

HEAVENLY NEWS

“BY JOVE”

Written by: Forrest Lockhart, Lead Docent – Cameron Park Rotary Community Observatory

Observers who cast their eyes on the southern night sky this summer will notice one of the few constellations whose brightest stars actually resemble their namesake:

Scorpius, the scorpion. Its brilliant orange heart is the star Alpha Scorpii, commonly known as Antares. Ten thousand times brighter than our Sun, Antares resides 600 light years from Earth. But the real star of this year's southern sky isn't a star at all.

Skimming the horizon east of Antares we find Jupiter, the largest planet in the solar system. Jupiter orbits about 480 million miles from the Sun, with an orbital period of 12 years. The fifth planet from the Sun, this gas giant could hold over 1300 Earths. Jupiter is so immense that all of the Sun's retinue of planets, moons, and minor planets could fit inside it with room to spare. Although it has a diameter of approximately 88,000 miles at its equator, Jupiter rotates in less than 10 hours. This results in an obvious flattening of the polar regions that can be seen through small telescopes.

Jupiter is a planet of extremes. Composed of a small rocky core surrounded by a thick layer of metallic hydrogen, the outer gaseous atmosphere is thousands of miles thick. Gravity at the visible surface of the clouds is over twice that of Earth. A 100-pound astronaut floating in Jupiter's upper atmosphere would weigh 253 pounds. Intense radiation generated by strong magnetic fields extends hundreds of thousands of miles into space, making close inspection of the planet by both robotic probes and future human expeditions very dangerous.

Seen through a telescope of moderate size, Jupiter displays several dark belts and light zones on its disk. The most famous feature is the Great Red Spot, a giant rotating hurricane that has been observed for over 300 years. With an approximate size of 170 million square miles, the Red Spot is visible as a ruddy oval as it moves across the face of the planet.

While observing Jupiter is more rewarding with a telescope, anyone with binoculars can detect a tiny Jovian disk and the famous Galilean moons. Discovered by Galileo in 1610, the four major moons were originally named the Medicean Stars in honor of his patron, Cosimo II de Medici. It was astronomer Simon Marius, however, who in 1614

proposed naming them after the mythical lovers of the Roman god Zeus: Callisto, Europa, Ganymede, and Io. Observing their paths about Jupiter from night to night, Galileo interpreted their motion as a fundamental proof of the controversial Copernican Theory which placed the Sun, not Earth, at the center of the universe.

While even the largest earthbound telescopes see the Galilean moons as just tiny disks, the orbiting Hubble telescope has a much better view. But the most enlightening studies of the Galilean moons have been made in recent years by robotic spacecraft. With future missions planned to the Jovian system, we can only guess at what awaits us out there.

In the meantime we must be content to stand beneath the night sky and watch Jupiter from afar. The Cameron Park Rotary Community Observatory will offer peeks at Jupiter every weekend throughout the summer, so plan to visit and experience the magnificence of our largest planet. For more information about the observatory and driving directions, just go to www.communityobservatory.com.