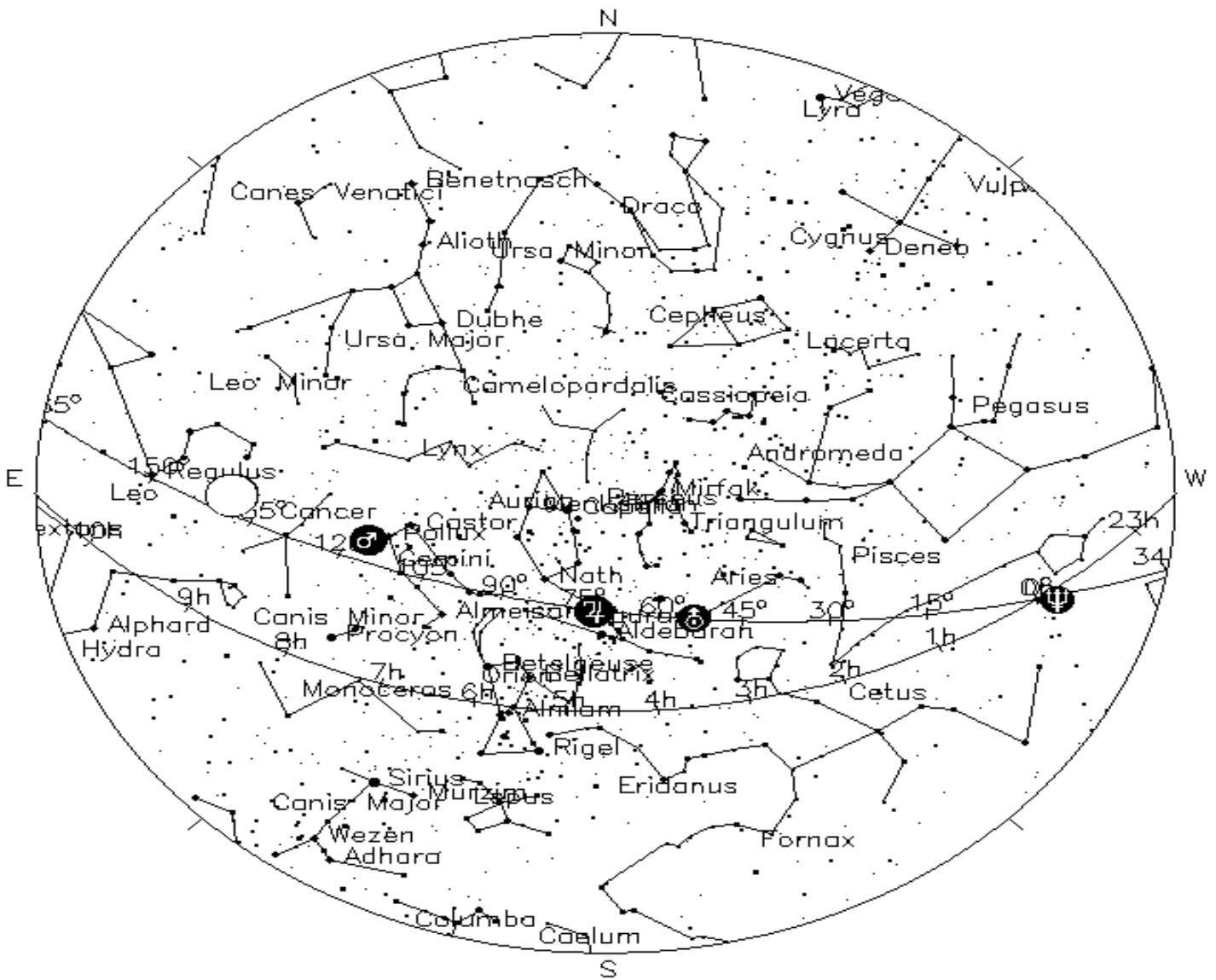


# Wessex Sky Notes – 2025 January 15 at 21:00 Vol 19 No. 1



## Aspect of the sky from 50° 45' N : 2° 00' W at 21:00 UTC

Chart from [www.fourmilab.ch](http://www.fourmilab.ch)

**Earth:** is at Perihelion on Jan 4<sup>th</sup> at 13:28, at a distance of 147 km.

**Lunar Phases** First Qtr: Jan 6 at 23:56; Full: Jan 13 at 22:27; Last Qtr: Jan 21 at 20:31; and New: Jan 29 at 12:36.

**Apsides:** Perigee (closest) Jan 8<sup>th</sup> at 00:00, 370171 km, (32' 32"); Apogee (furthest) Jan 21<sup>st</sup> at 04:52 404298 km (29'35").

