

Astronomical Applications Department  
 U. S. Naval Observatory  
 Washington, DC 20392-5420

Jupiter

BIG BEAR, CALIFORNIA  
 Location: W116°52'48.0", N34°14'24.0", 0m  
 (Longitude referred to Greenwich meridian)

Time Zone: 7h 00m west of Greenwich

| Date<br>(Zone)    | Rise  | Az. | Transit | Alt. | Set   | Az. |
|-------------------|-------|-----|---------|------|-------|-----|
|                   | h m ° |     | h m °   |      | h m ° |     |
| 2018 Sep 01 (Sat) | 11:47 | 109 | 17:04   | 40S  | 22:20 | 251 |
| 2018 Sep 02 (Sun) | 11:44 | 109 | 17:00   | 40S  | 22:17 | 251 |
| 2018 Sep 03 (Mon) | 11:40 | 109 | 16:57   | 40S  | 22:13 | 251 |
| 2018 Sep 04 (Tue) | 11:37 | 109 | 16:53   | 39S  | 22:10 | 251 |
| 2018 Sep 05 (Wed) | 11:34 | 109 | 16:50   | 39S  | 22:06 | 250 |
| 2018 Sep 06 (Thu) | 11:31 | 110 | 16:47   | 39S  | 22:03 | 250 |
| 2018 Sep 07 (Fri) | 11:27 | 110 | 16:43   | 39S  | 21:59 | 250 |
| 2018 Sep 08 (Sat) | 11:24 | 110 | 16:40   | 39S  | 21:56 | 250 |
| 2018 Sep 09 (Sun) | 11:21 | 110 | 16:37   | 39S  | 21:52 | 250 |
| 2018 Sep 10 (Mon) | 11:18 | 110 | 16:33   | 39S  | 21:49 | 250 |
| 2018 Sep 11 (Tue) | 11:15 | 110 | 16:30   | 39S  | 21:45 | 250 |
| 2018 Sep 12 (Wed) | 11:12 | 110 | 16:27   | 39S  | 21:42 | 250 |
| 2018 Sep 13 (Thu) | 11:08 | 110 | 16:23   | 39S  | 21:38 | 250 |
| 2018 Sep 14 (Fri) | 11:05 | 110 | 16:20   | 39S  | 21:35 | 250 |
| 2018 Sep 15 (Sat) | 11:02 | 110 | 16:17   | 39S  | 21:32 | 250 |
| 2018 Sep 16 (Sun) | 10:59 | 110 | 16:14   | 39S  | 21:28 | 250 |
| 2018 Sep 17 (Mon) | 10:56 | 110 | 16:10   | 39S  | 21:25 | 250 |
| 2018 Sep 18 (Tue) | 10:53 | 110 | 16:07   | 39S  | 21:21 | 250 |
| 2018 Sep 19 (Wed) | 10:50 | 110 | 16:04   | 39S  | 21:18 | 250 |
| 2018 Sep 20 (Thu) | 10:47 | 110 | 16:01   | 39S  | 21:15 | 250 |
| 2018 Sep 21 (Fri) | 10:43 | 110 | 15:57   | 39S  | 21:11 | 250 |
| 2018 Sep 22 (Sat) | 10:40 | 110 | 15:54   | 39S  | 21:08 | 250 |
| 2018 Sep 23 (Sun) | 10:37 | 111 | 15:51   | 39S  | 21:04 | 249 |
| 2018 Sep 24 (Mon) | 10:34 | 111 | 15:48   | 39S  | 21:01 | 249 |
| 2018 Sep 25 (Tue) | 10:31 | 111 | 15:44   | 38S  | 20:58 | 249 |
| 2018 Sep 26 (Wed) | 10:28 | 111 | 15:41   | 38S  | 20:54 | 249 |
| 2018 Sep 27 (Thu) | 10:25 | 111 | 15:38   | 38S  | 20:51 | 249 |
| 2018 Sep 28 (Fri) | 10:22 | 111 | 15:35   | 38S  | 20:48 | 249 |
| 2018 Sep 29 (Sat) | 10:19 | 111 | 15:32   | 38S  | 20:44 | 249 |
| 2018 Sep 30 (Sun) | 10:16 | 111 | 15:28   | 38S  | 20:41 | 249 |
| 2018 Oct 01 (Mon) | 10:13 | 111 | 15:25   | 38S  | 20:38 | 249 |
| 2018 Oct 02 (Tue) | 10:10 | 111 | 15:22   | 38S  | 20:34 | 249 |
| 2018 Oct 03 (Wed) | 10:07 | 111 | 15:19   | 38S  | 20:31 | 249 |
| 2018 Oct 04 (Thu) | 10:04 | 111 | 15:16   | 38S  | 20:28 | 249 |
| 2018 Oct 05 (Fri) | 10:01 | 111 | 15:13   | 38S  | 20:24 | 249 |
| 2018 Oct 06 (Sat) | 09:58 | 111 | 15:09   | 38S  | 20:21 | 249 |
| 2018 Oct 07 (Sun) | 09:55 | 111 | 15:06   | 38S  | 20:18 | 249 |
| 2018 Oct 08 (Mon) | 09:52 | 111 | 15:03   | 38S  | 20:14 | 249 |
| 2018 Oct 09 (Tue) | 09:49 | 112 | 15:00   | 38S  | 20:11 | 248 |
| 2018 Oct 10 (Wed) | 09:46 | 112 | 14:57   | 38S  | 20:08 | 248 |
| 2018 Oct 11 (Thu) | 09:43 | 112 | 14:54   | 38S  | 20:05 | 248 |
| 2018 Oct 12 (Fri) | 09:40 | 112 | 14:51   | 38S  | 20:01 | 248 |
| 2018 Oct 13 (Sat) | 09:37 | 112 | 14:48   | 38S  | 19:58 | 248 |
| 2018 Oct 14 (Sun) | 09:34 | 112 | 14:44   | 38S  | 19:55 | 248 |
| 2018 Oct 15 (Mon) | 09:31 | 112 | 14:41   | 37S  | 19:52 | 248 |
| 2018 Oct 16 (Tue) | 09:28 | 112 | 14:38   | 37S  | 19:48 | 248 |
| 2018 Oct 17 (Wed) | 09:25 | 112 | 14:35   | 37S  | 19:45 | 248 |
| 2018 Oct 18 (Thu) | 09:22 | 112 | 14:32   | 37S  | 19:42 | 248 |
| 2018 Oct 19 (Fri) | 09:19 | 112 | 14:29   | 37S  | 19:39 | 248 |

