 Dec 1 8 8	15 34	10 7	16 27	7 11	15 12	3 41	14 8	5 20	14 35	9 38	16 47	13 56	3 57	13 0	23 32	
2017 Dec 3 8 11	15 32	9 57	16 25	7 18	15 10	3 41	14 2	5 15	14 27	9 31	16 40	13 48	3 49	12 52	23 24	
2017 Dec 5 8 14	15 31	9 43	16 21	7 25	15 8	3 41	13 56	5 9	14 20	9 24	16 33	13 40	3 41	12 44	23 17	
2017 Dec 7 8 17	15 30	9 26	16 14	7 32	15 7	3 40	13 50	5 4	14 13	9 17	16 26	13 32	3 33	12 36	23 9	
2017 Dec 9 8 20	15 29	9 4	16 5	7 39	15 6	3 40	13 44	4 58	14 6	9 10	16 19	13 24	3 25	12 28	23 1	
2017 Dec 11 8 22	15 28	8 40	15 53	7 45	15 5	3 40	13 38	4 53	13 59	9 3	16 12	13 16	3 17	12 20	22 53	
2017 Dec 13 8 24	15 28	8 14	15 41	7 51	15 4	3 40	13 32	4 47	13 52	8 56	16 5	13 8	3 8	12 12	22 45	
2017 Dec 15 8 26	15 27	7 48	15 27	7 57	15 4	3 39	13 26	4 41	13 45	8 50	15 58	13 0	3 0	12 4	22 38	
2017 Dec 17 8 28	15 28	7 26	15 14	8 3	15 5	3 39	13 20	4 36	13 37	8 43	15 52	12 52	2 52	11 57	22 30	
2017 Dec 19 8 30	15 28	7 7	15 2	8 8	15 5	3 39	13 14	4 30	13 30	8 36	15 45	12 45	2 44	11 49	22 22	
2017 Dec 21 8 31	15 29	6 53	14 52	8 13	15 7	3 39	13 8	4 24	13 23	8 29	15 38	12 37	2 36	11 41	22 14	
2017 Dec 23 8 32	15 30	6 43	14 42	8 17	15 8	3 38	13 3	4 19	13 16	8 22	15 31	12 29	2 28	11 33	22 7	
2017 Dec 25 8 33	15 31	6 38	14 34	8 21	15 10	3 38	12 57	4 13	13 9	8 15	15 24	12 21	2 20	11 25	21 59	
2017 Dec 27 8 33	15 33	6 35	14 28	8 25	15 13	3 38	12 51	4 7	13 2	8 8	15 17	12 13	2 12	11 17	21 51	
2017 Dec 29 8 33	15 35	6 36	14 22	8 28	15 16	3 37	12 45	4 1	12 54	8 2	15 10	12 5	2 4	11 9	21 44	
2017 Dec 31 8 33	15 37	6 38	14 18	8 31	15 20	3 37	12 40	3 55	12 47	7 55	15 3	11 57	1 56	11 2	21 36	

ДАТА	Солнце		Меркурий		Венера		Марс		Юпитер		Сатурн		Уран		Нептун	
	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход
2017 Jan 1 8 33	15 38	7 40	15 25	10 39	20 0	10 53	21 17	1 15	12 1	7 1	14 21	11 46	1 27	10 53	21 18	
2017 Jan 3 8 32	15 41	7 22	15 9	10 34	20 7	10 47	21 18	1 8	11 53	6 55	14 14	11 39	1 19	10 45	21 11	
2017 Jan 5 8 31	15 43	7 8	14 55	10 28	20 13	10 41	21 20	1 2	11 45	6 48	14 7	11 31	1 11	10 37	21 3	
2017 Jan 7 8 30	15 46	6 58	14 43	10 22	20 18	10 35	21 21	0 55	11 38	6 41	14 0	11 23	1 3	10 30	20 56	
2017 Jan 9 8 29	15 49	6 51	14 33	10 16	20 24	10 29	21 23	0 48	11 30	6 34	13 53	11 15	0 55	10 22	20 48	
2017 Jan 11 8 27	15 53	6 47	14 25	10 10	20 30	10 23	21 24	0 41	11 23	6 27	13 46	11 7	0 48	10 14	20 40	
2017 Jan 13 8 25	15 56	6 45	14 19	10 4	20 35	10 17	21 25	0 34	11 15	6 20	13 39	10 59	0 40	10 6	20 33	
2017 Jan 15 8 23	16 0	6 46	14 14	9 57	20 40	10 10	21 27	0 27	11 7	6 13	13 32	10 51	0 32	9 58	20 25	
2017 Jan 17 8 20	16 4	6 47	14 11	9 50	20 45	10 4	21 28	0 20	11 0	6 6	13 25	10 43	0 24	9 50	20 18	
2017 Jan 19 8 18	16 7	6 49	14 8	9 44	20 50	9 58	21 29	0 13	10 52	6 0	13 17	10 35	0 17	9 43	20 10	
2017 Jan 21 8 15	16 11	6 53	14 8	9 37	20 54	9 52	21 31	0 5	10 44	5 53	13 10	10 28	0 9	9 35	20 3	
2017 Jan 23 8 12	16 16	6 56	14 8	9 30	20 59	9 46	21 32	23 58	10 37	5 46	13 3	10 20	0 1	9 27	19 55	
2017 Jan 25 8 9	16 20	6 59	14 10	9 23	21 3	9 40	21 33	23 50	10 29	5 39	12 56	10 12	23 54	9 19	19 48	
2017 Jan 27 8 6	16 24	7 3	14 12	9 15	21 7	9 34	21 34	23 43	10 21	5 32	12 49	10 4	23 46	9 11	19 40	
2017 Jan 29 8 2	16 28	7 6	14 16	9 8	21 11	9 27	21 36	23 35	10 13	5 25	12 42	9 56	23 39	9 4	19 33	
2017 Jan 31 7 58	16 32	7 9	14 20	9 0	21 14	9 21	21 37	23 28	10 6	5 18	12 35	9 48	23 31	8 56	19 25	
2017 Feb 2 7 55	16 37	7 12	14 26	8 53	21 17	9 15	21 38	23 20	9 58	5 11	12 28	9 41	23 23	8 48	19 18	
2017 Feb 4 7 51	16 41	7 14	14 32	8 45	21 20	9 9	21 39	23 12	9 50	5 4	12 20	9 33	23 16	8 40	19 10	
2017 Feb 6 7 47	16 46	7 16	14 40	8 37	21 23	9 3	21 41	23 4	9 42	4 56	12 13	9 25	23 8	8 32	19 3	
2017 Feb 8 7 42	16 50	7 17	14 48	8 29	21 25	8 57	21 42	22 56	9 34	4 49	12 6	9 17	23 1	8 25	18 55	
2017 Feb 10 7 38	16 54	7 18	14 57	8 20	21 27	8 51	21 43	22 48	9 27	4 42	11 59	9 9	22 53	8 17	18 48	
2017 Feb 12 7 34	16 59	7 18	15 6	8 12	21 28	8 44	21 44	22 40	9 19	4 35	11 52	9 1	22 46	8 9	18 40	
2017 Feb 14 7 29	17 3	7 18	15 17	8 3	21 29	8 38	21 45	22 32	9 11	4 28	11 44	8 54	22 38	8 1	18 33	
2017 Feb 16 7 25	17 8	7 17	15 28	7 54	21 30	8 32	21 46	22 24	9 3	4 21	11 37	8 46	22 31	7 53	18 25	
2017 Feb 18 7 20	17 12	7 16	15 40	7 45	21 29	8 26	21 48	22 15	8 55	4 13	11 30	8 38				

ДАТА	Солнце		Меркурий		Венера		Марс		Юпитер		Сатурн		Уран		Нептун	
	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход
2017 Apr 1 5 32	18 40	5 41	20 45	4 27	18 4	6 23	22 10	19 6	6 4	1 35	8 51	5 55	19 50	5 2	15 41	
2017 Apr 3 5 27	18 44	5 34	20 50	4 20	17 49	6 18	22 11	18 56	5 56	1 27	8 43	5 47	19 43	4 54	15 34	
2017 Apr 5 5 21	18 48	5 26	20 52	4 14	17 34	6 13	22 12	18 47	5 47	1 19	8 36	5 39	19 36	4 46	15 26	
2017 Apr 7 5 16	18 52	5 18	20 50	4 8	17 20	6 7	22 13	18 38	5 39	1 11	8 28	5 32	19 29	4 38	15 19	
2017 Apr 9 5 11	18 56	5 11	20 45	4 2	17 6	6 2	22 13	18 32	5 35	1 3	8 20	5 24	19 21	4 30	15 11	
2017 Apr 11 5 6	19 0	5 3	20 37	3 57	16 54	5 57	22 14	18 23	5 27	0 55	8 12	5 16	19 14	4 23	15 4	
2017 Apr 13 5 1	19 5	4 56	20 26	3 52	16 43	5 52	22 15	18 13	5 18	0 47	8 4	5 8	19 7	4 15	14 56	
2017 Apr 15 4 56	19 9	4 49	20 12	3 47	16 32	5 47	22 16	18 4	5 10	0 39	7 56	5 1	19 0	4 7	14 49	
2017 Apr 17 4 51	19 13	4 42	19 55	3 43	16 23	5 42	22 16	17 54	5 2	0 31	7 48	4 53	18 53	3 59	14 41	
2017 Apr 19 4 46	19 17	4 36	19 37	3 38	16 15	5 37	22 17	17 45	4 53	0 23	7 40	4 45	18 45	3 51	14 34	
2017 Apr 21 4 41	19 21	4 30	19 18	3 34	16 7	5 32	22 17	17 36	4 45	0 15	7 32	4 37	18 38	3 44	14 26	
2017 Apr 23 4 36	19 25	4 24	18 59	3 29	16 0	5 28	22 18	17 26	4 37	0 7	7 24	4 30	18 31	3 36	14 18	
2017 Apr 25 4 31	19 29	4 18	18 40	3 25	15 55	5 23	22 18	17 17	4 29	23 59	7 15	4 22	18 24	3 28	14 11	
2017 Apr 27 4 26	19 33	4 13	18 23	3 21	15 50	5 18	22 18	17 8	4 20	23 50	7 7	4 14	18 17	3 20	14 3	
2017 Apr 29 4 22	19 37	4 8	18 7	3 17	15 46	5 14	22 19	16 58	4 12	23 42	6 59	4 6	18 9	3 12	13 56	
2017 May 1 4 17	19 41	4 3	17 54	3 13	15 42	5 10	22 19	16 49	4 4	23 34	6 51	3 59	18 2	3 4	13 48	
2017 May 3 4 13	19 45	3 58	17 42	3 8	15 39	5 5	22 19	16 40	3 56	23 26	6 43	3 51	17 55	2 57	13 40	
2017 May 5 4 8	19 49	3 53	17 33	3 4	15 37	5 1	22 19	16 31	3 47	23 17	6 34	3 43	17 48	2 49	13 33	
2017 May 7 4 4	19 53	3 48	17 26	3 0	15 35	4 57	22 19	16 22	3 39	23 9	6 26	3 36	17 40	2 41	13 25	
2017 May 9 4 0	19 57	3 43	17 21	2 56	15 34	4 53	22 19	16 13	3 31	23 1	6 18	3 28	17 33	2 33	13 17	
2017 May 11 3 56	20 1	3 38	17 17	2 52	15 34	4 50	22 18	16 4	3 23	22 52	6 10	3 20	17 26	2 25	13 10	
2017 May 13 3 52	20 5	3 34	17 16	2 47	15 34	4 46	22 18	15 55	3 15	22 44	6 1	3 12	17 19	2 17	13 2	
2017 May 15 3 48	20 9	3 29	17 17	2 43	15 34	4 42	22 18	15 46	3 6	22 36	5 53	3 5	17 11	2 10	12 54	
2017 May 17 3 44	20 12	3 24	17 19	2 39	15 35	4 39	22 17	15 38	2 58	22 27	5 44	2 57	17 4	2 2	12 47	
2017 May 19 3 41	20 16	3 20	17 22	2 35	15 36	4 36	22 16	15 29	2 50	22 19	5 36	2 49	16 57	1 54	12 39	
2017 May 21 3 38	20 20	3 15	17 27	2 30	15 37	4 32	22 15	15 20	2 42	22 10	5 28	2 41	16 49	1 46	12 31	
2017 May 23 3 34	20 23	3 10	17 33	2 26	15 39	4 29	22 14	15 12	2 34	22 2	5 19	2 33	16 42	1 38	12 23	
2017 May 25 3 31	20 26	3 6	17 41	2 22	15 41	4 27	22 13	15 3	2 26	21 53	5 11	2 26	16 35	1 30	12 16	
2017 May 27 3 29	20 30	3 2	17 50	2 18	15 43	4 24	22 12	14 55	2 18	21 45	5 2	2 18	16 28	1 22	12 8	
2017 May 29 3 26	20 33	2 58	18 0	2 13	15 45	4 21	22 11	14 47	2 10	21 36	4 54	2 10	16 20	1 14	12 0	
2017 May 31 3 24	20 36	2 54	18 11	2 9	15 48	4 19	22 9	14 38	2 2	21 28	4 45	2 2	16 13	1 7	11 52	
2017 Jun 2 3 22	20 38	2 51	18 24	2 5	15 51	4 16	22 7	14 30	1 54	21 19	4 37	1 55	16 5	0 59	11 44	
2017 Jun 4 3 20	20 41	2 48	18 38	2 1	15 54	4 14	22 6	14 22	1 46	21 11	4 28	1 47	15 58	0 51	11 37	
2017 Jun 6 3 18	20 43	2 46	18 52	1 56	15 58	4 12	22 4	14 14	1 38	21 2	4 20	1 39	15 51	0 43	11 29	
2017 Jun 8 3 17	20 45	2 44	19 8	1 52	16 1	4 10	22 1	14 6	1 30	20 53	4 11	1 31	15 43	0 35	11 21	
2017 Jun 10 3 15	20 47	2 44	19 25	1 48	16 5	4 8	21 59	13 58	1 22	20 45	4 3	1 24	15 36	0 27	11 13	
2017 Jun 12 3 15	20 49	2 44	19 42	1 44	16 9	4 6	21 57	13 50	1 14	20 36	3 54	1 16	15 28	0 19	11 5	
2017 Jun 14 3 14	20 50	2 46	19 59	1 40	16 13	4 4	21 54	13 43	1 6	20 28	3 46	1 8	15 21	0 11	10 57	
2017 Jun 16 3 14	20 52	2 49	20 17	1 36	16 17	4 3	21 52	13 35	0 58	20 23	3 41	1 0	15 14	0 4	10 49	
2017 Jun 18 3 13	20 53	2 53	20 34	1 32	16 21	4 1	21 49	13 27	0 50	20 15	3 33	0 52	15 6	23 56	10 42	
2017 Jun 20 3 14	20 53	3 0	20 50	1 28	16 26	4 0	21 46	13 20	0 42	20 6	3 24	0 45	14 59	23 48	10 34	
2017 Jun 22 3 14	20 54	3 8	21 5	1 25	16 30	3 59	21 43	13 12	0 34	19 57	3 16	0 37	14 51	23 40	10 26	
2017 Jun 24 3 15	20 54	3 18	21 17	1 21	16 35	3 58	21 39	13 5	0 26	19 49	3 7	0 29	14 44	23 32	10 18	
2017 Jun 26 3 16	20 54	3 30	21 28	1 18	16 39	3 57	21 36	12 58	0 18	19 40	2 59	0 21	14 36	23 24	10 10	
2017 Jun 28 3 17	20 54	3 43	21 36	1 14	16 44	3 56	21 33	12 50	0 11	19 32	2 50	0 13	14 28	23 16	10 2	
2017 Jun 30 3 18	20 53	3 57	21 42	1 11	16 49	3 55	21 29	12 43	0 3	19 23	2 42	0 6	14 21	23 8	9 54	

ДАТА	Солнце		Меркурий		Венера		Марс		Юпитер		Сатурн		Уран		Нептун	
	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход	Восх.	Заход
2017 Jul 2 3 20	20 52	4 12	21 46	1 8	16 54	3 54	21 25	12 36	23 55	19 15	2 33	23 58	14 13	23 0	9 46	
2017 Jul 4 3 22	20 51	4 27	21 49	1 5	16 58	3 54	21 21	12 29	23 47	19 6	2 25	23 50	14 6	22 52	9 38	
2017 Jul 6 3 24	20 50	4 42	21 50	1 3	17 3	3 53	21 17	12 22	23 39	18 58	2 16	23 42	13 58	22 44	9 30	
2017 Jul 8 3 26	20 48	4 57	21 49	1 0	17 8	3 53	21 13	12 15	23 32	18 49	2 8	23 34	13 50	22 36	9 22	
2017 Jul 10 3 29	20 46	5 12	21 47	0 58	17 13	3 52	21 9	12 8	23 24	18 41	2 0	23 26	13 43	22 29	9 14	
2017 Jul 12 3 31	20 44	5 26	21 45	0 56	17 18	3 52	21 5	12 1	23 16	18 32	1 51	23 19	13 35	22 21	9 6	
2017 Jul 14 3 34	20 42	5 39	21 41	0 54	17 22	3 51	21 0	11 55	23 8	18 24	1 43	23 11	13 27	22 13	8 57	
2017 Jul 16 3 37	20 39	5 52	21 37	0 52	17 27	3 51	20 56	11 48	23 1	18 15	1 34	23 3	13 20	22 5	8 49	
2017 Jul 18 3 40	20 36	6 4	21 32	0 51	17 31	3 51	20 51	11 41	22 53	18 7	1 26	22 55	13 12	21 57	8 41	
2017 Jul 20 3 43	20 33	6 15	21 26	0 50	17 35	3 51	20 46	11 35	22 45	17 59	1 18	22 47	13 4	21 49	8 33	
2017 Jul 22 3 47	20 30	6 25	21 20	0 50	17 40	3 51	20 42	11 28	22 38	17 50	1 9	22 39	12 56	21 41	8 25	
2017 Jul 24 3 50	20 27	6 34	21 14	0 49	17 44	3 50	20 37	11 22	22 30	17 42	1 1	22 31	12 49	21 33	8 17	
2017 Jul 26 3 54	20 24	6 42	21 7	0 49	17 47	3 50	20 32	11 15	22 23	17 34	0 53	22 24	12 41	21 25	8 9	
2017 Jul 28 3 57	20 20	6 49	21 0	0 50	17 51	3 50	20 27	11 9	22 15	17 25	0 44	22 16	12 33	21 17	8 1	
2017 Jul 30 4 1	20 16	6 55	20 52	0 50	17 54	3 50	20 22	11 3	22 7	17 17	0 36	22 8	12 25	21 9	7 52	
2017 Aug 1 4 5	20 12	7 0	20 44	0 51	17 57	3 50	20 16	10 56	22 0	17 9	0 28	22 0	12 17	21 1	7 44	
2017 Aug 3 4 8	20 8	7 3	20 36	0 53	18 0	3 50	20 11	10 50	21 52	17 1	0 20	21 52	12 9	20 53	7 36	
2017 Aug 5 4 12	20 4	7 5	20 27	0 55	18 2	3 50	20 6	10 44	21 45	16 52	0 11	21 44	12 1	20 45	7 28	
2017 Aug 7 4 16	20 0	7 6	20 18	0 57	18 4	3 50	20 0	10 38	21 37	16 44	0 3	21 36	11 53	20 37	7 20	
2017 Aug 9 4 20	19 55	7 4	20 8	0 59	18 6	3 50	19 55	10 32	21 30	16 36	23 55	21 28	11 45	20 29	7 12	
2017 Aug 11 4 24	19 51	7 1	19 58	1 2	18 8	3 50	19 49	10 26	21 22	16 28	23 47	21 20	11 37	20 21	7 3	
2017 Aug 13 4 28	19 46	6 56	19 48	1 6	18 9	3 50	19 44	10 20	21 15	16 20	23 39	21 12	11 29	20 13	6 55	
2017 Aug 15 4 32	19 42	6 48	19 38	1 9	18 10	3 50	19 38	10 14	21 7	16 12	23 31	21 4	11 21	20 5	6 47	
2017 Aug 17 4 35	19 37	6 38	19 28	1 13	18 10	3 50	19 33	10 8	21 0	16 4	23 23	20				

**Полное солнечное затмение 21 августа 2017 года**

**Total Solar Eclipse of 2017 Aug 21**

Geocentric Conjunction = 18:13:10.6 UT J.D. = 2457987.259150  
 Greatest Eclipse = 18:25:28.3 UT J.D. = 2457987.267689

Eclipse Magnitude = 1.0306 Gamma = 0.4369

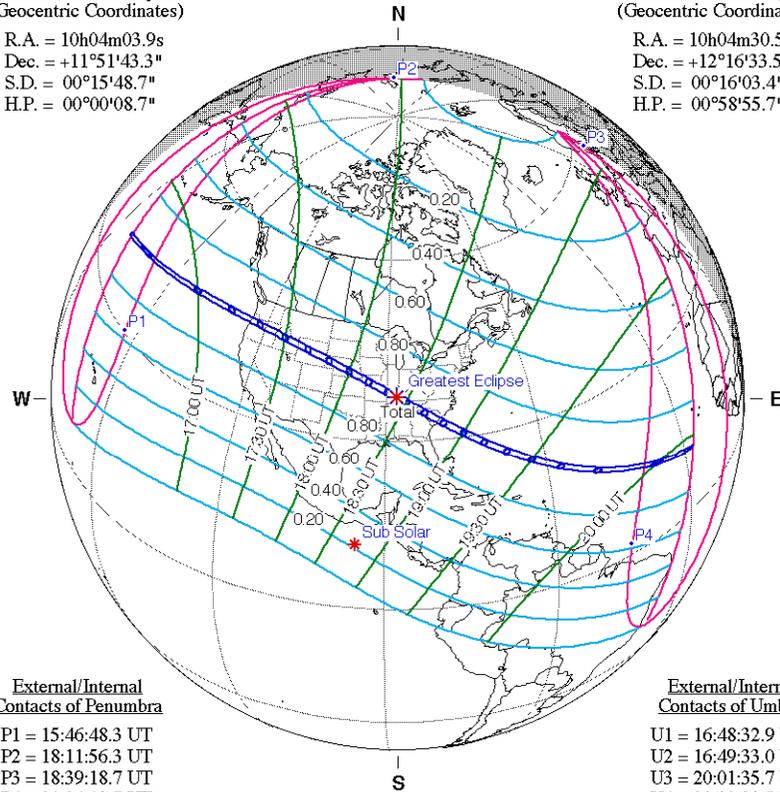
Saros Series = 145 Member = 22 of 77

**Sun at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 10h04m03.9s  
 Dec. = +11°51'43.3"  
 S.D. = 00°15'48.7"  
 H.P. = 00°00'08.7"

**Moon at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 10h04m30.5s  
 Dec. = +12°16'33.5"  
 S.D. = 00°16'03.4"  
 H.P. = 00°58'55.7"



**External/Internal**  
**Contacts of Penumbra**

P1 = 15:46:48.3 UT  
 P2 = 18:11:56.3 UT  
 P3 = 18:39:18.7 UT  
 P4 = 21:04:19.7 UT

**External/Internal**  
**Contacts of Umbra**

U1 = 16:48:32.9 UT  
 U2 = 16:49:33.0 UT  
 U3 = 20:01:35.7 UT  
 U4 = 20:02:30.5 UT

**Local Circumstances at Greatest Eclipse**

Lat. = 36°58.5'N Sun Alt. = 63.9°  
 Long. = 087°39.3'W Sun Azm. = 197.9°

**Ephemeris & Constants**

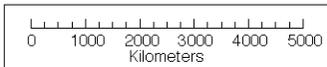
Eph. = Newcomb/ILE  
 $\Delta T = 74.3$  s  
 $k1 = 0.2724880$   
 $k2 = 0.2722810$   
 $\Delta b = 0.0''$   $\Delta l = 0.0''$

Path Width = 114.7 km Duration = 02m40.1s

**Geocentric Libration**  
(Optical + Physical)

$l = 4.63^\circ$   
 $b = -0.59^\circ$   
 $c = 21.90^\circ$

Brown Lun. No. = 1171



F. Espenak, NASA's GSFC - Fri, Jul 2,  
[sunearth.gsfc.nasa.gov/eclipse/eclipse.html](http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html)

