

Phenomena of Jupiter's Moons, January 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Jan. 1	1:06	III.Ec.D		22:22	III.Tr.E		1:33	I.Sh.E		19:26	II.Sh.E
	2:59	I.Sh.I	Jan. 5	13:03	I.Ec.D		2:45	I.Tr.E		21:47	II.Tr.E
	3:47	III.Ec.R		16:28	I.Oc.R		20:28	I.Ec.D	Jan. 15	6:46	I.Sh.I
	4:11	I.Tr.I		20:08	II.Ec.D		23:53	I.Oc.R		7:59	I.Tr.I
	5:11	I.Sh.E	Jan. 6	1:06	II.Oc.R	Jan. 11	3:39	II.Sh.I		8:57	I.Sh.E
	6:10	III.Oc.D		10:24	I.Sh.I		6:07	II.Tr.I		9:02	III.Ec.D
	6:22	I.Tr.E		11:37	I.Tr.I		6:09	II.Sh.E		10:09	I.Tr.E
	8:31	III.Oc.R		12:36	I.Sh.E		8:31	II.Tr.E		11:41	III.Ec.R
Jan. 2	0:07	I.Ec.D		13:48	I.Tr.E		17:49	I.Sh.I		14:12	III.Oc.D
	3:31	I.Oc.R	Jan. 7	7:31	I.Ec.D		18:58	III.Sh.I		16:26	III.Oc.R
	6:50	II.Ec.D		10:57	I.Oc.R		19:02	I.Tr.I	Jan. 16	3:52	I.Ec.D
	11:48	II.Oc.R		14:22	II.Sh.I		20:01	I.Sh.E		7:18	I.Oc.R
	21:27	I.Sh.I		16:50	II.Tr.I		21:13	I.Tr.E		12:00	II.Ec.D
	22:40	I.Tr.I		16:53	II.Sh.E		21:35	III.Sh.E		16:58	II.Oc.R
	23:40	I.Sh.E		19:14	II.Tr.E	Jan. 12	0:05	III.Tr.I	Jan. 17	1:14	I.Sh.I
Jan. 3	0:51	I.Tr.E	Jan. 8	4:52	I.Sh.I		2:19	III.Tr.E		2:27	I.Tr.I
	18:35	I.Ec.D		5:04	III.Ec.D		14:56	I.Ec.D		3:26	I.Sh.E
	22:00	I.Oc.R		6:06	I.Tr.I		18:22	I.Oc.R		4:37	I.Tr.E
Jan. 4	1:05	II.Sh.I		7:04	I.Sh.E		22:43	II.Ec.D		22:21	I.Ec.D
	3:32	II.Tr.I		7:44	III.Ec.R	Jan. 13	1:16	II.Ec.R	Jan. 18	1:46	I.Oc.R
	3:36	II.Sh.E		8:16	I.Tr.E		3:41	II.Oc.R		6:12	II.Sh.I
	5:57	II.Tr.E		10:13	III.Oc.D		12:17	I.Sh.I		8:41	II.Tr.I
	15:00	III.Sh.I		12:30	III.Oc.R		13:31	I.Tr.I		8:43	II.Sh.E
	15:56	I.Sh.I	Jan. 9	2:00	I.Ec.D		14:29	I.Sh.E		11:04	II.Tr.E
	17:09	I.Tr.I		5:25	I.Oc.R		15:41	I.Tr.E		19:42	I.Sh.I
	17:39	III.Sh.E		9:25	II.Ec.D	Jan. 14	9:24	I.Ec.D		20:55	I.Tr.I
	18:08	I.Sh.E		14:24	II.Oc.R		12:50	I.Oc.R		21:54	I.Sh.E
	19:19	I.Tr.E		23:21	I.Sh.I		16:55	II.Sh.I		22:55	III.Sh.I
	20:05	III.Tr.I	Jan. 10	0:34	I.Tr.I		19:24	II.Tr.I		23:05	I.Tr.E

Jan. 19	1:32	III.Sh.E	12:01	I.Tr.E	22:47	I.Tr.I	2:49	II.Tr.E
	4:02	III.Tr.I	12:59	III.Ec.D	23:47	I.Sh.E	10:32	I.Sh.I
	6:13	III.Tr.E	15:37	III.Ec.R	Jan. 26 0:57	I.Tr.E	11:42	I.Tr.I
	16:49	I.Ec.D	18:06	III.Oc.D	2:53	III.Sh.I	12:44	I.Sh.E
	20:14	I.Oc.R	20:17	III.Oc.R	5:29	III.Sh.E	13:52	I.Tr.E
Jan. 20	1:18	II.Ec.D	Jan. 23 5:45	I.Ec.D	7:55	III.Tr.I	16:56	III.Ec.D
	6:14	II.Oc.R	9:10	I.Oc.R	10:02	III.Tr.E	19:33	III.Ec.R
	14:11	I.Sh.I	14:35	II.Ec.D	18:42	I.Ec.D	21:56	III.Oc.D
	15:23	I.Tr.I	19:29	II.Oc.R	22:05	I.Oc.R	Jan. 30 0:03	III.Oc.R
	16:22	I.Sh.E	Jan. 24 3:07	I.Sh.I	Jan. 27 3:53	II.Ec.D	7:38	I.Ec.D
	17:33	I.Tr.E	4:19	I.Tr.I	8:44	II.Oc.R	11:01	I.Oc.R
Jan. 21	11:17	I.Ec.D	5:19	I.Sh.E	16:04	I.Sh.I	17:10	II.Ec.D
	14:42	I.Oc.R	6:29	I.Tr.E	17:15	I.Tr.I	21:58	II.Oc.R
	19:29	II.Sh.I	Jan. 25 0:14	I.Ec.D	18:15	I.Sh.E	Jan. 31 5:00	I.Sh.I
	21:57	II.Tr.I	3:37	I.Oc.R	19:25	I.Tr.E	6:10	I.Tr.I
	21:59	II.Sh.E	8:46	II.Sh.I	Jan. 28 13:10	I.Ec.D	7:12	I.Sh.E
Jan. 22	0:19	II.Tr.E	11:13	II.Tr.I	16:33	I.Oc.R	8:20	I.Tr.E
	8:39	I.Sh.I	11:16	II.Sh.E	22:03	II.Sh.I		
	9:51	I.Tr.I	13:34	II.Tr.E	Jan. 29 0:27	II.Tr.I		
	10:51	I.Sh.E	21:35	I.Sh.I	0:33	II.Sh.E		

Phenomena of Jupiter's Moons, February 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Feb. 1	2:07	I.Ec.D		13:33	I.Tr.I		22:28	I.Ec.D		11:58	I.Tr.E
	5:28	I.Oc.R		14:37	I.Sh.E	Feb. 10	1:45	I.Oc.R	Feb. 15	5:53	I.Ec.D
	11:20	II.Sh.I		15:42	I.Tr.E		9:02	II.Ec.D		9:06	I.Oc.R
	13:42	II.Tr.I		20:53	III.Ec.D		13:38	II.Oc.R		16:28	II.Sh.I
	13:50	II.Sh.E		23:29	III.Ec.R		19:50	I.Sh.I		18:35	II.Tr.I
	16:03	II.Tr.E	Feb. 6	1:41	III.Oc.D		20:54	I.Tr.I		18:58	II.Sh.E
	23:29	I.Sh.I		3:46	III.Oc.R		22:02	I.Sh.E		20:55	II.Tr.E
Feb. 2	0:38	I.Tr.I		9:32	I.Ec.D		23:04	I.Tr.E	Feb. 16	3:15	I.Sh.I
	1:40	I.Sh.E		12:50	I.Oc.R	Feb. 11	16:56	I.Ec.D		4:16	I.Tr.I
	2:47	I.Tr.E		19:45	II.Ec.D		20:12	I.Oc.R		5:27	I.Sh.E
	6:51	III.Sh.I	Feb. 7	0:25	II.Oc.R	Feb. 12	3:11	II.Sh.I		6:25	I.Tr.E
	9:25	III.Sh.E		6:53	I.Sh.I		5:22	II.Tr.I		14:46	III.Sh.I
	11:43	III.Tr.I		8:00	I.Tr.I		5:41	II.Sh.E		17:19	III.Sh.E
	13:47	III.Tr.E		9:05	I.Sh.E		7:43	II.Tr.E		19:05	III.Tr.I
	20:35	I.Ec.D		10:10	I.Tr.E		14:18	I.Sh.I		21:04	III.Tr.E
	23:56	I.Oc.R	Feb. 8	4:00	I.Ec.D		15:21	I.Tr.I	Feb. 17	0:21	I.Ec.D
Feb. 3	6:28	II.Ec.D		7:18	I.Oc.R		16:30	I.Sh.E		3:33	I.Oc.R
	11:12	II.Oc.R		13:54	II.Sh.I		17:31	I.Tr.E		11:37	II.Ec.D
	17:57	I.Sh.I		16:09	II.Tr.I	Feb. 13	0:51	III.Ec.D		16:02	II.Oc.R
	19:05	I.Tr.I		16:24	II.Sh.E		3:26	III.Ec.R		21:43	I.Sh.I
	20:09	I.Sh.E		18:30	II.Tr.E		5:22	III.Oc.D		22:43	I.Tr.I
	21:15	I.Tr.E	Feb. 9	1:22	I.Sh.I		7:24	III.Oc.R		23:55	I.Sh.E
Feb. 4	15:03	I.Ec.D		2:27	I.Tr.I		11:25	I.Ec.D	Feb. 18	0:52	I.Tr.E
	18:23	I.Oc.R		3:33	I.Sh.E		14:39	I.Oc.R		18:50	I.Ec.D
Feb. 5	0:37	II.Sh.I		4:37	I.Tr.E		22:19	II.Ec.D		22:00	I.Oc.R
	2:56	II.Tr.I		10:49	III.Sh.I	Feb. 14	2:50	II.Oc.R	Feb. 19	5:45	II.Sh.I
	3:07	II.Sh.E		13:22	III.Sh.E		8:47	I.Sh.I		7:46	II.Tr.I
	5:17	II.Tr.E		15:27	III.Tr.I		9:49	I.Tr.I		8:15	II.Sh.E
	12:25	I.Sh.I		17:28	III.Tr.E		10:58	I.Sh.E		10:06	II.Tr.E

