



Unusual, Surprising Formations Found Drifting Above Jupiter's Great Red Spot

Description

Astronomers have made a surprising discovery about the upper atmosphere of Jupiter, turning previous beliefs on their head. The atmosphere of Jupiter has always been a source of fascination, with its ever-changing environment showcasing bands of different colors, storms, enormous clouds, and more. However, the upper atmosphere was thought to be uneventful, apart from the polar aurorae.

Recent observations by astronomers have revealed intricate structures above the iconic Great Red Spot on Jupiter. Using the James Webb Space Telescope (JWST), they discovered dark arcs and bright spots that are visible in infrared. These variations are not caused by sunlight, but by gravity waves originating from the turbulent lower atmosphere around the Great Red Spot.

Team leader Henrik Melin expressed his surprise, stating that the upper atmosphere of Jupiter is just as interesting as the northern lights, if not more so. The discovery was made as part of the Early Release Science program for JWST, shedding new light on this mysterious region.

This breakthrough will not only help astronomers better understand Jupiter's upper atmosphere but will also aid in planned observations for the European Space Agency's JUICE mission. The results of this study have been published in *Nature Astronomy*, marking a significant advancement in our knowledge of the gas giant's atmosphere.

Vocabulary List:

1. **Atmosphere** /'ætməs,fɪr/ (noun): The envelope of gases surrounding a planet.
2. **Discovery** /dɪ'skʌvəri/ (noun): The act of finding or learning something for the first time.
3. **Observations** /,ɒbzər'veɪʃənz/ (noun): The action or process of observing something to gain information.
4. **Intricate** /'ɪntrɪkət/ (adjective): Very detailed and complicated.
5. **Turbulent** /'tɜːrbjələnt/ (adjective): Characterized by conflict disorder or confusion; not stable or calm.
6. **Advancement** /əd'vænsmənt/ (noun): A forward movement in the development or progress of something.

Comprehension Questions



Multiple Choice

1. What recent surprising discovery have astronomers made about Jupiter's upper atmosphere?
Option: Intricate structures above the Great Red Spot
Option: Presence of polar aurorae
Option: Stable atmosphere with no variations
Option: Uniform distribution of clouds
2. What instrument was used to make the recent observations about Jupiter's upper atmosphere?
Option: Hubble Space Telescope
Option: James Webb Space Telescope (JWST)
Option: Chandra X-ray Observatory
Option: Spitzer Space Telescope
3. What is the cause of the dark arcs and bright spots observed above the Great Red Spot?
Option: Sunlight reflection
Option: Magnetic fields
Option: Gravity waves from turbulent lower atmosphere
Option: Cosmic radiation
4. Who is the team leader mentioned in the text?
Option: Henrik Melin
Option: James Webb
Option: Ratan Tata
Option: Jupiter Red
5. Where have the results of this study on Jupiter's atmosphere been published?
Option: National Geographic
Option: Science Daily
Option: Nature Astronomy
Option: NASA website
6. What mission will benefit from the discovery of intricate structures in Jupiter's upper atmosphere?
Option: Apollo Mission
Option: JUICE mission by European Space Agency
Option: Curiosity Rover mission
Option: James Webb Telescope mission



Answer

Multiple Choice: 1. Intricate structures above the Great Red Spot 2. James Webb Space Telescope (JWST) 3. Gravity waves from turbulent lower atmosphere 4. Henrik Melin 5. Nature Astronomy 6. JUICE mission by European Space Agency

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. What term describes the approach a leader takes to guide and motivate their team?
Option: Commitment
Option: Financial sustainability
Option: Player-focused
Option: Leadership style
2. What aspect focuses on the ability of an organization to maintain operations and meet its financial obligations over the long term?
Option: Job instability
Option: Runaway star
Option: Financial sustainability
Option: Binary system
3. Which term refers to the variety and differences in a group of people such as in ethnicity gender or age?
Option: Binary system
Option: Globular cluster
Option: Diversity
Option: Subdwarfs
4. Which term describes behavior intended to cause physical harm or damage?
Option: Hypervelocity
Option: Violence
Option: Intriguing
Option: Adult-oriented
5. What term denotes the action or process of becoming larger or more extensive?



- Option: Advancement
- Option: Expansion
- Option: Iconic
- Option: Commissioned

6. What term describes a cooperative relationship between two parties for a specific purpose?

- Option: Bespoke
- Option: Exhilarating
- Option: Partnership
- Option: Masterpiece

7. What term is used to describe an outstanding work of art or craft?

- Option: Dynamics
- Option: Atmosphere
- Option: Discovery
- Option: Masterpiece

8. Which term describes a state of conflict disorder or confusion?

- Option: Observations
- Option: Intricate
- Option: Turbulent
- Option: Advancement

9. What term refers to the lack of security and predictability in one's employment?

- Option: Gravitational pull
- Option: Binary system
- Option: Job instability
- Option: Globular cluster

10. Which term denotes the process of moving forward making progress or improvement?

- Option: Subdwarfs
- Option: Hypervelocity
- Option: Violence
- Option: Advancement

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. _____ is the dedication and loyalty to a cause or organization.

12. In a successful team the approach should be _____ to ensure the well-being and



development of team members.

13. The _____ of a massive star can affect the motion of other nearby celestial bodies.

14. A _____ consists of two objects orbiting around a common center of mass.

15. Astronomical phenomena like _____ stars can travel at extreme speeds through space.

16. The tailor created a _____ suit tailored specifically to the client's measurements.

17. The Eiffel Tower is an _____ symbol of France and a popular tourist attraction.

18. The artist was _____ to create a painting for the new art gallery.

19. The scientist made a groundbreaking _____ that revolutionized the field of physics.

20. The astronomer made detailed _____ of the planetary movements in the night sky.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)



21. The was expelled from its original stellar group and now travels through space at high speed.
22. A is a densely packed group of stars bound together by gravity.
23. are stars that are smaller and less luminous than main sequence stars.
24. The artist created an design with elaborate details and patterns.
25. The of the event was festive and filled with excitement.
26. The singer's debut album became an representation of the 90s music scene.
27. The roller coaster ride provided an experience with twists and turns.
28. The team studied the group's to understand the interactions among members.
29. The political situation in the country was with protests and unrest.
30. The company invested in technology for the of its production processes.

Answer

Multiple Choice: 1. Leadership style 2. Financial sustainability 3. Diversity 4. Violence 5. Expansion
6. Partnership 7. Masterpiece 8. Turbulent 9. Job instability 10. Advancement

Gap-Fill: 11. Commitment 12. Player-focused 13. Gravitational pull 14. Binary system 15. Hypervelocity
16. Bespoke 17. Iconic 18. Commissioned 19. Discovery 20. Observations

Matching sentence: 1. Runaway star 2. Globular cluster 3. Subdwarfs 4. Intricate 5. Atmosphere 6. Iconic
7. Exhilarating 8. Dynamics 9. Turbulent 10. Advancement

CATEGORY

1. Sci/Tech - LEVEL3

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