**ЗАТМЕНИЯ**

**Полутеневое лунное затмение 11 февраля 2017 года**

**Penumbral Lunar Eclipse of 2017 Feb 11**

Geocentric Conjunction = 01:10:37.3 UT J.D. = 2457795.54904  
 Greatest Eclipse = 00:43:50.7 UT J.D. = 2457795.53045

Penumbral Magnitude = 1.0140 P. Radius = 1.2640° Gamma = -1.0254  
 Umbral Magnitude = -0.0302 U. Radius = 0.7130° Axis = 0.9927°

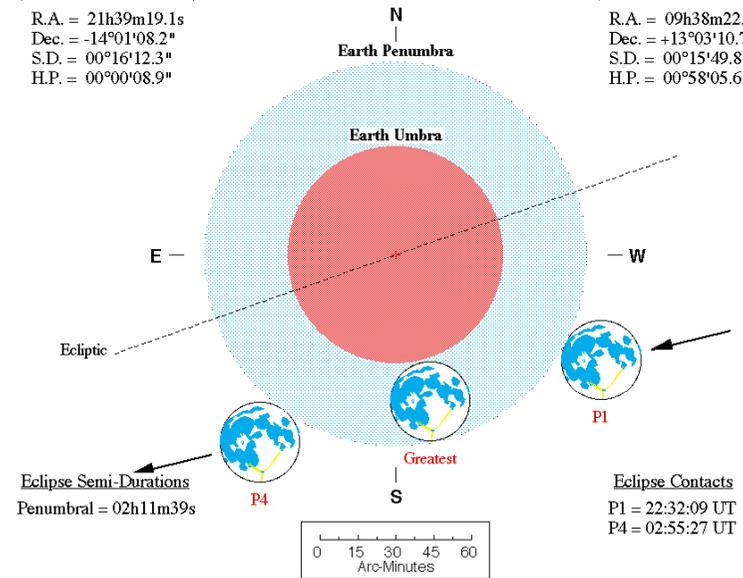
Saros Series = 114 Member = 59 of 71

**Sun at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 21h39m19.1s  
 Dec. = -14°01'08.2"  
 S.D. = 00°16'12.3"  
 H.P. = 00°00'08.9"

**Moon at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 09h38m22.5s  
 Dec. = +13°03'10.7"  
 S.D. = 00°15'49.8"  
 H.P. = 00°58'05.6"



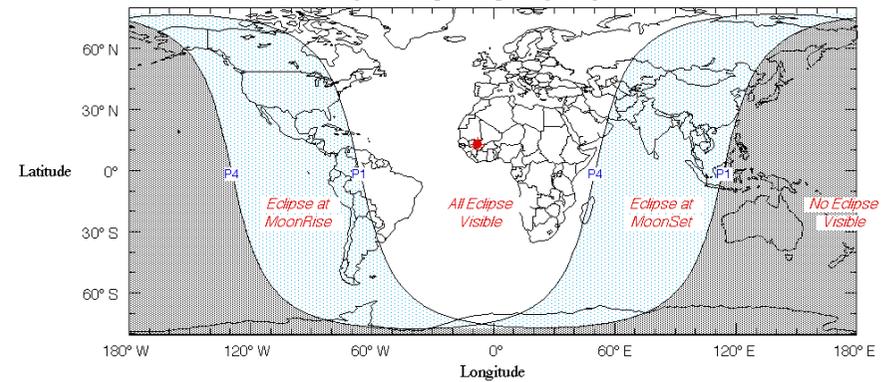
**Eclipse Semi-Durations**  
 Penumbral = 02h11m39s

**Eclipse Contacts**  
 P1 = 22:32:09 UT  
 P4 = 02:55:27 UT

Eph. = Newcomb/ILE  
 $\Delta T = 73.8$  s

F. Espenak, NASA's GSFC - 2004 Jul 07

<http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html>



### Кольцеобразное солнечное затмение 26 февраля 2017 года

#### Annular Solar Eclipse of 2017 Feb 26

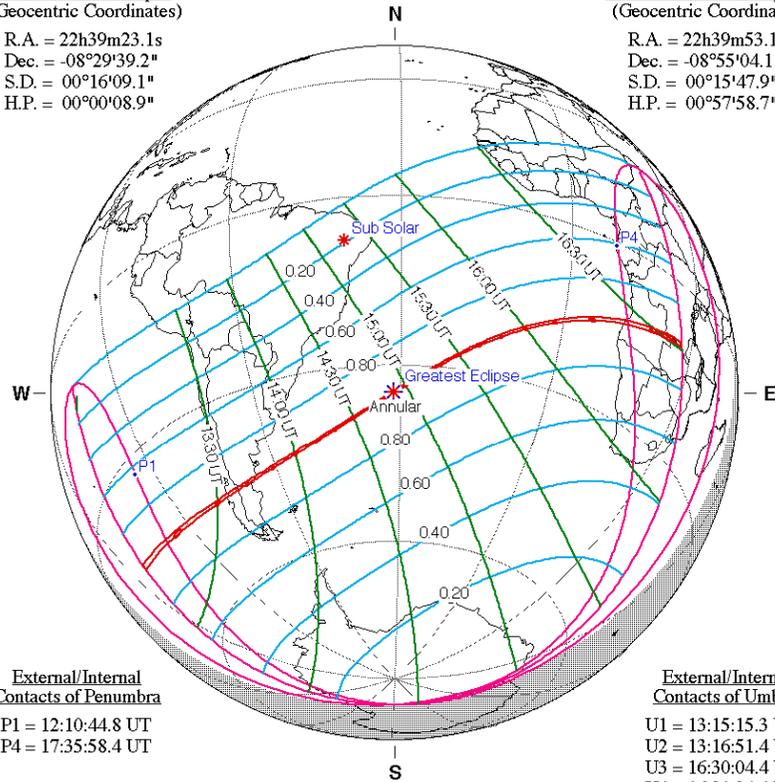
Geocentric Conjunction = 14:38:42.9 UT J.D. = 2457811.110218  
 Greatest Eclipse = 14:53:21.4 UT J.D. = 2457811.120387  
 Eclipse Magnitude = 0.9922 Gamma = -0.4578  
 Saros Series = 140 Member = 29 of 71

**Sun at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 22h39m23.1s  
 Dec. = -08°29'39.2"  
 S.D. = 00°16'09.1"  
 H.P. = 00°00'08.9"

**Moon at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 22h39m53.1s  
 Dec. = -08°55'04.1"  
 S.D. = 00°15'47.9"  
 H.P. = 00°57'58.7"



**External/Internal Contacts of Penumbra**

P1 = 12:10:44.8 UT  
 P4 = 17:35:58.4 UT

**Local Circumstances at Greatest Eclipse**

Lat. = 34°40.9'S Sun Alt. = 62.6°  
 Long. = 031°10.7'W Sun Azm. = 340.5°

**Ephemeris & Constants**

Eph. = Newcomb/ILE  
 ΔT = 73.8 s  
 k1 = 0.2724880  
 k2 = 0.2722810  
 Δb = 0.0" Δl = 0.0"

Path Width = 30.6 km Duration = 00m44.0s

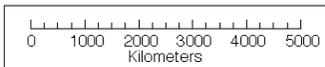
**External/Internal Contacts of Umbra**

U1 = 13:15:15.3 UT  
 U2 = 13:16:51.4 UT  
 U3 = 16:30:04.4 UT  
 U4 = 16:31:34.4 UT

**Geocentric Libration**  
(Optical + Physical)

l = -5.07°  
 b = 0.53°  
 c = -23.47°

Brown Lun. No. = 1165



F. Espenak, NASA's GSFC - Fri, Jul 2,  
[sunearth.gsfc.nasa.gov/eclipse/eclipse.html](http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html)

### Частное лунное затмение 7 августа 2017 года

#### Partial Lunar Eclipse of 2017 Aug 07

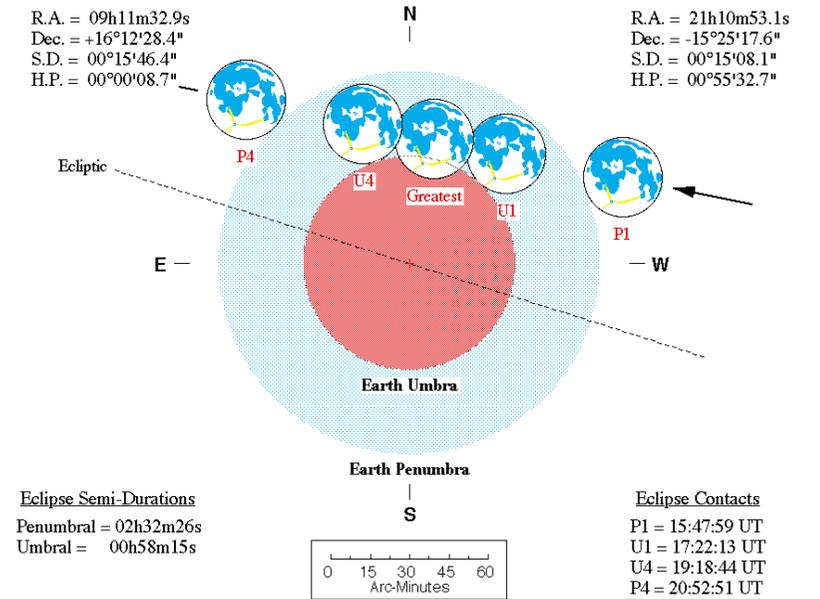
Geocentric Conjunction = 18:40:42.9 UT J.D. = 2457973.27827  
 Greatest Eclipse = 18:20:24.0 UT J.D. = 2457973.26417  
 Penumbral Magnitude = 1.3145 P. Radius = 1.2133° Gamma = 0.8668  
 Umbral Magnitude = 0.2515 U. Radius = 0.6770° Axis = 0.8024°  
 Saros Series = 119 Member = 62 of 83

**Sun at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 09h11m32.9s  
 Dec. = +16°12'28.4"  
 S.D. = 00°15'46.4"  
 H.P. = 00°00'08.7"

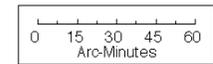
**Moon at Greatest Eclipse**  
(Geocentric Coordinates)

R.A. = 21h10m53.1s  
 Dec. = -15°25'17.6"  
 S.D. = 00°15'08.1"  
 H.P. = 00°55'32.7"



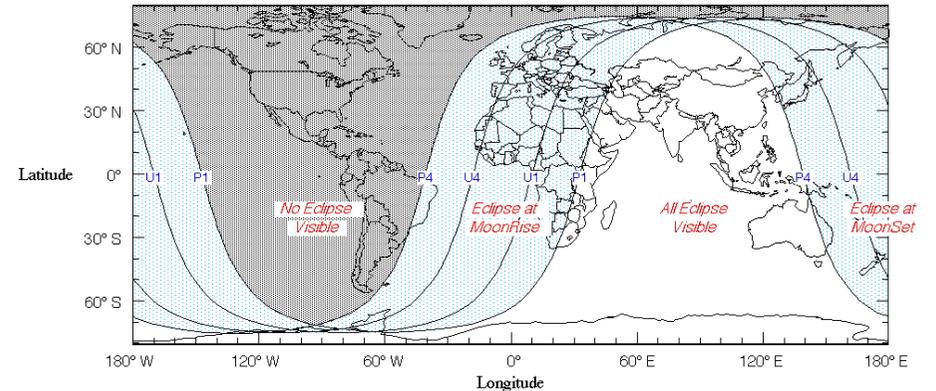
**Eclipse Semi-Durations**  
 Penumbral = 02h32m26s  
 Umbral = 00h58m15s

**Eclipse Contacts**  
 P1 = 15:47:59 UT  
 U1 = 17:22:13 UT  
 U4 = 19:18:44 UT  
 P4 = 20:52:51 UT



Eph. = Newcomb/ILE  
 ΔT = 74.3 s

F. Espenak, NASA's GSFC - 2004 Jul 07  
<http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html>

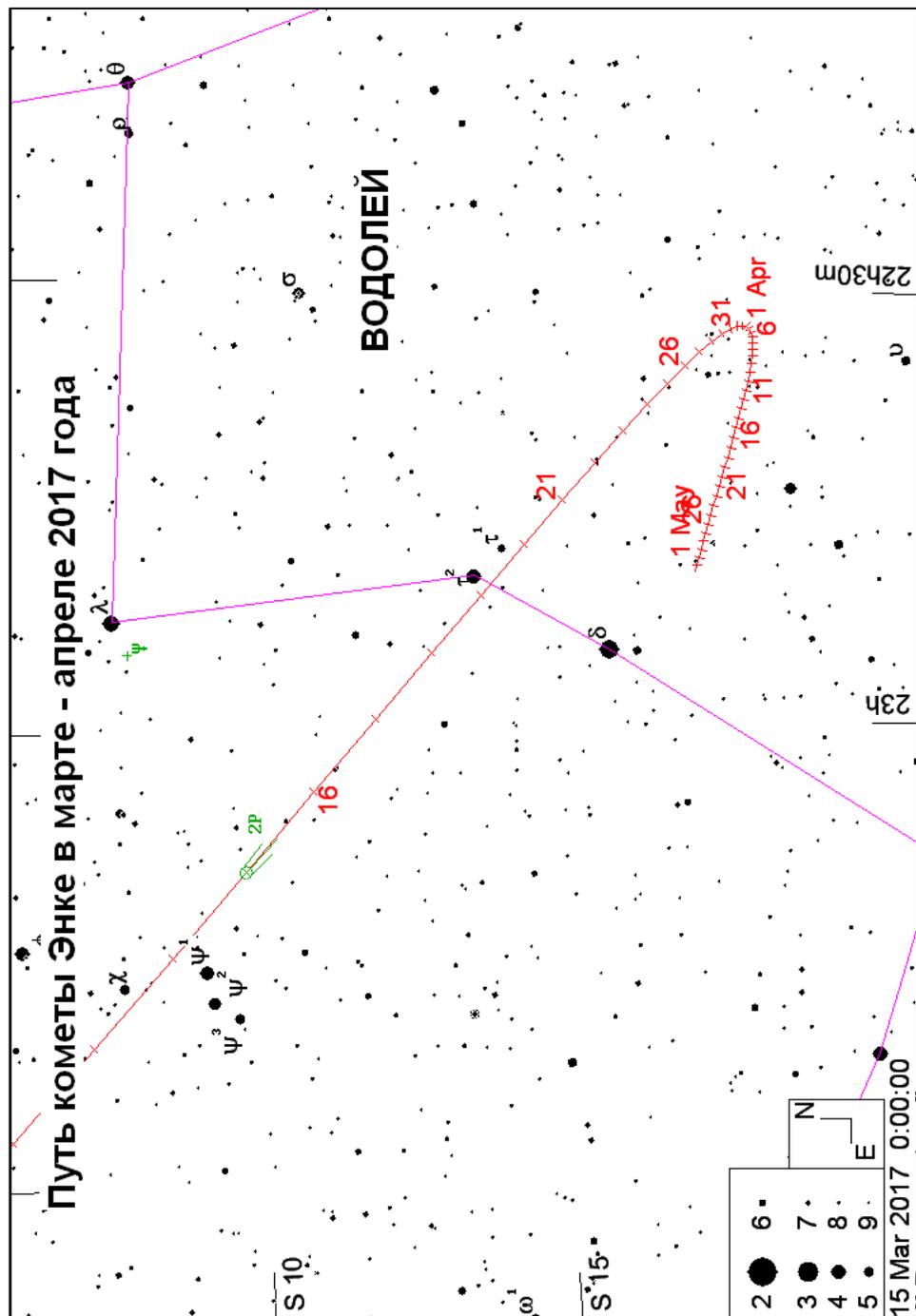


## КОМЕТЫ

Среди небесных странниц доступными для малых телескопов (на территории нашей страны) станут: P/Encke (2P), Johnson (C/2015 V2), P/Tuttle-Giacobini-Kresak (41P) и другие, ожидаемый блеск которых составит ярче 10m (по состоянию на апрель 2016 года). Эфемериды новых ярких комет будут приводиться в Календаре наблюдателя на месяц <http://astronet.ru/>. Комета P/Encke (2P) будет доступна на вечернем небе января - февраля. В таблице приведен список некоторых комет, проходящих перигелий в 2017 году (с перигелийным расстоянием около 2 а.е. и меньше). Оперативная информация - <http://aerith.net> Все эфемериды - Guide 8.0.

## Некоторые кометы, проходящие перигелий в 2017 году.

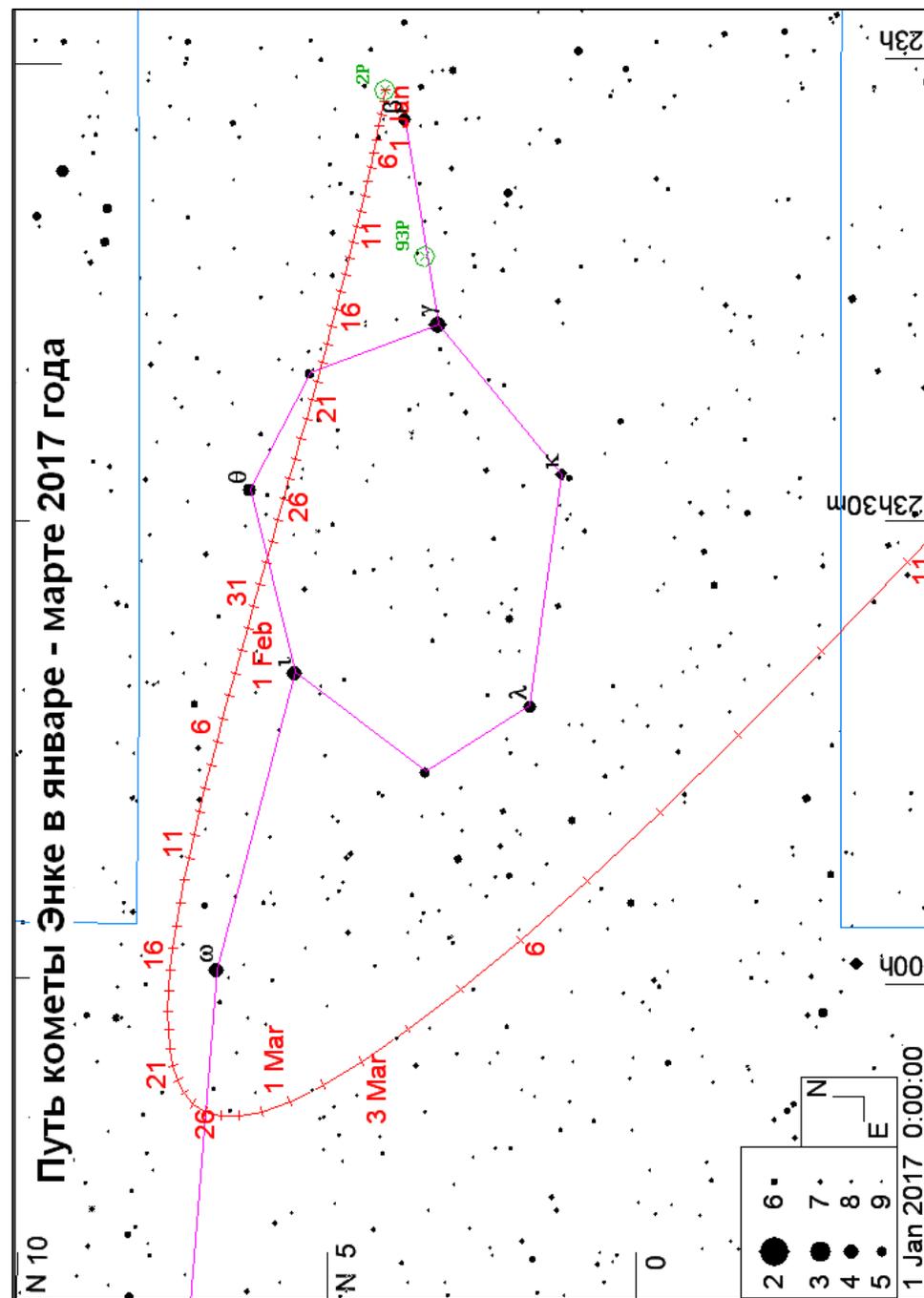
№	Комета	день	мес	периг. (а.е.)	эксцентр.	абс. m
1	Spacewatch (P/2013 YG46)	29.3699	1	1.788160	0.454488	10.0
2	NEAT-LONEOS (P/2003 SQ215)	1.8463	2	2.280004	0.583917	14.0
3	Catalina (P/2007 T6)	15.3473	2	2.220701	0.504033	12.5
4	P/LINEAR-Mueller (188P)	17.1586	2	2.564850	0.414859	11.5
5	P/LINEAR (219P)	20.6928	2	2.365177	0.352290	11.0
6	P/McNaught (336P)	2.7524	2	2.781789	0.447177	13.5
7	P/Encke (2P)	10.0733	3	0.335905	0.848351	11.5
8	P/Schwassmann-Wachmann (73P)	16.8052	3	0.971385	0.685705	11.5
9	P/Lovas (93P)	1.4601	3	1.699874	0.612728	9.5
10	P/LINEAR (176P)	12.4018	3	2.579475	0.192757	15.1
11	P/Tuttle-Giacobini-Kresak (41P)	13.9710	4	1.045373	0.661107	10.0
12	P/de Vico-Swift-NEAT (54P)	15.5306	4	2.184544	0.424416	10.0
13	P/Hartley (103P)	20.5104	4	1.065740	0.693446	8.5
14	P/LONEOS (182P)	11.6194	4	1.008209	0.659647	18.0
15	PANSTARRS (C/2015 ER61)	9.6463	5	1.047407	0.999461	11.0
16	P/Gibbs (229P)	20.8993	5	2.455354	0.376037	13.0
17	P/Levy (255P)	3.0361	5	1.009059	0.667921	20.0
18	Skiff (P/2000 S1)	24.3838	6	2.536088	0.616966	10.0
19	Johnson (C/2015 V2)	12.3973	6	1.637086	1.001457	5.0
20	P/Ashbrook-Jackson (47P)	10.4224	6	2.817845	0.316767	1.0
21	P/Clark (71P)	29.9959	6	1.584129	0.494887	9.8
22	P/Catalina-LINEAR (227P)	22.0969	6	1.788234	0.501278	16.5
23	P/LINEAR (217P)	16.6174	7	1.235541	0.687590	12.0
24	P/LINEAR (251P)	16.6213	7	1.731301	0.506038	16.5
25	P/PANSTARRS (311P)	10.8474	7	1.935078	0.115787	17.0
26	WISE (P/2010 P4)	18.3650	8	1.861108	0.497550	19.5
27	P/Reinmuth (30P)	19.0655	8	1.876930	0.502265	9.5
28	P/Shoemaker-Levy (145P)	31.9786	8	1.903411	0.540713	13.5
29	P/NEAT (189P)	5.7567	8	1.211643	0.588770	19.0
30	P/Garradd (259P)	3.5575	8	1.809618	0.338087	15.5
31	P/Van Ness (213P)	23.8824	9	1.986947	0.407423	10.5
32	P/Gibbs (263P)	29.7656	9	1.262756	0.587586	18.0
33	LINEAR-NEAT (P/2004 T1)	13.3464	10	1.715554	0.506330	12.5
34	P/Machholz (96P)	27.9605	10	0.123832	0.959191	13.0
35	P/Schaumasse (24P)	16.7405	11	1.206203	0.704798	6.5
36	P/Tsuchinshan (62P)	16.0805	11	1.383342	0.597747	8.0
37	P/LINEAR (236P)	20.2808	11	1.837985	0.507503	14.0
38	McNaught (P/2009 S2)	21.2787	12	2.214477	0.468793	14.0
39	WISE (P/2010 D1)	19.3772	12	2.688398	0.354284	13.0
40	P/Wolf (14P)	2.2935	12	2.742681	0.355571	5.5