	16:11	I.Sh.I	Feb. 22	7:46	I.Ec.D	14:11	II.Ec.D	Feb. 27	8:47	III.Ec.D	
	17:09	I.Tr.I		10:54	I.Oc.R	18:23	II.Oc.R		11:20	III.Ec.R	
	18:23	I.Sh.E		19:03	II.Sh.I	23:36	I.Sh.I		12:30	III.Oc.D	
	19:19	I.Tr.E		20:58	II.Tr.I	Feb. 25	0:30	I.Tr.I	14:28	III.Oc.R	
Feb. 20	4:49	III.Ec.D		21:32	II.Sh.E		1:48	I.Sh.E	15:11	I.Ec.D	
	7:23	III.Ec.R		23:18	II.Tr.E		2:39	I.Tr.E	18:14	I.Oc.R	
	8:59	III.Oc.D	Feb. 23	5:08	I.Sh.I		20:43	I.Ec.D	Feb. 28	3:28	II.Ec.D
	10:58	III.Oc.R		6:03	I.Tr.I		23:47	I.Oc.R		7:33	II.Oc.R
	13:18	I.Ec.D		7:20	I.Sh.E	Feb. 26	8:20	II.Sh.I		12:33	I.Sh.I
	16:27	I.Oc.R		8:13	I.Tr.E		10:08	II.Tr.I		13:23	I.Tr.I
Feb. 21	0:54	II.Ec.D		18:43	III.Sh.I		10:49	II.Sh.E		14:45	I.Sh.E
	5:13	II.Oc.R		21:15	III.Sh.E		12:28	II.Tr.E		15:32	I.Tr.E
	10:40	I.Sh.I		22:38	III.Tr.I		18:05	I.Sh.I			
	11:36	I.Tr.I	Feb. 24	0:35	III.Tr.E		18:56	I.Tr.I			
	12:51	I.Sh.E		2:15	I.Ec.D		20:16	I.Sh.E			
	13:46	I.Tr.E		5:20	I.Oc.R		21:06	I.Tr.E			

Phenomena of Jupiter's Moons, March 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Mar. 1	9:40	I.Ec.D		20:42	I.Tr.I		7:28	III.Tr.E		19:03	I.Tr.E
	12:40	I.Oc.R		22:10	I.Sh.E		8:52	I.Oc.R	Mar. 15	13:27	I.Ec.D
	21:38	II.Sh.I		22:52	I.Tr.E		19:20	II.Ec.D		16:11	I.Oc.R
	23:19	II.Tr.I	Mar. 6	12:46	III.Ec.D		23:00	II.Oc.R	Mar. 16	2:48	II.Sh.I
Mar. 2	0:07	II.Sh.E		15:17	III.Ec.R	Mar. 11	3:23	I.Sh.I		3:55	II.Tr.I
	1:39	II.Tr.E		15:57	III.Oc.D		4:01	I.Tr.I		5:17	II.Sh.E
	7:01	I.Sh.I		17:05	I.Ec.D		5:35	I.Sh.E		6:16	II.Tr.E
	7:49	I.Tr.I		17:55	III.Oc.R		6:11	I.Tr.E		10:48	I.Sh.I
	9:13	I.Sh.E		20:00	I.Oc.R	Mar. 12	0:30	I.Ec.D		11:19	I.Tr.I
	9:59	I.Tr.E	Mar. 7	6:02	II.Ec.D		3:19	I.Oc.R		13:00	I.Sh.E
	22:41	III.Sh.I		9:52	II.Oc.R		13:30	II.Sh.I		13:29	I.Tr.E
Mar. 3	1:11	III.Sh.E		14:26	I.Sh.I		14:47	II.Tr.I	Mar. 17	6:37	III.Sh.I
	2:06	III.Tr.I		15:09	I.Tr.I		15:59	II.Sh.E		7:55	I.Ec.D
	4:03	III.Tr.E		16:38	I.Sh.E		17:07	II.Tr.E		8:53	III.Tr.I
	4:08	I.Ec.D		17:18	I.Tr.E		21:51	I.Sh.I		9:06	III.Sh.E
	7:07	I.Oc.R	Mar. 8	11:33	I.Ec.D		22:27	I.Tr.I		10:37	I.Oc.R
	16:45	II.Ec.D		14:26	I.Oc.R	Mar. 13	0:03	I.Sh.E		10:50	III.Tr.E
	20:43	II.Oc.R	Mar. 9	0:13	II.Sh.I		0:37	I.Tr.E		21:54	II.Ec.D
Mar. 4	1:29	I.Sh.I		1:38	II.Tr.I		16:44	III.Ec.D	Mar. 18	1:17	II.Oc.R
	2:16	I.Tr.I		2:42	II.Sh.E		18:58	I.Ec.D		5:16	I.Sh.I
	3:41	I.Sh.E		3:58	II.Tr.E		19:14	III.Ec.R		5:46	I.Tr.I
	4:25	I.Tr.E		8:54	I.Sh.I		19:20	III.Oc.D		7:28	I.Sh.E
	22:36	I.Ec.D		9:35	I.Tr.I		21:18	III.Oc.R		7:55	I.Tr.E
Mar. 5	1:33	I.Oc.R		11:06	I.Sh.E		21:45	I.Oc.R	Mar. 19	2:24	I.Ec.D
	10:55	II.Sh.I		11:44	I.Tr.E	Mar. 14	8:37	II.Ec.D		5:03	I.Oc.R
	12:28	II.Tr.I	Mar. 10	2:38	III.Sh.I		12:09	II.Oc.R		16:05	II.Sh.I
	13:24	II.Sh.E		5:08	III.Sh.E		16:19	I.Sh.I		17:03	II.Tr.I
	14:48	II.Tr.E		5:31	III.Tr.I		16:53	I.Tr.I		18:34	II.Sh.E
	19:58	I.Sh.I		6:02	I.Ec.D		18:31	I.Sh.E		19:24	II.Tr.E

	23:44	I.Sh.I		8:32	II.Tr.E		18:41	II.Sh.I		19:40	I.Oc.R
Mar. 20	0:12	I.Tr.I		12:41	I.Sh.I		19:19	II.Tr.I	Mar. 30	7:59	II.Sh.I
	1:56	I.Sh.E		13:04	I.Tr.I		21:09	II.Sh.E		8:27	II.Tr.I
	2:21	I.Tr.E		14:53	I.Sh.E		21:40	II.Tr.E		10:28	II.Sh.E
	20:41	III.Ec.D		15:13	I.Tr.E	Mar. 27	1:38	I.Sh.I		10:48	II.Tr.E
	20:52	I.Ec.D	Mar. 24	9:49	I.Ec.D		1:55	I.Tr.I		14:35	I.Sh.I
	23:29	I.Oc.R		10:35	III.Sh.I		3:50	I.Sh.E		14:47	I.Tr.I
Mar. 21	0:38	III.Oc.R		12:11	III.Tr.I		4:05	I.Tr.E		16:47	I.Sh.E
	11:11	II.Ec.D		12:22	I.Oc.R		22:46	I.Ec.D		16:57	I.Tr.E
	14:24	II.Oc.R		13:03	III.Sh.E	Mar. 28	0:39	III.Ec.D	Mar. 31	11:43	I.Ec.D
	18:13	I.Sh.I		14:10	III.Tr.E		1:14	I.Oc.R		14:06	I.Oc.R
	18:38	I.Tr.I	Mar. 25	0:28	II.Ec.D		3:56	III.Oc.R		14:33	III.Sh.I
	20:25	I.Sh.E		3:32	II.Oc.R		13:45	II.Ec.D		15:28	III.Tr.I
	20:47	I.Tr.E		7:10	I.Sh.I		16:39	II.Oc.R		17:00	III.Sh.E
Mar. 22	15:21	I.Ec.D		7:30	I.Tr.I		20:06	I.Sh.I		17:28	III.Tr.E
	17:55	I.Oc.R		9:21	I.Sh.E		20:21	I.Tr.I			
Mar. 23	5:23	II.Sh.I		9:39	I.Tr.E		22:18	I.Sh.E			
	6:12	II.Tr.I	Mar. 26	4:18	I.Ec.D		22:31	I.Tr.E			
	7:52	II.Sh.E		6:48	I.Oc.R	Mar. 29	17:15	I.Ec.D			

