Space & Astronomy News 2025: Discoveries, Events & Telescope Updates.

## Major Discoveries of 2025

1.Exoplanets

(a). **Super-Earth HD 20794 d Discovered**  
*Date: Jan 27, 2025 )*  
Astronomers identified a super-Earth in the habitable zone of its star. Data collected over 20 years strengthens the quest for life beyond Earth.

(b). **Over 100 New Exoplanets Added**  
*Date: Jun 28, 2025 | Source: NASA, TESS, Mashable*  
The confirmed exoplanet tally surpasses **5,900**, with 100 new worlds found this year. Some show bizarre traits—planetary tails, extreme climates. JWST now turns its gaze to rocky exoplanets for atmospheric “fingerprints” of habitability.

2. Black Holes

(a) **Direct Collapse Black Hole Candidate**  
*Date: Jul 15, 2025 | Source: NASA Webb*  
Webb data hints at a rare “direct collapse” black hole—shedding light on how supermassive black holes may have seeded early galaxies.

(b) **Two Black Holes Merging**  
*Date: Sep 10, 2025*   
Astronomers capture unprecedented views of two black holes spiraling together, offering deeper insight into gravitational physics.

(c) **Off-Center Star Shredding (TDE)**  
*Date: May 7, 2025*   
First optical evidence of a star being torn apart by a black hole away from a galactic center. Future missions like LISA may detect its gravitational echoes.

(d) **“Naked” Black Hole in Early Universe**  
*Date: Sep 11, 2025 | Source: Quanta Magazine*  
JWST spots a solitary black hole weighing 50 million Suns—challenging theories about their origins.

3. Galaxies

(a) **Record-Breaking Galactic Jet**  
*Date: May 4, 2025 | Source: JWST, Science News (YouTube)*  
Webb reveals a jet stretching **23 million light-years** from the “Perferion” galaxy—the largest known galactic structure. It suggests jets may weave the cosmic web itself.

(b) **3D Mapping of Interstellar Dust**  
*Date: Aug 27, 2025 | Source: NASA Webb*  
Infrared mapping unveils intricate dust structures, reshaping our understanding of star formation and stellar aftermaths.

4. Telescope & Observatory Updates – 2025

(a) **James Webb Space Telescope (JWST)**

At age 3, JWST continues to dazzle: probing black holes, exoplanets, galactic jets, and even Titan’s clouds. It also studied interstellar visitor **comet 3I/ATLAS**, offering new clues about star system formation.

(b) **Hubble Space Telescope**

Turning 35, Hubble still delivers. Fresh images of Mars, nebulae, and galaxy clusters made headlines. In mid-2025, Hubble snapped its closest-ever shot of comet 3I/ATLAS, revealing icy plumes in detail.

(c) **Extremely Large Telescope (ELT)**

In April 2025, ELT’s “roof raising” marked major progress in Chile’s Atacama Desert. Its **39m mirror** (15× sharper than Hubble) aims to directly image Earth-like exoplanets by 2029.

(d) **Square Kilometre Array (SKA)**

The SKA, the world’s largest radio telescope, edges closer to operation. Initial data is expected in 2027, full science in 2029. 2025 was filled with workshops preparing it to study the **cosmic dawn, fast radio bursts, and relativity tests**.

5. Cosmic Events 2025

(a) Total Lunar Eclipse  
Sep 7–8, 2025 | Visible in Europe, Asia, Australia, Africa, parts of the Americas

(b) Partial Solar Eclipse  
Sep 21, 2025 | Visible in Southern Hemisphere (Australia, NZ, Antarctica, Pacific & Atlantic Oceans)

**6.** Meteor Showers & Bright Night-Sky Displays

(a) **Lyrid Meteor Shower**  
Active: ~April 16-25, 2025; Peak: April 22-23.

(b) **Eta Aquariids**  
Active: ~April 20 - May 21; Peak: May 5-6. Best seen pre-dawn; Southern Hemisphere has brighter view.

(c)**Southern Delta Aquariids**  
~July 18-August 12.

(d)**Perseid Meteor Shower**  
Peak: August 12-13. Up to ~100 meteors/hour under good conditions; moonlight may hamper visibility somewhat.

(e)**Orionid Meteor Shower**  
Peak around October 21-22.

(f)**Leonid Meteor Shower**  
Peak mid-November. Visibility improves when moonlight is low.

7. Comets & Other Notables

(a)**Comet C/2025 F2 (SWAN)**  
Discovered March 29-31; brightened but then seems to have disintegrated before perihelion. At its best in early May from observations.

(b) **Comet C/2025 R2 (SWAN)**  
Discovered in September 2025. Visible in binoculars near the star Spica. Has a tail ~2° long. Earth crosses its orbit in early October; possible meteor shower.

(c) **Ultradistant Comet C/2025 D1 (Gröller)**  
Very distant perihelion (~14.1 AU), meaning it comes “closest” to Sun far beyond where most comets brighten (so dim, hard to see). Interesting for studying outer-solar-system comet behaviour