

Prophecy Lesson 1: Preview of the 2020 Jupiter Saturn Conjunction - the astronomy -Part 1
(December 6, 2020)

We turn our attention to the birth of Christ for the next couple of weeks during this Christmas season - because we have an incredible opportunity to see and experience what the Christmas Star story was all about with the pending conjunction of Jupiter and Saturn that will occur in the SW evening sky on December 21st. Importantly, Jupiter and Saturn have not formed a junction that appeared as a single star in nearly 800 years. In many ways this timely appearance replicates the extraordinary Venus-Jupiter conjunction of 17 June 2 BC that formed the Christmas Star to mark the birth of Jesus Christ. In this lesson, I will share some of the astronomy involved with these conjunctions while motivating you to observe what's happening in the night sky (naked eye observations are ideal because they compare well with what the wise men observed) for yourselves during the next couple of weeks and in preparation for the following lessons which will link the nativity Scriptures with the astronomy.

First, the details on the upcoming conjunction: Jupiter and Saturn are currently visible in the SW evening sky (about 25 degrees separation from the Sun) for about the first hour and a half after sunset. Jupiter (closing) is below and to the west of Saturn with the planets separated by about 1.75 degrees. A good time to observe the planets would be at about 6 PM each evening. Jupiter will move closer to Saturn at a rate of about 0.2 degree each day until 21 December when their separation distance will be .1 degrees (6 arc minutes). The computer image below shows the conjunction on December 21st as it should appear to the naked eye.



Jupiter Saturn conjunction 12-21-2020 6 PM 0.1 degree separation
Brightness magnitude – Jupiter -1.97 Saturn +0.63 40x20 Field of view

Jupiter takes 12 years to travel around the Sun while Saturn takes about 30 years, so Jupiter will pass or join with Saturn about once every 20 years. During my work on The Christmas Star, I classified Venus Jupiter conjunctions into four categories, defining them by the separation distance at the closest point of approach between the planets, as follows:

<u>Conjunction type</u>	<u>Separation distance between planets</u>	<u>Average % of each typ</u>
Notable	Greater than 1 degree	49%
Significant	0.1 degree to 1 degree	51%
Major	0.01 degree to 0.1 degree	.05%

Extraordinary

Less than 0.01 degree

0%

From the table, we see that the Jupiter Saturn conjunction has the potential to be classified as a major conjunction. The planets will appear to look like a “double planet” on December 20th and 22nd. But on the 21st it could very well appear to the naked eye as a single star. Jupiter is about 6 times brighter than Saturn depending on sky conditions, which is a factor in how the conjunction appears. This conjunction is formed exactly the same way Venus-Jupiter conjunctions form except it happens in “slow motion” relatively speaking and will be notably less brilliant when compared with conjunctions formed by Venus. Venus is currently the “morning star” and can be observed each morning in the southeastern sky between about 5 AM and 6:30 AM. I suggest taking the time to observe Venus (at about 6 AM) on a couple of mornings during this period in order to gain an appreciation for the significant differences in brilliance or magnitude of brightness between the three planets. Venus, the brightest star in the sky, is normally about 6 times brighter than Jupiter, the second brightest star, and Jupiter is about 6 times brighter than Saturn. Thus, close conjunctions formed with Venus, particularly those formed with Jupiter, can be spectacular.

Differences between Venus-Jupiter and Jupiter-Saturn conjunctions: Being an inner planet, Venus takes only about eight months to orbit the sun. Because Venus can pass all the visible planets (relative to earth) in its orbit at least once each year, it can potentially be involved in multiple annual conjunctions, 99+% of which are classified as either Notable or Significant. This is important because conjunctions involving Venus happen quickly and last only a short period of time, especially when compared with conjunctions involving the other planets. For example, it will take Jupiter 16 days to close the current 1.75 degree separation with Saturn by December 21st and the planets will remain in close conjunction for about three days (20-22 Dec). Significantly, because they are both outer planets, a Jupiter Saturn conjunction will be seen all around the world depending on sky conditions. If Venus was closing on Saturn from the same 1.75 degrees of separation as is Jupiter today, the conjunction would occur in about two days because Venus’ rate of closure is nearly 1 degree per day. But, the duration of the conjunction would be only a matter of hours, so it would be observed in a limited number of time zones (1 to 3 depending on the separation of Venus from the Sun) when the planets are at their closest separation. Since conjunctions involving Venus are of such short duration and are very limited in the location of appearance, few people have ever seen a significant or major Venus Jupiter conjunction.

Please review this lesson and take time to observe Jupiter and Saturn in the evening sky (recommend 6 PM) and Venus in the morning sky (recommend 6 AM) if you can during this week. It will better prepare you for the follow on lessons as we prepare to experience the incredibly realistic presentation by Jupiter and Saturn on December 21st as the Christmas Star.