**Mercury (☿):** is 6° above the eastern horizon at dawn, mag. -0.4. moving in toward the Sun and Superior Conjunction on the 9<sup>th</sup> February. Catch it while you can in early January. Moon near-by on the 29<sup>th</sup>, too close to the Sun to be seen.

**Venus (♀):** continues as an evening star, mag.-4.6, and is close to Saturn on the 18<sup>th</sup> (2°). Venus reaches greatest eastern elongation on the 10<sup>th</sup> at 46°. Moon is nearby on the 4<sup>th</sup>.

**Mars (♂):** is closest to earth on the 12<sup>th</sup>, at a distance of 0.6422 au, mag.-1.4 and at opposition on the 16<sup>th</sup>, distance 0.6442 au. Mag. -1.4. Mars is visible all night, The difference in distance is due to the eccentricity of Mars's orbit, moving Mars slightly closer to earth than at opposition. . Full Moon very near on the 14<sup>th</sup> at 04.00 (0.3°).

**Jupiter (♃):** is just past opposition last month so is still visible most of the night, mag.-2.7, in the 'horns' of Taurus. You can't miss it! Moon is close on the 10<sup>th</sup>.

**Saturn (♄):** is now below the square of Pegasus, mag. 0.4. Saturn is close to Venus (2°) on the 18<sup>th</sup>. Moon occults Saturn on the 4<sup>th</sup> at 17:15, and the planet emerges from the bright side of the moon at 18:28. Start looking a few minutes earlier.

**Uranus (♅):** is 20° west of Jupiter and visible most of the night, between Aries and Taurus. diameter 3.6 arc seconds, mag. 5.7. Moon close (2° west) on the 5<sup>th</sup>.

**Neptune (♆):** is 12° east of Saturn, diameter 2.3 arc seconds, mag. 7.8 It sets at 21:00 at month's end.

**The Quadrantids** peak in early morning of the 4<sup>th</sup>. some bright, medium speed events.

The **Moon** occults part of the **Pleiades** on the 10<sup>th</sup>, at 2am, and is near Regulus on the 16<sup>th</sup>, near Spica on the 21<sup>st</sup> and near Antares on the 26<sup>th</sup> (am).

### **Sunrise-set times:**

| Date        | Rise     | Transit  | Set      | Date        | Rise     | Transit  | Set      |
|-------------|----------|----------|----------|-------------|----------|----------|----------|
| 01 Jan 2025 | 08:09:58 | 12:11:41 | 16:13:35 | 21 Jan 2025 | 07:57:48 | 12:19:21 | 16:41:24 |
| 06 Jan 2025 | 08:08:50 | 12:13:57 | 16:19:21 | 26 Jan 2025 | 07:51:53 | 12:20:34 | 16:49:49 |
| 11 Jan 2025 | 08:06:23 | 12:16:01 | 16:26:00 | 31 Jan 2025 | 07:45:01 | 12:21:27 | 16:58:30 |
| 16 Jan 2025 | 08:02:40 | 12:17:50 | 16:33:25 |             |          |          |          |

### **Moonrise-set times:**

| Date        | Rise     | Transit  | Set                   | Date        | Rise     | Transit  | Set      |
|-------------|----------|----------|-----------------------|-------------|----------|----------|----------|
| 01 Jan 2025 | 09:50:25 | 13:41:43 | 17:41:45              | 21 Jan 2025 | 00:17:06 | 05:32:52 | 10:36:32 |
| 06 Jan 2025 | 11:15:31 | 17:49:10 | 7 <sup>th</sup> early | 26 Jan 2025 | 06:13:55 | 09:34:04 | 12:53:41 |
| 11 Jan 2025 | 13:21:13 | 22:25:34 | 06:24:43              | 31 Jan 2025 | 08:55:30 | 14:09:08 | 19:38:13 |
| 16 Jan 2025 | 19:33:40 | 02:07:35 | 09:39:31              |             |          |          |          |

### **B Persei, (Algol)** (Mag 2.1 to 3.4) – the visible minima are:

10<sup>th</sup> at 22:20; 13<sup>th</sup> at 19:08; 16<sup>th</sup> at 16:00 and 31<sup>st</sup> at 00:01.

### **RZ Cassiopeiae** (mag 6.2 to 7.7) – the visible minima are:

1<sup>st</sup> at 18:22; 2<sup>nd</sup> at 23:03; 7<sup>th</sup> at 17:47; 8<sup>th</sup> at 22:28; 13<sup>th</sup> at 17:13; 14<sup>th</sup> at 21:54.  
20<sup>th</sup> at 21:20 and 26<sup>th</sup> at 20:46.

