Moon & Jupiter Watch

Jupiter (Gas Giant) Facts:

Mass= 318 Earth Masses
Diameter = 11.2 Earths
Density = 1400 kg/m^3
Spin Period = 9 hours 55 minutes (0.41 Earth days)
Orbital Period = 11.9 years

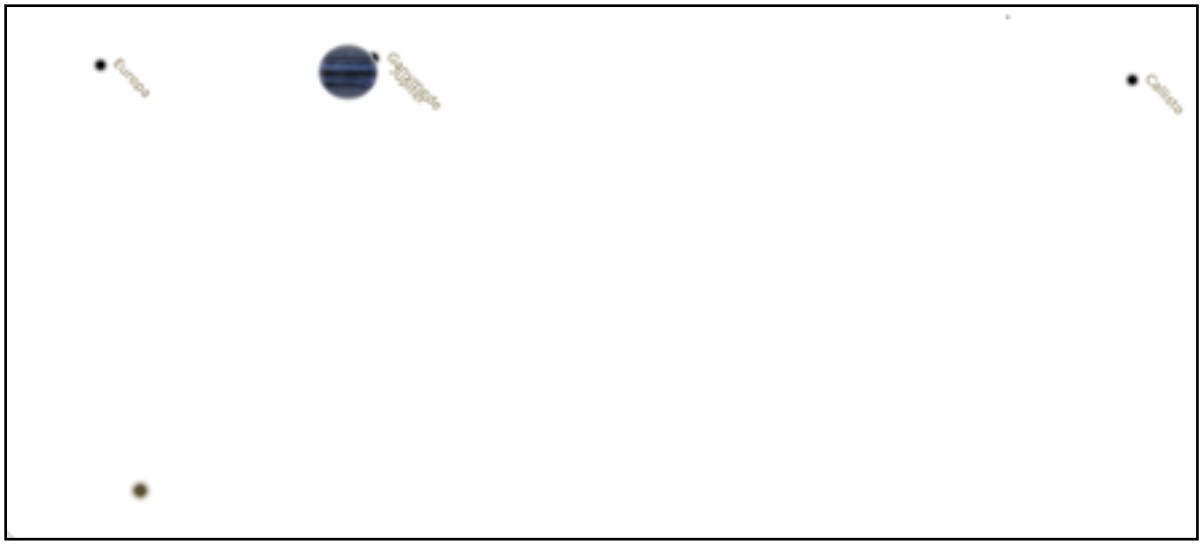
Rapid spin draws out clouds into horizontal belts (dark) and zones (bright).

No spacecraft there at the moment, but JUNO mission to study the atmosphere and internal structure was launched on 5th August 2011, will arrive in July 2016.

Jupiter tonight at 7:30pm:

Note that both Ganymede and Io are in Jupiter's shadow most of the night, though Ganymede may be seen near Jupiter's limb if the IAA get onto it soon enough.

The relatively bright star that is likely to be in the field (bottom left in Fig. below) is 44 Gem, a V=6, B8V star located 478 light years away.



Distance from Earth= 4.21 AU = 630 million km = 391 million miles
Apparent Magnitude = -2.23
Note that the Great Red Spot is not visible (on other side of planet this evening).

Moons: All are composed of rock and ice.
Four brightest moons are called the galilean satellites, after their discoverer Galleo.

Io - Most volcanically active body in the Solar system
Europa - Ice crust between 1-10 km thick, covering a liquid water ocean.
Ganymede - largest moon in the solar system, 8% larger than the planet Mercury
Callisto - surface saturated in craters from 4.5 billion years of asterod and comet impacts.

Plus another 60 smaller moons discovered so far.

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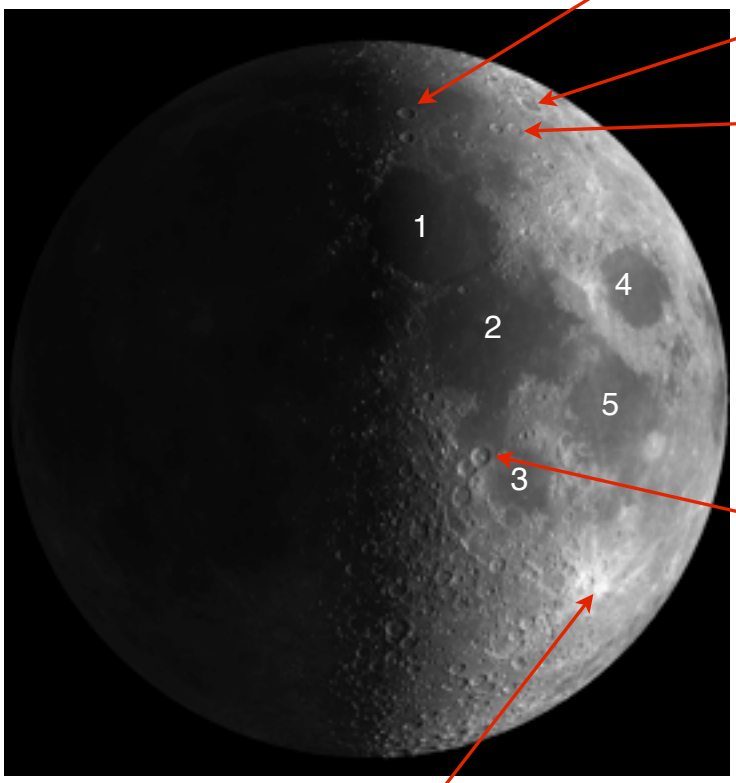
Moon Facts:

Mass= 0.012 Earth Masses
Diameter = 3474 km (0.272 Earth radii)
Density = 3344 kg/m^3
Surface gravity = 1.62 ms^{-2}
Semimajor axis = 384,400 km
Perigee distance = 363,300 km
Apogee distance = 405,500 km
Revolution period = 27.3217 days
Mean orbital velocity = 1.023 kms^{-1}
Recession rate from Earth = 3.8 cm/year

Chinese currently have the 'Jade Rabbit' lunar rover on the moon, the first in nearly 40 years.

Moon tonight



Crater Aristoteles

Crater Atlas (diameter 69 km)
Crater floor flooded by lava - hence low albedo

Crater Atlas

1. Mare Seranitatis (Sea of Serenity) (diameter 670 km)
2. Mare Tranquillitatis (Sea of Tranquility)
3. Mare Nectaris (Sea of Nectar)
4. Mare Crisium (Sea of Crises) (diameter 556 km)
5. Mare Fecunditatis (Sea of Fecundity)

Crater Theophilus (diameter 98.6 km)
Central peak 1,400m high
Crater 14,000 feet deep

Crater Stevinus (diameter 75 km)
Has a bright ray system.

'Seas' - ancient astronomers thought they were water-filled, but caused by lava flows due to large impacts. Relatively 'young' (though still ~3.8 billion years old) and formed after the late bombardment phase - hence low cratering rate.

Bright regions are the highlands, older and more cratered.