Phenomena of Jupiter's Moons, April 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Apr. 1	3:02	II.Ec.D		10:42	II.Tr.I	Apr. 11	2:31	I.Oc.D		12:51	I.Sh.I
	5:46	II.Oc.R		13:03	II.Sh.E		4:47	I.Ec.R		14:51	I.Tr.E
	9:03	I.Sh.I		13:04	II.Tr.E		8:27	III.Oc.D		15:02	I.Sh.E
	9:13	I.Tr.I		16:28	I.Sh.I		11:04	III.Ec.R	Apr. 16	9:49	I.Oc.D
	11:15	I.Sh.E		16:31	I.Tr.I		18:45	II.Oc.D		12:13	I.Ec.R
	11:23	I.Tr.E		18:40	I.Sh.E		21:21	II.Ec.R	Apr. 17	2:05	II.Tr.I
Apr. 2	6:12	I.Ec.D		18:41	I.Tr.E		23:49	I.Tr.I		2:29	II.Sh.I
	8:32	I.Oc.R	Apr. 7	13:37	I.Ec.D		23:54	I.Sh.I		4:28	II.Tr.E
	21:17	II.Sh.I		15:50	I.Ec.R	Apr. 12	1:59	I.Tr.E		4:57	II.Sh.E
	21:34	II.Tr.I		18:31	III.Sh.I		2:06	I.Sh.E		7:06	I.Tr.I
	23:45	II.Sh.E		18:43	III.Tr.I		20:57	I.Oc.D		7:19	I.Sh.I
	23:56	II.Tr.E		20:45	III.Tr.E		23:16	I.Ec.R		9:17	I.Tr.E
Apr. 3	3:32	I.Sh.I		20:57	III.Sh.E	Apr. 13	12:57	II.Tr.I		9:31	I.Sh.E
	3:39	I.Tr.I	Apr. 8	5:36	II.Ec.D		13:11	II.Sh.I	Apr. 18	4:15	I.Oc.D
	5:43	I.Sh.E		8:04	II.Ec.R		15:20	II.Tr.E		6:41	I.Ec.R
	5:49	I.Tr.E		10:57	I.Tr.I		15:39	II.Sh.E		11:43	III.Oc.D
Apr. 4	0:40	I.Ec.D		10:57	I.Sh.I		18:14	I.Tr.I		15:01	III.Ec.R
	2:58	I.Oc.R		13:07	I.Tr.E		18:22	I.Sh.I		20:59	II.Oc.D
	4:38	III.Ec.D		13:09	I.Sh.E		20:25	I.Tr.E		23:55	II.Ec.R
	7:14	III.Oc.R	Apr. 9	8:05	I.Oc.D		20:34	I.Sh.E	Apr. 19	1:32	I.Tr.I
	16:19	II.Ec.D		10:18	I.Ec.R	Apr. 14	15:23	I.Oc.D		1:48	I.Sh.I
	18:53	II.Oc.R		23:49	II.Tr.I		17:44	I.Ec.R		3:43	I.Tr.E
	22:00	I.Sh.I		23:53	II.Sh.I		21:57	III.Tr.I		3:59	I.Sh.E
	22:05	I.Tr.I	Apr. 10	2:12	II.Tr.E		22:29	III.Sh.I		22:41	I.Oc.D
Apr. 5	0:12	I.Sh.E		2:21	II.Sh.E	Apr. 15	0:03	III.Tr.E	Apr. 20	1:10	I.Ec.R
	0:15	I.Tr.E		5:23	I.Tr.I		0:54	III.Sh.E		15:13	II.Tr.I
	19:09	I.Ec.D		5:25	I.Sh.I		7:52	II.Oc.D		15:48	II.Sh.I
	21:24	I.Oc.R		7:33	I.Tr.E		10:38	II.Ec.R		17:36	II.Tr.E
Apr. 6	10:35	II.Sh.I		7:37	I.Sh.E		12:40	I.Tr.I		18:16	II.Sh.E

	19:58	I.Tr.I		16:56	I.Sh.E		23:13	II.Oc.D	Apr. 28	0:22	I.Sh.E
	20:16	I.Sh.I	Apr. 23	11:33	I.Oc.D	Apr. 26	2:28	II.Ec.R		18:52	I.Oc.D
	22:09	I.Tr.E		14:07	I.Ec.R		3:17	I.Tr.I		21:33	I.Ec.R
	22:28	I.Sh.E	Apr. 24	4:20	II.Tr.I		3:42	I.Sh.I	Apr. 29	4:30	III.Tr.I
Apr. 21	17:07	I.Oc.D		5:06	II.Sh.I		5:27	I.Tr.E		6:26	III.Sh.I
	19:39	I.Ec.R		6:44	II.Tr.E		5:53	I.Sh.E		6:42	III.Tr.E
Apr. 22	1:13	III.Tr.I		7:33	II.Sh.E	Apr. 27	0:25	I.Oc.D		8:48	III.Sh.E
	2:27	III.Sh.I		8:51	I.Tr.I		3:05	I.Ec.R		12:20	II.Oc.D
	3:22	III.Tr.E		9:13	I.Sh.I		17:29	II.Tr.I		15:45	II.Ec.R
	4:51	III.Sh.E		11:01	I.Tr.E		18:25	II.Sh.I		16:09	I.Tr.I
	10:06	II.Oc.D		11:25	I.Sh.E		19:54	II.Tr.E		16:39	I.Sh.I
	13:12	II.Ec.R	Apr. 25	5:59	I.Oc.D		20:52	II.Sh.E		18:20	I.Tr.E
	14:24	I.Tr.I		8:36	I.Ec.R		21:43	I.Tr.I		18:50	I.Sh.E
	14:45	I.Sh.I		15:00	III.Oc.D		22:10	I.Sh.I	Apr. 30	13:18	I.Oc.D
	16:35	I.Tr.E		19:00	III.Ec.R		23:53	I.Tr.E		16:02	I.Ec.R

Phenomena of Jupiter's Moons, May 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

May 1	6:38	II.Tr.I		2:16	I.Sh.E		3:45	II.Oc.D		19:51	I.Ec.R
	7:43	II.Sh.I		20:37	I.Oc.D		6:47	I.Tr.I	May 15	11:17	II.Tr.I
	9:02	II.Tr.E		23:28	I.Ec.R		7:30	I.Sh.I		12:57	II.Sh.I
	10:10	II.Sh.E	May 6	7:51	III.Tr.I		7:36	II.Ec.R		13:43	II.Tr.E
	10:35	I.Tr.I		10:07	III.Tr.E		8:58	I.Tr.E		14:07	I.Tr.I
	11:07	I.Sh.I		10:25	III.Sh.I		9:41	I.Sh.E		14:56	I.Sh.I
	12:46	I.Tr.E		12:47	III.Sh.E	May 11	3:57	I.Oc.D		15:23	II.Sh.E
	13:19	I.Sh.E		14:36	II.Oc.D		6:54	I.Ec.R		16:18	I.Tr.E
May 2	7:44	I.Oc.D		17:54	I.Tr.I		22:07	II.Tr.I		17:07	I.Sh.E
	10:31	I.Ec.R		18:19	II.Ec.R		23:39	II.Sh.I	May 16	11:17	I.Oc.D
	18:18	III.Oc.D		18:33	I.Sh.I	May 12	0:33	II.Tr.E		14:20	I.Ec.R
	20:33	III.Oc.R		20:05	I.Tr.E		1:14	I.Tr.I	May 17	1:05	III.Oc.D
	20:34	III.Ec.D		20:44	I.Sh.E		1:59	I.Sh.I		3:27	III.Oc.R
	22:57	III.Ec.R	May 7	15:04	I.Oc.D		2:05	II.Sh.E		4:32	III.Ec.D
May 3	1:28	II.Oc.D		17:57	I.Ec.R		3:25	I.Tr.E		6:04	II.Oc.D
	5:02	I.Tr.I	May 8	8:56	II.Tr.I		4:10	I.Sh.E		6:53	III.Ec.R
	5:02	II.Ec.R		10:20	II.Sh.I		22:24	I.Oc.D		8:34	I.Tr.I
	5:36	I.Sh.I		11:22	II.Tr.E	May 13	1:23	I.Ec.R		9:24	I.Sh.I
	7:12	I.Tr.E		12:21	I.Tr.I		11:15	III.Tr.I		10:10	II.Ec.R
	7:47	I.Sh.E		12:46	II.Sh.E		13:34	III.Tr.E		10:45	I.Tr.E
May 4	2:11	I.Oc.D		13:02	I.Sh.I		14:24	III.Sh.I		11:35	I.Sh.E
	4:59	I.Ec.R		14:31	I.Tr.E		16:44	III.Sh.E	May 18	5:44	I.Oc.D
	19:47	II.Tr.I		15:13	I.Sh.E		16:54	II.Oc.D		8:49	I.Ec.R
	21:02	II.Sh.I	May 9	9:30	I.Oc.D		19:41	I.Tr.I	May 19	0:28	II.Tr.I
	22:12	II.Tr.E		12:25	I.Ec.R		20:27	I.Sh.I		2:16	II.Sh.I
	23:28	I.Tr.I		21:40	III.Oc.D		20:53	II.Ec.R		2:55	II.Tr.E
	23:29	II.Sh.E		23:58	III.Oc.R		21:51	I.Tr.E		3:01	I.Tr.I
May 5	0:05	I.Sh.I	May 10	0:33	III.Ec.D		22:38	I.Sh.E		3:53	I.Sh.I
	1:39	I.Tr.E		2:55	III.Ec.R	May 14	16:51	I.Oc.D		4:42	II.Sh.E

