

Last week APOD

A Solar Filament Erupts



Date: 2024-05-26 Copyright: null

What's happened to our Sun? Nothing very unusual -- it just threw a filament. Toward the middle of 2012, a long standing solar filament suddenly erupted into space, producing an energetic coronal mass ejection (CME). The filament had been held up for days by the Sun's ever changing magnetic field and the timing of the eruption was unexpected. Watched closely by the Sun-orbiting Solar Dynamics Observatory, the resulting explosion shot electrons and ions into the Solar System, some of which arrived at Earth three days later and impacted Earth's magnetosphere, causing visible auroras. Loops of plasma surrounding the active region can be seen above the erupting filament in the featured ultraviolet image. Our Sun is nearing the most active time in its 11-year cycle, creating many coronal holes that allow for the ejection of charged particles into space. As before, these charged

particles can create auroras. Your Sky Surprise: What picture did APOD feature on your birthday? (post 1995)

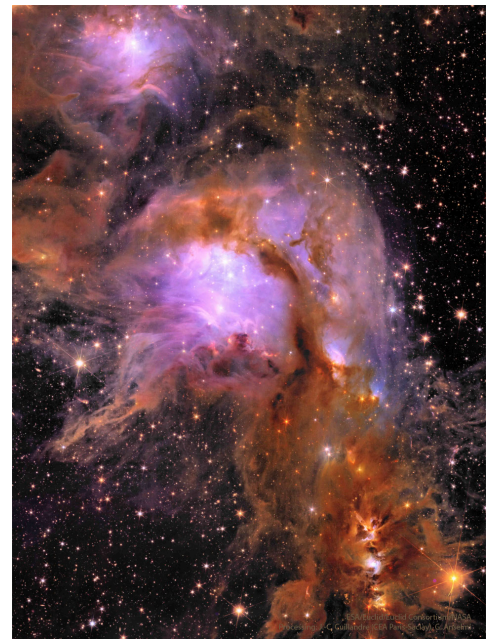
Manicouagan Impact Crater from Space



Date: 2024-05-25 Copyright: null

Orbiting 400 kilometers above Quebec, Canada, planet Earth, the International Space Station Expedition 59 crew captured this snapshot of the broad St. Lawrence River and curiously circular Lake Manicouagan on April 11. Right of center, the ring-shaped lake is a modern reservoir within the eroded remnant of an ancient 100 kilometer diameter impact crater. The ancient crater is very conspicuous from orbit, a visible reminder that Earth is vulnerable to rocks from space. Over 200 million years old, the Manicouagan crater was likely caused by the impact of a rocky body about 5 kilometers in diameter. Currently, there is no known asteroid with a significant probability of impacting Earth in the next century. Each month, NASA's Planetary Defense Coordination Office releases an update featuring the most recent figures on near-Earth object close approaches, and other facts about comets and asteroids that could pose a potential impact hazard with Earth.

M78 from the Euclid Space Telescope



Date: 2024-05-24 Copyright: null

Star formation can be messy. To help find out just how messy, ESA's new Sun-orbiting Euclid telescope recently captured the most detailed image ever of the bright star forming region M78. Near the image center, M78 lies at a distance of only about 1,300 light-years away and has a main glowing core that spans about 5 light-years. The featured image was taken in both visible and infrared light. The purple tint in M78's center is caused by dark dust preferentially reflecting the blue light of hot, young stars. Complex dust lanes and filaments can be traced through this gorgeous and revealing skyscape. On the upper left is associated star forming region NGC 2071, while a third region of star formation is visible on the lower right. These nebulas are all part of the vast Orion Molecular Cloud Complex which can be found with even a small telescope just north of Orion's belt. More Euclid Sky Candy: Recent images released from Euclid

Unraveling NGC 3169



Date: 2024-05-23 Copyright: Christophe Vergnes

Spiral galaxy NGC 3169 looks to be unraveling like a ball of cosmic yarn. It lies some 70 million light-years away, south of bright star Regulus toward the faint constellation Sextans. Wound up spiral arms are pulled out into sweeping tidal tails as NGC 3169 (left) and neighboring NGC 3166 interact gravitationally. Eventually the galaxies will merge into one, a common fate even for bright galaxies in the local universe. Drawn out stellar arcs and plumes are clear indications of the ongoing gravitational interactions across the deep and colorful galaxy group photo. The telescopic frame spans about 20 arc minutes or about 400,000 light-years at the group's estimated distance, and includes smaller, bluish NGC 3165 to the right. NGC 3169 is also known to shine across the spectrum from radio to X-rays, harboring an active galactic nucleus that is the site of a supermassive black hole.

Green Aurora over Sweden



Date: 2024-05-22 Copyright: Göran Strand

It was bright and green and stretched across the sky. This striking aurora display was captured in 2016 just outside of Östersund, Sweden. Six

photographic fields were merged to create the featured panorama spanning almost 180 degrees. Particularly striking aspects of this aurora include its sweeping arc-like shape and its stark definition. Lake Storsjön is seen in the foreground, while several familiar constellations and the star Polaris are visible through the aurora, far in the background. Coincidentally, the aurora appears to avoid the Moon visible on the lower left. The aurora appeared a day after a large hole opened in the Sun's corona, allowing particularly energetic particles to flow out into the Solar System. The green color of the aurora is caused by oxygen atoms recombining with ambient electrons high in the Earth's atmosphere. Your Sky Surprise: What picture did APOD feature on your birthday? (post 1995)

CG4: The Globule and the Galaxy



Date: 2024-05-21 Copyright: null

Can a gas cloud eat a galaxy? It's not even close. The "claw" of this odd looking "creature" in the featured photo is a gas cloud known as a cometary globule. This globule, however, has ruptured. Cometary globules are typically characterized by dusty heads

and elongated tails. These features cause cometary globules to have visual similarities to comets, but in reality they are very much different. Globules are frequently the birthplaces of stars, and many show very young stars in their heads. The reason for the rupture in the head of this object is not yet known. The galaxy to the left of the globule is huge, very far in the distance, and only placed near CG4 by chance superposition.

Aurora Dome Sky



Date: 2024-05-20 Copyright: Xuecheng Liu & Yuxuan Liu

It seemed like night, but part of the sky glowed purple. It was the now famous night of May 10, 2024, when people over much of the world reported beautiful aurora-filled skies. The featured image was captured this night during early morning hours from Arlington, Wisconsin, USA. The panorama is a composite of several 6-second exposures covering two thirds of the visible sky, with north in the center, and processed to heighten the colors and remove electrical wires. The photographer (in the foreground) reported that the aurora appeared to flow from a point overhead but illuminated the sky only toward the north. The aurora's energetic particles originated from CMEs ejected from our Sun over sunspot AR 3664 a few days before. This large active region rotated to the far side of the Sun last week, but may well survive to rotate back toward the Earth next week.