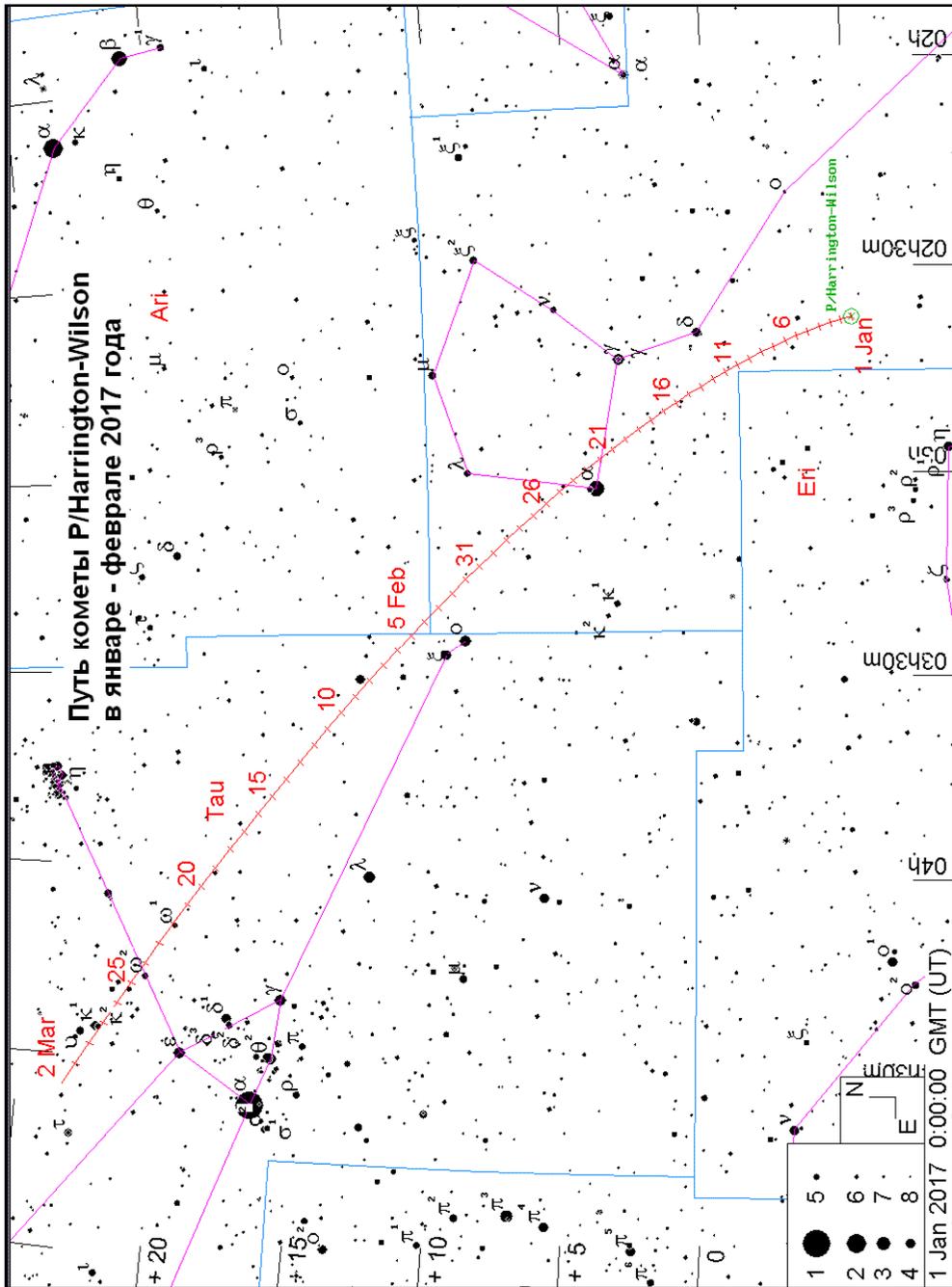
## Комета P/Encke (2P)

Дата	$\alpha(2000.0)$	$\delta(2000.0)$	r	$\Delta$	m	elon.	V	PA	con.
1 Jan 2017	23h01m53.96s	N 4 07.406'	1.393	1.421	14.4	68.0	28.57	80.7	Psc
3 Jan 2017	23h03m27.91s	N 4 11.537'	1.365	1.419	14.3	66.4	30.77	79.5	Psc
5 Jan 2017	23h05m08.32s	N 4 16.455'	1.336	1.416	14.1	64.8	32.93	78.5	Psc
7 Jan 2017	23h06m55.02s	N 4 22.133'	1.308	1.411	14.0	63.3	35.03	77.6	Psc
9 Jan 2017	23h08m47.85s	N 4 28.546'	1.278	1.406	13.8	61.7	37.08	76.9	Psc
11 Jan 2017	23h10m46.65s	N 4 35.665'	1.249	1.400	13.7	60.2	39.09	76.3	Psc
13 Jan 2017	23h12m51.27s	N 4 43.462'	1.219	1.393	13.5	58.7	41.05	75.8	Psc
15 Jan 2017	23h15m01.60s	N 4 51.907'	1.188	1.385	13.3	57.3	42.96	75.3	Psc
17 Jan 2017	23h17m17.53s	N 5 00.966'	1.157	1.376	13.1	55.8	44.83	75.0	Psc
19 Jan 2017	23h19m38.94s	N 5 10.605'	1.126	1.365	12.9	54.4	46.65	74.7	Psc
21 Jan 2017	23h22m05.70s	N 5 20.782'	1.095	1.353	12.7	53.0	48.42	74.5	Psc
23 Jan 2017	23h24m37.66s	N 5 31.451'	1.062	1.341	12.5	51.7	50.12	74.3	Psc
25 Jan 2017	23h27m14.64s	N 5 42.556'	1.030	1.326	12.3	50.3	51.73	74.3	Psc
27 Jan 2017	23h29m56.44s	N 5 54.030'	0.997	1.311	12.1	49.0	53.25	74.3	Psc
29 Jan 2017	23h32m42.76s	N 6 05.791'	0.964	1.294	11.8	47.7	54.64	74.3	Psc
31 Jan 2017	23h35m33.29s	N 6 17.742'	0.930	1.275	11.6	46.4	55.89	74.5	Psc
2 Feb 2017	23h38m27.57s	N 6 29.760'	0.895	1.255	11.3	45.1	56.94	74.8	Psc
4 Feb 2017	23h41m25.06s	N 6 41.693'	0.861	1.234	11.0	43.9	57.75	75.3	Psc
6 Feb 2017	23h44m25.06s	N 6 53.355'	0.825	1.211	10.7	42.6	58.26	75.9	Psc
8 Feb 2017	23h47m26.64s	N 7 04.507'	0.790	1.186	10.3	41.4	58.38	76.8	Psc
10 Feb 2017	23h50m28.63s	N 7 14.853'	0.754	1.159	10.0	40.1	58.03	77.9	Psc
12 Feb 2017	23h53m29.48s	N 7 24.009'	0.717	1.131	9.6	38.9	57.05	79.5	Psc
14 Feb 2017	23h56m27.10s	N 7 31.484'	0.681	1.100	9.2	37.6	55.28	81.8	Psc
16 Feb 2017	23h59m18.64s	N 7 36.635'	0.644	1.068	8.8	36.2	52.51	85.1	Psc
18 Feb 2017	0h02m00.25s	N 7 38.610'	0.607	1.034	8.3	34.8	48.53	90.2	Psc
20 Feb 2017	0h04m26.60s	N 7 36.277'	0.570	0.997	7.8	33.3	43.30	98.5	Psc
22 Feb 2017	0h06m30.40s	N 7 28.120'	0.533	0.959	7.3	31.7	37.55	113.3	Psc
24 Feb 2017	0h08m01.62s	N 7 12.106'	0.497	0.919	6.8	29.9	34.59	139.4	Psc
26 Feb 2017	0h08m46.68s	N 6 45.532'	0.462	0.877	6.2	27.8	41.91	172.2	Psc
28 Feb 2017	0h08m27.62s	N 6 04.891'	0.430	0.834	5.6	25.4	64.13	195.8	Psc
2 Mar 2017	0h06m41.87s	N 5 05.869'	0.400	0.792	5.0	22.5	100.14	208.9	Psc
4 Mar 2017	0h03m03.90s	N 3 43.752'	0.374	0.750	4.5	19.1	147.92	216.2	Psc
6 Mar 2017	23h57m10.73s	N 1 54.678'	0.354	0.713	4.0	14.9	203.26	220.6	Psc
8 Mar 2017	23h48m52.75s	S 0 21.950'	0.341	0.683	3.7	10.0	256.86	223.4	Psc
10 Mar 2017	23h38m27.20s	S 3 00.616'	0.336	0.663	3.5	4.5	294.86	225.2	Psc
12 Mar 2017	23h26m43.93s	S 5 48.914'	0.340	0.655	3.6	2.4	305.29	226.6	Aqr
14 Mar 2017	23h14m53.14s	S 8 31.175'	0.352	0.659	3.8	7.8	286.23	227.7	Aqr
16 Mar 2017	23h04m00.19s	S10 54.547'	0.372	0.674	4.2	13.2	246.52	228.4	Aqr
18 Mar 2017	22h54m46.30s	S12 52.697'	0.398	0.697	4.7	18.1	198.68	228.8	Aqr
20 Mar 2017	22h47m25.52s	S14 25.280'	0.427	0.724	5.3	22.4	152.23	228.7	Aqr
22 Mar 2017	22h41m52.90s	S15 35.352'	0.460	0.755	5.8	26.1	111.95	228.0	Aqr
24 Mar 2017	22h37m54.16s	S16 27.070'	0.494	0.786	6.4	29.3	79.18	226.4	Aqr
26 Mar 2017	22h35m12.54s	S17 04.428'	0.530	0.818	6.9	32.1	53.51	223.2	Aqr
28 Mar 2017	22h33m32.25s	S17 30.785'	0.567	0.849	7.4	34.6	33.99	217.1	Aqr
30 Mar 2017	22h32m39.77s	S17 48.790'	0.604	0.879	7.9	36.8	19.82	204.0	Aqr
1 Apr 2017	22h32m24.10s	S18 00.480'	0.641	0.908	8.4	38.9	11.38	172.9	Aqr
3 Apr 2017	22h32m36.52s	S18 07.397'	0.678	0.935	8.8	40.8	10.56	125.7	Aqr
5 Apr 2017	22h33m10.19s	S18 10.711'	0.714	0.960	9.2	42.7	14.16	99.3	Aqr
7 Apr 2017	22h33m59.76s	S18 11.314'	0.751	0.984	9.6	44.4	17.98	88.0	Aqr
9 Apr 2017	22h35m01.04s	S18 09.888'	0.787	1.007	10.0	46.1	21.06	82.4	Aqr
11 Apr 2017	22h36m10.73s	S18 06.964'	0.823	1.028	10.3	47.8	23.34	79.2	Aqr
13 Apr 2017	22h37m26.21s	S18 02.958'	0.858	1.047	10.6	49.4	24.89	77.3	Aqr
15 Apr 2017	22h38m45.37s	S17 58.200'	0.893	1.065	10.9	51.0	25.84	76.1	Aqr
17 Apr 2017	22h40m06.49s	S17 52.955'	0.927	1.081	11.2	52.6	26.29	75.3	Aqr
19 Apr 2017	22h41m28.19s	S17 47.439'	0.961	1.097	11.4	54.2	26.31	74.8	Aqr
21 Apr 2017	22h42m49.28s	S17 41.827'	0.994	1.110	11.7	55.8	25.98	74.6	Aqr
23 Apr 2017	22h44m08.78s	S17 36.266'	1.027	1.123	11.9	57.4	25.34	74.6	Aqr

Обозначения:  $\alpha$  – прямое восхождение для эпохи 2000.0,  $\delta$  – склонение для эпохи 2000.0, r – расстояние от Солнца,  $\Delta$  – расстояние от Земли, m – звездная величина, elon. – элонгация, V – угловая скорость (секунд в час), PA – позиционный угол направления движения небесного тела, con. – созвездие

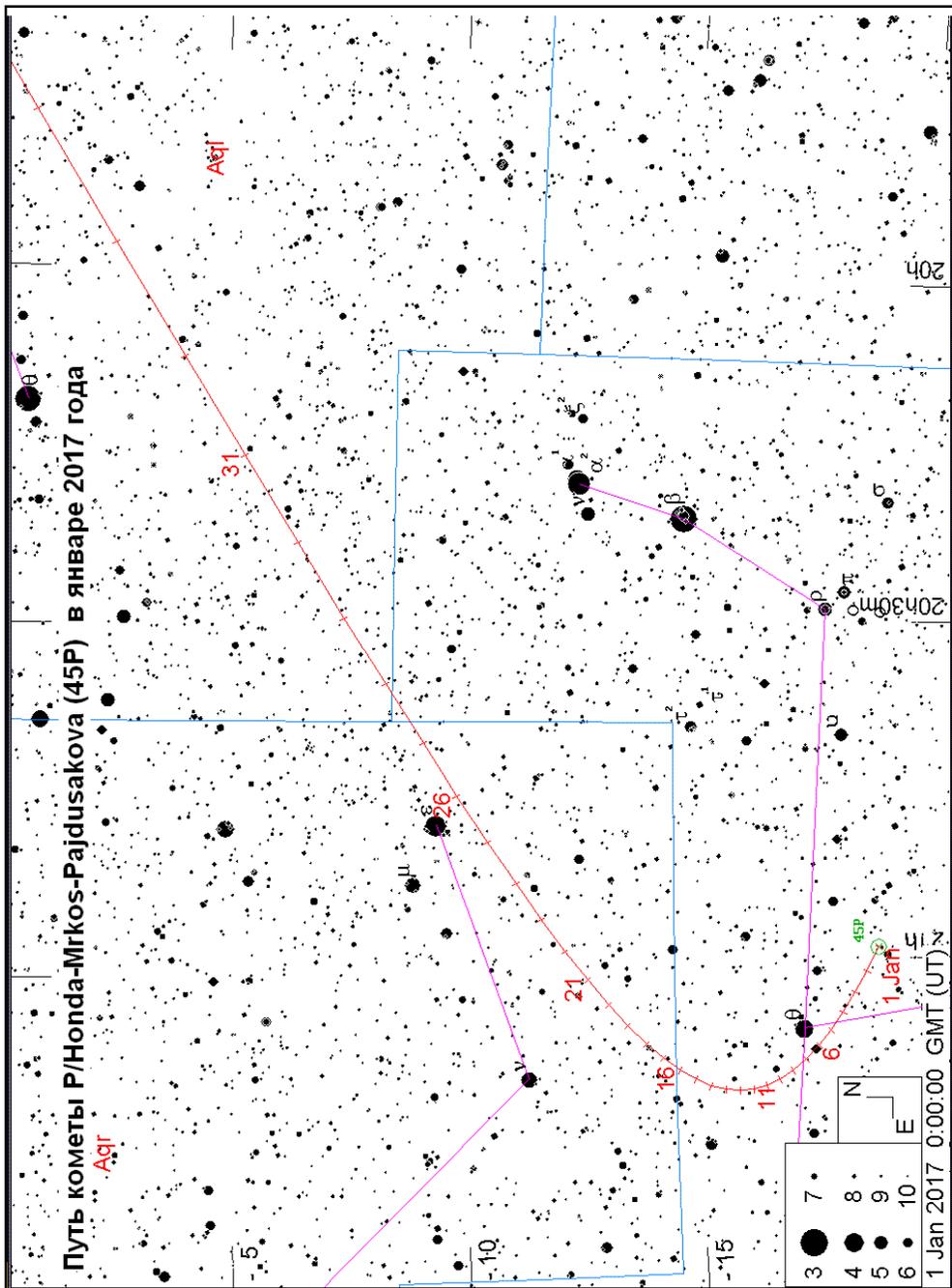


Комета P/Honda-Mrkos-Pajdusakova (45P)



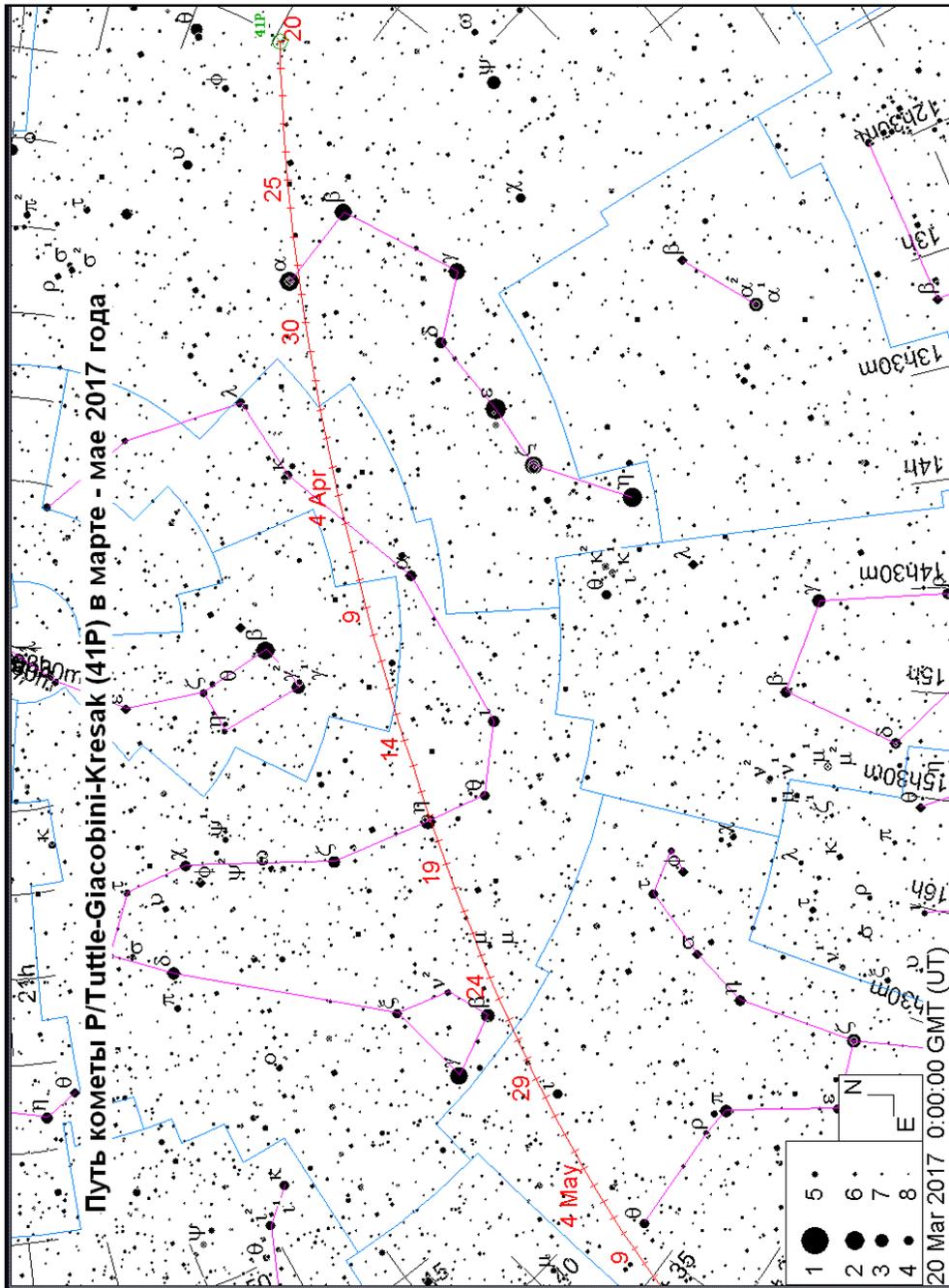
Дата	$\alpha(2015.0)$	$\delta(2015.0)$	r	$\Delta$	m	elon.	V	PA	con.
1 Jan 2017	20h59m59.41s	-18.79768 deg	0.533	0.691	7.2	31.3	87.61	62.7	Cap
3 Jan 2017	21h03m57.45s	-18.26123 deg	0.536	0.648	7.1	30.4	77.77	58.5	Cap
5 Jan 2017	21h07m13.44s	-17.71857 deg	0.542	0.606	7.1	29.2	67.55	52.5	Cap
7 Jan 2017	21h09m44.07s	-17.16931 deg	0.552	0.564	7.1	27.9	57.74	43.7	Cap
9 Jan 2017	21h11m26.70s	-16.61096 deg	0.564	0.524	7.1	26.4	49.62	30.9	Cap
11 Jan 2017	21h12m19.16s	-16.03863 deg	0.580	0.485	7.2	24.7	45.10	13.4	Cap
13 Jan 2017	21h12m19.57s	-15.44468 deg	0.597	0.447	7.3	22.9	46.17	353.4	Cap
15 Jan 2017	21h11m25.93s	-14.81837 deg	0.617	0.411	7.4	20.9	53.41	336.0	Cap
17 Jan 2017	21h09m35.72s	-14.14529 deg	0.638	0.377	7.5	18.7	65.83	323.6	Aqr
19 Jan 2017	21h06m45.27s	-13.40647 deg	0.661	0.343	7.6	16.3	82.50	315.4	Aqr
21 Jan 2017	21h02m49.09s	-12.57693 deg	0.686	0.312	7.7	14.0	103.29	310.2	Aqr
23 Jan 2017	20h57m38.87s	-11.62335 deg	0.711	0.281	7.8	11.7	128.96	306.9	Aqr
25 Jan 2017	20h51m02.08s	-10.50035 deg	0.737	0.252	7.9	9.9	161.16	305.0	Aqr
27 Jan 2017	20h42m39.86s	-9.14459 deg	0.764	0.225	7.9	9.4	202.71	303.8	Aqr
29 Jan 2017	20h32m03.69s	-7.46552 deg	0.792	0.198	8.0	11.1	258.09	303.2	Aql
31 Jan 2017	20h18m29.98s	-5.33104 deg	0.819	0.173	8.0	15.0	334.32	303.0	Aql
2 Feb 2017	20h00m51.62s	-2.54740 deg	0.848	0.150	7.9	20.9	442.06	303.0	Aql
4 Feb 2017	19h37m24.83s	+1.16057 deg	0.876	0.128	7.9	29.0	595.98	302.8	Aql
6 Feb 2017	19h05m33.41s	+6.13238 deg	0.905	0.109	7.8	39.6	809.68	302.2	Aql
8 Feb 2017	18h21m47.49s	+12.58962 deg	0.933	0.095	7.8	53.51071	53	300.3	Her
10 Feb 2017	17h23m05.34s	+20.06688 deg	0.962	0.086	7.8	70.91293	81	296.1	Her
12 Feb 2017	16h11m24.99s	+26.81766 deg	0.991	0.085	8.1	90.01326	47	288.9	CrB
14 Feb 2017	14h57m43.93s	+30.89968 deg	1.020	0.092	8.5	107.91143	20	280.0	Boo
16 Feb 2017	13h54m46.92s	+32.18763 deg	1.048	0.105	9.0	122.6	882.87	271.7	CVn
18 Feb 2017	13h07m00.15s	+31.84948 deg	1.077	0.122	9.6	133.9	656.23	265.3	CVn
20 Feb 2017	12h32m10.40s	+30.87563 deg	1.105	0.143	10.1	142.3	489.18	260.6	Com
22 Feb 2017	12h06m40.29s	+29.75434 deg	1.134	0.165	10.7	148.7	371.70	257.2	UMa
24 Feb 2017	11h47m35.90s	+28.67271 deg	1.162	0.189	11.2	153.4	289.01	254.6	UMa
26 Feb 2017	11h32m58.93s	+27.68730 deg	1.190	0.214	11.7	156.9	229.68	252.4	Leo
28 Feb 2017	11h21m31.78s	+26.80528 deg	1.218	0.240	12.1	159.2	186.05	250.5	Leo
2 Mar 2017	11h12m23.28s	+26.01728 deg	1.246	0.267	12.5	160.6	153.15	248.6	Leo
4 Mar 2017	11h04m58.93s	+25.30993 deg	1.273	0.294	12.9	161.1	127.76	246.7	LMi
6 Mar 2017	10h58m54.84s	+24.67020 deg	1.301	0.322	13.3	160.9	107.77	244.8	Leo
8 Mar 2017	10h53m54.01s	+24.08676 deg	1.328	0.351	13.7	160.2	91.76	242.7	Leo
10 Mar 2017	10h49m44.03s	+23.55013 deg	1.355	0.380	14.0	159.1	78.75	240.3	LMi
12 Mar 2017	10h46m15.68s	+23.05249 deg	1.382	0.410	14.4	157.7	68.06	237.7	LMi
14 Mar 2017	10h43m21.94s	+22.58741 deg	1.409	0.441	14.7	156.2	59.19	234.8	Leo
16 Mar 2017	10h40m57.43s	+22.14959 deg	1.435	0.472	15.0	154.5	51.78	231.4	Leo
18 Mar 2017	10h38m57.95s	+21.73468 deg	1.462	0.504	15.3	152.8	45.57	227.6	Leo
20 Mar 2017	10h37m20.15s	+21.33907 deg	1.488	0.536	15.6	151.1	40.37	223.2	Leo
22 Mar 2017	10h36m01.38s	+20.95976 deg	1.514	0.569	15.9	149.3	36.05	218.3	Leo
24 Mar 2017	10h34m59.44s	+20.59428 deg	1.540	0.603	16.2	147.5	32.51	212.8	Leo
26 Mar 2017	10h34m12.56s	+20.24055 deg	1.565	0.637	16.4	145.7	29.68	206.7	Leo
28 Mar 2017	10h33m39.22s	+19.89682 deg	1.591	0.672	16.7	143.9	27.49	200.1	Leo
30 Mar 2017	10h33m18.17s	+19.56166 deg	1.616	0.707	16.9	142.1	25.89	193.2	Leo
1 Apr 2017	10h33m08.29s	+19.23387 deg	1.641	0.743	17.2	140.4	24.83	186.2	Leo
3 Apr 2017	10h33m08.59s	+18.91248 deg	1.666	0.779	17.4	138.6	24.23	179.3	Leo
5 Apr 2017	10h33m18.17s	+18.59671 deg	1.691	0.816	17.6	136.9	24.01	172.8	Leo
7 Apr 2017	10h33m36.22s	+18.28586 deg	1.715	0.853	17.8	135.2	24.10	166.8	Leo
9 Apr 2017	10h34m02.00s	+17.97936 deg	1.740	0.891	18.1	133.5	24.43	161.4	Leo
11 Apr 2017	10h34m34.88s	+17.67668 deg	1.764	0.929	18.3	131.9	24.92	156.6	Leo
13 Apr 2017	10h35m14.28s	+17.37735 deg	1.788	0.968	18.5	130.2	25.55	152.4	Leo
15 Apr 2017	10h35m59.72s	+17.08094 deg	1.812	1.007	18.7	128.6	26.25	148.6	Leo
17 Apr 2017	10h36m50.74s	+16.78707 deg	1.835	1.047	18.9	127.0	27.02	145.4	Leo
19 Apr 2017	10h37m46.97s	+16.49539 deg	1.859	1.087	19.1	125.4	27.82	142.5	Leo
21 Apr 2017	10h38m48.06s	+16.20559 deg	1.882	1.128	19.3	123.8	28.65	139.9	Leo
23 Apr 2017	10h39m53.72s	+15.91737 deg	1.906	1.169	19.4	122.3	29.48	137.7	Leo
25 Apr 2017	10h41m03.66s	+15.63051 deg	1.929	1.210	19.6	120.7	30.32	135.7	Leo
27 Apr 2017	10h42m17.65s	+15.34477 deg	1.951	1.252	19.8	119.2	31.15	134.0	Leo
29 Apr 2017	10h43m35.44s	+15.05999 deg	1.974	1.294	20.0	117.6	31.96	132.4	Leo
1 May 2017	10h44m56.79s	+14.77603 deg	1.997	1.336	20.1	116.1	32.74	131.0	Leo