	5:12	I.Tr.E		16:50	I.Sh.I		4:54	II.Sh.I	May 29	16:04	II.Tr.I
	6:04	I.Sh.E		18:00	II.Sh.E		5:19	II.Tr.E		17:44	I.Tr.I
May 20	0:11	I.Oc.D		18:06	I.Tr.E		5:47	I.Sh.I		18:12	II.Sh.I
	3:18	I.Ec.R		19:01	I.Sh.E		7:00	I.Tr.E		18:32	II.Tr.E
	14:43	III.Tr.I	May 23	13:05	I.Oc.D		7:19	II.Sh.E		18:45	I.Sh.I
	17:05	III.Tr.E		16:15	I.Ec.R		7:58	I.Sh.E		19:54	I.Tr.E
	18:24	III.Sh.I	May 24	4:35	III.Oc.D	May 27	2:00	I.Oc.D		20:37	II.Sh.E
	19:14	II.Oc.D		7:00	III.Oc.R		5:13	I.Ec.R		20:55	I.Sh.E
	20:43	III.Sh.E		8:24	II.Oc.D		18:15	III.Tr.I	May 30	14:55	I.Oc.D
	21:28	I.Tr.I		8:32	III.Ec.D		20:39	III.Tr.E		18:10	I.Ec.R
	22:22	I.Sh.I		10:22	I.Tr.I		21:35	II.Oc.D	May 31	8:10	III.Oc.D
	23:27	II.Ec.R		10:51	III.Ec.R		22:22	III.Sh.I		10:37	III.Oc.R
	23:39	I.Tr.E		11:19	I.Sh.I		23:16	I.Tr.I		10:47	II.Oc.D
May 21	0:32	I.Sh.E		12:33	I.Tr.E	May 28	0:16	I.Sh.I		12:11	I.Tr.I
	18:38	I.Oc.D		12:44	II.Ec.R		0:40	III.Sh.E		12:32	III.Ec.D
	21:46	I.Ec.R		13:29	I.Sh.E		1:27	I.Tr.E		13:13	I.Sh.I
May 22	13:39	II.Tr.I	May 25	7:33	I.Oc.D		2:01	II.Ec.R		14:22	I.Tr.E
	15:34	II.Sh.I		10:44	I.Ec.R		2:26	I.Sh.E		14:51	III.Ec.R
	15:55	I.Tr.I	May 26	2:52	II.Tr.I		20:27	I.Oc.D		15:18	II.Ec.R
	16:07	II.Tr.E		4:49	I.Tr.I		23:41	I.Ec.R		15:24	I.Sh.E

Phenomena of Jupiter's Moons, June 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

June 1	9:22	I.Oc.D		21:44	I.Tr.E		2:56	I.Tr.I		22:48	III.Ec.R
	12:39	I.Ec.R		22:49	I.Sh.E		4:00	III.Tr.E	June 15	13:04	I.Oc.D
June 2	5:18	II.Tr.I		23:14	II.Sh.E		4:05	I.Sh.I		16:29	I.Ec.R
	6:38	I.Tr.I	June 6	16:45	I.Oc.D		5:07	I.Tr.E	June 16	10:17	II.Tr.I
	7:31	II.Sh.I		20:05	I.Ec.R		6:15	I.Sh.E		10:20	I.Tr.I
	7:42	I.Sh.I	June 7	11:49	III.Oc.D		6:20	III.Sh.I		11:31	I.Sh.I
	7:46	II.Tr.E		13:12	II.Oc.D		7:10	II.Ec.R		12:31	I.Tr.E
	8:49	I.Tr.E		14:01	I.Tr.I		8:35	III.Sh.E		12:46	II.Tr.E
	9:52	I.Sh.E		14:19	III.Oc.R	June 12	0:08	I.Oc.D		12:46	II.Sh.I
	9:56	II.Sh.E		15:08	I.Sh.I		3:32	I.Ec.R		13:41	I.Sh.E
June 3	3:50	I.Oc.D		16:12	I.Tr.E		21:01	II.Tr.I		15:10	II.Sh.E
	7:08	I.Ec.R		16:32	III.Ec.D		21:24	I.Tr.I	June 17	7:32	I.Oc.D
	21:51	III.Tr.I		17:18	I.Sh.E		22:34	I.Sh.I		10:58	I.Ec.R
	23:59	II.Oc.D		17:52	II.Ec.R		23:27	II.Sh.I	June 18	4:48	I.Tr.I
June 4	0:18	III.Tr.E		18:49	III.Ec.R		23:29	II.Tr.E		4:53	II.Oc.D
	1:06	I.Tr.I	June 8	11:13	I.Oc.D		23:35	I.Tr.E		5:17	III.Tr.I
	2:11	I.Sh.I		14:34	I.Ec.R	June 13	0:44	I.Sh.E		6:00	I.Sh.I
	2:21	III.Sh.I	June 9	7:46	II.Tr.I		1:51	II.Sh.E		6:59	I.Tr.E
	3:16	I.Tr.E		8:29	I.Tr.I		18:36	I.Oc.D		7:48	III.Tr.E
	4:21	I.Sh.E		9:36	I.Sh.I		22:01	I.Ec.R		8:10	I.Sh.E
	4:35	II.Ec.R		10:09	II.Sh.I	June 14	15:33	III.Oc.D		9:44	II.Ec.R
	4:37	III.Sh.E		10:15	II.Tr.E		15:39	II.Oc.D		10:19	III.Sh.I
	22:17	I.Oc.D		10:39	I.Tr.E		15:52	I.Tr.I		12:33	III.Sh.E
June 5	1:37	I.Ec.R		11:47	I.Sh.E		17:02	I.Sh.I	June 19	2:01	I.Oc.D
	18:31	II.Tr.I		12:33	II.Sh.E		18:03	I.Tr.E		5:27	I.Ec.R
	19:33	I.Tr.I	June 10	5:40	I.Oc.D		18:05	III.Oc.R		23:16	I.Tr.I
	20:39	I.Sh.I		9:03	I.Ec.R		19:12	I.Sh.E		23:32	II.Tr.I
	20:49	II.Sh.I	June 11	1:32	III.Tr.I		20:27	II.Ec.R	June 20	0:28	I.Sh.I
	21:00	II.Tr.E		2:25	II.Oc.D		20:32	III.Ec.D		1:27	I.Tr.E

	2:01	II.Tr.E		18:25	I.Ec.R		11:40	III.Tr.E		21:48	I.Tr.E
	2:04	II.Sh.I	June 23	12:12	I.Tr.I		12:18	II.Ec.R		23:01	I.Sh.E
	2:38	I.Sh.E		12:49	II.Tr.I		14:19	III.Sh.I		23:09	II.Oc.R
	4:28	II.Sh.E		13:26	I.Sh.I		16:32	III.Sh.E		23:12	II.Ec.D
	20:29	I.Oc.D		14:23	I.Tr.E	June 26	3:54	I.Oc.D		23:13	III.Oc.D
	23:56	I.Ec.R		15:19	II.Tr.E		7:22	I.Ec.R	June 29	1:35	II.Ec.R
June 21	17:44	I.Tr.I		15:24	II.Sh.I	June 27	1:09	I.Tr.I		1:48	III.Oc.R
	18:08	II.Oc.D		15:36	I.Sh.E		2:06	II.Tr.I		4:30	III.Ec.D
	18:57	I.Sh.I		17:47	II.Sh.E		2:23	I.Sh.I		6:45	III.Ec.R
	19:21	III.Oc.D	June 24	9:26	I.Oc.D		3:20	I.Tr.E		16:51	I.Oc.D
	19:55	I.Tr.E		12:53	I.Ec.R		4:33	I.Sh.E		20:20	I.Ec.R
	20:37	II.Ec.D	June 25	6:40	I.Tr.I		4:36	II.Tr.E	June 30	14:06	I.Tr.I
	20:37	II.Oc.R		7:24	II.Oc.D		4:42	II.Sh.I		15:20	I.Sh.I
	21:07	I.Sh.E		7:54	I.Sh.I		7:05	II.Sh.E		15:24	II.Tr.I
	21:54	III.Oc.R		8:51	I.Tr.E		22:22	I.Oc.D		16:16	I.Tr.E
	23:01	II.Ec.R		9:08	III.Tr.I	June 28	1:51	I.Ec.R		17:30	I.Sh.E
June 22	0:31	III.Ec.D		9:53	II.Oc.R		19:37	I.Tr.I		17:54	II.Tr.E
	2:47	III.Ec.R		9:54	II.Ec.D		20:40	II.Oc.D		18:01	II.Sh.I
	14:57	I.Oc.D		10:04	I.Sh.E		20:52	I.Sh.I		20:24	II.Sh.E

Phenomena of Jupiter's Moons, July 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