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|                   |           |           |           |
|-------------------|-----------|-----------|-----------|
| 2018 Oct 20 (Sat) | 09:16 112 | 14:26 37S | 19:35 248 |
| 2018 Oct 21 (Sun) | 09:13 112 | 14:23 37S | 19:32 248 |
| 2018 Oct 22 (Mon) | 09:10 112 | 14:20 37S | 19:29 248 |
| 2018 Oct 23 (Tue) | 09:08 112 | 14:17 37S | 19:26 248 |
| 2018 Oct 24 (Wed) | 09:05 112 | 14:14 37S | 19:22 248 |
| 2018 Oct 25 (Thu) | 09:02 113 | 14:10 37S | 19:19 247 |
| 2018 Oct 26 (Fri) | 08:59 113 | 14:07 37S | 19:16 247 |
| 2018 Oct 27 (Sat) | 08:56 113 | 14:04 37S | 19:13 247 |
| 2018 Oct 28 (Sun) | 08:53 113 | 14:01 37S | 19:09 247 |
| 2018 Oct 29 (Mon) | 08:50 113 | 13:58 37S | 19:06 247 |
| 2018 Oct 30 (Tue) | 08:47 113 | 13:55 37S | 19:03 247 |
| 2018 Oct 31 (Wed) | 08:44 113 | 13:52 37S | 19:00 247 |
| 2018 Nov 01 (Thu) | 08:41 113 | 13:49 37S | 18:57 247 |
| 2018 Nov 02 (Fri) | 08:39 113 | 13:46 37S | 18:54 247 |
| 2018 Nov 03 (Sat) | 08:36 113 | 13:43 37S | 18:50 247 |