### Комета P/Harrington-Wilson



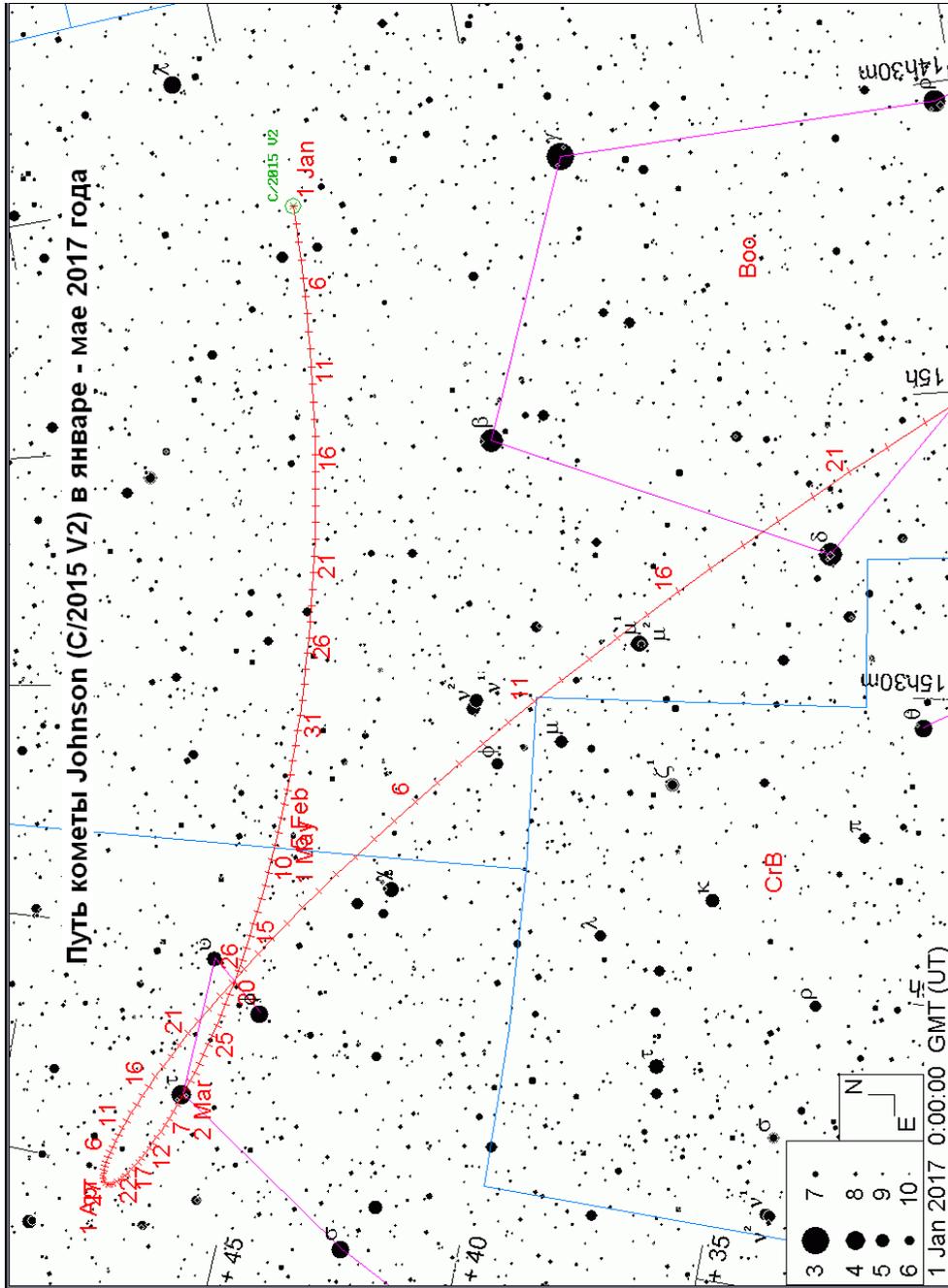
Дата	$\alpha(2015.0)$	$\delta(2015.0)$	r	$\Delta$	m	elon.	V	PA	con.
1 Jan 2017	2h38m06.31s	- 5.30038 deg	1.430	0.721	8.8	113.1	60.33	14.8	Cet
3 Jan 2017	2h39m04.44s	- 4.51218 deg	1.419	0.722	8.8	111.8	63.33	17.9	Cet
5 Jan 2017	2h40m15.33s	- 3.69861 deg	1.410	0.723	8.8	110.5	66.39	20.8	Cet
7 Jan 2017	2h41m38.92s	- 2.86113 deg	1.400	0.724	8.8	109.2	69.50	23.4	Cet
9 Jan 2017	2h43m15.15s	- 2.00116 deg	1.391	0.725	8.7	108.0	72.62	25.7	Cet
11 Jan 2017	2h45m03.89s	- 1.12013 deg	1.382	0.727	8.7	106.8	75.75	27.9	Cet
13 Jan 2017	2h47m05.06s	- 0.21938 deg	1.373	0.728	8.7	105.7	78.87	30.0	Cet
15 Jan 2017	2h49m18.55s	+ 0.69976 deg	1.364	0.730	8.7	104.6	81.99	31.9	Cet
17 Jan 2017	2h51m44.31s	+ 1.63599 deg	1.356	0.731	8.6	103.5	85.09	33.6	Cet
19 Jan 2017	2h54m22.31s	+ 2.58800 deg	1.348	0.733	8.6	102.5	88.17	35.3	Cet
21 Jan 2017	2h57m12.52s	+ 3.55445 deg	1.341	0.735	8.6	101.5	91.22	36.9	Cet
23 Jan 2017	3h00m14.91s	+ 4.53397 deg	1.334	0.737	8.6	100.6	94.23	38.4	Cet
25 Jan 2017	3h03m29.46s	+ 5.52514 deg	1.327	0.740	8.6	99.7	97.19	39.8	Cet
27 Jan 2017	3h06m56.16s	+ 6.52650 deg	1.320	0.742	8.6	98.8	100.10	41.2	Cet
29 Jan 2017	3h10m34.98s	+ 7.53654 deg	1.314	0.744	8.5	98.0	102.95	42.5	Cet
31 Jan 2017	3h14m25.89s	+ 8.55368 deg	1.309	0.747	8.5	97.2	105.73	43.8	Cet
2 Feb 2017	3h18m28.85s	+ 9.57627 deg	1.303	0.750	8.5	96.4	108.42	45.0	Cet
4 Feb 2017	3h22m43.79s	+10.60261 deg	1.298	0.753	8.5	95.7	111.02	46.2	Ari
6 Feb 2017	3h27m10.64s	+11.63093 deg	1.294	0.756	8.5	95.0	113.52	47.4	Tau
8 Feb 2017	3h31m49.32s	+12.65939 deg	1.289	0.759	8.5	94.3	115.91	48.5	Tau
10 Feb 2017	3h36m39.75s	+13.68612 deg	1.285	0.762	8.5	93.7	118.19	49.6	Tau
12 Feb 2017	3h41m41.90s	+14.70917 deg	1.282	0.766	8.5	93.1	120.37	50.7	Tau
14 Feb 2017	3h46m55.74s	+15.72655 deg	1.279	0.770	8.5	92.6	122.45	51.8	Tau
16 Feb 2017	3h52m21.25s	+16.73624 deg	1.277	0.774	8.5	92.1	124.42	52.9	Tau
18 Feb 2017	3h57m58.43s	+17.73613 deg	1.274	0.778	8.5	91.6	126.30	54.0	Tau
20 Feb 2017	4h03m47.26s	+18.72407 deg	1.273	0.783	8.5	91.1	128.06	55.1	Tau
22 Feb 2017	4h09m47.71s	+19.69785 deg	1.271	0.787	8.5	90.7	129.72	56.3	Tau
24 Feb 2017	4h15m59.71s	+20.65523 deg	1.270	0.792	8.5	90.2	131.27	57.4	Tau
26 Feb 2017	4h22m23.20s	+21.59394 deg	1.270	0.798	8.5	89.9	132.71	58.6	Tau
28 Feb 2017	4h28m58.03s	+22.51169 deg	1.270	0.804	8.6	89.5	134.02	59.7	Tau
2 Mar 2017	4h35m44.04s	+23.40618 deg	1.270	0.809	8.6	89.2	135.21	60.9	Tau
4 Mar 2017	4h42m40.98s	+24.27512 deg	1.271	0.816	8.6	88.9	136.26	62.1	Tau
6 Mar 2017	4h49m48.55s	+25.11623 deg	1.273	0.822	8.6	88.6	137.18	63.4	Tau
8 Mar 2017	4h57m06.40s	+25.92728 deg	1.274	0.829	8.6	88.3	137.96	64.6	Tau
10 Mar 2017	5h04m34.13s	+26.70608 deg	1.277	0.837	8.7	88.0	138.60	65.9	Tau
12 Mar 2017	5h12m11.31s	+27.45054 deg	1.279	0.844	8.7	87.8	139.12	67.2	Tau
14 Mar 2017	5h19m57.45s	+28.15867 deg	1.282	0.852	8.7	87.6	139.52	68.5	Tau
16 Mar 2017	5h27m52.07s	+28.82859 deg	1.285	0.861	8.8	87.4	139.81	69.8	Aur
18 Mar 2017	5h35m54.61s	+29.45860 deg	1.289	0.870	8.8	87.2	139.99	71.2	Aur
20 Mar 2017	5h44m04.47s	+30.04712 deg	1.294	0.879	8.8	87.0	140.07	72.5	Aur
22 Mar 2017	5h52m21.01s	+30.59277 deg	1.298	0.889	8.9	86.8	140.05	73.9	Aur
24 Mar 2017	6h00m43.52s	+31.09437 deg	1.303	0.899	8.9	86.7	139.93	75.3	Aur
26 Mar 2017	6h09m11.27s	+31.55094 deg	1.309	0.910	9.0	86.5	139.73	76.7	Aur
28 Mar 2017	6h17m43.47s	+31.96171 deg	1.314	0.921	9.0	86.4	139.43	78.2	Aur
30 Mar 2017	6h26m19.30s	+32.32616 deg	1.320	0.932	9.1	86.2	139.05	79.6	Aur
1 Apr 2017	6h34m57.85s	+32.64400 deg	1.327	0.944	9.1	86.1	138.58	81.0	Aur
3 Apr 2017	6h43m38.23s	+32.91514 deg	1.334	0.956	9.2	85.9	138.01	82.5	Gem
5 Apr 2017	6h52m19.49s	+33.13972 deg	1.341	0.969	9.2	85.8	137.36	83.9	Gem
7 Apr 2017	7h01m00.71s	+33.31809 deg	1.348	0.983	9.3	85.7	136.63	85.3	Gem
9 Apr 2017	7h09m40.99s	+33.45079 deg	1.356	0.996	9.3	85.5	135.83	86.7	Gem
11 Apr 2017	7h18m19.48s	+33.53856 deg	1.364	1.011	9.4	85.4	134.97	88.1	Gem
13 Apr 2017	7h26m55.37s	+33.58232 deg	1.373	1.025	9.4	85.2	134.05	89.5	Gem
15 Apr 2017	7h35m27.90s	+33.58316 deg	1.382	1.040	9.5	85.1	133.09	90.9	Gem
17 Apr 2017	7h43m56.38s	+33.54233 deg	1.391	1.056	9.6	84.9	132.09	92.2	Gem
19 Apr 2017	7h52m20.17s	+33.46121 deg	1.400	1.072	9.6	84.7	131.06	93.5	Gem
21 Apr 2017	8h00m38.70s	+33.34128 deg	1.410	1.089	9.7	84.5	130.01	94.8	Lyn
23 Apr 2017	8h08m51.44s	+33.18415 deg	1.419	1.106	9.7	84.4	128.93	96.0	Lyn
25 Apr 2017	8h16m57.97s	+32.99150 deg	1.430	1.123	9.8	84.2	127.84	97.3	Cnc
27 Apr 2017	8h24m57.87s	+32.76507 deg	1.440	1.141	9.9	84.0	126.72	98.5	Cnc
29 Apr 2017	8h32m50.80s	+32.50669 deg	1.450	1.159	9.9	83.7	125.59	99.6	Cnc
1 May 2017	8h40m36.44s	+32.21819 deg	1.461	1.178	10.0	83.5	124.43	100.7	Cnc

Комета Johnson (C/2015 V2)



Дата	$\alpha(2015.0)$	$\delta(2015.0)$	r	$\Delta$	m	elon.	V	PA	con.
12 Feb 2017	15h53m58.87s	+45.07566 deg	2.267	1.912	10.0	97.8	42.71	78.9	Her
15 Feb 2017	15h58m37.76s	+45.23604 deg	2.241	1.874	9.9	98.3	40.88	77.8	Her
18 Feb 2017	16h03m03.75s	+45.40459 deg	2.216	1.837	9.8	98.9	38.92	76.6	Her
21 Feb 2017	16h07m15.81s	+45.58039 deg	2.191	1.801	9.7	99.4	36.82	75.2	Her
24 Feb 2017	16h11m12.83s	+45.76228 deg	2.167	1.764	9.6	99.9	34.57	73.7	Her
27 Feb 2017	16h14m53.65s	+45.94875 deg	2.142	1.728	9.5	100.5	32.17	72.1	Her
2 Mar 2017	16h18m17.09s	+46.13793 deg	2.118	1.692	9.4	101.0	29.62	70.3	Her
5 Mar 2017	16h21m22.01s	+46.32765 deg	2.094	1.656	9.3	101.6	26.92	68.3	Her
8 Mar 2017	16h24m07.27s	+46.51559 deg	2.071	1.620	9.2	102.2	24.08	65.9	Her
11 Mar 2017	16h26m31.69s	+46.69934 deg	2.048	1.585	9.1	102.8	21.10	63.1	Her
14 Mar 2017	16h28m33.95s	+46.87631 deg	2.025	1.549	9.0	103.4	17.96	59.3	Her
17 Mar 2017	16h30m12.66s	+47.04344 deg	2.003	1.514	8.9	104.0	14.68	54.2	Her
20 Mar 2017	16h31m26.29s	+47.19717 deg	1.981	1.478	8.8	104.7	11.31	46.2	Her
23 Mar 2017	16h32m13.28s	+47.33320 deg	1.960	1.443	8.7	105.4	8.03	31.7	Her
26 Mar 2017	16h32m32.05s	+47.44645 deg	1.939	1.408	8.6	106.1	5.55	0.7	Her
29 Mar 2017	16h32m21.10s	+47.53086 deg	1.918	1.373	8.5	106.9	5.81	312.7	Her
1 Apr 2017	16h31m39.06s	+47.57945 deg	1.898	1.339	8.4	107.7	9.00	282.6	Her
4 Apr 2017	16h30m24.82s	+47.58447 deg	1.879	1.304	8.3	108.6	13.45	268.2	Her
7 Apr 2017	16h28m37.42s	+47.53746 deg	1.860	1.270	8.2	109.4	18.53	259.9	Her
10 Apr 2017	16h26m16.10s	+47.42917 deg	1.842	1.236	8.1	110.4	24.10	254.1	Her
13 Apr 2017	16h23m20.27s	+47.24920 deg	1.824	1.202	8.0	111.4	30.12	249.6	Her
16 Apr 2017	16h19m49.68s	+46.98589 deg	1.807	1.169	7.9	112.4	36.59	245.8	Her
19 Apr 2017	16h15m44.55s	+46.62614 deg	1.791	1.136	7.8	113.5	43.54	242.4	Her
22 Apr 2017	16h11m05.69s	+46.15553 deg	1.775	1.103	7.7	114.6	50.98	239.1	Her
25 Apr 2017	16h05m54.64s	+45.55833 deg	1.760	1.072	7.6	115.8	58.91	236.0	Her
28 Apr 2017	16h00m13.84s	+44.81789 deg	1.746	1.041	7.5	117.0	67.32	232.9	Her
1 May 2017	15h54m06.65s	+43.91732 deg	1.733	1.012	7.4	118.2	76.17	229.9	Her
4 May 2017	15h47m37.24s	+42.84031 deg	1.720	0.983	7.3	119.5	85.43	226.9	Boo
7 May 2017	15h40m50.31s	+41.57167 deg	1.708	0.956	7.2	120.7	95.04	224.0	Boo
10 May 2017	15h33m51.00s	+40.09776 deg	1.697	0.930	7.1	122.0	104.94	221.2	Boo
13 May 2017	15h26m44.75s	+38.40727 deg	1.687	0.907	7.1	123.2	115.02	218.4	Boo
16 May 2017	15h19m37.16s	+36.49217 deg	1.678	0.885	7.0	124.3	125.10	215.7	Boo
19 May 2017	15h12m33.83s	+34.34876 deg	1.670	0.866	6.9	125.4	134.99	213.1	Boo
22 May 2017	15h05m40.20s	+31.97873 deg	1.662	0.849	6.9	126.3	144.43	210.6	Boo
25 May 2017	14h59m01.37s	+29.39024 deg	1.656	0.835	6.8	127.0	153.12	208.2	Boo
28 May 2017	14h52m41.97s	+26.59860 deg	1.650	0.824	6.8	127.5	160.74	205.9	Boo
31 May 2017	14h46m45.89s	+23.62661 deg	1.646	0.816	6.7	127.7	167.00	203.6	Boo
3 Jun 2017	14h41m16.10s	+20.50374 deg	1.642	0.812	6.7	127.7	171.66	201.5	Boo
6 Jun 2017	14h36m14.68s	+17.26460 deg	1.639	0.812	6.7	127.3	174.57	199.5	Boo
9 Jun 2017	14h31m42.95s	+13.94705 deg	1.638	0.815	6.7	126.6	175.64	197.6	Boo
12 Jun 2017	14h27m41.66s	+10.59016 deg	1.637	0.822	6.7	125.7	174.90	195.7	Boo
15 Jun 2017	14h24m11.07s	+ 7.23212 deg	1.637	0.832	6.7	124.5	172.46	193.9	Vir
18 Jun 2017	14h21m11.10s	+ 3.90824 deg	1.639	0.847	6.8	123.0	168.54	192.0	Vir
21 Jun 2017	14h18m41.41s	+ 0.64946 deg	1.641	0.864	6.8	121.4	163.39	190.2	Vir
24 Jun 2017	14h16m41.51s	- 2.51871 deg	1.645	0.885	6.9	119.6	157.30	188.3	Vir
27 Jun 2017	14h15m10.68s	- 5.57660 deg	1.649	0.909	7.0	117.7	150.60	186.3	Vir
30 Jun 2017	14h14m07.94s	- 8.51023 deg	1.654	0.936	7.0	115.7	143.55	184.2	Vir
3 Jul 2017	14h13m32.17s	-11.31094 deg	1.660	0.966	7.1	113.7	136.41	182.1	Vir
6 Jul 2017	14h13m22.17s	-13.97459 deg	1.667	0.998	7.2	111.7	129.38	179.9	Vir
9 Jul 2017	14h13m36.79s	-16.50069 deg	1.676	1.032	7.3	109.7	122.61	177.6	Vir
12 Jul 2017	14h14m14.95s	-18.89164 deg	1.685	1.068	7.4	107.8	116.20	175.3	Vir
15 Jul 2017	14h15m15.67s	-21.15181 deg	1.694	1.106	7.5	105.8	110.25	172.8	Vir
18 Jul 2017	14h16m38.12s	-23.28702 deg	1.705	1.146	7.6	103.9	104.79	170.3	Hya
21 Jul 2017	14h18m21.55s	-25.30401 deg	1.717	1.187	7.7	102.1	99.85	167.6	Hya
24 Jul 2017	14h20m25.29s	-27.21004 deg	1.729	1.230	7.8	100.3	95.43	165.0	Hya
27 Jul 2017	14h22m48.66s	-29.01246 deg	1.742	1.273	7.9	98.5	91.52	162.2	Hya
30 Jul 2017	14h25m30.94s	-30.71840 deg	1.756	1.317	8.0	96.8	88.07	159.5	Cen
2 Aug 2017	14h28m31.43s	-32.33458 deg	1.771	1.363	8.2	95.2	85.04	156.8	Cen
5 Aug 2017	14h31m49.52s	-33.86727 deg	1.787	1.409	8.3	93.6	82.40	154.2	Cen
8 Aug 2017	14h35m24.69s	-35.32227 deg	1.803	1.455	8.4	92.0	80.10	151.5	Cen