### **Lambda Tauri** (mag 3.4 to 3.9) provisional minima only, not confirmed

21<sup>st</sup> at 00:24; 24<sup>th</sup> at 23:16; 28<sup>th</sup> at 22:08 and 1<sup>st</sup> Jan 2025 at 21:00.

For observation of the ISS during the month, log-in to <http://www.heavens-above.com>. See page 3, for evening passes, starting on the 13<sup>th</sup>.

The next Durlston meeting will be on Saturday the 4<sup>th</sup> at 6:30 pm. when a lunar occultation of Saturn will be observed, as well as Jupiter, Mars and winter constellations. Also Saturday 25<sup>th</sup> when Jupiter, Mars, Orion nebular and winter constellation will be on view. These meetings are, of course, subject to favourable weather.

### **Solar news**

There have been several occasions when the Kp reached 5 during December, with no significant auroral events occurring.

Timings for Jupiter's **Great Red Spot (GRS)**: this month with Jupiter just past opposition, on the 7<sup>th</sup> ult. we have virtually a full month of observation opportunities:

1<sup>st</sup> at 21:43; 2<sup>nd</sup> at 17:35; 3<sup>rd</sup> at 23:22; 4<sup>th</sup> at 19:14; 6<sup>th</sup> at 20:52; 8<sup>th</sup> at 22:32; 9<sup>th</sup> at 18:23; 11<sup>th</sup> at 20:00; 13<sup>th</sup> at 21:40; 14<sup>th</sup> at 17:32; 15<sup>th</sup> at 23:19; 16<sup>th</sup> at 19:10; 18<sup>th</sup> at 20:49; 19<sup>th</sup> at 16:40; 20<sup>th</sup> at 22:28 21<sup>st</sup> at 18:18; 23<sup>rd</sup> at 19:58; 25<sup>th</sup> at 21:37; 26<sup>th</sup> at 17:28; 27<sup>th</sup> at 23:15; 28<sup>th</sup> at 19:05 and 30<sup>th</sup> at 20:45.

**Meteor Activity:** The Quadrantids peak on the 4<sup>th</sup>, in the early hours, medium speed, bright coloured meteors. The Moon will be out of the way being at 1<sup>st</sup> quarter on the 6<sup>th</sup>.

Good observing. Robert Hatch.

1<sup>st</sup> January 2025

continued on page 3

**A unique experiment?**

Nasa launched a special probe to the Sun in August 2018. The idea was to get as close as possible to the Sun's surface. Placed in a very eccentric orbit, the probe, called the Parker Solar Probe, was brought progressively closer at the perihelion point of its orbit over time, until it came to within 3.8 million miles (6.1 million km) of the surface on Christmas Eve, the closest any man-made object has been, where the temperature was at least 1000°C. It was so designed to keep the internal instrumentation at room temperature! It called back with a tone, on boxing day, signalling it had survived the encounter! Nasa hopes to get any results toward the end of January.