July 1	11:20	I.Oc.D		23:42	I.Tr.E		17:27	II.Ec.R	July 14	0:10	I.Ec.R
	14:49	I.Ec.R	July 6	0:56	I.Sh.E		19:35	III.Tr.E		17:55	I.Tr.I
July 2	8:34	I.Tr.I		1:43	II.Oc.R		22:18	III.Sh.I		19:10	I.Sh.I
	9:49	I.Sh.I		1:46	II.Ec.D	July 10	0:29	III.Sh.E		20:06	I.Tr.E
	9:56	II.Oc.D		3:10	III.Oc.D		7:44	I.Oc.D		20:40	II.Tr.I
	10:45	I.Tr.E		4:10	II.Ec.R		11:13	I.Ec.R		21:19	I.Sh.E
	11:59	I.Sh.E		5:45	III.Oc.R	July 11	4:57	I.Tr.I		23:09	II.Tr.E
	12:26	II.Oc.R		8:30	III.Ec.D		6:12	I.Sh.I		23:16	II.Sh.I
	12:29	II.Ec.D		10:43	III.Ec.R		7:08	I.Tr.E	July 15	1:38	II.Sh.E
	13:02	III.Tr.I		18:46	I.Oc.D		7:20	II.Tr.I		15:11	I.Oc.D
	14:52	II.Ec.R		22:15	I.Ec.R		8:22	I.Sh.E		18:39	I.Ec.R
	15:35	III.Tr.E	July 7	16:00	I.Tr.I		9:50	II.Tr.E	July 16	12:24	I.Tr.I
	18:18	III.Sh.I		17:15	I.Sh.I		9:57	II.Sh.I		13:38	I.Sh.I
	20:31	III.Sh.E		18:01	II.Tr.I		12:20	II.Sh.E		14:35	I.Tr.E
July 3	5:48	I.Oc.D		18:11	I.Tr.E	July 12	2:13	I.Oc.D		15:06	II.Oc.D
	9:17	I.Ec.R		19:25	I.Sh.E		5:41	I.Ec.R		15:48	I.Sh.E
July 4	3:03	I.Tr.I		20:31	II.Tr.E		23:26	I.Tr.I		17:36	II.Oc.R
	4:18	I.Sh.I		20:39	II.Sh.I	July 13	0:41	I.Sh.I		17:38	II.Ec.D
	4:42	II.Tr.I		23:01	II.Sh.E		1:37	I.Tr.E		20:01	II.Ec.R
	5:14	I.Tr.E	July 8	13:15	I.Oc.D		1:48	II.Oc.D		21:03	III.Tr.I
	6:27	I.Sh.E		16:44	I.Ec.R		2:51	I.Sh.E		23:37	III.Tr.E
	7:12	II.Tr.E	July 9	10:29	I.Tr.I		4:18	II.Oc.R	July 17	2:17	III.Sh.I
	7:20	II.Sh.I		11:44	I.Sh.I		4:21	II.Ec.D		4:27	III.Sh.E
	9:42	II.Sh.E		12:30	II.Oc.D		6:44	II.Ec.R		9:40	I.Oc.D
July 5	0:17	I.Oc.D		12:40	I.Tr.E		7:10	III.Oc.D		13:08	I.Ec.R
	3:46	I.Ec.R		13:53	I.Sh.E		9:47	III.Oc.R	July 18	6:53	I.Tr.I
	21:31	I.Tr.I		15:00	II.Oc.R		12:29	III.Ec.D		8:07	I.Sh.I
	22:46	I.Sh.I		15:04	II.Ec.D		14:42	III.Ec.R		9:04	I.Tr.E
	23:13	II.Oc.D		17:01	III.Tr.I		20:42	I.Oc.D		9:59	II.Tr.I

	10:17	I.Sh.E		22:02	I.Tr.E		11:01	I.Tr.E		23:59	I.Tr.E
	12:29	II.Tr.E		23:14	I.Sh.E		12:11	I.Sh.E	July 29	1:09	I.Sh.E
	12:34	II.Sh.I		23:20	II.Tr.I		12:40	II.Tr.I		2:02	II.Tr.I
	14:57	II.Sh.E	July 22	1:50	II.Tr.E		15:10	II.Tr.E		4:30	II.Sh.I
July 19	4:09	I.Oc.D		1:53	II.Sh.I		15:12	II.Sh.I		4:32	II.Tr.E
	7:37	I.Ec.R		4:15	II.Sh.E		17:34	II.Sh.E		6:52	II.Sh.E
July 20	1:22	I.Tr.I		17:08	I.Oc.D	July 26	6:06	I.Oc.D		19:05	I.Oc.D
	2:36	I.Sh.I		20:34	I.Ec.R		9:32	I.Ec.R		22:29	I.Ec.R
	3:33	I.Tr.E	July 23	14:20	I.Tr.I	July 27	3:19	I.Tr.I	July 30	16:17	I.Tr.I
	4:25	II.Oc.D		15:33	I.Sh.I		4:30	I.Sh.I		17:28	I.Sh.I
	4:45	I.Sh.E		16:32	I.Tr.E		5:30	I.Tr.E		18:29	I.Tr.E
	6:55	II.Oc.R		17:43	I.Sh.E		6:40	I.Sh.E		19:37	I.Sh.E
	6:56	II.Ec.D		17:44	II.Oc.D		7:04	II.Oc.D		20:24	II.Oc.D
	9:19	II.Ec.R		22:36	II.Ec.R		11:53	II.Ec.R	July 31	1:10	II.Ec.R
	11:16	III.Oc.D	July 24	1:08	III.Tr.I		15:24	III.Oc.D		5:17	III.Tr.I
	13:52	III.Oc.R		3:43	III.Tr.E		18:00	III.Oc.R		7:52	III.Tr.E
	16:30	III.Ec.D		6:16	III.Sh.I		20:29	III.Ec.D		10:15	III.Sh.I
	18:41	III.Ec.R		8:25	III.Sh.E		22:40	III.Ec.R		12:23	III.Sh.E
	22:38	I.Oc.D		11:37	I.Oc.D	July 28	0:36	I.Oc.D		13:35	I.Oc.D
July 21	2:05	I.Ec.R		15:03	I.Ec.R		4:00	I.Ec.R		16:58	I.Ec.R
	19:51	I.Tr.I	July 25	8:49	I.Tr.I		21:48	I.Tr.I			
	21:04	I.Sh.I		10:02	I.Sh.I		22:59	I.Sh.I			

Phenomena of Jupiter's Moons, August 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Aug. 1	10:47	I.Tr.I		9:29	II.Sh.E		12:26	II.Oc.D		20:48	I.Ec.R
	11:56	I.Sh.I		21:03	I.Oc.D		17:03	II.Ec.R	Aug. 15	14:43	I.Tr.I
	12:58	I.Tr.E	Aug. 6	0:24	I.Ec.R		23:49	III.Oc.D		15:46	I.Sh.I
	14:06	I.Sh.E		18:15	I.Tr.I	Aug. 11	2:25	III.Oc.R		16:55	I.Tr.E
	15:23	II.Tr.I		19:22	I.Sh.I		4:28	III.Ec.D		17:56	I.Sh.E
	17:49	II.Sh.I		20:26	I.Tr.E		4:33	I.Oc.D		20:52	II.Tr.I
	17:53	II.Tr.E		21:32	I.Sh.E		6:37	III.Ec.R		23:02	II.Sh.I
	20:10	II.Sh.E		23:05	II.Oc.D		7:51	I.Ec.R		23:21	II.Tr.E
Aug. 2	8:04	I.Oc.D	Aug. 7	3:45	II.Ec.R	Aug. 12	1:44	I.Tr.I	Aug. 16	1:24	II.Sh.E
	11:27	I.Ec.R		9:29	III.Tr.I		2:48	I.Sh.I		12:02	I.Oc.D
Aug. 3	5:16	I.Tr.I		12:03	III.Tr.E		3:55	I.Tr.E		15:17	I.Ec.R
	6:25	I.Sh.I		14:14	III.Sh.I		4:58	I.Sh.E	Aug. 17	9:13	I.Tr.I
	7:27	I.Tr.E		15:33	I.Oc.D		7:30	II.Tr.I		10:14	I.Sh.I
	8:35	I.Sh.E		16:22	III.Sh.E		9:44	II.Sh.I		11:24	I.Tr.E
	9:44	II.Oc.D		18:53	I.Ec.R		9:59	II.Tr.E		12:24	I.Sh.E
	14:28	II.Ec.R	Aug. 8	12:45	I.Tr.I		12:06	II.Sh.E		15:09	II.Oc.D
	19:35	III.Oc.D		13:51	I.Sh.I		23:02	I.Oc.D		19:37	II.Ec.R
	22:11	III.Oc.R		14:56	I.Tr.E	Aug. 13	2:19	I.Ec.R	Aug. 18	4:05	III.Oc.D
Aug. 4	0:29	III.Ec.D		16:01	I.Sh.E		20:13	I.Tr.I		6:32	I.Oc.D
	2:34	I.Oc.D		18:07	II.Tr.I		21:17	I.Sh.I		6:40	III.Oc.R
	2:39	III.Ec.R		20:26	II.Sh.I		22:25	I.Tr.E		8:27	III.Ec.D
	5:56	I.Ec.R		20:36	II.Tr.E		23:27	I.Sh.E		9:45	I.Ec.R
	23:46	I.Tr.I		22:47	II.Sh.E	Aug. 14	1:48	II.Oc.D		10:35	III.Ec.R
Aug. 5	0:54	I.Sh.I	Aug. 9	10:03	I.Oc.D		6:20	II.Ec.R	Aug. 19	3:42	I.Tr.I
	1:57	I.Tr.E		13:22	I.Ec.R		13:45	III.Tr.I		4:43	I.Sh.I
	3:04	I.Sh.E	Aug. 10	7:14	I.Tr.I		16:18	III.Tr.E		5:54	I.Tr.E
	4:45	II.Tr.I		8:20	I.Sh.I		17:32	I.Oc.D		6:53	I.Sh.E
	7:07	II.Sh.I		9:26	I.Tr.E		18:14	III.Sh.I		10:15	II.Tr.I
	7:15	II.Tr.E		10:30	I.Sh.E		20:21	III.Sh.E		12:21	II.Sh.I