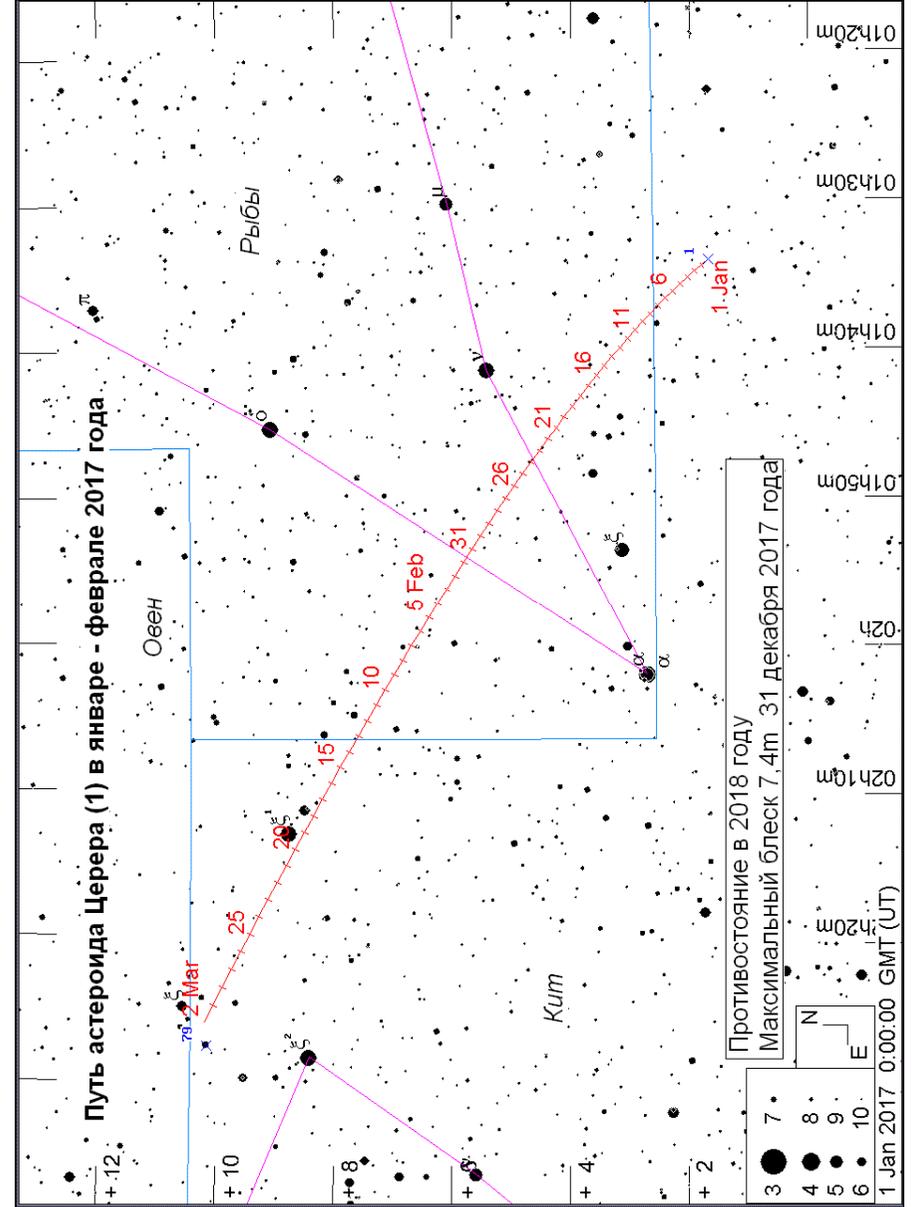
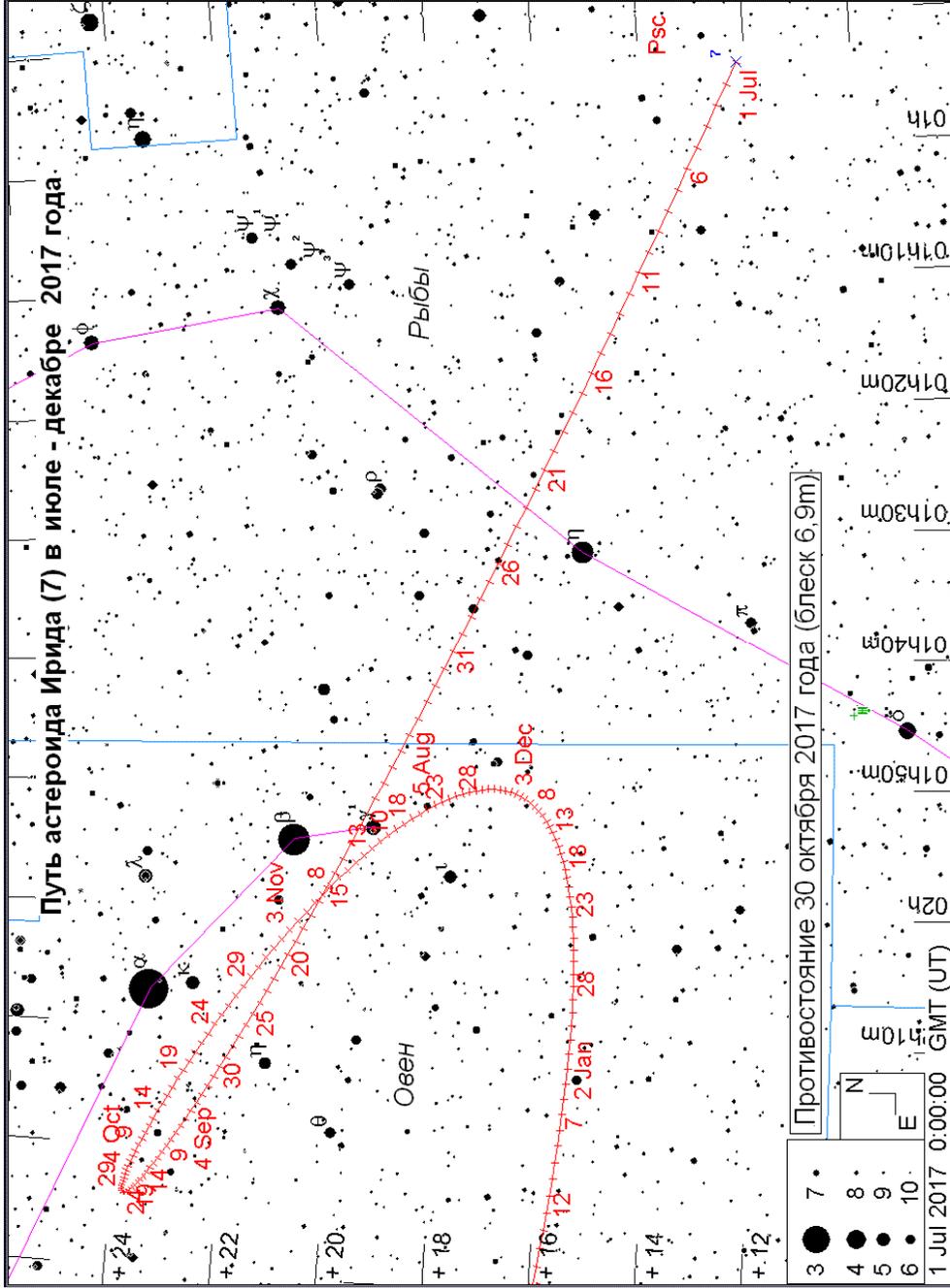
Комета P/Tuttle-Giacobini-Kresak (41P)

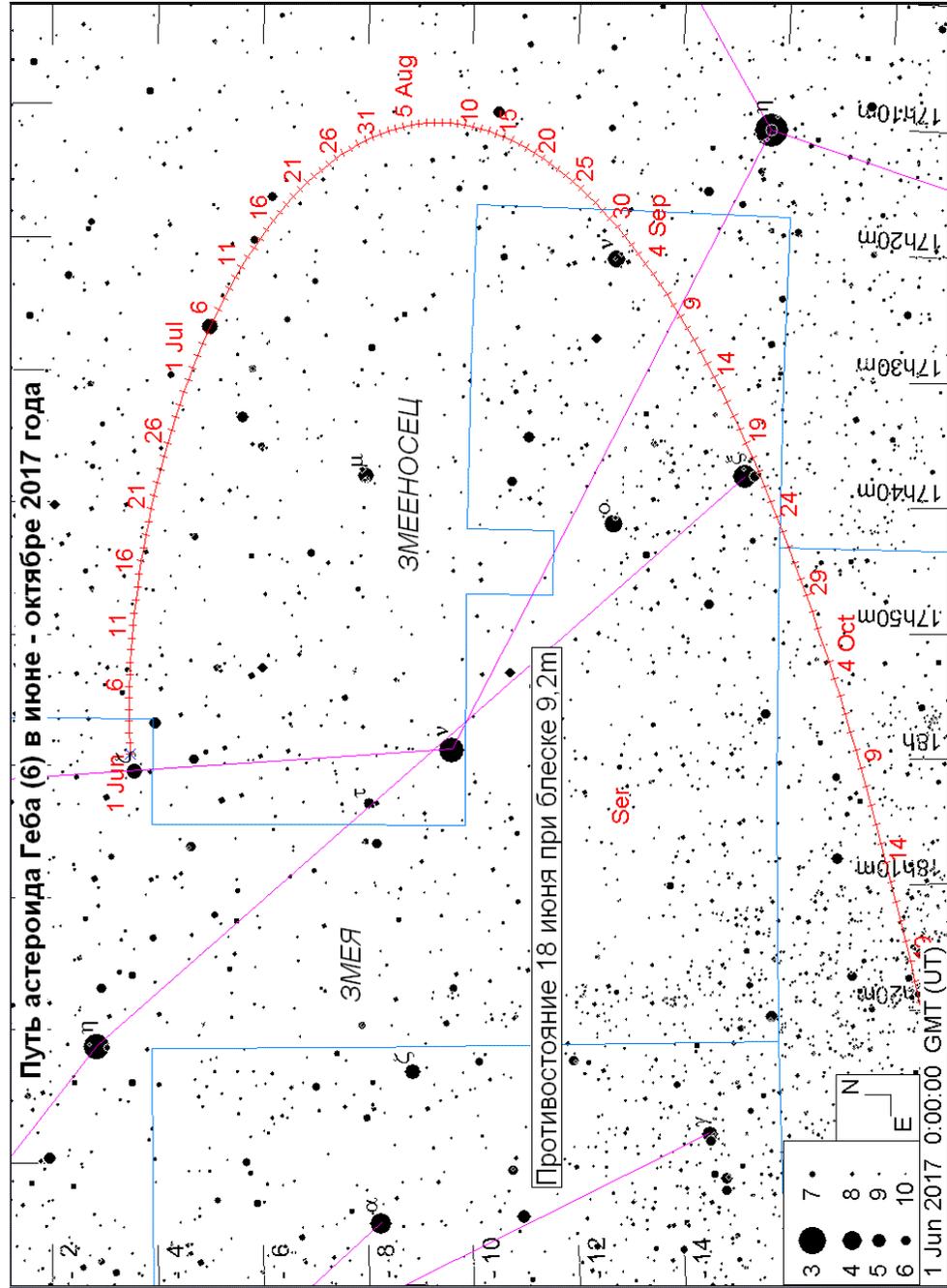
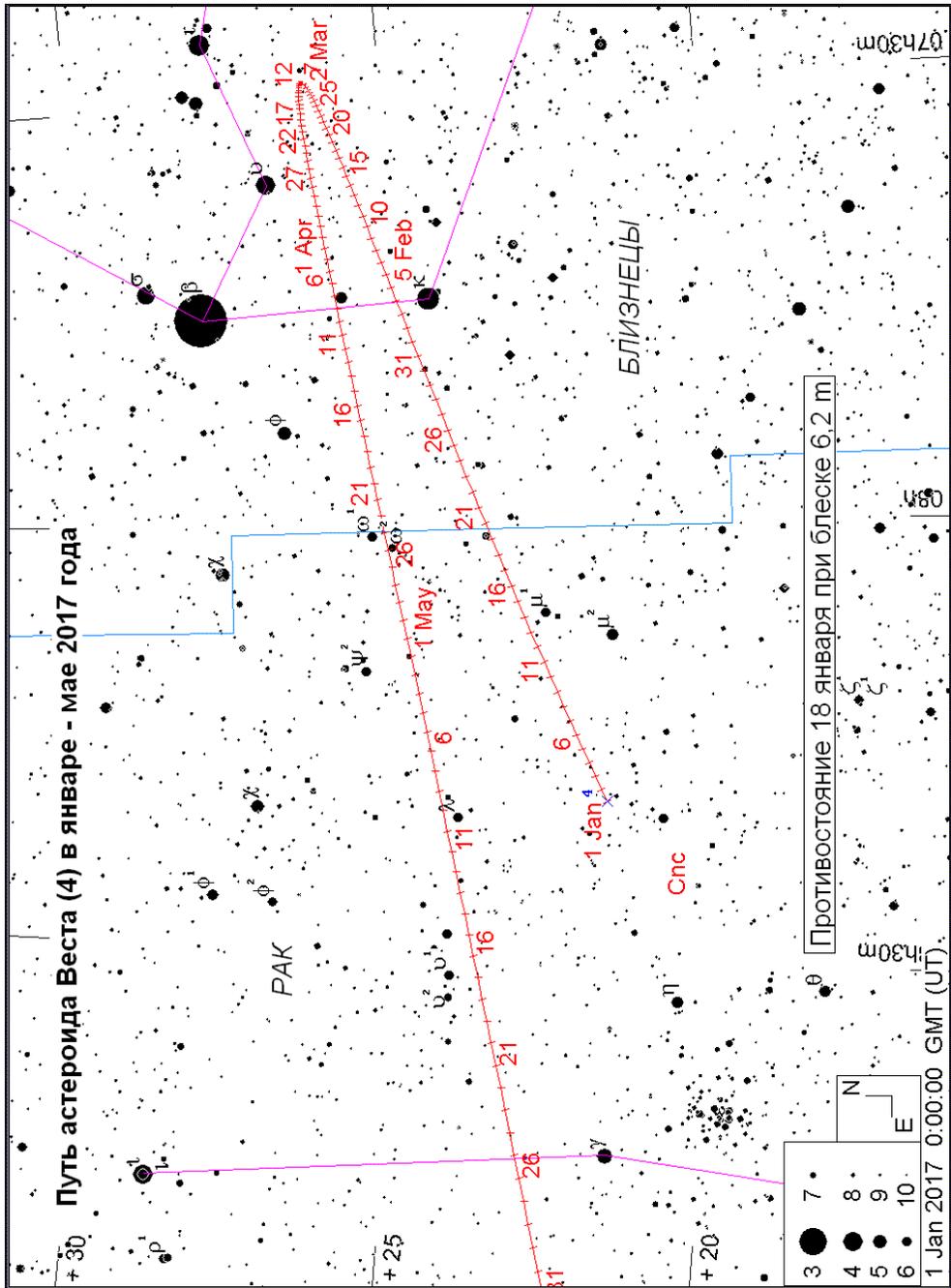


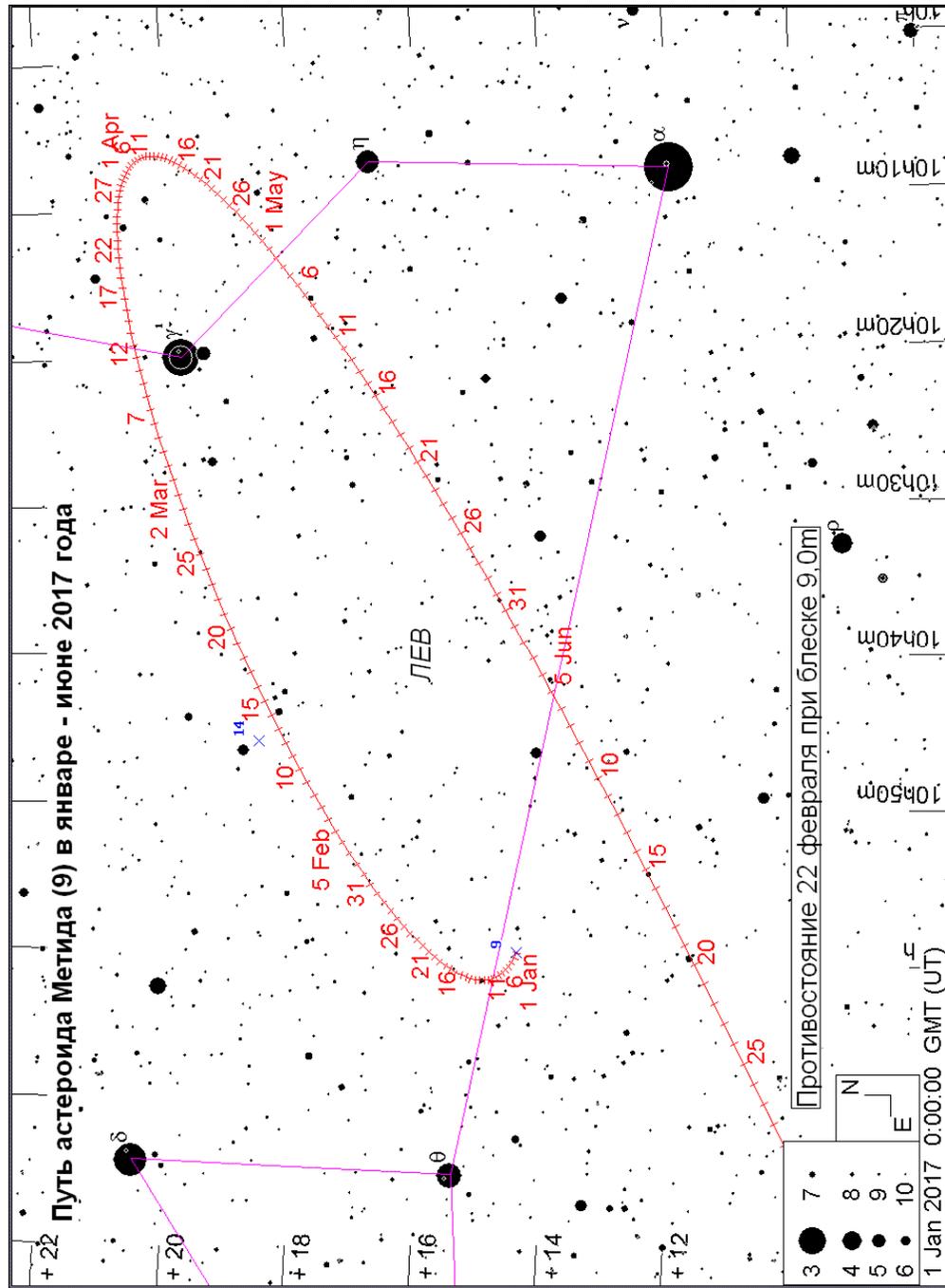
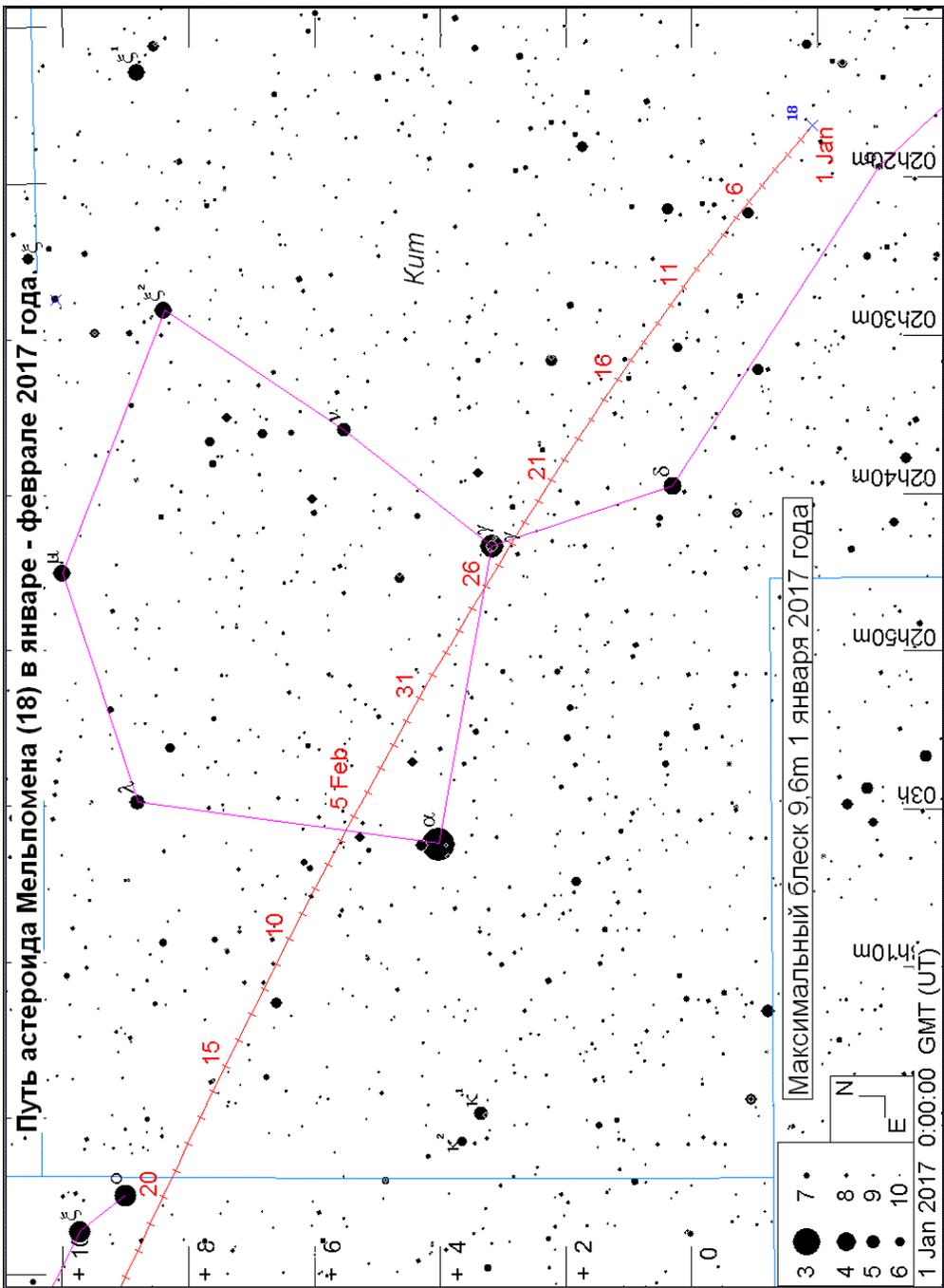
Дата	$\alpha(2015.0)$	$\delta(2015.0)$	r	$\Delta$	m	elon.	V	PA	con.
1 Feb 2017	9h21m08.64s	+11.54048 deg	1.406	0.423	14.1	172.3	46.63	353.5	Cnc
3 Feb 2017	9h21m00.26s	+12.18960 deg	1.390	0.406	13.8	174.5	51.55	353.1	Cnc
5 Feb 2017	9h20m49.66s	+12.90538 deg	1.374	0.389	13.5	176.7	56.70	353.1	Cnc
7 Feb 2017	9h20m37.60s	+13.69149 deg	1.358	0.372	13.2	178.3	62.10	353.2	Cnc
9 Feb 2017	9h20m24.90s	+14.55170 deg	1.343	0.357	12.9	177.4	67.76	353.6	Cnc
11 Feb 2017	9h20m12.45s	+15.48988 deg	1.328	0.341	12.6	175.2	73.66	354.2	Cnc
13 Feb 2017	9h20m01.22s	+16.50993 deg	1.312	0.327	12.3	172.8	79.83	355.0	Cnc
15 Feb 2017	9h19m52.35s	+17.61569 deg	1.297	0.313	12.0	170.2	86.26	355.8	Cnc
17 Feb 2017	9h19m47.16s	+18.81088 deg	1.283	0.300	11.7	167.7	92.94	356.9	Cnc
19 Feb 2017	9h19m47.21s	+20.09903 deg	1.268	0.287	11.4	165.0	99.87	358.0	Cnc
21 Feb 2017	9h19m54.29s	+21.48339 deg	1.254	0.275	11.1	162.3	107.05	359.3	Cnc
23 Feb 2017	9h20m10.48s	+22.96691 deg	1.240	0.264	10.8	159.6	114.47	0.8	Cnc
25 Feb 2017	9h20m38.17s	+24.55217 deg	1.227	0.253	10.6	156.8	122.15	2.3	Cnc
27 Feb 2017	9h21m20.17s	+26.24127 deg	1.213	0.243	10.3	154.0	130.07	4.0	Cnc
1 Mar 2017	9h22m19.68s	+28.03586 deg	1.200	0.233	10.0	151.2	138.26	5.9	Cnc
3 Mar 2017	9h23m40.37s	+29.93707 deg	1.188	0.224	9.7	148.4	146.74	7.8	Leo
5 Mar 2017	9h25m26.43s	+31.94549 deg	1.176	0.215	9.5	145.5	155.52	9.8	Leo
7 Mar 2017	9h27m42.60s	+34.06100 deg	1.164	0.207	9.2	142.6	164.60	12.0	LMi
9 Mar 2017	9h30m34.37s	+36.28241 deg	1.153	0.200	9.0	139.8	173.96	14.2	LMi
11 Mar 2017	9h34m08.19s	+38.60698 deg	1.142	0.193	8.7	136.9	183.57	16.5	LMi
13 Mar 2017	9h38m31.83s	+41.02973 deg	1.131	0.186	8.5	134.1	193.35	19.0	Lyn
15 Mar 2017	9h43m54.82s	+43.54264 deg	1.122	0.180	8.3	131.2	203.19	21.6	UMa
17 Mar 2017	9h50m28.96s	+46.13365 deg	1.112	0.175	8.1	128.5	212.99	24.4	UMa
19 Mar 2017	9h58m29.05s	+48.78553 deg	1.103	0.170	7.9	125.7	222.58	27.4	UMa
21 Mar 2017	10h08m13.59s	+51.47433 deg	1.095	0.165	7.7	123.0	231.81	30.8	UMa
23 Mar 2017	10h20m05.67s	+54.16748 deg	1.087	0.161	7.5	120.4	240.48	34.7	UMa
25 Mar 2017	10h34m33.59s	+56.82143 deg	1.080	0.158	7.3	117.9	248.40	39.1	UMa
27 Mar 2017	10h52m10.83s	+59.37890 deg	1.074	0.155	7.2	115.5	255.37	44.2	UMa
29 Mar 2017	11h13m34.04s	+61.76621 deg	1.068	0.153	7.1	113.2	261.23	50.2	UMa
31 Mar 2017	11h39m16.99s	+63.89181 deg	1.063	0.151	6.9	111.1	265.81	57.1	UMa
2 Apr 2017	12h09m37.98s	+65.64844 deg	1.058	0.150	6.9	109.1	268.97	65.2	Dra
4 Apr 2017	12h44m20.49s	+66.92306 deg	1.054	0.149	6.8	107.4	270.55	74.3	Dra
6 Apr 2017	13h22m14.98s	+67.61779 deg	1.051	0.149	6.7	105.8	270.46	84.1	Dra
8 Apr 2017	14h01m19.33s	+67.67817 deg	1.049	0.149	6.7	104.5	268.67	94.1	Dra
10 Apr 2017	14h39m09.92s	+67.11360 deg	1.047	0.150	6.7	103.4	265.23	103.8	UMi
12 Apr 2017	15h13m48.02s	+65.99481 deg	1.046	0.151	6.7	102.6	260.26	112.6	UMi
14 Apr 2017	15h44m08.42s	+64.42973 deg	1.045	0.153	6.7	102.0	253.96	120.4	Dra
16 Apr 2017	16h09m57.62s	+62.53461 deg	1.046	0.155	6.7	101.6	246.56	127.1	Dra
18 Apr 2017	16h31m34.95s	+60.41418 deg	1.047	0.158	6.8	101.5	238.33	132.7	Dra
20 Apr 2017	16h49m33.82s	+58.15351 deg	1.049	0.161	6.9	101.5	229.53	137.6	Dra
22 Apr 2017	17h04m29.86s	+55.81726 deg	1.051	0.164	6.9	101.8	220.43	141.7	Dra
24 Apr 2017	17h16m55.36s	+53.45246 deg	1.054	0.168	7.0	102.3	211.27	145.4	Dra
26 Apr 2017	17h27m17.51s	+51.09204 deg	1.058	0.171	7.2	103.0	202.26	148.6	Dra
28 Apr 2017	17h35m58.51s	+48.75823 deg	1.063	0.176	7.3	103.9	193.57	151.6	Her
30 Apr 2017	17h43m16.20s	+46.46566 deg	1.068	0.180	7.4	104.9	185.28	154.3	Her
2 May 2017	17h49m24.77s	+44.22358 deg	1.074	0.185	7.6	106.1	177.45	156.8	Her
4 May 2017	17h54m35.44s	+42.03748 deg	1.080	0.190	7.7	107.4	170.09	159.2	Her
6 May 2017	17h58m57.03s	+39.90998 deg	1.088	0.195	7.9	108.9	163.23	161.5	Her
8 May 2017	18h02m36.54s	+37.84157 deg	1.095	0.200	8.1	110.4	156.89	163.7	Her
10 May 2017	18h05m39.57s	+35.83116 deg	1.104	0.206	8.3	112.1	151.07	165.9	Her
12 May 2017	18h08m10.62s	+33.87656 deg	1.112	0.211	8.5	113.8	145.79	168.1	Her
14 May 2017	18h10m13.42s	+31.97483 deg	1.122	0.217	8.7	115.6	141.05	170.3	Her
16 May 2017	18h11m51.09s	+30.12261 deg	1.132	0.223	8.9	117.5	136.83	172.4	Her
18 May 2017	18h13m06.29s	+28.31640 deg	1.142	0.230	9.1	119.5	133.10	174.5	Her
20 May 2017	18h14m01.36s	+26.55269 deg	1.153	0.236	9.3	121.5	129.83	176.6	Her
22 May 2017	18h14m38.41s	+24.82817 deg	1.164	0.243	9.6	123.6	126.98	178.6	Her
24 May 2017	18h14m59.41s	+23.13986 deg	1.176	0.250	9.8	125.7	124.47	180.5	Her
26 May 2017	18h15m06.27s	+21.48524 deg	1.188	0.257	10.0	127.9	122.24	182.2	Her
28 May 2017	18h15m00.84s	+19.86249 deg	1.201	0.265	10.3	130.0	120.19	183.8	Her
30 May 2017	18h14m44.92s	+18.27056 deg	1.214	0.272	10.5	132.2	118.24	185.2	Her
1 Jun 2017	18h14m20.14s	+16.70914 deg	1.227	0.281	10.8	134.4	116.29	186.5	Her

