## Jupiter Elongation

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opposition</td>
<td>06/10/19</td>
</tr>
<tr>
<td>Season Start</td>
<td>02/08/19</td>
</tr>
<tr>
<td>Season End</td>
<td>09/08/19</td>
</tr>
<tr>
<td>Conjunction</td>
<td>12/27/19</td>
</tr>
<tr>
<td>Season Start</td>
<td>03/12/20</td>
</tr>
<tr>
<td>Season End</td>
<td>10/11/20</td>
</tr>
<tr>
<td>Season End</td>
<td>10/11/20</td>
</tr>
</tbody>
</table>

**Elongation (deg) (+ = Jupiter Leading)**

**Year**

- 2019: F M A M J J A S O N D
- 2020: F M A M J J A S O N D
- 2021: F M A M J J A S O N D
Jupiter Elongation

Elongation (deg) (+ = Jupiter Leading)

Year:
- Opposotion: 02/11/27
- Season End: 05/08/27
- Conjunction: 08/31/27
- Season Start: 11/15/27
- Opposition: 03/11/28
- Season End: 06/08/28
- Conjunction: 09/30/28
- Season Start: 12/14/28

Elongation (deg) (+ = Jupiter Leading)
Jupiter Elongation

<table>
<thead>
<tr>
<th>Year</th>
<th>Opposition</th>
<th>Season End</th>
<th>Conjunction</th>
<th>Season Start</th>
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<tbody>
<tr>
<td>01/12/30</td>
<td>04/12/29</td>
<td>07/09/29</td>
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</tr>
</tbody>
</table>
Jovian Ephemerides

Year

Elevation at Transit for 30° N Latitude (deg)

Path Loss (dB Relative to 4 AU Distance)

Galactic Longitude (deg)
Jovian Ephemerides

Opposition
06/10/19
Opposition
07/13/20
Opposition
08/20/21
Opposition
09/27/22

Elevation at Transit for 30° N Latitude (deg)

Path Loss (dB Relative to 4 AU Distance)

Galactic Longitude (deg)
Jovian Ephemerides

Elevation at Transit for 30° N Latitude (deg)

Opposition
11/03/23
12/07/24
01/10/26

Path Loss (dB Relative to 4 AU Distance)

Galactic Longitude (deg)
Jupiter Elevation at Transit for AJ4CO Observatory (29.8° N Latitude)
Jupiter Elevation at Transit for AJ4CO Observatory (29.8° N Latitude)
Jupiter Elevation at Transit for AJ4CO Observatory (29.8° N Latitude)
Jupiter Elevation at Transit for AJ4CO Observatory (29.8° N Latitude)
Jovicentric Declination of Earth

![Graph showing the Jovicentric Declination of Earth from 2019 to 2031. The graph displays fluctuations in declination over time.]
Jupiter–Earth Path Loss due to Distance

![Graph showing the distance to Jupiter (AU) and path loss relative to 4 AU (dB) from 2019 to 2031. The graph demonstrates the cyclical nature of path loss due to varying distances to Jupiter.]
Jupiter–Earth Path Loss due to Distance

Year
Distance to Jupiter (AU)

Path Loss Relative to 4 AU (dB)
Jupiter–Earth Path Loss due to Distance

Distance to Jupiter (AU) vs. Path Loss Relative to 4 AU (dB)

Year: 2023, 2024, 2025, 2026, 2027

Path Loss (dB):
-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7

Distance to Jupiter (AU):
3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0
Jupiter–Earth Path Loss due to Distance

Distance to Jupiter (AU)

Path Loss Relative to 4 AU (dB)