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| Date<br>(Zone)    | Rise  | Az. | Transit | Alt. | Set   | Az. |
|-------------------|-------|-----|---------|------|-------|-----|
|                   | h m ° |     | h m °   |      | h m ° |     |
| 2018 Nov 04 (Sun) | 07:33 | 113 | 12:40   | 36S  | 17:47 | 247 |
| 2018 Nov 05 (Mon) | 07:30 | 113 | 12:37   | 36S  | 17:44 | 247 |
| 2018 Nov 06 (Tue) | 07:27 | 113 | 12:34   | 36S  | 17:41 | 247 |
| 2018 Nov 07 (Wed) | 07:24 | 113 | 12:31   | 36S  | 17:38 | 247 |
| 2018 Nov 08 (Thu) | 07:21 | 113 | 12:28   | 36S  | 17:34 | 247 |
| 2018 Nov 09 (Fri) | 07:18 | 113 | 12:25   | 36S  | 17:31 | 247 |
| 2018 Nov 10 (Sat) | 07:15 | 113 | 12:22   | 36S  | 17:28 | 246 |
| 2018 Nov 11 (Sun) | 07:13 | 114 | 12:19   | 36S  | 17:25 | 246 |
| 2018 Nov 12 (Mon) | 07:10 | 114 | 12:16   | 36S  | 17:22 | 246 |
| 2018 Nov 13 (Tue) | 07:07 | 114 | 12:13   | 36S  | 17:19 | 246 |
| 2018 Nov 14 (Wed) | 07:04 | 114 | 12:10   | 36S  | 17:15 | 246 |
| 2018 Nov 15 (Thu) | 07:01 | 114 | 12:07   | 36S  | 17:12 | 246 |
| 2018 Nov 16 (Fri) | 06:58 | 114 | 12:04   | 36S  | 17:09 | 246 |
| 2018 Nov 17 (Sat) | 06:55 | 114 | 12:01   | 36S  | 17:06 | 246 |
| 2018 Nov 18 (Sun) | 06:52 | 114 | 11:58   | 36S  | 17:03 | 246 |
| 2018 Nov 19 (Mon) | 06:50 | 114 | 11:55   | 36S  | 17:00 | 246 |
| 2018 Nov 20 (Tue) | 06:47 | 114 | 11:52   | 36S  | 16:56 | 246 |
| 2018 Nov 21 (Wed) | 06:44 | 114 | 11:49   | 36S  | 16:53 | 246 |
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| 2018 Nov 26 (Mon) | 06:30 | 114 | 11:34   | 35S  | 16:38 | 246 |
| 2018 Nov 27 (Tue) | 06:27 | 114 | 11:31   | 35S  | 16:35 | 246 |
| 2018 Nov 28 (Wed) | 06:24 | 114 | 11:28   | 35S  | 16:31 | 245 |
| 2018 Nov 29 (Thu) | 06:21 | 115 | 11:25   | 35S  | 16:28 | 245 |
| 2018 Nov 30 (Fri) | 06:18 | 115 | 11:22   | 35S  | 16:25 | 245 |
| 2018 Dec 01 (Sat) | 06:15 | 115 | 11:19   | 35S  | 16:22 | 245 |
| 2018 Dec 02 (Sun) | 06:12 | 115 | 11:16   | 35S  | 16:19 | 245 |
| 2018 Dec 03 (Mon) | 06:09 | 115 | 11:13   | 35S  | 16:16 | 245 |
| 2018 Dec 04 (Tue) | 06:07 | 115 | 11:10   | 35S  | 16:13 | 245 |
| 2018 Dec 05 (Wed) | 06:04 | 115 | 11:07   | 35S  | 16:09 | 245 |
| 2018 Dec 06 (Thu) | 06:01 | 115 | 11:04   | 35S  | 16:06 | 245 |
| 2018 Dec 07 (Fri) | 05:58 | 115 | 11:01   | 35S  | 16:03 | 245 |
| 2018 Dec 08 (Sat) | 05:55 | 115 | 10:58   | 35S  | 16:00 | 245 |
| 2018 Dec 09 (Sun) | 05:52 | 115 | 10:55   | 35S  | 15:57 | 245 |

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|-------------------|-----------|-----------|-----------|
| 2018 Dec 10 (Mon) | 05:49 115 | 10:52 35S | 15:54 245 |
| 2018 Dec 11 (Tue) | 05:46 115 | 10:49 35S | 15:51 245 |
| 2018 Dec 12 (Wed) | 05:44 115 | 10:46 35S | 15:48 245 |
| 2018 Dec 13 (Thu) | 05:41 115 | 10:43 35S | 15:45 245 |
| 2018 Dec 14 (Fri) | 05:38 115 | 10:40 35S | 15:41 245 |
| 2018 Dec 15 (Sat) | 05:35 115 | 10:37 35S | 15:38 245 |
| 2018 Dec 16 (Sun) | 05:32 115 | 10:34 35S | 15:35 245 |
| 2018 Dec 17 (Mon) | 05:29 115 | 10:31 35S | 15:32 245 |
| 2018 Dec 18 (Tue) | 05:26 115 | 10:28 35S | 15:29 245 |
| 2018 Dec 19 (Wed) | 05:23 115 | 10:25 35S | 15:26 244 |
| 2018 Dec 20 (Thu) | 05:20 116 | 10:22 35S | 15:23 244 |
| 2018 Dec 21 (Fri) | 05:17 116 | 10:19 35S | 15:20 244 |
| 2018 Dec 22 (Sat) | 05:15 116 | 10:16 34S | 15:16 244 |
| 2018 Dec 23 (Sun) | 05:12 116 | 10:12 34S | 15:13 244 |
| 2018 Dec 24 (Mon) | 05:09 116 | 10:09 34S | 15:10 244 |
| 2018 Dec 25 (Tue) | 05:06 116 | 10:06 34S | 15:07 244 |
| 2018 Dec 26 (Wed) | 05:03 116 | 10:03 34S | 15:04 244 |
| 2018 Dec 27 (Thu) | 05:00 116 | 10:00 34S | 15:01 244 |
| 2018 Dec 28 (Fri) | 04:57 116 | 09:57 34S | 14:58 244 |
| 2018 Dec 29 (Sat) | 04:54 116 | 09:54 34S | 14:55 244 |
| 2018 Dec 30 (Sun) | 04:51 116 | 09:51 34S | 14:51 244 |
| 2018 Dec 31 (Mon) | 04:48 116 | 09:48 34S | 14:48 244 |