	12:44	II.Tr.E		19:50	I.Sh.E	Aug. 26	5:42	I.Tr.I		0:54	III.Tr.E
	14:42	II.Sh.E		23:38	II.Tr.I		6:38	I.Sh.I		2:13	III.Sh.I
Aug. 20	1:02	I.Oc.D	Aug. 23	1:39	II.Sh.I		7:53	I.Tr.E		4:18	III.Sh.E
	4:14	I.Ec.R		2:07	II.Tr.E		8:48	I.Sh.E		18:41	I.Tr.I
	22:12	I.Tr.I		4:00	II.Sh.E		13:01	II.Tr.I		19:35	I.Sh.I
	23:12	I.Sh.I		14:02	I.Oc.D		14:57	II.Sh.I		20:53	I.Tr.E
Aug. 21	0:24	I.Tr.E		17:12	I.Ec.R		15:30	II.Tr.E		21:45	I.Sh.E
	1:22	I.Sh.E	Aug. 24	11:12	I.Tr.I		17:18	II.Sh.E	Aug. 30	2:25	II.Tr.I
	4:31	II.Oc.D		12:09	I.Sh.I	Aug. 27	3:02	I.Oc.D		4:15	II.Sh.I
	8:55	II.Ec.R		13:23	I.Tr.E		6:09	I.Ec.R		4:53	II.Tr.E
	18:02	III.Tr.I		14:19	I.Sh.E	Aug. 28	0:12	I.Tr.I		6:36	II.Sh.E
	19:32	I.Oc.D		17:54	II.Oc.D		1:06	I.Sh.I		16:02	I.Oc.D
	20:35	III.Tr.E		22:12	II.Ec.R		2:23	I.Tr.E		19:06	I.Ec.R
	22:13	III.Sh.I	Aug. 25	8:24	III.Oc.D		3:16	I.Sh.E	Aug. 31	13:11	I.Tr.I
	22:43	I.Ec.R		8:32	I.Oc.D		7:16	II.Oc.D		14:03	I.Sh.I
Aug. 22	0:19	III.Sh.E		10:58	III.Oc.R		11:30	II.Ec.R		15:23	I.Tr.E
	16:42	I.Tr.I		11:40	I.Ec.R		21:32	I.Oc.D		16:14	I.Sh.E
	17:40	I.Sh.I		12:27	III.Ec.D		22:22	III.Tr.I		20:39	II.Oc.D
	18:54	I.Tr.E		14:33	III.Ec.R	Aug. 29	0:38	I.Ec.R			

Phenomena of Jupiter's Moons, September 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Sept. 1	0:47	II.Ec.R		20:41	I.Tr.I		22:30	II.Sh.E	Sept. 15	2:13	II.Oc.D
	10:32	I.Oc.D		21:29	I.Sh.I	Sept. 10	7:02	I.Oc.D		5:58	II.Ec.R
	12:45	III.Oc.D		22:53	I.Tr.E		9:58	I.Ec.R		14:33	I.Oc.D
	13:35	I.Ec.R		23:40	I.Sh.E	Sept. 11	4:12	I.Tr.I		17:24	I.Ec.R
	15:17	III.Oc.R	Sept. 6	5:12	II.Tr.I		4:55	I.Sh.I		21:34	III.Oc.D
	16:26	III.Ec.D		6:51	II.Sh.I		6:23	I.Tr.E	Sept. 16	0:02	III.Oc.R
	18:32	III.Ec.R		7:40	II.Tr.E		7:06	I.Sh.E		0:25	III.Ec.D
Sept. 2	7:41	I.Tr.I		9:12	II.Sh.E		12:49	II.Oc.D		2:29	III.Ec.R
	8:32	I.Sh.I		18:02	I.Oc.D		16:40	II.Ec.R		11:42	I.Tr.I
	9:53	I.Tr.E		21:01	I.Ec.R	Sept. 12	1:33	I.Oc.D		12:21	I.Sh.I
	10:42	I.Sh.E	Sept. 7	15:11	I.Tr.I		4:27	I.Ec.R		13:54	I.Tr.E
	15:49	II.Tr.I		15:58	I.Sh.I		7:06	III.Tr.I		14:32	I.Sh.E
	17:34	II.Sh.I		17:23	I.Tr.E		9:35	III.Tr.E		21:25	II.Tr.I
	18:17	II.Tr.E		18:08	I.Sh.E		10:10	III.Sh.I		22:45	II.Sh.I
	19:54	II.Sh.E		23:26	II.Oc.D		12:14	III.Sh.E		23:52	II.Tr.E
Sept. 3	5:02	I.Oc.D	Sept. 8	3:22	II.Ec.R		22:42	I.Tr.I	Sept. 17	1:06	II.Sh.E
	8:04	I.Ec.R		12:32	I.Oc.D		23:24	I.Sh.I		9:03	I.Oc.D
Sept. 4	2:11	I.Tr.I		15:30	I.Ec.R	Sept. 13	0:54	I.Tr.E		11:53	I.Ec.R
	3:01	I.Sh.I		17:09	III.Oc.D		1:34	I.Sh.E	Sept. 18	6:12	I.Tr.I
	4:23	I.Tr.E		19:39	III.Oc.R		8:00	II.Tr.I		6:50	I.Sh.I
	5:11	I.Sh.E		20:26	III.Ec.D		9:27	II.Sh.I		8:24	I.Tr.E
	10:02	II.Oc.D		22:31	III.Ec.R		10:28	II.Tr.E		9:00	I.Sh.E
	14:05	II.Ec.R	Sept. 9	9:41	I.Tr.I		11:48	II.Sh.E		15:37	II.Oc.D
	23:32	I.Oc.D		10:27	I.Sh.I		20:03	I.Oc.D		19:15	II.Ec.R
Sept. 5	2:32	I.Ec.R		11:53	I.Tr.E		22:56	I.Ec.R	Sept. 19	3:33	I.Oc.D
	2:44	III.Tr.I		12:37	I.Sh.E	Sept. 14	17:12	I.Tr.I		6:21	I.Ec.R
	5:14	III.Tr.E		18:36	II.Tr.I		17:52	I.Sh.I		11:31	III.Tr.I
	6:12	III.Sh.I		20:10	II.Sh.I		19:24	I.Tr.E		13:58	III.Tr.E
	8:16	III.Sh.E		21:04	II.Tr.E		20:03	I.Sh.E		14:09	III.Sh.I

16:12	III.Sh.E	16:34	I.Oc.D	10:55	I.Sh.E	Sept. 28	0:05	I.Oc.D
Sept. 20	0:42	I.Tr.I	19:19	I.Ec.R	18:26	II.Oc.D	2:44	I.Ec.R
1:18	I.Sh.I	Sept. 23	2:00	III.Oc.D	21:50	II.Ec.R	21:13	I.Tr.I
2:54	I.Tr.E	6:27	III.Ec.R	Sept. 26	5:35	I.Oc.D	21:41	I.Sh.I
3:29	I.Sh.E	13:43	I.Tr.I	8:16	I.Ec.R	23:25	I.Tr.E	
10:49	II.Tr.I	14:16	I.Sh.I	15:57	III.Tr.I	23:52	I.Sh.E	
12:03	II.Sh.I	15:55	I.Tr.E	18:08	III.Sh.I	Sept. 29	7:50	II.Oc.D
13:16	II.Tr.E	16:26	I.Sh.E	18:22	III.Tr.E	11:08	II.Ec.R	
14:23	II.Sh.E	Sept. 24	0:14	II.Tr.I	20:10	III.Sh.E	18:35	I.Oc.D
22:04	I.Oc.D	1:21	II.Sh.I	Sept. 27	2:43	I.Tr.I	21:13	I.Ec.R
Sept. 21	0:50	I.Ec.R	2:40	II.Tr.E	3:13	I.Sh.I	Sept. 30	6:26
19:12	I.Tr.I	3:41	II.Sh.E	4:55	I.Tr.E	10:25	III.Ec.R	
19:47	I.Sh.I	11:04	I.Oc.D	5:23	I.Sh.E	15:44	I.Tr.I	
21:24	I.Tr.E	13:47	I.Ec.R	13:38	II.Tr.I	16:10	I.Sh.I	
21:57	I.Sh.E	Sept. 25	8:13	I.Tr.I	14:38	II.Sh.I	17:56	I.Tr.E
Sept. 22	5:02	II.Oc.D	8:44	I.Sh.I	16:04	II.Tr.E	18:21	I.Sh.E
8:33	II.Ec.R	10:25	I.Tr.E	16:58	II.Sh.E			

