Sky News

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LARGE PLANET OR BROWN DWARF

Scientists are working on the definition for large planets by comparing their differences to small brown dwarf stars. Large exoplanets are creating the need for an upper limit on planet size. So far, the limit is 4 to 10 Jupiter masses.

Planets form by core **accretion**. That occurs when rocks and ice collide and stick together, creating a rocky core. For large planets to form, gasses, like hydrogen and helium, must be pulled from the protoplanetary disk and held by gravity around the rocky core. Large planets form more easily in discs with heavy elements to form the rocky cores. Stars form a different way.

Stars form from collapsing gas within a nebula. A brown dwarf star may be too small to create enough heat and pressure for fusion to occur at its core. Brown dwarfs are often called failed stars because of the lack of fusion.

IMAGE AWAKENS

NASA's spacecraft *IMAGE* (Imager for Magnetopause-to-Aurora Global Exploration) was launched in 2000 to study Earth's magnetosphere. It mysteriously went silent in 2005, ending its mission. Thirteen years later, radio transmissions from *IMAGE* were received again by an amateur astronomer in Canada. NASA verified its identity and is trying to regain contact with the spacecraft to continue its mission to research space weather.

The following sources were used for this issue of Sky News:
www.nasa.gov/newhorizons, *www.esa.int*, *www.astropixels.com*
www.*casonline.org*, *www.physics.valpo.edu*, *http://spaceweather.com*,
Astronomy, and Sky and Telescope.

EARTH RINGS LIKE A BELL

A high speed solar wind emanating from the Sun's southern hemisphere has created a rare set of conditions that allow the Earth's magnet field to ring like a bell around the Earth's poles. This unusual phenomena occurs only 2 or 3 times a year. The stormy solar wind has an energizing effect on particles in Earth's inner magnetosphere. Pure ultra-low frequency oscillations (wavy vibrations) ate called pulsations continuous or Pc waves. The particles resonate with the particles around the geomagnetic field.

In Norway, Rob Stammes recorded the magnetic field around their magnetic observatory on February 22, 2018. The magnetic field in ground currents oscillated or waved back and forth with a 100 second period for more than an hour around the Arctic Circle. The low frequency oscillation makes Earth's internal magnetic field ring like a bell. The auroras are also supercharged during these events, putting on great displays. They are sometimes called "ringing auroras".

NEW HORIZONS TO ULTIMA THULE

After public voting, the distant object in the Kuiper Belt, officially named 2014 MU69, has been given the nickname of Ultima Thule. It means "beyond Thule" or beyond the borders of the known world, based on a mythical island in medieval literature. Ultima Thule orbits the Sun a billion miles (1.6 billion kilometers) farther than Pluto.

NASA's *New Horizons* spacecraft went past Pluto in July 2015 will reach Ultima Thule on January 1, 2019. It will be the most distant planetary object studied. Scientists will find out if it's a single, binary or multiple-bodied object and if it has any moons. Visit NASA at http://www.nasa.gov/newhorizons or http://pluto.jhuapl.edu to learn more.

MAY PLANETS

Venus can be seen in the western sky after sunset in the constellation Taurus (the Bull) moving to Gemini (the Twins) by the end of May. Venus is the "Evening Star". Venus appears higher every night and is the only visible planet in the western sky. Venus looks like a very bright white star.

Jupiter can be seen rising in the southeastern sky as the Sun sets in the constellation Libra (the Scales). Jupiter is bright and visible all night long. Reaching opposition on May 8th, Jupiter rises just after sunset, crosses medium-high through the southern sky, and is low on the western horizon at dawn. Jupiter looks like a very bright, yellow-colored star.

Saturn can be seen rising in the southeastern sky in the constellation Sagittarius (the Archer), just above the lid of the Teapot. Saturn rises earlier every night. Saturn crosses low through the southern sky until dawn. Saturn looks like a bright, golden-colored star.

Mars can be seen rising in the southeastern sky about an hour after Saturn in the constellation Capricornus (the SeaGoat). Mars is moving slowly away from Saturn, rising later every night. Mars can be seen passing low through the southern sky at dawn. Mars looks like a small, ruddy-colored star.

Mercury cannot be seen in May as it moves from the morning sky into the early evening sky. Mercury will pass behind the Sun as seen from Earth, called superior conjunction. Mercury will return to the evening sky in June. Mercury looks like a small white star.

MAY SUNRISE AND SUNSET (times are for mid-month)

sunrise: 5:30 a.m.
sunset: 8:01 p.m.
length of daylight: 14 hours, 31 minutes
length of darkness: 9 hours, 29 minutes

This edition of the
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was written by
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SKY DATES

May

1 - May Day (halfway point of spring)
2 - Venus passes 6.3º N of Aldebaran
3 - Mercury at dichotomy
4 - Moon passes 1.7º N of Saturn
- VU Observatory viewing at 8:30 p.m.
5 - Eta Aquarid meteor shower peaks; look to Aquarius low in sky for fast, yellow meteors with persistent trails; 10-15m/hr
- Moon at apogee (farthest point from Earth) at 250,763 miles at 7:35 p.m.
6 - Moon passes 2.7º N of Mars
7 - Last quarter moon at 9:09 p.m.
8 - Asteroid Eunomia at opposition
- Jupiter at opposition at 7:00 p.m.
9 - Comet PANSTARRS at perihelion
11 - Mercury/dwarf planet Eris/Uranus together
13 - Moon passes 2.4º S of Mercury
- α-Scorpiid meteor shower peaks
15 - New moon at 6:48 a.m.
- Venus at perihelion at 8:00 p.m.
17 - Moon passes 4.8º S of Venus
- Moon at perigee (closest point to Earth) at 225,541 miles at 4:06 p.m.
19 - CAS hosts FREE telescopic viewing at Conway Observatory at 8:30 p.m.
20 - Moon passes 1.7º S of Beehive cluster
- Venus/M35 star cluster together
21 - Moon passes 1.4º N of Regulus
- First quarter moon at 10:49 p.m.
25 - Spica/waxing gibbous Moon close together
26 - Moon/Jupiter/Spica close triangle
27 - Moon passes 4.0º N of Jupiter
29 - Full moon called Green Moon, Milk Moon, or Flower Moon at 9:20 a.m.
31 - Moon passes 1.6º N of Saturn

SPACE STORM HUNTER

The Atmosphere-Space Interactions Monitor is the Space Storm Hunter. It was installed on the International Space Station outside the European space laboratory. It will monitor and observe lightning and powerful electrical bursts in the atmosphere above thunder storms on Earth. It has infrared, ultraviolet, x-ray, and gamma detectors.