**Passes of the ISS for January.**

| Date   | Brightness<br>mag) | Brightness<br>Time | -----Start----- |     | ---- Highest point-- |      |     | -----End----- |      |     | Pass type |
|--------|--------------------|--------------------|-----------------|-----|----------------------|------|-----|---------------|------|-----|-----------|
|        |                    |                    | Alt.            | Az. | Time                 | Alt. | Az. | Time          | Alt. | Az. |           |
| 13 Jan | -1.4               | 18:34:50           | 10°             | S   | 18:35:47             | 14°  | SSE | 18:35:47      | 14°  | SSE | visible   |
| 14 Jan | -1.3               | 17:47:12           | 10°             | SE  | 17:47:38             | 10°  | SE  | 17:48:03      | 10°  | SE  | visible   |
| 14 Jan | -1.1               | 19:20:27           | 10°             | SW  | 19:21:21             | 17°  | SW  | 19:21:21      | 17°  | SW  | visible   |
| 15 Jan | -2.6               | 18:31:10           | 10°             | SSW | 18:33:58             | 30°  | SSE | 18:33:58      | 30°  | SSE | visible   |
| 16 Jan | -2.0               | 17:42:05           | 10°             | SSW | 17:44:39             | 21°  | SE  | 17:46:28      | 14°  | ESE | visible   |
| 16 Jan | -1.7               | 19:17:38           | 10°             | WSW | 19:19:18             | 27°  | WSW | 19:19:18      | 27°  | WSW | visible   |
| 17 Jan | -3.6               | 18:28:01           | 10°             | SW  | 18:31:17             | 55°  | SSE | 18:31:42      | 50°  | SE  | visible   |
| 18 Jan | -2.9               | 17:38:30           | 10°             | SW  | 17:41:38             | 39°  | SSE | 17:44:02      | 15°  | E   | visible   |
| 18 Jan | -2.1               | 19:14:49           | 10°             | W   | 19:16:51             | 34°  | W   | 19:16:51      | 34°  | W   | visible   |
| 19 Jan | -3.9               | 18:25:01           | 10°             | WSW | 18:28:21             | 86°  | S   | 18:29:07      | 51°  | E   | visible   |
| 19 Jan | -0.2               | 20:01:45           | 10°             | W   | 20:01:55             | 11°  | W   | 20:01:55      | 11°  | W   | visible   |
| 20 Jan | -3.6               | 17:35:13           | 10°             | WSW | 17:38:32             | 67°  | SSE | 17:41:18      | 14°  | E   | visible   |
| 20 Jan | -2.4               | 19:11:52           | 10°             | W   | 19:14:07             | 39°  | WNW | 19:14:07      | 39°  | WNW | visible   |
| 21 Jan | -3.8               | 18:21:57           | 10°             | W   | 18:25:17             | 76°  | N   | 18:26:15      | 42°  | ENE | visible   |
| 21 Jan | -0.4               | 19:58:40           | 10°             | WNW | 19:59:04             | 13°  | WNW | 19:59:04      | 13°  | WNW | visible   |
| 22 Jan | -3.8               | 17:31:59           | 10°             | W   | 17:35:19             | 85°  | N   | 17:38:22      | 12°  | ENE | visible   |
| 22 Jan | -2.8               | 19:08:43           | 10°             | W   | 19:11:10             | 46°  | WNW | 19:11:10      | 46°  | WNW | visible   |
| 23 Jan | -3.8               | 18:18:42           | 10°             | W   | 18:22:03             | 75°  | N   | 18:23:15      | 36°  | E   | visible   |
| 23 Jan | -0.6               | 19:55:24           | 10°             | W   | 19:56:03             | 15°  | W   | 19:56:03      | 15°  | W   | visible   |
| 24 Jan | -3.8               | 17:28:38           | 10°             | W   | 17:31:58             | 73°  | N   | 17:35:18      | 10°  | E   | visible   |
| 24 Jan | -3.2               | 19:05:20           | 10°             | WNW | 19:08:08             | 57°  | W   | 19:08:08      | 57°  | W   | visible   |
| 25 Jan | -3.9               | 18:15:14           | 10°             | WNW | 18:18:34             | 90°  | WNW | 18:20:13      | 28°  | ESE | visible   |
| 25 Jan | -0.8               | 19:52:02           | 10°             | W   | 19:53:02             | 17°  | W   | 19:53:02      | 17°  | W   | visible   |
| 26 Jan | -3.8               | 17:25:06           | 10°             | W   | 17:28:26             | 78°  | N   | 17:31:46      | 10°  | E   | visible   |
| 26 Jan | -2.9               | 19:01:46           | 10°             | W   | 19:04:58             | 43°  | SSW | 19:05:09      | 42°  | SSW | visible   |
| 27 Jan | -3.4               | 18:11:33           | 10°             | WNW | 18:14:51             | 61°  | SSW | 18:17:20      | 16°  | SE  | visible   |
| 27 Jan | -0.8               | 19:48:52           | 10°             | W   | 19:50:08             | 15°  | WSW | 19:50:08      | 15°  | WSW | visible   |
| 28 Jan | -3.7               | 17:21:18           | 10°             | WNW | 17:24:38             | 80°  | SSW | 17:27:58      | 10°  | ESE | visible   |
| 28 Jan | -1.7               | 18:58:13           | 10°             | W   | 19:00:57             | 24°  | SW  | 19:02:25      | 17°  | S   | visible   |
| 29 Jan | -2.2               | 18:07:44           | 10°             | W   | 18:10:48             | 34°  | SSW | 18:13:51      | 10°  | SE  | visible   |
| 30 Jan | -0.7               | 18:55:10           | 10°             | WSW | 18:56:35             | 12°  | SW  | 18:57:59      | 10°  | SSW | visible   |
| 31 Jan | -1.0               | 18:04:01           | 10°             | W   | 18:06:26             | 19°  | SW  | 18:08:50      | 10°  | S   | visible   |