Phenomena of Jupiter's Moons, October 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Oct. 1	3:03	II.Tr.I		23:36	I.Sh.I		3:13	III.Tr.E		11:25	II.Sh.E
	3:56	II.Sh.I	Oct. 6	1:26	I.Tr.E		4:06	III.Sh.E		17:08	I.Oc.D
	5:28	II.Tr.E		1:46	I.Sh.E		6:45	I.Tr.I		19:30	I.Ec.R
	6:16	II.Sh.E		10:40	II.Oc.D		7:02	I.Sh.I	Oct. 16	14:16	I.Tr.I
	13:05	I.Oc.D		13:44	II.Ec.R		8:57	I.Tr.E		14:27	I.Sh.I
	15:42	I.Ec.R		20:36	I.Oc.D		9:12	I.Sh.E		16:28	I.Tr.E
Oct. 2	10:14	I.Tr.I		23:07	I.Ec.R		19:16	II.Tr.I		16:38	I.Sh.E
	10:39	I.Sh.I	Oct. 7	10:53	III.Oc.D		19:49	II.Sh.I	Oct. 17	2:55	II.Oc.D
	12:26	I.Tr.E		14:23	III.Ec.R		21:41	II.Tr.E		5:37	II.Ec.R
	12:49	I.Sh.E		17:45	I.Tr.I		22:08	II.Sh.E		11:38	I.Oc.D
	21:15	II.Oc.D		18:04	I.Sh.I	Oct. 12	4:07	I.Oc.D		13:58	I.Ec.R
Oct. 3	0:26	II.Ec.R		19:57	I.Tr.E		6:33	I.Ec.R	Oct. 18	5:22	III.Tr.I
	7:36	I.Oc.D		20:15	I.Sh.E	Oct. 13	1:16	I.Tr.I		6:05	III.Sh.I
	10:10	I.Ec.R	Oct. 8	5:52	II.Tr.I		1:30	I.Sh.I		7:39	III.Tr.E
	20:25	III.Tr.I		6:31	II.Sh.I		3:28	I.Tr.E		8:05	III.Sh.E
	22:08	III.Sh.I		8:17	II.Tr.E		3:41	I.Sh.E		8:47	I.Tr.I
	22:48	III.Tr.E		8:51	II.Sh.E		13:30	II.Oc.D		8:56	I.Sh.I
Oct. 4	0:08	III.Sh.E		15:07	I.Oc.D		16:19	II.Ec.R		10:59	I.Tr.E
	4:44	I.Tr.I		17:36	I.Ec.R		22:37	I.Oc.D		11:07	I.Sh.E
	5:07	I.Sh.I	Oct. 9	12:15	I.Tr.I	Oct. 14	1:01	I.Ec.R		22:05	II.Tr.I
	6:56	I.Tr.E		12:33	I.Sh.I		15:21	III.Oc.D		22:23	II.Sh.I
	7:18	I.Sh.E		14:27	I.Tr.E		18:20	III.Ec.R	Oct. 19	0:29	II.Tr.E
	16:27	II.Tr.I		14:44	I.Sh.E		19:46	I.Tr.I		0:43	II.Sh.E
	17:14	II.Sh.I	Oct. 10	0:05	II.Oc.D		19:59	I.Sh.I		6:08	I.Oc.D
	18:52	II.Tr.E		3:01	II.Ec.R		21:58	I.Tr.E		8:27	I.Ec.R
	19:33	II.Sh.E		9:37	I.Oc.D		22:09	I.Sh.E	Oct. 20	3:17	I.Tr.I
Oct. 5	2:06	I.Oc.D		12:04	I.Ec.R	Oct. 15	8:41	II.Tr.I		3:24	I.Sh.I
	4:39	I.Ec.R	Oct. 11	0:53	III.Tr.I		9:06	II.Sh.I		5:29	I.Tr.E
	23:14	I.Tr.I		2:07	III.Sh.I		11:05	II.Tr.E		5:35	I.Sh.E

	16:20	II.Oc.D		16:21	I.Sh.I		3:17	II.Sh.E		2:34	III.Oc.R
	18:55	II.Ec.R		18:30	I.Tr.E		3:18	II.Tr.E		14:15	II.Sh.I
Oct. 21	0:39	I.Oc.D		18:32	I.Sh.E		8:10	I.Oc.D		14:19	II.Tr.I
	2:55	I.Ec.R	Oct. 24	5:45	II.Oc.D		10:21	I.Oc.R		16:34	II.Sh.E
	19:50	III.Oc.D		8:12	II.Ec.R	Oct. 27	5:18	I.Tr.I		16:42	II.Tr.E
	21:47	I.Tr.I		13:39	I.Oc.D		5:18	I.Sh.I		21:07	I.Ec.D
	21:53	I.Sh.I		15:52	I.Ec.R		7:29	I.Sh.E		23:21	I.Oc.R
	22:18	III.Ec.R	Oct. 25	9:50	III.Tr.I		7:30	I.Tr.E	Oct. 30	18:16	I.Sh.I
	23:59	I.Tr.E		10:04	III.Sh.I		19:11	II.Ec.D		18:19	I.Tr.I
Oct. 22	0:04	I.Sh.E		10:48	I.Tr.I		21:35	II.Oc.R		20:26	I.Sh.E
	11:30	II.Tr.I		10:50	I.Sh.I	Oct. 28	2:39	I.Ec.D		20:31	I.Tr.E
	11:41	II.Sh.I		12:02	III.Sh.E		4:51	I.Oc.R	Oct. 31	8:28	II.Ec.D
	13:53	II.Tr.E		12:05	III.Tr.E		23:47	I.Sh.I		11:00	II.Oc.R
	14:00	II.Sh.E		13:00	I.Tr.E		23:49	I.Tr.I		15:36	I.Ec.D
	19:09	I.Oc.D		13:01	I.Sh.E	Oct. 29	0:18	III.Ec.D		17:52	I.Oc.R
	21:24	I.Ec.R	Oct. 26	0:54	II.Tr.I		1:58	I.Sh.E			
Oct. 23	16:18	I.Tr.I		0:58	II.Sh.I		2:01	I.Tr.E			

Phenomena of Jupiter's Moons, November 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Nov. 1	12:44	I.Sh.I		17:08	II.Tr.I		11:17	I.Sh.E		19:03	I.Tr.E
	12:50	I.Tr.I		19:08	II.Sh.E		11:33	I.Tr.E		21:59	III.Sh.I
	14:02	III.Sh.I		19:29	II.Tr.E	Nov. 11	0:22	II.Ec.D		23:15	III.Tr.I
	14:18	III.Tr.I		23:01	I.Ec.D		3:15	II.Oc.R		23:55	III.Sh.E
	14:55	I.Sh.E	Nov. 6	1:22	I.Oc.R		6:26	I.Ec.D	Nov. 16	1:22	III.Tr.E
	15:01	I.Tr.E		20:10	I.Sh.I		8:53	I.Oc.R		8:40	II.Sh.I
	15:59	III.Sh.E		20:21	I.Tr.I	Nov. 12	3:35	I.Sh.I		9:20	II.Tr.I
	16:31	III.Tr.E		22:20	I.Sh.E		3:51	I.Tr.I		10:58	II.Sh.E
Nov. 2	3:32	II.Sh.I		22:32	I.Tr.E		5:46	I.Sh.E		11:40	II.Tr.E
	3:43	II.Tr.I	Nov. 7	11:04	II.Ec.D		6:03	I.Tr.E		13:51	I.Ec.D
	5:51	II.Sh.E		13:49	II.Oc.R		8:15	III.Ec.D		16:23	I.Oc.R
	6:05	II.Tr.E		17:29	I.Ec.D		11:26	III.Oc.R	Nov. 17	11:01	I.Sh.I
	10:04	I.Ec.D		19:52	I.Oc.R		19:23	II.Sh.I		11:22	I.Tr.I
	12:22	I.Oc.R	Nov. 8	14:38	I.Sh.I		19:56	II.Tr.I		13:12	I.Sh.E
Nov. 3	7:13	I.Sh.I		14:51	I.Tr.I		21:41	II.Sh.E		13:34	I.Tr.E
	7:20	I.Tr.I		16:49	I.Sh.E		22:17	II.Tr.E	Nov. 18	2:58	II.Ec.D
	9:23	I.Sh.E		17:02	I.Tr.E	Nov. 13	0:55	I.Ec.D		6:05	II.Oc.R
	9:32	I.Tr.E		18:00	III.Sh.I		3:23	I.Oc.R		8:20	I.Ec.D
	21:46	II.Ec.D		18:47	III.Tr.I		22:04	I.Sh.I		10:53	I.Oc.R
Nov. 4	0:25	II.Oc.R		19:57	III.Sh.E		22:22	I.Tr.I	Nov. 19	5:29	I.Sh.I
	4:32	I.Ec.D		20:57	III.Tr.E	Nov. 14	0:15	I.Sh.E		5:53	I.Tr.I
	6:52	I.Oc.R	Nov. 9	6:06	II.Sh.I		0:33	I.Tr.E		7:40	I.Sh.E
Nov. 5	1:41	I.Sh.I		6:32	II.Tr.I		13:40	II.Ec.D		8:04	I.Tr.E
	1:50	I.Tr.I		8:25	II.Sh.E		16:39	II.Oc.R		12:12	III.Ec.D
	3:52	I.Sh.E		8:53	II.Tr.E		19:23	I.Ec.D		15:50	III.Oc.R
	4:02	I.Tr.E		11:58	I.Ec.D		21:53	I.Oc.R		21:57	II.Sh.I
	4:16	III.Ec.D		14:22	I.Oc.R	Nov. 15	16:32	I.Sh.I		22:44	II.Tr.I
	7:00	III.Oc.R	Nov. 10	9:07	I.Sh.I		16:52	I.Tr.I	Nov. 20	0:15	II.Sh.E
	16:49	II.Sh.I		9:21	I.Tr.I		18:43	I.Sh.E		1:04	II.Tr.E