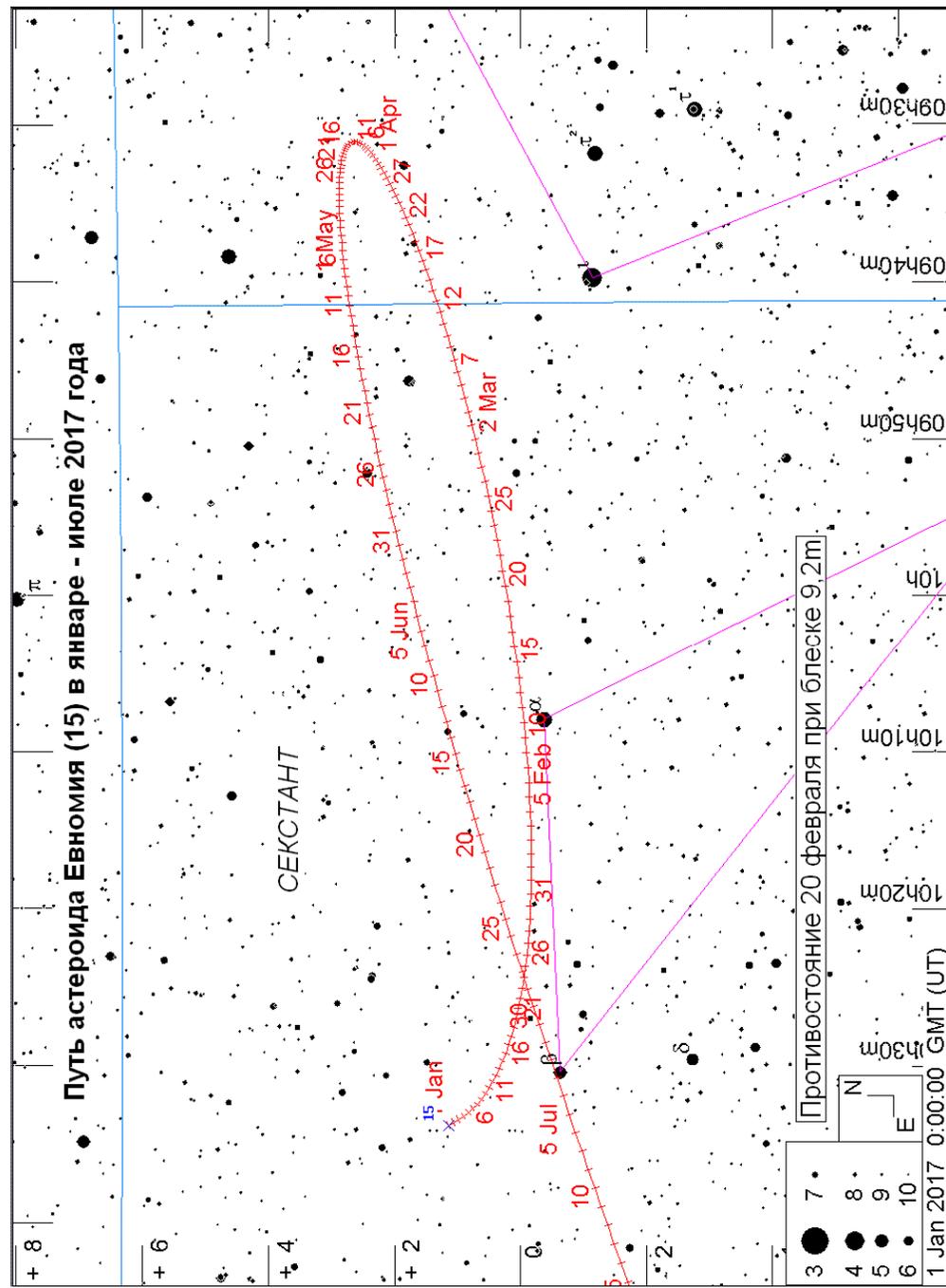
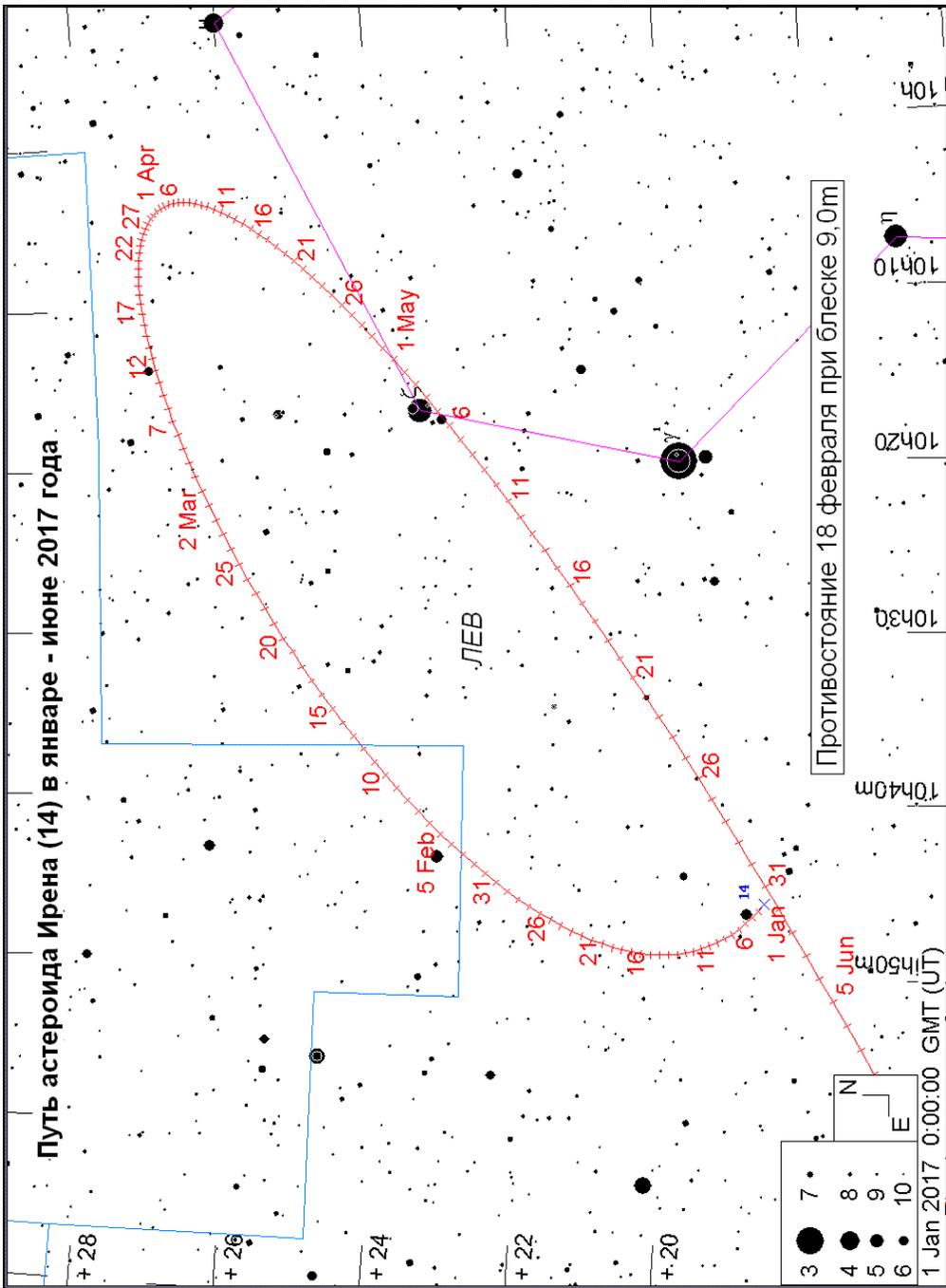
## АСТЕРОИДЫ

Астероид Веста станет самым ярким в этом году. Его блеск в период противостояния 18 января достигнет 6,2m (созвездие Рака). Блеска 7,4m в конце года достигнет Церера (созвездие Льва). Астероид Ирида вступит в противостояние с Солнцем 30 октября при блеске 6,9m (созвездие Овна). Из других астероидов яркими (около 9m) будут Метидя, Ирена, Геба и Евномия. Подробные карты путей астероидов и комет имеются в ежемесячном Календаре наблюдателя, который по выходу публикуется на <http://www.astronet.ru/db/news/>. Все карты - Guide 8.0









## Сведения о метеорных потоках 2017 года

( по данным <http://www.imo.net> )

Метеорный поток	Активность	Максимум	Эклипт. долгота	$\alpha$	$\delta$	V	r	ZHR
Quadrantids (QUA)	Dec 28 - Jan 12	Jan 04	283.16°	230°	+49°	41	2.1	120
$\alpha$ - Centaurids (ACE)	Jan 28 - Feb 21	Feb 09	319.2°	210°	-59°	56	2.0	6
$\gamma$ - Normids (GNO)	Feb 25 - Mar 22	Mar 14	354°	239°	-50°	56	2.4	6
Lyrids (LYR)	Apr 16 - Apr 25	Apr 22	32.32°	271°	+34°	49	2.1	18
$\pi$ - Puppids (PPU)	Apr 15 - Apr 28	Apr 23	33.5°	110°	-45°	18	2.0	Var
$\eta$ - Aquariids (ETA)	Apr 19 - May 28	May 05	45.5°	338°	-01°	66	2.4	65*
$\eta$ - Lyrids (ELY)	May 03 - May 14	May 08	48.0°	287°	+44°	43	3.0	3
June Bootids (JBO)	Jun 22 - Jul 02	Jun 27	95.7°	224°	+48°	18	2.2	Var
Piscis Austrinids (PAU)	Jul 15 - Aug 10	Jul 27	125°	341°	-30°	35	3.2	5
South. $\delta$ -Aquariids (SDA)	Jul 12 - Aug 23	Jul 29	127°	340°	-16°	41	3.2	16
$\alpha$ - Capricornids (CAP)	Jul 03 - Aug 15	Jul 29	127°	307°	-10°	23	2.5	5
Perseids (PER)	Jul 17 - Aug 24	Aug 12	140.0°	48°	+58°	59	2.2	100
$\kappa$ - Cygnids (KCG)	Aug 03 - Aug 25	Aug 17	145°	286°	+59°	25	3.0	3
$\alpha$ -Aurigids (AUR)	Aug 28 - Sep 05	Aug 31	158.6°	91°	+39°	66	2.5	6
September $\varepsilon$ -Perseids (SPE)	Sep 05 - Sep 21	Sep 09	166.7°	48°	+40°	64	3.0	5
Draconids (DRA)	Oct 06 - Oct 10	Oct 08	195.4°	262°	+54°	20	2.6	Var
Southern Taurids (STA)*	Sep 10 - Nov 20	Oct 10	197°	32°	+09°	27	2.3	5
$\delta$ - Aurigids (DAU)	Oct 10 - Oct 18	Oct 11	198°	84°	+44°	64	3.0	2
$\varepsilon$ - Geminids (EGE)	Oct 14 - Oct 27	Oct 18	205°	102°	+27°	70	3.0	3
Orionids (ORI)	Oct 02 - Nov 07	Oct 21	208°	95°	+16°	66	2.5	25*
Leo Minorids (LMI)	Oct 19 - Oct 27	Oct 24	211°	162°	+37°	62	3.0	2
Northern Taurids (NTA)*	Oct 20 - Dec 10	Nov 12	230°	58°	+22°	29	2.3	5
Leonids (LEO)*	Nov 06 - Nov 30	Nov 17	235.27°	152°	+22°	71	2.5	15*
$\alpha$ - Monocerotids (AMO)	Nov 15 - Nov 25	Nov 21	239.32°	117°	+01°	65	2.4	Var
Phoenicids (PHO)	Nov 28 - Dec 09	Dec 06	254.25°	18°	-53°	18	2.8	Var
Puppids/Velids (PUP)	Dec 01 - Dec 15	(Dec 06)	(255°)	123°	-45°	40	2.9	10
Monocerotids (MON)	Nov 27 - Dec 17	Dec 08	257°	100°	+08°	42	3.0	2
$\alpha$ - Hydrids (HYD)	Dec 03 - Dec 15	Dec 11	260°	127°	+02°	58	3.0	3
Geminids (GEM)	Dec 07 - Dec 17	Dec 13	262.2°	112°	+33°	35	2.6	120
Comae Berenicids (COM)	Dec 12 - Dec 23	Dec 15	264°	175°	+18°	65	3.0	3
Dec. Leonis Minorids (DLM)	Dec 05 - Feb 04	Dec 19	268°	161°	+30°	64	3.0	5
Ursids (URS)	Dec 17 - Dec 26	Dec 23	270.7°	217°	+76°	33	3.0	10

Обозначения:  $\alpha$  - прямое восхождение радианта на время максимума,  $\delta$  - склонение, V - скорость метеоров км/сек, r - популяционный индекс потока, ZHR - зенитное часовое число метеоров.

## ПЕРЕМЕННЫЕ ЗВЕЗДЫ

В настоящем календаре приводятся сведения о переменных звездах, доступных для наблюдений невооруженным глазом (в период максимума), в бинокль или телескоп, а также время их максимума в 2017 году. В таблицах:  $\alpha$  – прямое восхождение для эпохи 2000.0,  $\delta$  – склонение для эпохи 2000.0, M – максимум, m – минимум, P – период в днях. Интернет-ресурс - <http://www.astrosurf.com/astropc> или <http://aavso.org>. Точные данные о максимумах постепенно (ежемесячно) публикуются на этих ресурсах и в Календаре наблюдателя на <http://www.astronet.ru/>

## ЦЕФЕИДЫ

## ЗАТМЕННЫЕ

Название	$\alpha$ (2000.0)	$\delta$ (2000.0)	M	m	P	Название	$\alpha$ (2000.0)	$\delta$ (2000.0)	M	m	P
SU Кассиопеи	02 52.0	+68 53	5.7	6.2	1.9	YZ Кассиопеи	00 45.6	+74 59	5.7	6.1	4.5
SZ Тельца	04 37.2	+18 33	6.3	6.7	3.1	U Цефея	01 02.3	+81 53	6.8	9.2	2.5
СК Жирафа	05 06.5	+55 21	7.2	7.8	3.2	V505 Персея	02 21.2	+54 31	6.9	7.5	4.2
T Единорога	06 25.2	+07 05	5.6	6.6	27.0	RZ Кассиопеи	02 48.9	+69 38	6.2	7.7	1.2
RT Возничего	06 28.6	+30 30	5.0	5.8	3.7	$\beta$ Персея	03 08.2	+40 57	2.1	3.4	2.9
W Близнецов	06 35.0	+15 20	6.5	7.4	7.9	$\lambda$ Тельца	04 00.7	+12 29	3.4	3.9	3.9
$\zeta$ Близнецов	07 04.1	+20 34	3.6	4.2	10.1	HU Тельца	04 38.3	+20 41	5.9	6.7	2.0
Y Змееносца	17 52.6	-06 09	5.9	6.5	17.1	CD Тельца	05 17.5	+20 08	6.8	7.3	3.4
AP Стрельца	18 13.0	-23 07	6.5	7.4	5.0	AR Возничего	05 18.3	+33 46	6.2	6.8	4.1
Y Стрельца	18 21.4	-18 52	5.4	6.2	5.7	LY Возничего	05 29.7	+35 23	6.7	7.4	4.0
U Стрельца	18 31.9	-19 07	6.3	7.2	6.7	VV Ориона	05 33.5	-01 09	5.3	5.7	1.5
V350 Стрельца	18 45.3	-20 39	7.1	7.8	5.1	RR Рыси	06 26.4	+56 17	5.5	6.0	9.9
YZ Стрельца	18 49.5	-16 43	7.0	7.8	9.5	WW Возничего	06 32.5	+32 27	5.8	6.5	2.5
BB Стрельца	18 51.0	-20 18	6.6	7.3	6.6	UW Б.Пса	07 18.7	-24 34	4.8	5.3	4.4
FF Орла	18 58.2	+17 22	5.2	5.7	4.4	R Б.Пса	07 19.5	-16 24	5.7	6.3	1.1
TT Орла	19 08.2	+01 18	6.5	7.7	13.7	TX Б.Медведицы	10 45.3	+45 34	7.1	8.8	3.1
U Орла	19 29.4	-07 03	6.1	6.9	7.0	ZZ Волопаса	13 56.2	+25 55	6.8	7.4	5.0
U Лисички	19 36.6	+20 20	6.8	7.5	8.0	$\delta$ Весов	15 01.0	-08 31	4.9	5.9	2.3
SU Лебеда	19 44.8	+29 16	6.4	7.2	3.8	$\iota$ Волопаса	15 03.8	+47 39	5.8	6.4	0.26
SV Лисички	19 51.5	+27 28	6.7	7.8	44.9	VI 010 Змееносца	16 49.5	-15 40	6.1	7.0	0.66
$\eta$ Орла	19 52.5	+01 00	3.5	4.4	7.2	U Змееносца	17 16.5	+01 13	5.8	6.6	1.6
S Стрелы	19 56.0	+16 38	5.2	6.0	8.4	$\mu$ Геркулеса	17 17.3	+33 06	4.7	5.4	2.0
X Лебеда	20 43.4	+35 35	5.9	6.9	16.4	V356 Стрельца	18 47.9	-20 16	6.8	7.7	8.9
T Лисички	20 51.5	+28 15	5.4	6.1	4.4	$\beta$ Лирь	18 50.1	+33 22	3.3	4.4	12.9
DT Лебеда	21 06.5	+31 11	5.6	6.0	2.5	RS Лисички	19 17.7	+22 26	6.8	7.8	4.5
$\delta$ Цефея	22 29.2	+58 25	3.5	4.4	5.4	U Стрелы	19 18.8	+19 37	6.5	9.3	3.4