Continued on page 4

## *Passes of ACS3 for January, mostly evening, with some morning passes.*

| Date   | Brightness<br>mag) | Time     | -----Start----- |     | ---- Highest point-- |      |     | -----End----- |      |     | Pass type |
|--------|--------------------|----------|-----------------|-----|----------------------|------|-----|---------------|------|-----|-----------|
|        |                    |          | Alt.            | Az. | Time                 | Alt. | Az. | Time          | Alt. | Az. |           |
| 01Jan  | 2.4                | 17:38:01 | 10°             | SE  | 17:43:43             | 36°  | ENE | 17:49:25      | 10°  | N   | visible   |
| 01 Jan | 2.6                | 19:20:54 | 10°             | S   | 19:27:06             | 53°  | W   | 19:33:20      | 10°  | NNW | visible   |
| 02 Jan | 4.5                | 06:15:07 | 10°             | NE  | 06:19:20             | 19°  | E   | 06:23:29      | 10°  | SE  | visible   |
| 02 Jan | 2.0                | 18:04:20 | 10°             | SE  | 18:10:29             | 53°  | ENE | 18:16:38      | 10°  | N   | visible   |
| 02 Jan | 3.3                | 19:48:35 | 10°             | SSW | 19:54:17             | 34°  | W   | 20:00:04      | 10°  | NNW | visible   |
| 03 Jan | 3.9                | 06:41:22 | 10°             | NNE | 06:46:42             | 29°  | E   | 06:51:54      | 10°  | SSE | visible   |
| 03 Jan | 3.1                | 16:50:25 | 10°             | E   | 16:54:41             | 19°  | NE  | 16:58:56      | 10°  | N   | visible   |
| 03 Jan | 1.8                | 18:30:58 | 10°             | SSE | 18:37:19             | 78°  | ENE | 18:43:42      | 10°  | N   | visible   |
| 03 Jan | 4.0                | 20:16:43 | 10°             | SW  | 20:21:34             | 23°  | W   | 20:26:28      | 10°  | NW  | visible   |
| 04 Jan | 3.1                | 07:07:56 | 10°             | NNE | 07:13:53             | 44°  | E   | 07:19:42      | 10°  | SSE | visible   |
| 04 Jan | 2.7                | 17:15:58 | 10°             | ESE | 17:21:10             | 27°  | ENE | 17:26:22      | 10°  | N   | visible   |
| 04 Jan | 2.1                | 18:57:53 | 10°             | S   | 19:04:15             | 71°  | W   | 19:10:37      | 10°  | NNW | visible   |
| 04 Jan | 4.5                | 20:45:42 | 10°             | WSW | 20:48:57             | 14°  | W   | 20:52:13      | 10°  | NW  | visible   |
| 05 Jan | 4.7                | 05:53:25 | 10°             | NE  | 05:56:05             | 13°  | E   | 05:58:44      | 10°  | ESE | visible   |
| 05 Jan | 2.3                | 17:41:55 | 10°             | SE  | 17:47:45             | 39°  | ENE | 17:53:34      | 10°  | N   | visible   |
| 05 Jan | 2.8                | 19:25:07 | 10°             | S   | 19:31:13             | 47°  | W   | 19:37:21      | 10°  | NNW | visible   |
| 06 Jan | 4.4                | 06:18:54 | 10°             | NE  | 06:23:26             | 21°  | E   | 06:27:52      | 10°  | SE  | visible   |
| 06 Jan | 1.9                | 18:08:10 | 10°             | SSE | 18:14:23             | 58°  | ENE | 18:20:36      | 10°  | N   | visible   |
| 06 Jan | 3.5                | 19:52:45 | 10°             | SSW | 19:58:17             | 31°  | W   | 20:03:51      | 10°  | NNW | visible   |
| 07 Jan | 3.7                | 06:45:07 | 10°             | NNE | 06:50:36             | 32°  | E   | 06:55:57      | 10°  | SSE | visible   |
| 07 Jan | 3.0                | 16:53:50 | 10°             | E   | 16:58:20             | 21°  | NE  | 17:02:51      | 10°  | N   | visible   |
| 07 Jan | 1.8                | 18:34:42 | 10°             | SSE | 18:41:05             | 86°  | ENE | 18:47:28      | 10°  | NNW | visible   |
| 07 Jan | 4.1                | 20:20:54 | 10°             | SW  | 20:25:27             | 20°  | W   | 20:30:00      | 10°  | NW  | visible   |
| 08 Jan | 2.9                | 07:11:35 | 10°             | NNE | 07:17:36             | 49°  | E   | 07:23:26      | 10°  | S   | visible   |
| 08 Jan | 2.6                | 17:19:21 | 10°             | ESE | 17:24:43             | 30°  | ENE | 17:30:03      | 10°  | N   | visible   |
| 08 Jan | 2.2                | 19:01:33 | 10°             | S   | 19:07:52             | 65°  | W   | 19:14:11      | 10°  | NNW | visible   |
| 08 Jan | 4.6                | 20:50:06 | 10°             | WSW | 20:52:41             | 13°  | W   | 20:55:16      | 10°  | NW  | visible   |
| 09 Jan | 4.7                | 05:56:31 | 10°             | NE  | 05:59:44             | 14°  | E   | 06:02:54      | 10°  | ESE | visible   |
| 09 Jan | 2.2                | 17:45:13 | 10°             | SE  | 17:51:09             | 43°  | ENE | 17:57:03      | 10°  | N   | visible   |
| 09 Jan | 3.0                | 19:28:44 | 10°             | SSW | 19:34:43             | 42°  | W   | 19:40:43      | 10°  | NNW | visible   |
| 10 Jan | 4.3                | 06:22:06 | 10°             | NE  | 06:26:52             | 23°  | E   | 06:31:32      | 10°  | SE  | visible   |
| 10 Jan | 1.8                | 18:11:23 | 10°             | SSE | 18:17:39             | 64°  | ENE | 18:23:53      | 10°  | N   | visible   |
| 10 Jan | 3.7                | 19:56:18 | 10°             | SSW | 20:01:38             | 28°  | W   | 20:07:00      | 10°  | NNW | visible   |
| 11 Jan | 3.6                | 06:48:14 | 10°             | NNE | 06:53:50             | 35°  | E   | 06:59:17      | 10°  | SSE | visible   |
| 11 Jan | 2.9                | 16:56:40 | 10°             | ESE | 17:01:23             | 23°  | NE  | 17:06:04      | 10°  | N   | visible   |
| 11 Jan | 1.9                | 18:37:51 | 10°             | SSE | 18:44:13             | 87°  | WSW | 18:50:34      | 10°  | NNW | visible   |
| 11 Jan | 4.3                | 20:24:28 | 10°             | SW  | 20:28:39             | 18°  | W   | 20:32:52      | 10°  | NW  | visible   |
| 12 Jan | 2.7                | 07:14:35 | 10°             | NNE | 07:20:38             | 54°  | E   | 07:26:31      | 10°  | S   | visible   |
| 12 Jan | 2.5                | 17:22:08 | 10°             | ESE | 17:27:37             | 32°  | ENE | 17:33:04      | 10°  | N   | visible   |
| 12 Jan | 2.4                | 19:04:36 | 10°             | S   | 19:10:51             | 59°  | W   | 19:17:06      | 10°  | NNW | visible   |
| 12 Jan | 4.8                | 20:54:05 | 10°             | W   | 20:55:45             | 11°  | WNW | 20:57:26      | 10°  | WNW | visible   |
| 13 Jan | 4.6                | 05:59:06 | 10°             | NE  | 06:02:42             | 16°  | E   | 06:06:15      | 10°  | ESE | visible   |