	2:48	I.Ec.D		5:47	III.Tr.E		9:34	I.Sh.E		22:18	II.Oc.R
	5:23	I.Oc.R		11:14	II.Sh.I		10:04	I.Tr.E		23:10	I.Ec.D
	23:58	I.Sh.I		12:07	II.Tr.I		16:10	III.Ec.D	Nov. 29	1:53	I.Oc.R
Nov. 21	0:23	I.Tr.I		13:32	II.Sh.E		18:06	III.Ec.R		20:20	I.Sh.I
	2:09	I.Sh.E		14:27	II.Tr.E		18:11	III.Oc.D		20:54	I.Tr.I
	2:34	I.Tr.E		15:45	I.Ec.D		20:13	III.Oc.R		22:31	I.Sh.E
	16:16	II.Ec.D		18:23	I.Oc.R	Nov. 27	0:31	II.Sh.I		23:05	I.Tr.E
	19:29	II.Oc.R	Nov. 24	12:55	I.Sh.I		1:31	II.Tr.I	Nov. 30	5:56	III.Sh.I
	21:16	I.Ec.D		13:23	I.Tr.I		2:48	II.Sh.E		7:51	III.Sh.E
	23:53	I.Oc.R		15:05	I.Sh.E		3:50	II.Tr.E		8:11	III.Tr.I
Nov. 22	18:26	I.Sh.I		15:34	I.Tr.E		4:42	I.Ec.D		10:11	III.Tr.E
	18:53	I.Tr.I	Nov. 25	5:34	II.Ec.D		7:23	I.Oc.R		13:48	II.Sh.I
	20:37	I.Sh.E		8:54	II.Oc.R	Nov. 28	1:52	I.Sh.I		14:54	II.Tr.I
	21:04	I.Tr.E		10:13	I.Ec.D		2:23	I.Tr.I		16:05	II.Sh.E
Nov. 23	1:58	III.Sh.I		12:53	I.Oc.R		4:02	I.Sh.E		17:13	II.Tr.E
	3:44	III.Tr.I	Nov. 26	7:23	I.Sh.I		4:35	I.Tr.E		17:38	I.Ec.D
	3:53	III.Sh.E		7:53	I.Tr.I		18:52	II.Ec.D		20:23	I.Oc.R

Phenomena of Jupiter's Moons, December 2017

For telescopic observers, here is the complete list of phenomena involving Jupiter's four bright moons and the planet's disk or shadow. The first columns give the date and midpoint time of the event in Universal Time. Next is the satellite involved: I for Io, II Europa, III Ganymede, or IV Callisto. This is followed by the type of event: Oc for an occultation of the satellite behind Jupiter's limb, Ec for an eclipse by Jupiter's shadow, Tr for a transit of the satellite across the planet's face, or Sh for the satellite casting its tiny black shadow onto Jupiter. An occultation or eclipse begins when the satellite disappears (D) and ends when it reappears (R). A transit or shadow passage begins at ingress (I) and ends at egress (E). Each event is gradual, lasting several minutes. These predictions are courtesy IMCCE / Paris Observatory.

Dec. 1	14:49	I.Sh.I		3:52	I.Oc.R		3:01	III.Oc.D	Dec. 15	0:21	I.Oc.R
	15:24	I.Tr.I		22:14	I.Sh.I		4:57	III.Oc.R		18:37	I.Sh.I
	16:59	I.Sh.E		22:54	I.Tr.I		5:38	II.Sh.I		19:24	I.Tr.I
	17:35	I.Tr.E	Dec. 7	0:25	I.Sh.E		7:03	II.Tr.I		20:47	I.Sh.E
Dec. 2	8:10	II.Ec.D		1:05	I.Tr.E		7:55	II.Sh.E		21:34	I.Tr.E
	11:43	II.Oc.R		9:55	III.Sh.I		8:28	I.Ec.D	Dec. 16	13:22	II.Ec.D
	12:07	I.Ec.D		11:48	III.Sh.E		9:21	II.Tr.E		15:53	I.Ec.D
	14:53	I.Oc.R		12:36	III.Tr.I		11:22	I.Oc.R		17:19	II.Oc.R
Dec. 3	9:17	I.Sh.I		14:33	III.Tr.E	Dec. 12	5:40	I.Sh.I		18:51	I.Oc.R
	9:54	I.Tr.I		16:21	II.Sh.I		6:24	I.Tr.I	Dec. 17	13:05	I.Sh.I
	11:28	I.Sh.E		17:40	II.Tr.I		7:50	I.Sh.E		13:54	I.Tr.I
	12:05	I.Tr.E		18:38	II.Sh.E		8:35	I.Tr.E		15:15	I.Sh.E
	20:08	III.Ec.D		19:32	I.Ec.D	Dec. 13	0:04	II.Ec.D		16:04	I.Tr.E
	22:03	III.Ec.R		19:58	II.Tr.E		2:56	I.Ec.D	Dec. 18	4:04	III.Ec.D
	22:36	III.Oc.D		22:22	I.Oc.R		3:55	II.Oc.R		5:58	III.Ec.R
Dec. 4	0:36	III.Oc.R	Dec. 8	16:43	I.Sh.I		5:52	I.Oc.R		7:25	III.Oc.D
	3:04	II.Sh.I		17:24	I.Tr.I	Dec. 14	0:08	I.Sh.I		8:11	II.Sh.I
	4:17	II.Tr.I		18:53	I.Sh.E		0:54	I.Tr.I		9:18	III.Oc.R
	5:21	II.Sh.E		19:35	I.Tr.E		2:19	I.Sh.E		9:48	II.Tr.I
	6:35	I.Ec.D	Dec. 9	10:46	II.Ec.D		3:05	I.Tr.E		10:21	I.Ec.D
	6:36	II.Tr.E		14:00	I.Ec.D		13:53	III.Sh.I		10:27	II.Sh.E
	9:23	I.Oc.R		14:32	II.Oc.R		15:45	III.Sh.E		12:05	II.Tr.E
Dec. 5	3:46	I.Sh.I		16:52	I.Oc.R		17:00	III.Tr.I		13:21	I.Oc.R
	4:24	I.Tr.I	Dec. 10	11:11	I.Sh.I		18:54	III.Tr.E	Dec. 19	7:34	I.Sh.I
	5:56	I.Sh.E		11:54	I.Tr.I		18:54	II.Sh.I		8:24	I.Tr.I
	6:35	I.Tr.E		13:22	I.Sh.E		20:26	II.Tr.I		9:44	I.Sh.E
	21:28	II.Ec.D		14:05	I.Tr.E		21:11	II.Sh.E		10:34	I.Tr.E
Dec. 6	1:03	I.Ec.D	Dec. 11	0:06	III.Ec.D		21:25	I.Ec.D	Dec. 20	2:40	II.Ec.D
	1:07	II.Oc.R		2:00	III.Ec.R		22:43	II.Tr.E		4:49	I.Ec.D

	6:42	II.Oc.R		22:41	I.Sh.E		14:48	II.Tr.E		1:43	III.Tr.I
	7:50	I.Oc.R		23:33	I.Tr.E		15:19	I.Oc.R		1:54	II.Tr.I
Dec. 21	2:02	I.Sh.I	Dec. 23	15:58	II.Ec.D	Dec. 26	9:27	I.Sh.I		2:17	II.Sh.E
	2:53	I.Tr.I		17:46	I.Ec.D		10:23	I.Tr.I		3:29	III.Tr.E
	4:12	I.Sh.E		20:06	II.Oc.R		11:37	I.Sh.E		4:09	II.Tr.E
	5:04	I.Tr.E		20:49	I.Oc.R		12:33	I.Tr.E		4:18	I.Oc.R
	17:50	III.Sh.I	Dec. 24	14:59	I.Sh.I	Dec. 27	5:16	II.Ec.D		22:24	I.Sh.I
	19:42	III.Sh.E		15:53	I.Tr.I		6:43	I.Ec.D		23:22	I.Tr.I
	21:22	III.Tr.I		17:09	I.Sh.E		9:29	II.Oc.R	Dec. 30	0:34	I.Sh.E
	21:28	II.Sh.I		18:03	I.Tr.E		9:48	I.Oc.R		1:32	I.Tr.E
	23:10	II.Tr.I	Dec. 25	8:02	III.Ec.D	Dec. 28	3:56	I.Sh.I		18:34	II.Ec.D
	23:12	III.Tr.E		9:55	III.Ec.R		4:52	I.Tr.I		19:39	I.Ec.D
	23:18	I.Ec.D		10:44	II.Sh.I		6:06	I.Sh.E		22:47	I.Oc.R
	23:44	II.Sh.E		11:46	III.Oc.D		7:02	I.Tr.E		22:52	II.Oc.R
Dec. 22	1:26	II.Tr.E		12:14	I.Ec.D		21:48	III.Sh.I	Dec. 31	16:53	I.Sh.I
	2:20	I.Oc.R		12:32	II.Tr.I		23:39	III.Sh.E		17:52	I.Tr.I
	20:30	I.Sh.I		13:00	II.Sh.E	Dec. 29	0:01	II.Sh.I		19:03	I.Sh.E
	21:23	I.Tr.I		13:36	III.Oc.R		1:11	I.Ec.D		20:02	I.Tr.E