## ДОЛГОПЕРИОДИЧЕСКИЕ ПЕРЕМЕННЫЕ ЗВЕЗДЫ

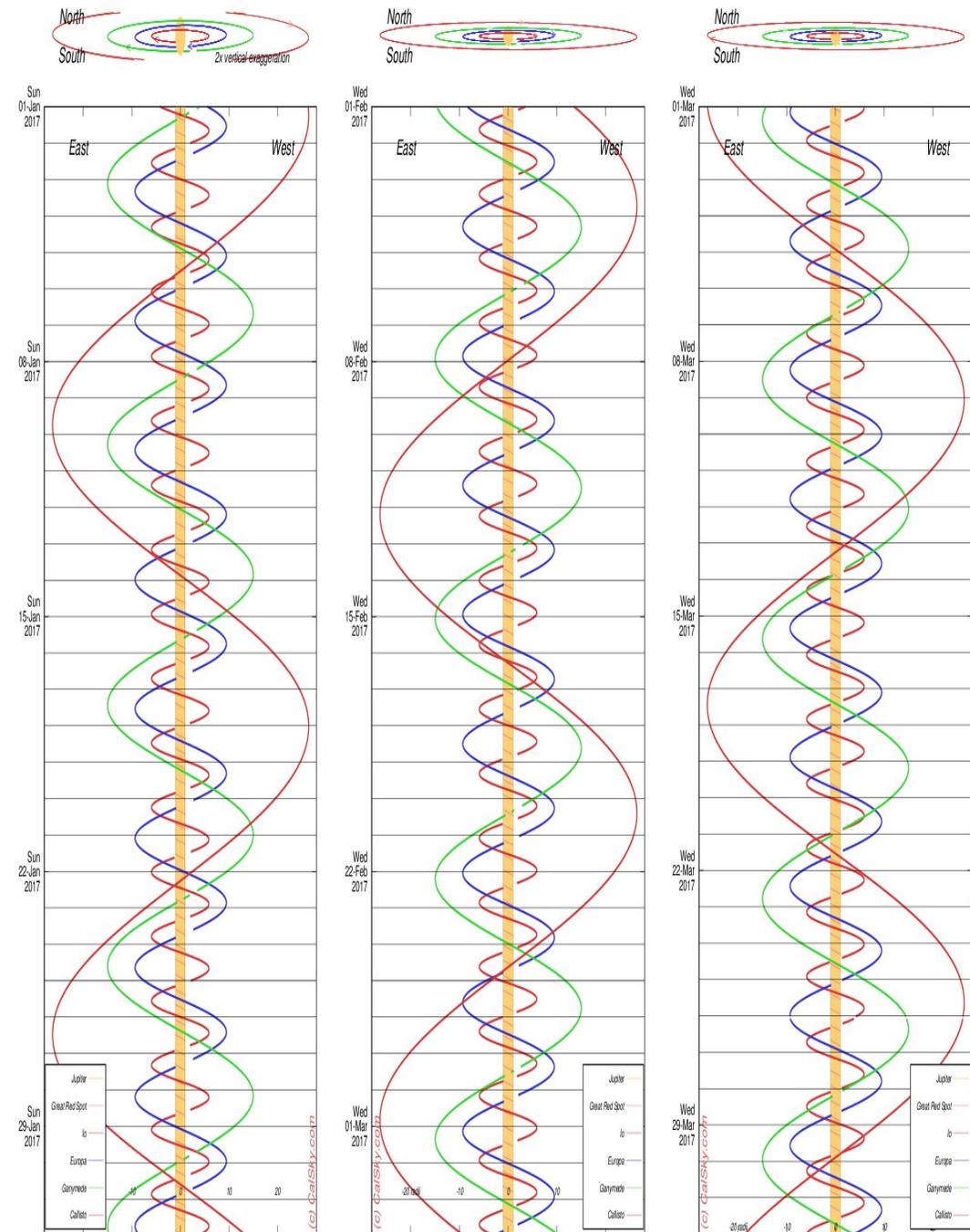
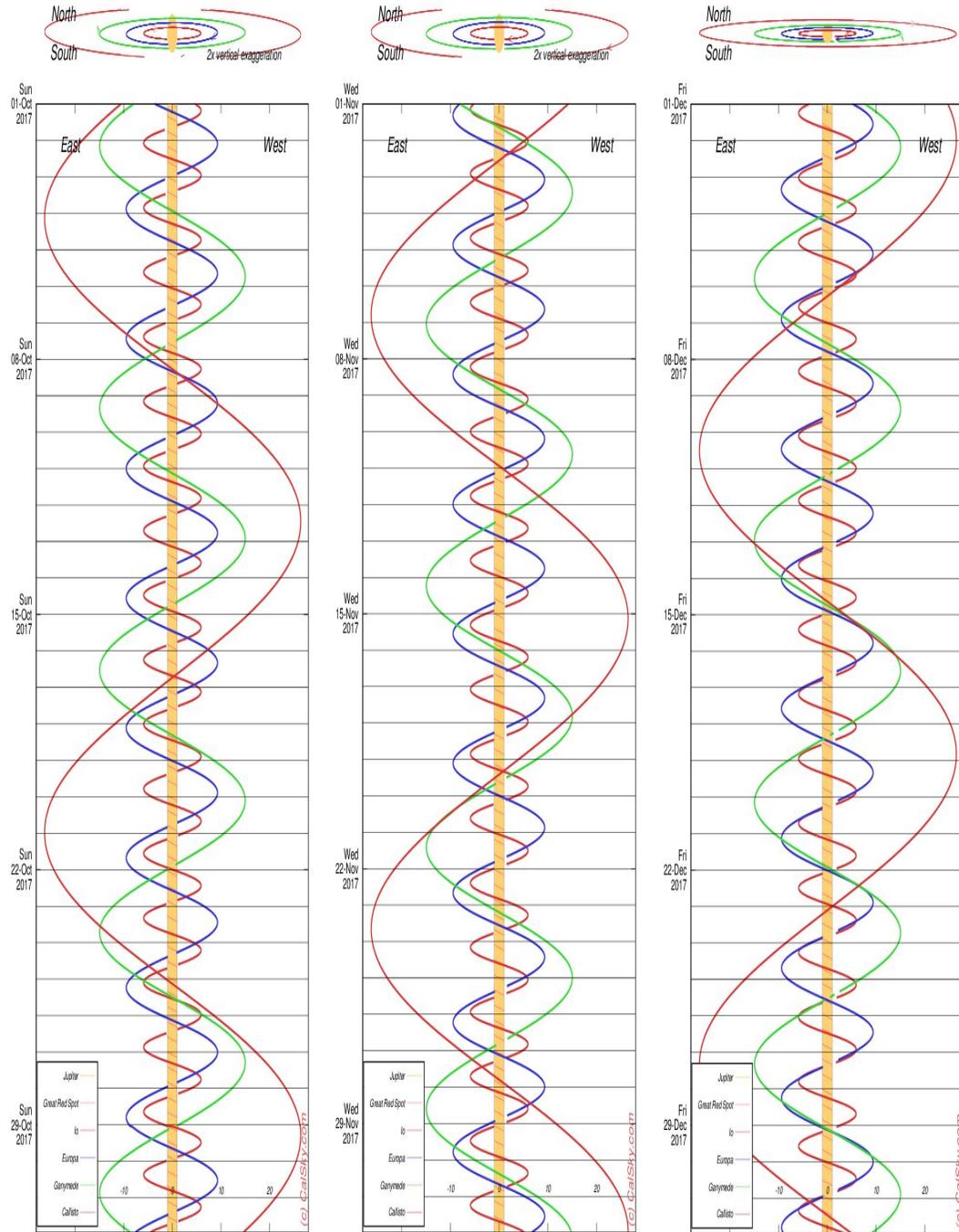
Название	$\alpha$ (2000.0)	$\delta$ (2000.0)	M	m	P	Название	$\alpha$ (2000.0)	$\delta$ (2000.0)	M	m	P
W Кита	00 02.1	-14 41	7.1	14.8	351.3	R Волопаса	14 37.2	+26 44	6.2	13.1	223.4
T Кассиопеи	00 23.2	+55 48	6.9	13.0	444.8	S C. Короны	15 21.4	+31 22	5.8	14.1	360.3
R Андромеды	00 24.0	+38 35	5.6	14.9	409.3	S Змеи	15 21.7	+14 19	7.0	14.1	371.8
R Рыб	01 30.6	+02 53	7.0	14.8	344.5	RS Весов	15 24.3	-22 55	7.0	13.0	217.7
W Андромеды	02 17.5	+44 18	6.7	14.6	395.9	V C. Короны	15 49.5	+39 34	6.9	12.6	357.6
омикрон Кита	02 19.3	-02 59	2.0	10.1	332.0	R Змеи	15 50.7	+15 08	5.2	14.4	356.4
U Кита	02 33.7	-13 09	6.8	13.4	234.8	RU Геркулеса	16 10.2	+25 04	6.8	14.3	484.8
R Треугольника	02 37.0	+34 16	5.4	12.6	266.9	U Геркулеса	16 25.8	+18 54	6.4	13.4	406.1
U Овна	03 11.0	+14 48	7.2	15.2	371.1	R Дракона	16 32.7	+66 45	6.7	13.2	245.6
R Зайца	04 59.6	-14 48	5.5	11.7	427.1	S Геркулеса	16 51.9	+14 57	6.4	13.8	307.3
R Возничего	05 17.3	+53 35	6.7	13.9	457.5	R Змееносца	17 07.8	-16 06	7.0	13.8	306.5
U Ориона	05 55.8	+20 11	4.8	13.0	368.3	RS Геркулеса	17 21.7	+22 55	7.0	13.0	219.7
V Единорога	06 22.7	-02 12	6.0	13.9	340.5	T Дракона	17 56.4	+58 13	7.2	13.5	421.6
R Рыси	07 01.3	+55 20	7.2	14.3	378.8	T Геркулеса	18 09.1	+31 01	6.8	13.7	165.0
R Близнецов	07 07.4	+22 42	6.0	14.0	369.9	X Змееносца	18 38.4	+08 50	5.9	9.2	328.9
S M. Пса	07 32.7	+08 19	6.6	13.2	332.9	R Орла	19 06.4	+08 14	5.5	12.0	284.2
R Рака	08 16.6	+11 44	6.1	11.8	361.6	R Стрельца	19 16.7	-19 18	6.7	12.8	269.8
T Гидры	08 55.7	-09 09	6.7	13.5	298.7	R Лебедя	19 36.8	+50 12	6.1	14.4	426.5
Y Дракона	09 42.4	+77 51	6.2	15.0	325.8	RT Лебедя	19 43.6	+48 47	6.0	13.1	190.3
R M. Льва	09 45.6	+34 31	6.3	13.2	372.2	хи Лебедя	19 50.6	+32 55	3.3	14.2	408.1
R Льва	09 47.6	+11 26	4.4	11.3	310.0	U Лебедя	20 19.6	+47 54	5.9	12.1	463.2
R Б. Медведицы	10 44.6	+68 47	6.5	13.7	301.6	T Водолея	20 49.9	-05 09	7.2	14.2	202.1
R Ворона	12 19.6	-19 15	6.7	14.4	317.0	R Лисички	21 04.4	+23 49	7.0	14.3	136.7
T Б. Медведицы	12 36.4	+59 29	6.6	13.5	256.6	T Цефея	21 09.5	+68 29	5.2	11.3	396.7
R Девы	12 38.5	+06 59	6.1	12.1	145.6	V Пегаса	22 01.0	+06 07	7.0	15.0	302.4
S Б. Медведицы	12 43.9	+61 06	7.1	12.7	225.9	R Пегаса	23 06.7	+10 33	6.9	13.8	378.1
R Гидры	13 29.7	-23 17	3.5	10.9	388.9	V Кассиопеи	23 11.7	+59 42	6.9	13.4	228.8
S Девы	13 33.0	-07 12	6.3	13.2	375.1	S Пегаса	23 20.5	+08 55	6.9	13.8	319.2
R Гончих Псов	13 49.0	+39 33	6.5	12.9	328.5	R Водолея	23 43.8	-15 17	5.8	12.4	387.0
R Жирафа	14 17.9	+83 50	7.0	14.4	270.2	R Кассиопеи	23 58.4	+51 23	4.7	13.5	430.5
RS Девы	14 27.3	+04 41	7.0	14.6	354.0						

## Максимумы переменных звезд в 2017 году

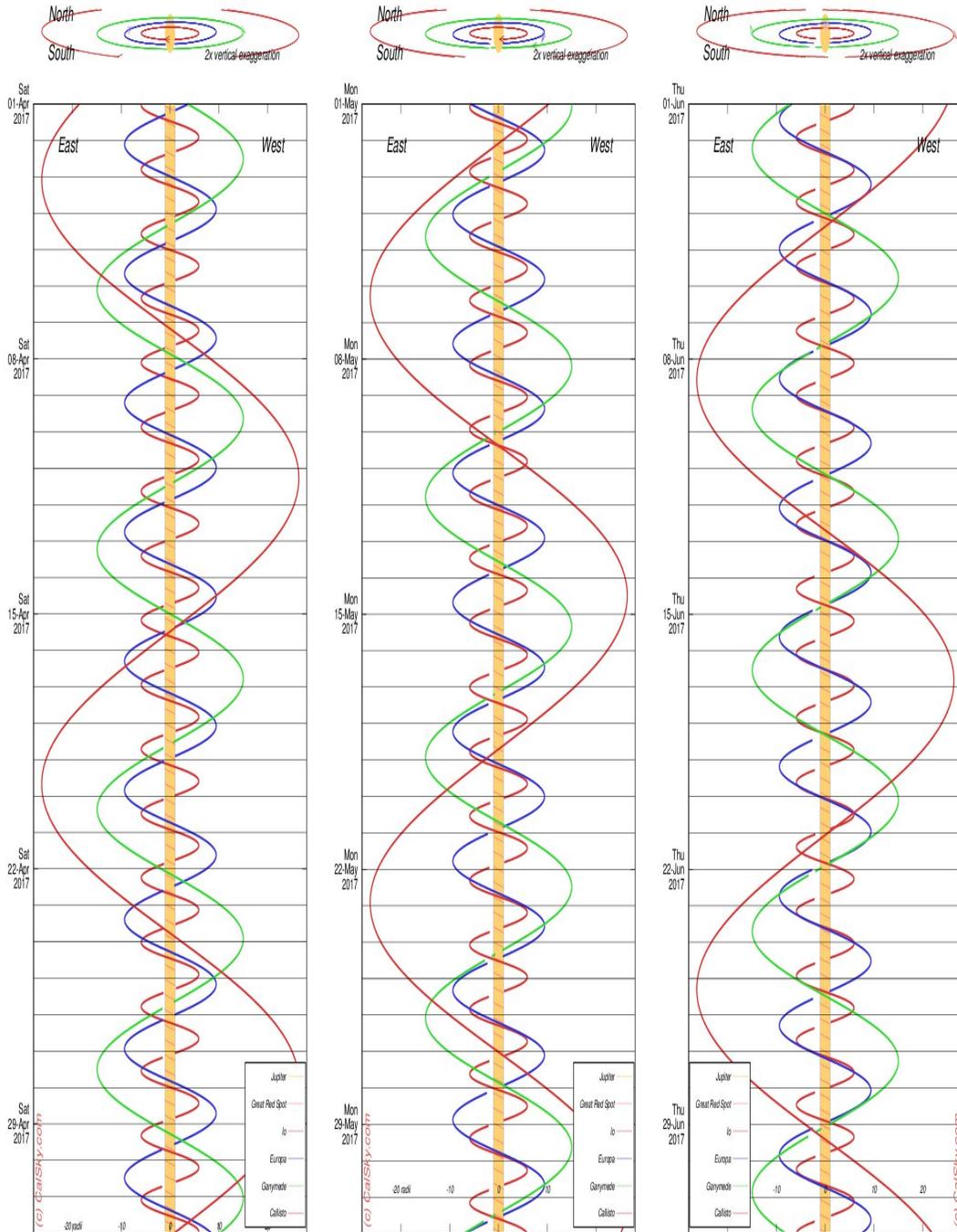
Звезда	Период	Блеск	Дата	Звезда	Период	Блеск	Дата
OMI CET	331.96	(3.4-9.3)	23.02	R CRV	317.03	(7.5-13.8)	01.10
R HYA	360	(4.5-9.5)	08.10	R CYG	426.45	(7.5-13.9)	15.03
R CAR	308.71	(4.6-9.6)	01.10	R DRA	245.6	(7.6-12.4)	15.04
KHI CYG	408.05	(5.2-13.4)	03.11	S HER	307.28	(7.6-12.6)	25.05
T CEN	90.6	(5.5-9.0)	06.02	R RET	278.46	(7.6-13.3)	01.05
S CAR	149.49	(5.7-8.5)	01.04	R OPH	306.5	(7.6-13.3)	28.07
R LEO	309.95	(5.8-10.0)	01.05	RV CEN	446	(7.7-10.3)	25.09
RR SCO	281.45	(5.9-11.8)	30.08	R CVN	328.53	(7.7-11.9)	30.09
T CEP	388.14	(6.0-10.3)	10.06	T UMA	256.6	(7.7-12.9)	06.06
R HOR	407.6	(6.0-13.0)	01.12	T AQR	202.1	(7.7-13.1)	01.06
R AQL	274	(6.1-11.5)	20.02	R AUR	457.51	(7.7-13.3)	апр.18
R TRI	266.9	(6.2-11.7)	20.08	S GRU	401.51	(7.7-14.4)	25.03
U ORI	368.3	(6.3-12.0)	08.04	S UMA	225.87	(7.8-11.7)	25.01
R AQR	386.96	(6.5-10.3)	13.06	T HYA	289.2	(7.8-12.6)	14.03
R CNC	361.6	(6.8-11.2)	20.07	S HYA	256.63	(7.8-12.7)	10.04
RR SGR	336.33	(6.8-13.2)	29.03	R PEG	378.1	(7.8-13.2)	20.04
V CVN	191.89	(6.8-8.8)	08.07	RV SGR	315.85	(7.8-14.1)	20.07
X OPH	328.85	(6.8-8.8)	15.03	W LYR	197.88	(7.9-12.2)	30.05
SS VIR	364.14	(6.8-8.9)	28.04	V CAS	228.83	(7.9-12.2)	15.06
R LEP	427.07	(6.8-9.6)	11.05	R OCT	405.39	(7.9-12.4)	22.02
R VIR	145.63	(6.9-11.5)	26.01	RS HER	219.7	(7.9-12.5)	30.04
R SER	356.41	(6.9-13.4)	29.06	V CNC	272.13	(7.9-12.8)	01.06
V BOO	260	(7.0-11.3)	29.01	R CAE	390.95	(7.9-13.1)	17.07
RS SCO	319.91	(7.0-12.2)	16.01	U OCT	308.44	(7.9-13.6)	27.07
R CAS	430.46	(7.0-12.6)	18.04	R LYN	378.75	(7.9-13.8)	15.09
S VIR	375.1	(7.0-12.7)	07.04	R CMI	337.78	(8.0-11.0)	01.05
V MON	340.5	(7.0-13.1)	24.07	T SGR	394.66	(8.0-12.6)	10.03
RT SGR	306.46	(7.0-13.3)	23.01	T ERI	252.29	(8.0-12.8)	28.08
R LMI	372.19	(7.1-12.6)	22.04	T HER	164.98	(8.0-12.8)	01.01
R GEM	369.91	(7.1-13.5)	14.02	S PEG	319.22	(8.0-13.0)	15.09
U CYG	463.24	(7.2-10.7)	10.11	X CEN	315.2	(8.0-13.4)	18.04
R BOO	223.4	(7.2-12.3)	13.08	RU HER	484.83	(8.0-13.7)	сен.18
RU SGR	240.49	(7.2-12.8)	07.02	T CAM	373.2	(8.0-13.8)	20.10
RS CYG	417.39	(7.2-9.0)	15.04	RU CYG	233.43	(8.0-9.4)	01.05
S PAV	380.86	(7.2-9.3)	04.04	S CAM	327.26	(8.1-11.0)	08.01
RT CYG	190.28	(7.3-11.8)	22.05	U PER	320.26	(8.1-11.3)	24.02
R SGR	269.84	(7.3-12.5)	12.04	R VUL	136.73	(8.1-12.6)	04.01
S CRB	360.26	(7.3-12.9)	20.08	RS VIR	353.95	(8.1-13.9)	20.01
T NOR	240.7	(7.4-13.2)	10.12	U ARI	371.13	(8.1-14.6)	07.01
W AND	395.93	(7.4-13.7)	20.02	S LAC	241.5	(8.2-13.0)	11.10
X MON	155.8	(7.4-9.1)	04.07	X GEM	264.16	(8.2-13.2)	03.01
V OPH	297.21	(7.5-10.2)	10.05	R DEL	285.07	(8.3-13.3)	15.01
V CRB	357.63	(7.5-11.0)	20.09	S LIB	192.9	(8.4-12.0)	27.01
T COL	225.84	(7.5-11.9)	01.03	U AUR	408.09	(8.5-14.0)	23.02
RS LIB	217.65	(7.5-12.0)	01.05	X AUR	163.79	(8.6-12.7)	14.02
U HER	406.1	(7.5-12.5)	10.07	Z CYG	263.69	(8.7-13.3)	26.01
U CET	234.76	(7.5-12.6)	28.04	V CMI	366.1	(8.7-14.9)	25.01
S CMI	332.94	(7.5-12.6)	19.04	R HER	318.14	(8.8-14.6)	4.02
R UMA	301.62	(7.5-13.0)	01.07	S AQL	146.45	(8.9-12.4)	04.02

## Спутники Юпитера в 2017 году (октябрь - декабрь)

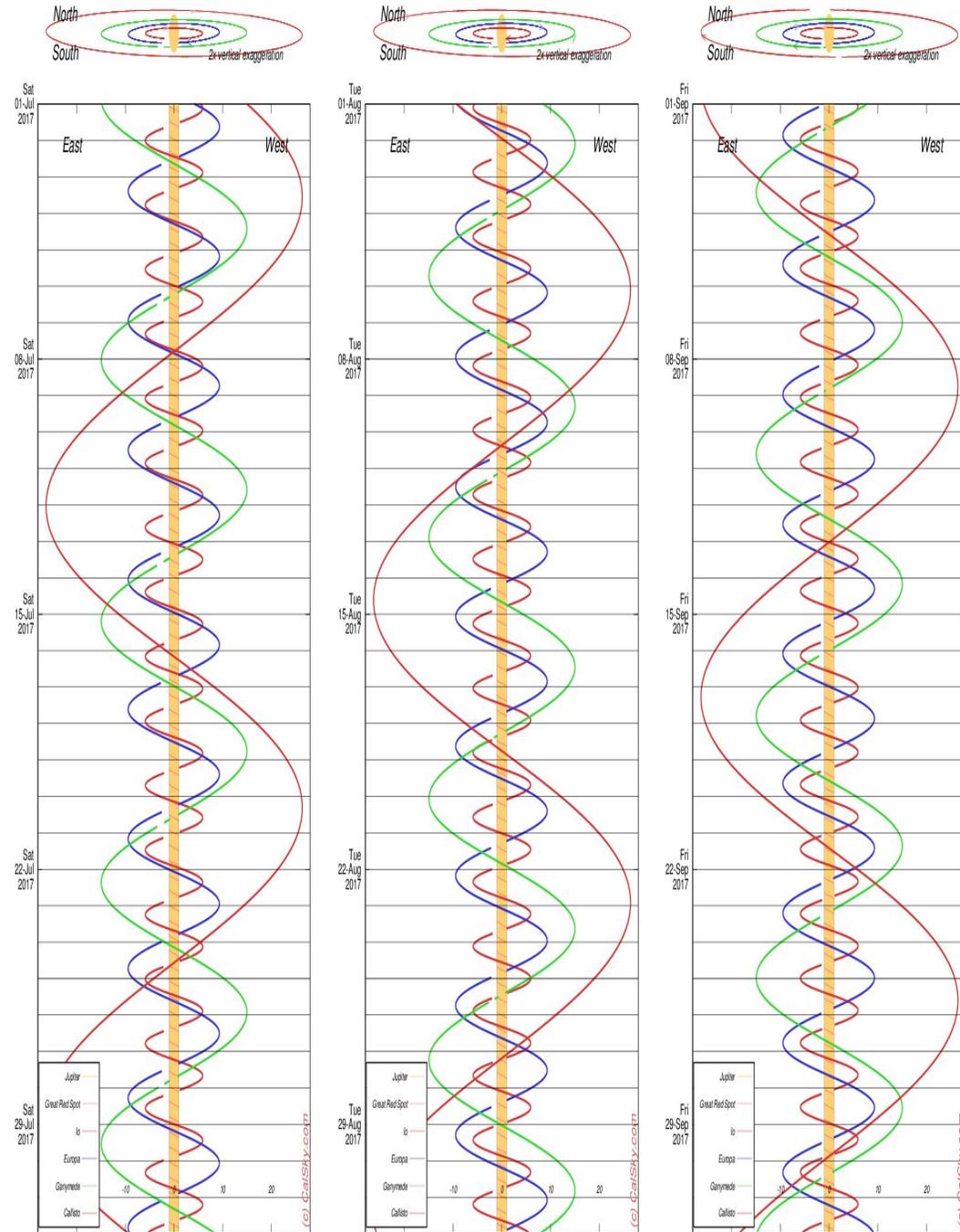
## Спутники Юпитера в 2017 году (январь - март)