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|            |          |     |     |          |     |     |          |     |     |         |
|------------|----------|-----|-----|----------|-----|-----|----------|-----|-----|---------|
| 13 Jan 2.1 | 17:47:55 | 10° | SE  | 17:53:55 | 47° | ENE | 17:59:53 | 10° | N   | visible |
| 13 Jan 3.2 | 19:31:42 | 10° | SSW | 19:37:34 | 39° | W   | 19:43:25 | 10° | NNW | visible |
| 14 Jan 4.1 | 06:24:42 | 10° | NE  | 06:29:38 | 25° | E   | 06:34:28 | 10° | SE  | visible |
| 14 Jan 1.8 | 18:13:59 | 10° | SSE | 18:20:16 | 69° | ENE | 18:26:32 | 10° | N   | visible |
| 14 Jan 3.9 | 19:59:13 | 10° | SW  | 20:04:21 | 25° | W   | 20:09:28 | 10° | NNW | visible |
| 15 Jan 3.4 | 06:50:44 | 10° | NNE | 06:56:25 | 38° | E   | 07:01:58 | 10° | SSE | visible |
| 15 Jan 2.8 | 16:58:55 | 10° | ESE | 17:03:48 | 24° | ENE | 17:08:38 | 10° | N   | visible |
| 15 Jan 1.9 | 18:40:22 | 10° | S   | 18:46:43 | 81° | WSW | 18:53:02 | 10° | NNW | visible |
| 15 Jan 4.4 | 20:27:24 | 10° | WSW | 20:31:13 | 16° | W   | 20:35:03 | 10° | NW  | visible |
| 16 Jan 5.0 | 05:37:13 | 10° | ENE | 05:38:05 | 10° | ENE | 05:38:57 | 10° | E   | visible |
| 16 Jan 2.6 | 07:16:58 | 10° | NNE | 07:23:01 | 58° | E   | 07:28:56 | 10° | S   | visible |
| 16 Jan 2.4 | 17:24:18 | 10° | SE  | 17:29:54 | 35° | ENE | 17:35:26 | 10° | N   | visible |
| 16 Jan 2.6 | 19:07:02 | 10° | S   | 19:13:12 | 54° | W   | 19:19:22 | 10° | NNW | visible |
| 17 Jan 4.6 | 06:01:08 | 10° | NE  | 06:05:01 | 17° | E   | 06:08:50 | 10° | ESE | visible |
| 17 Jan 2.0 | 17:50:00 | 10° | SE  | 17:56:03 | 50° | ENE | 18:02:04 | 10° | N   | visible |
| 17 Jan 3.3 | 19:34:02 | 10° | SSW | 19:39:47 | 35° | W   | 19:45:29 | 10° | NNW | visible |
| 18 Jan 4.0 | 06:26:42 | 10° | NNE | 06:31:46 | 27° | E   | 06:36:44 | 10° | SE  | visible |
| 18 Jan 1.8 | 18:15:59 | 10° | SSE | 18:22:17 | 75° | ENE | 18:28:31 | 10° | N   | visible |
| 18 Jan 4.0 | 20:01:30 | 10° | SW  | 20:06:25 | 23° | W   | 20:11:19 | 10° | NW  | visible |
| 19 Jan 3.3 | 06:52:37 | 10° | NNE | 06:58:21 | 41° | E   | 07:03:58 | 10° | SSE | visible |
| 19 Jan 2.0 | 18:42:15 | 10° | S   | 18:48:34 | 75° | WSW | 18:54:50 | 10° | NNW | visible |
| 19 Jan 4.5 | 20:29:43 | 10° | WSW | 20:33:09 | 15° | W   | 20:36:34 | 10° | NW  | visible |
| 20 Jan 4.9 | 05:38:07 | 10° | ENE | 05:39:56 | 11° | E   | 05:41:43 | 10° | E   | visible |
| 20 Jan 2.4 | 07:18:43 | 10° | NNE | 07:24:46 | 63° | E   | 07:30:42 | 10° | S   | visible |
