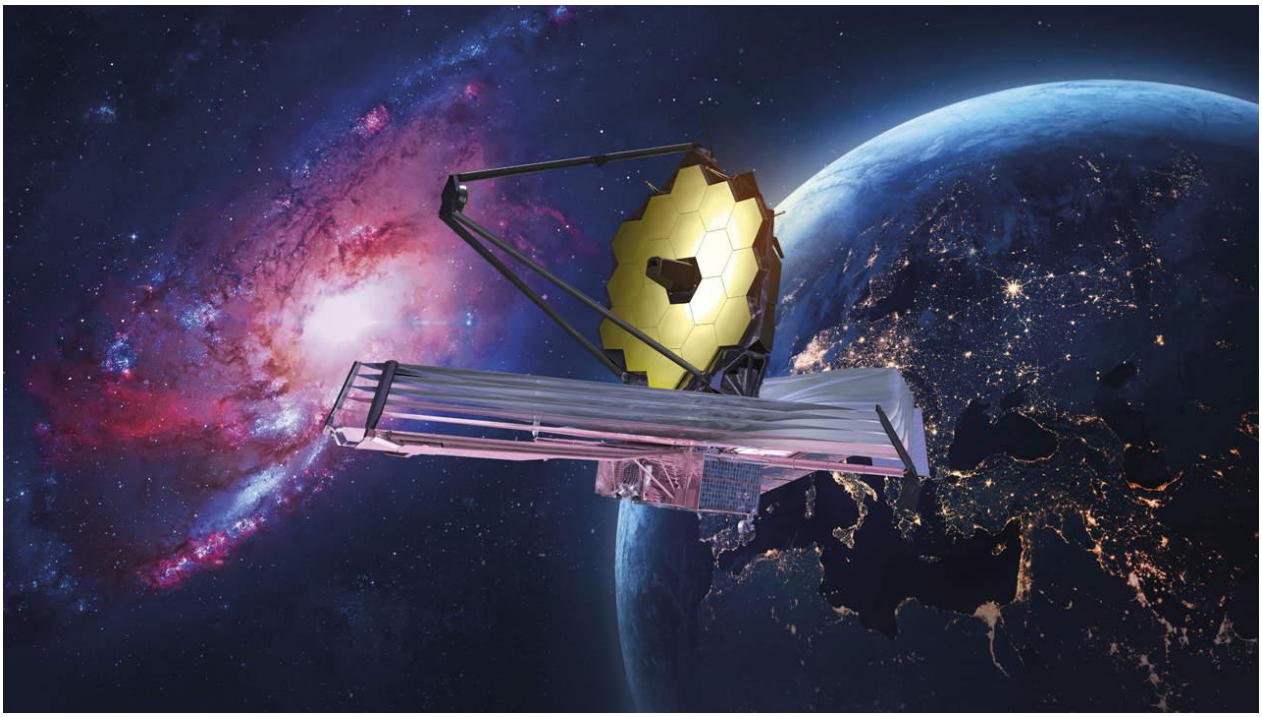
The New York Times: -A Year of Cosmic Wonder with the James Webb Space Telescope- [C2]

Il telescopio più potente mai costruito orbita da un anno intorno al sole, a un milione e mezzo di chilometri dalla terra, per ottenere immagini inedite dell'inizio dell'universo. I risultati sono più belli e rivelatori del previsto.



By now, perhaps, we should be getting used to **unreal** images of the cosmos made with the James Webb Space Telescope. But a year after NASA released the cosmic observatory's first **imagery**, the space agency has **dropped** yet another **breathtaking snapshot** of our universe. Wednesday's image was Rho Ophiuchi, the closest **nursery** of infant stars in our cosmic **backyard**. Located a mere 390 light years away from Earth, this cloud complex is **chock-full** of stellar **goodness**. Around fifty stars with masses comparable to our sun are **sprinkled** in white: some fully formed and shining bright, others still hidden behind dark, dense regions of interstellar dust. Near the center of the image is a mature star called S1, its starlight illuminating the **wispy** yellow nebula around it. Toward the upper right are **streaming** red **jets** of molecular hydrogen, material that gets **spewed out** **on either side** of forming protostars. Black shadows near these regions are **accretion** disks of

swirling gas and dust — some of which could be in the process of creating planetary systems. The awe the image inspires is comparable to how researchers feel about the Webb's first year of science. "As an astronomer that lives and breathes this mission, I'm having to work really hard to keep up — there are so many discoveries," said Jane Rigby, the senior project scientist for the telescope at NASA's Goddard Space Flight Center. She finds it fitting that the customary gift for one-year anniversaries is paper, because that's exactly what researchers using the telescope have been churning out for the past year: scientific papers. The observatory launched on Christmas in 2021, and scientists spent the next six months prepping the telescope for action: unfolding its sun shield and the honeycomb-like array of golden mirrors, then running tests of the four instruments used to observe the cosmos. When it was ready, the Webb embarked on its journey to peer into the depths of the universe. The telescope's agenda has been jam-packed ever since. It has checked out asteroids, quasars, exoplanets and other cosmic phenomena galore. For Rigby, one of the most gratifying accomplishments of this past year is the way the mission has delivered on its promise to reveal the earliest moments of cosmic time. "That was the elevator pitch: We're going to show you the baby pictures of the universe," she said. Indeed it has. Before the James Webb Space Telescope, astronomers knew of only a small handful of candidate galaxies that existed in the first billion years after the Big Bang. Within the past year, hundreds of them — bigger and brighter than expected, packed with forming stars swirling around supermassive black holes — have been confirmed. "The data from the telescope is better than we promised," Rigby said. "It's over-performed in almost every way." Already, the telescope's schedule for the next year is set, with roughly 5,000 hours of prime observing time for a suite of projects related to galactic formation, stellar chemistry, the behavior of black holes, the large-scale structure of our universe and more. Many of these projects — more ambitious than last year, now that scientists know what the telescope can do — are dedicated to following up on Webb's own discoveries. Though the telescope is operated by NASA, the European Space Agency and the Canadian Space Agency, observers from around the globe were selected to use it. "This is the telescope for humanity, and we want the best ideas from

the whole world," Rigby said. "That's how we're doing things." Published in The New York Times on July 12, 2023. Reprinted with permission.

Glossary

- **jam-packed** = piena zeppa
- **unreal** = incredibili
- **sun shield** = scudo solare
- **honeycomb-like** = simile a un favo
- **dropped** = pubblicare
- **breathtaking snapshot** = istantanea mozzafiato
- **array** = schiera
- **churning out** = sfornare
- **unfolding** = dispiegare
- **prime** = di prima categoria
- **suite** = insieme, pacchetto
- **goodness** = bontà, abbondanza
- **wispy** = sottile
- **customary gift** = dono consueto
- **delivered on its promise** = mantenere una promessa
- **sprinkled** = spruzzare
- **spewed out** = espellere (lett. sputare)
- **prepping** = preparare
- **to peer into** = scrutare
- **imagery** = iconografia
- **streaming** = fluttuare
- **accretion** = accrescimento
- **on either side** = da entrambi i lati
- **fitting** = appropriato
- **awe** = soggezione, ammirazione
- **to keep up** = tenere il passo
- **nursery** = asilo nido
- **backyard** = cortile
- **swirling** = turbinare, vorticare
- **handful** = manciata
- **over-performed** = funzionare meglio del previsto
- **following up** = seguire
- **chock-full** = strapieno

• **jets** = getti
• **cosmic phenomena galore** = fenomeni cosmici a profusione