# Спутники Юпитера в 2017 году (апрель – июнь)



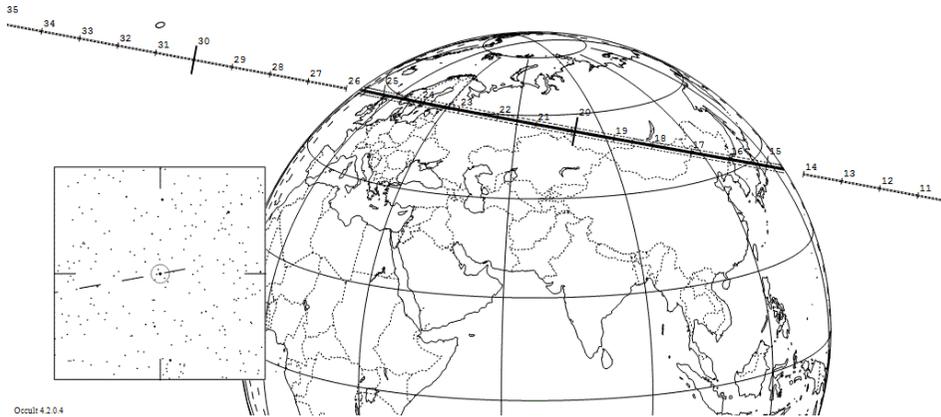
# Спутники Юпитера в 2017 году (июль - сентябрь)



## Избранные покрытия звезд астероидами в 2017 году

2184 Fujian occults HIP 40986 on 2017 Jan 29 from 19h 14m to 19h 26m UT

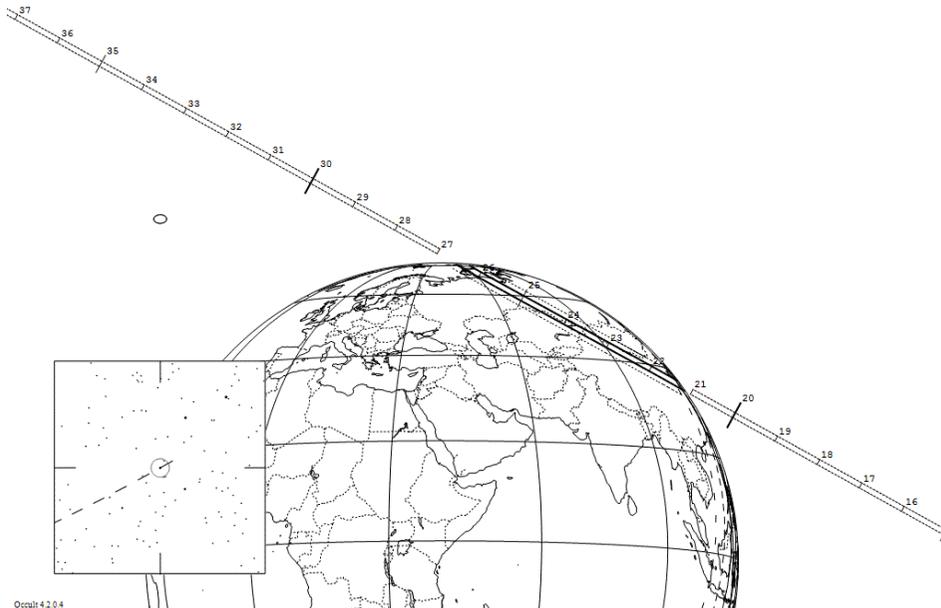
Star:	Max Duration = 1.8 secs	Asteroid:	Mag = 16.2	(in DMIT, ISM)
Mv = 7.3	Mag Drop = 8.3	Dia = 25km	Mag = 13.4	Mag = 13.4
RA = 8 21 53.1925 (J2000)	Sun : Dist = 172 deg	Parallax = 3.567"	Dia = 79km	Dia = 79km
Dec = 13 37 24.551	Moon: Dist = 152 deg	Hourly dRA = -2.047s	Parallax = 3.774"	Parallax = 3.774"
[of Date: 8 22 51, 13 33 57]	: illum = 4 %	dDec = 5.55"	Hourly dRA = -1.890s	Hourly dRA = -1.890s
Prediction of 2016 Apr 21.0	E 0.059"x 0.033" in PA 74		dDec = 12.75"	dDec = 12.75"



Occult4204

3451 Mentor occults HIP 49762 on 2017 Feb 5 from 22h 21m to 22h 27m UT

Star:	Max Duration = 6.8 secs	Asteroid:	Mag = 15.8	(in DMIT, ISM)
Mv = 8.3	Mag Drop = 7.5	Dia = 119km	Mag = 13.4	Mag = 13.4
RA = 10 9 28.7181 (J2000)	Sun : Dist = 157 deg	Parallax = 1.932"	Dia = 18km	Dia = 18km
Dec = -3 56 52.266	Moon: Dist = 84 deg	Hourly dRA = -1.104s	Parallax = 6.340"	Parallax = 6.340"
[of Date: 10 10 21, -4 2 31]	: illum = 70 %	dDec = 9.10"	Hourly dRA = -1.783s	Hourly dRA = -1.783s
Prediction of 2016 Apr 21.0	E 0.042"x 0.028" in PA 89		dDec = -3.47"	dDec = -3.47"



Occult4204

## Избранные покрытия звезд астероидами в 2017 году

62 Erato occults HIP 53049 on 2017 Feb 25 from 17h 57m to 18h 9m UT

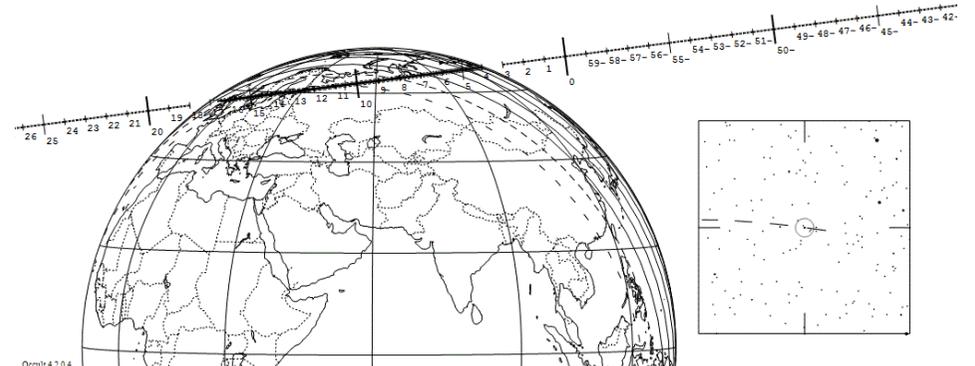
Star:	Max Duration = 5.4 secs	Asteroid:	Mag = 16.2	(in DMIT, ISM)
Mv = 7.9	Mag Drop = 5.5	Dia = 25km	Mag = 13.4	Mag = 13.4
RA = 10 51 13.8041 (J2000)	Sun : Dist = 176 deg	Parallax = 3.567"	Dia = 79km	Dia = 79km
Dec = 9 13 24.481	Moon: Dist = 166 deg	Hourly dRA = -2.047s	Parallax = 3.774"	Parallax = 3.774"
[of Date: 10 52 8, 9 7 48]	: illum = 1 %	dDec = 5.55"	Hourly dRA = -1.890s	Hourly dRA = -1.890s
Prediction of 2016 Apr 27.0	E 0.028"x 0.019" in PA 81		dDec = 12.75"	dDec = 12.75"



Occult4204

1728 Goethe Link occults HIP 109362 on 2017 Aug 4 from 21h 4m to 21h 17m UT

Star:	Max Duration = 2.4 secs	Asteroid:	Mag = 14.6	(in DMIT, ISM)
Mv = 8.5	Mag Drop = 6.1	Dia = 18km	Mag = 13.4	Mag = 13.4
RA = 22 9 22.6833 (J2000)	Sun : Dist = 155 deg	Parallax = 1.932"	Dia = 18km	Dia = 18km
Dec = 1 37 16.386	Moon: Dist = 58 deg	Hourly dRA = -1.104s	Parallax = 6.340"	Parallax = 6.340"
[of Date: 22 10 17, 1 42 35]	: illum = 52 %	dDec = 9.10"	Hourly dRA = -1.783s	Hourly dRA = -1.783s
Prediction of 2016 Apr 21.0	E 0.059"x 0.033" in PA 70		dDec = -3.47"	dDec = -3.47"



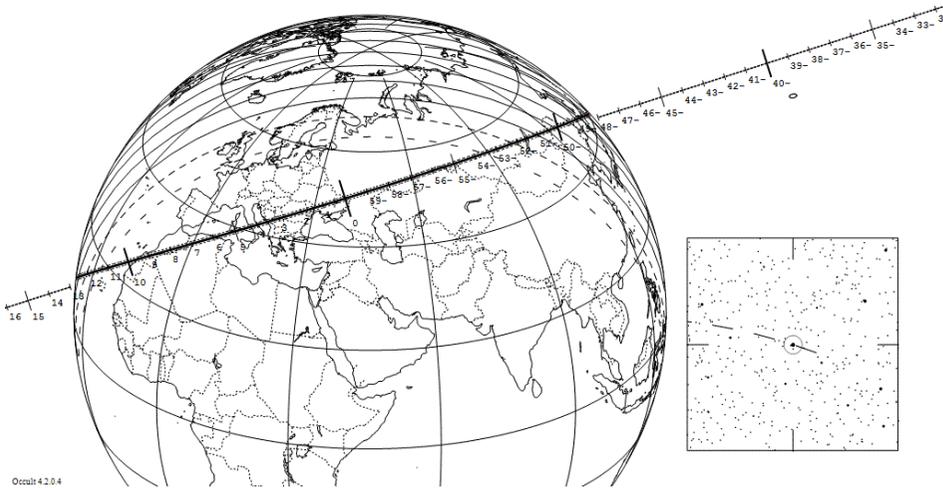
Occult4204

## Избранные покрытия звезд астероидами в 2017 году

5247 Krylov occults HIP 104172 on 2017 Aug 6 from 20h 48m to 21h 13m UT

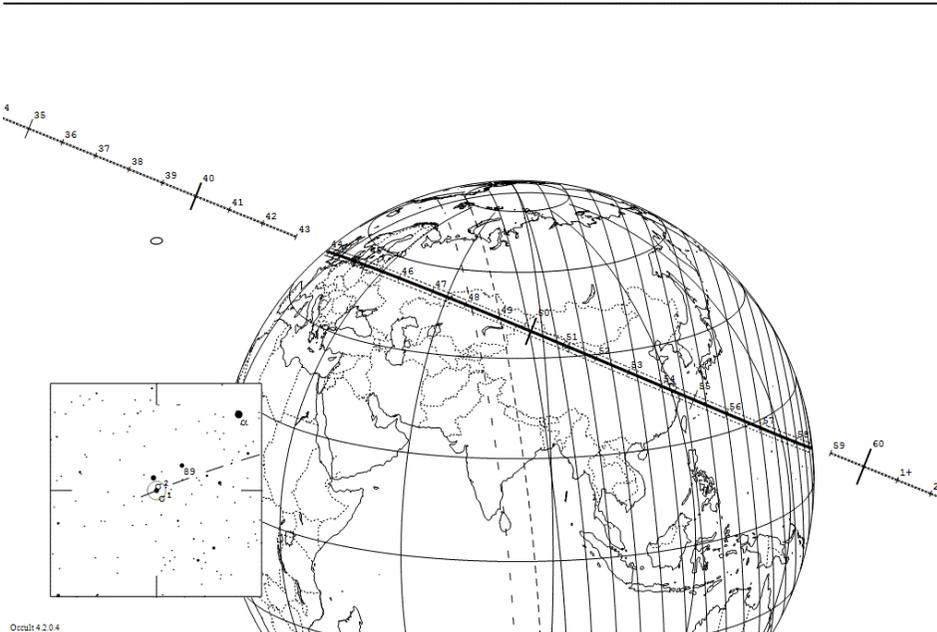
Star:	Dia = 1mas	Max Duration = 1.4 secs	Asteroid:	Mag =15.3
Mv = 6.1		Mag Drop = 5.2	Sun : Dist = 137 deg	Dia = 10km
RA = 21 6 23.5391 (J2000)			Moon: Dist = 45 deg	Parallax = 0.946"
Dec = 26 55 27.369			illum = 99 %	Hourly dRA = -2.220s
[oF Date: 21 7 11, 26 59 51]			E 0.097"x 0.044" in PA 79	dDec = -9.49"
Prediction of 2016 Apr 21.0				

Expect fades - star dia.



6925 Susumu occults HIP 21673 on 2017 Sep 9 from 23h 44m to 23h 58m UT

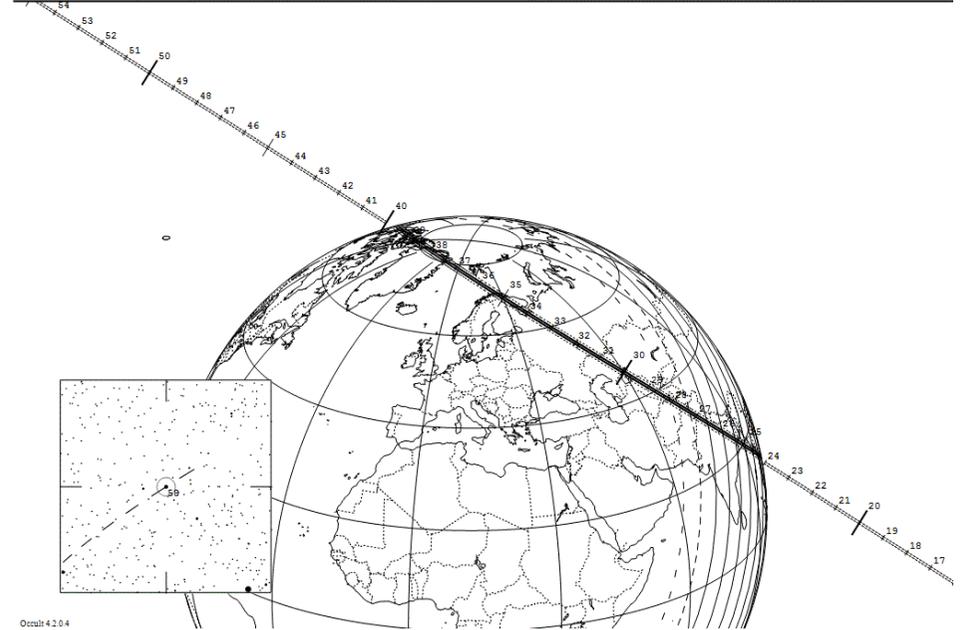
Star:	Max Duration = 1.5 secs	Asteroid:	Mag =17.8
Mv = 5.1	Mag Drop = 12.7	Sun : Dist = 97 deg	Dia = 28km
RA = 4 39 9.2747 (J2000)		Moon: Dist = 36 deg	Parallax = 3.314"
Dec = 15 47 58.355		illum = 84 %	Hourly dRA = 1.569s
[oF Date: 4 40 9, 15 49 55]		E 0.065"x 0.037" in PA 86	dDec = -9.38"
Prediction of 2016 Apr 21.0			



## Избранные покрытия звезд астероидами в 2017 году

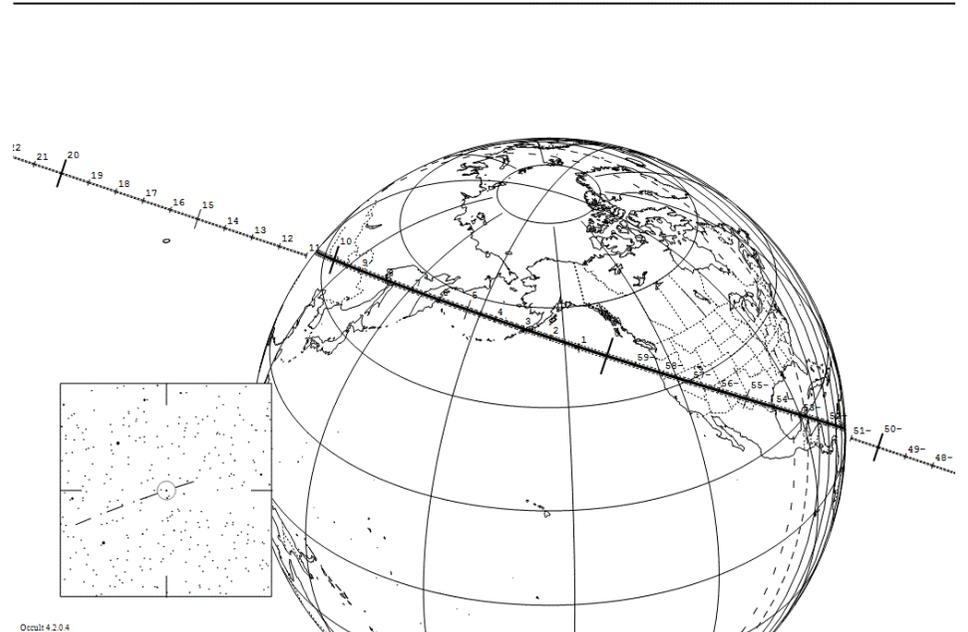
2621 Goto occults HIP 35842 on 2017 Dec 7 from 1h 24m to 1h 40m UT

Star:	Max Duration = 4.6 secs	Asteroid:	Mag =16.6
Mv = 6.2	Mag Drop = 3.4	Sun : Dist = 146 deg	Dia = 47km
RA = 7 23 28.1038 (J2000)		Moon: Dist = 14 deg	Parallax = 4.144"
Dec = 22 56 42.594		illum = 84 %	Hourly dRA = -1.439s
[oF Date: 7 24 33, 22 54 26]		E 0.050"x 0.024" in PA 86	dDec = 12.50"
Prediction of 2016 Apr 21.0			



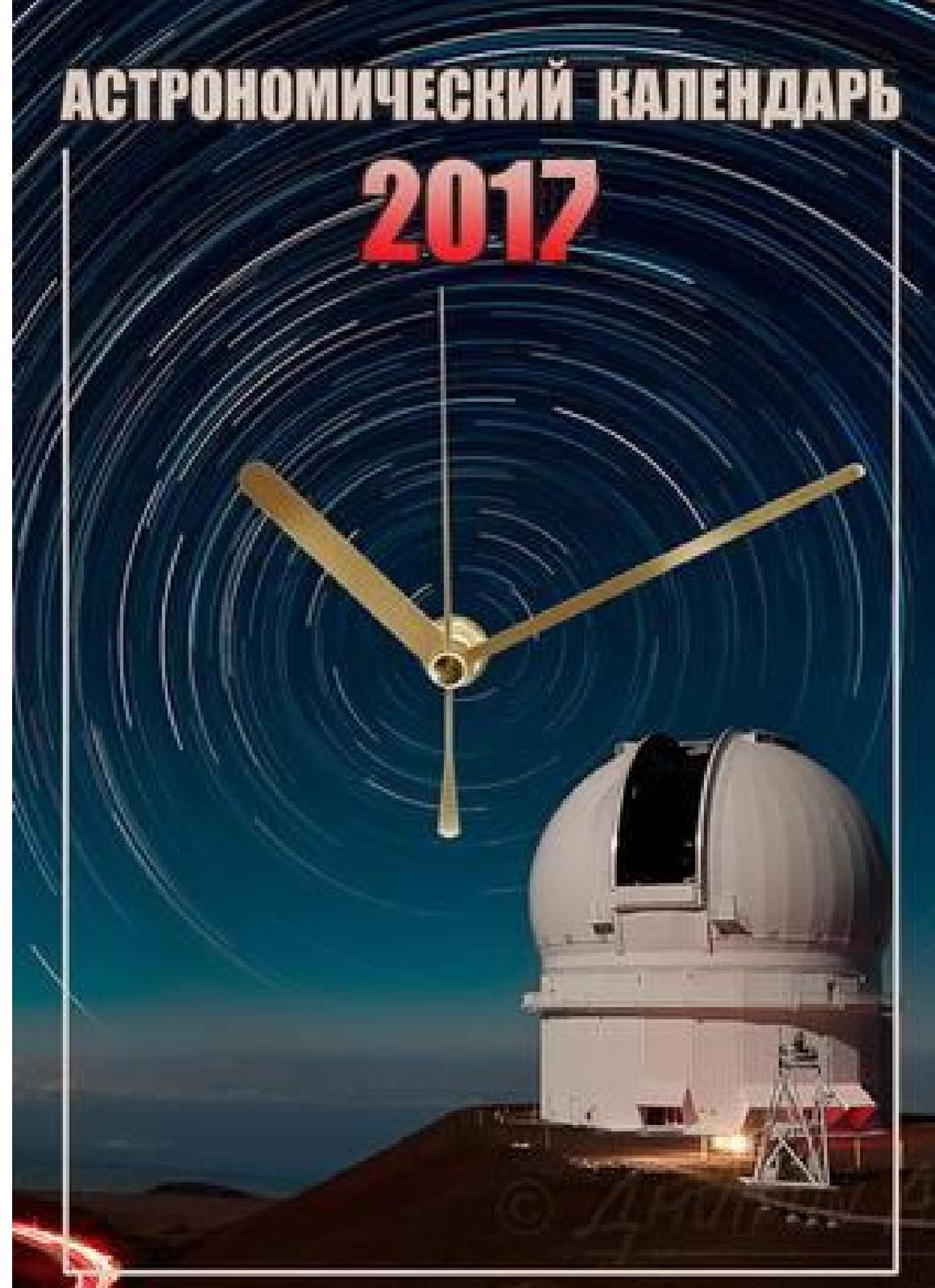
1046 Edwin occults HIP 35256 on 2017 Dec 15 from 11h 51m to 12h 11m UT

Star:	Max Duration = 2.5 secs	Asteroid:	Mag =14.9
Mv = 9.8	Mag Drop = 6.1	Sun : Dist = 155 deg	Dia = 25km
RA = 7 17 4.7589 (J2000)		Moon: Dist = 125 deg	Parallax = 4.607"
Dec = 34 6 21.220		illum = 7 %	Hourly dRA = -2.042s
[oF Date: 7 18 16, 34 4 12]		E 0.051"x 0.025" in PA 82	dDec = 8.43"
Prediction of 2016 Apr 21.0			



# АСТРОНОМИЧЕСКИЙ КАЛЕНДАРЬ

## 2017



## Инструкция по распечатке Астрономического календаря на 2017 год.

Книга создана и отформатирована в программе «Microsoft Office Word 2003». Страницы альбомного формата с делением на две колонки. **АК\_2017 адаптирован как для просмотра на мониторе, так и для печатной версии (по желанию пользователя).** Один стандартный лист бумаги формата А4 содержит 4 страницы формата А5. **При складывании пополам получается 4 страницы АК.**

АК\_2017 распечатывается следующим образом:

1. Посредством кнопок «Файл» - «Печать» (или согласно Вашей офисной программы в окошке **«Вывести на печать»**) нужно проставить галочку в графе **«Нечетные страницы»** и запустить печать - **ОК.**
2. После распечатки нечетных страниц, вышедшие в приемный лоток листы нужно положить обратно в подающий лоток чистой стороной вверх или согласно свойств Вашего принтера для печати на обратной стороне листа.
3. Посредством кнопок «Файл» - «Печать» (или согласно Вашей офисной программы) в окошке **«Диапазон»** проставить **«Четные страницы»**, а по кнопке **«Параметры...»** проставить галочку **«Обратный порядок»** или **«В обратном порядке»** - **ОК.** При распечатке обратной стороны необходимо следить, чтобы захватный механизм **не захватил сразу два листа** (что нередко бывает), иначе нумерация страниц будет неправильной. (Если Вас затрудняет печать всех листов сразу, то можно печатать по одному, переворачивая лист для печати на другой стороне листа. Это будет медленнее, но вернее (удастся избежать ошибок при печати на второй стороне листа).
4. После окончания распечатки у Вас сверху будет лежать первая страница Астрономического календаря. Для того, чтобы собрать распечатанные листы в книгу, **необходимо каждый лист сложить вдвое.** Каждый сложенный лист будет содержать 4 страницы книги и иметь нумерацию 1-2-3-4; 5-6-7-8 и т.д.
5. Далее сложенные листы **накладываются друг на друга** согласно нумерации, выравниваются, проклеиваются с торца (пробиваются степлером или прошиваются нитками) и обкладываются обложкой. Астрономический календарь готов к использованию.

**Ясного неба и успешных наблюдений!**