| 20 Jan 2.3 | 17:25:53 | 10° | SE  | 17:31:32 | 37° | ENE | 17:37:09 | 10° | N   | visible |
| 20 Jan 2.7 | 19:08:50 | 10° | S   | 19:14:55 | 50° | W   | 19:20:59 | 10° | NNW | visible |
| 21 Jan 4.5 | 06:02:34 | 10° | NE  | 06:06:40 | 18° | E   | 06:10:43 | 10° | SE  | visible |
| 21 Jan 1.9 | 17:51:29 | 10° | SE  | 17:57:33 | 54° | ENE | 18:03:35 | 10° | N   | visible |
| 21 Jan 3.5 | 19:35:45 | 10° | SSW | 19:41:20 | 33° | W   | 19:46:54 | 10° | NNW | visible |
| 22 Jan 3.9 | 06:28:03 | 10° | NNE | 06:33:14 | 29° | E   | 06:38:19 | 10° | SSE | visible |
| 22 Jan 1.8 | 18:17:21 | 10° | SSE | 18:23:38 | 79° | ENE | 18:29:52 | 10° | NNW | visible |
| 22 Jan 4.1 | 20:03:09 | 10° | SW  | 20:07:50 | 22° | W   | 20:12:31 | 10° | NW  | visible |
| 23 Jan 3.1 | 06:53:51 | 10° | NNE | 06:59:38 | 44° | E   | 07:05:17 | 10° | SSE | visible |
| 23 Jan 2.1 | 18:43:31 | 10° | S   | 18:49:47 | 71° | WSW | 18:56:00 | 10° | NNW | visible |
| 23 Jan 4.6 | 20:31:24 | 10° | WSW | 20:34:25 | 14° | W   | 20:37:25 | 10° | NW  | visible |
| 24 Jan 4.8 | 05:38:48 | 10° | ENE | 05:41:07 | 12° | E   | 05:43:26 | 10° | ESE | visible |
| 24 Jan 2.3 | 17:26:51 | 10° | SE  | 17:32:33 | 39° | ENE | 17:38:12 | 10° | N   | visible |
| 24 Jan 2.9 | 19:09:58 | 10° | S   | 19:16:00 | 47° | W   | 19:21:57 | 10° | NNW | visible |
| 25 Jan 4.5 | 06:03:23 | 10° | NE  | 06:07:40 | 20° | E   | 06:11:53 | 10° | SE  | visible |
| 25 Jan 1.9 | 17:52:20 | 10° | SE  | 17:58:26 | 57° | ENE | 18:04:27 | 10° | N   | visible |
| 25 Jan 3.6 | 19:36:49 | 10° | SSW | 19:42:16 | 31° | W   | 19:47:41 | 10° | NNW | visible |
| 26 Jan 3.8 | 06:28:47 | 10° | NNE | 06:34:03 | 30° | E   | 06:39:13 | 10° | SSE | visible |
| 26 Jan 1.8 | 18:18:06 | 10° | SSE | 18:24:21 | 84° | ENE | 18:30:34 | 10° | NNW | visible |
| 26 Jan 4.2 | 20:04:09 | 10° | SW  | 20:08:37 | 20° | W   | 20:13:04 | 10° | NW  | visible |
| 27 Jan 3.0 | 06:54:28 | 10° | NNE | 07:00:16 | 46° | E   | 07:05:58 | 10° | S   | visible |
| 27 Jan 2.2 | 18:44:09 | 10° | S   | 18:50:21 | 67° | W   | 18:56:31 | 10° | NNW | visible |
| 27 Jan 4.7 | 20:32:28 | 10° | WSW | 20:35:03 | 13° | W   | 20:37:37 | 10° | NW  | visible |
| 28 Jan 4.8 | 05:38:59 | 10° | NE  | 05:41:39 | 13° | E   | 05:44:19 | 10° | ESE | visible |
| 28 Jan 2.2 | 17:27:12 | 10° | SE  | 17:32:56 | 40° | ENE | 17:38:36 | 10° | N   | visible |
| 28 Jan 3.0 | 19:10:30 | 10° | SSW | 19:16:25 | 44° | W   | 19:22:17 | 10° | NNW | visible |
| 29 Jan 4.4 | 06:03:37 | 10° | NE  | 06:08:01 | 21° | E   | 06:12:23 | 10° | SE  | visible |

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|        |     |          |     |     |          |     |     |          |     |     |         |
|--------|-----|----------|-----|-----|----------|-----|-----|----------|-----|-----|---------|
| 29 Jan | 1.9 | 17:52:34 | 10° | SSE | 17:58:40 | 60° | ENE | 18:04:41 | 10° | N   | visible |
| 29 Jan | 3.7 | 19:37:14 | 10° | SSW | 19:42:33 | 29° | W   | 19:47:50 | 10° | NNW | visible |
| 30 Jan | 3.7 | 06:28:53 | 10° | NNE | 06:34:13 | 32° | E   | 06:39:28 | 10° | SSE | visible |
| 30 Jan | 1.8 | 18:18:13 | 10° | SSE | 18:24:27 | 87° | ENE | 18:30:37 | 10° | NNW | visible |
| 30 Jan | 4.3 | 20:04:28 | 10° | SW  | 20:08:44 | 19° | W   | 20:12:59 | 10° | NW  | visible |
| 31 Jan | 2.9 | 06:54:26 | 10° | NNE | 07:00:15 | 49° | E   | 07:06:00 | 10° | S   | visible |
| 31 Jan | 2.3 | 18:44:08 | 10° | S   | 18:50:18 | 63° | W   | 18:56:23 | 10° | NNW | visible |
| 31 Jan | 4.8 | 20:32:53 | 10° | W   | 20:35:01 | 12° | W   | 20:37:08 | 10° | WNW | visible |
| 01 Feb | 4.8 | 05:38:37 | 10° | NE  | 05:41:32 | 14° | E   | 05:44:26 | 10° | ESE | visible |
| 01 Feb | 2.2 | 17:26:56 | 10° | SE  | 17:32:41 | 42° | ENE | 17:38:22 | 10° | N   | visible |
| 01 Feb | 3.1 | 19:10:22 | 10° | SSW | 19:16:12 | 42° | W   | 19:21:58 | 10° | NNW | visible |
| 02 Feb | 4.4 | 06:03:12 | 10° | NE  | 06:07:43 | 22° | E   | 06:12:12 | 10° | SE  | visible |
| 02 Feb | 1.8 | 17:52:11 | 10° | SSE | 17:58:15 | 62° | ENE | 18:04:16 | 10° | N   | visible |
| 02 Feb | 3.8 | 19:36:59 | 10° | SSW | 19:42:10 | 28° | W   | 19:47:20 | 10  | NNW | visible |