



Scientists Plan Bold Return After Submarine Disappearance

Description

A robotic submarine named Ran, which explored under Antarctica's glaciers, has been lost, but its findings are changing how scientists understand ice melt. A new submarine, Ran II, is in development to continue its work in this challenging area of Earth science.

Ran was an autonomous underwater vehicle run by the University of Gothenburg. It disappeared in January 2024 during an important mission. With help from a donation by the Voice of the Ocean Foundation and insurance funds, the more advanced Ran II will be delivered in the winter of 2026/2027.

Over six years, Ran revealed data from places unreachable by humans or ships. It provided vital images of the Thwaites Glacier and showed how ice melts. Anna Wåhlin, a professor of oceanography, stated that Ran allowed researchers to see the glacier's underside.

Ran's most impressive journey was under the Dotson Ice Shelf, where it travelled over 1,000 kilometres in darkness and mapped the ice's base. Its discoveries showed a complex landscape, challenging previous views of a smooth ice base. This information is crucial because thinning ice shelves can speed up glaciers, affecting global sea levels.

Despite its risks, including being out of contact for over 24 hours, Ran completed over 40 successful missions before its disappearance. Ran II aims to improve on these methods, enhancing navigation and decision-making during missions, and continuing to explore the unknown regions beneath the ice.

Vocabulary List:

1. **autonomous** //ɔ:'tɒnəməs// (adjective): working without a person controlling it
2. **submarine** //,sʌbmə'ri:n// (noun): a vehicle that travels under the water
3. **revealed** //ri'vi:ld// (verb): showed information that was not known before
4. **underside** //ˈʌndər,saɪd// (noun): the lower surface or bottom of something
5. **thinning** //ˈθɪnɪŋ// (adjective): becoming less thick or smaller in amount
6. **navigation** //,nævə'geɪʃən// (noun): finding and following a safe route or direction

Comprehension Questions



Multiple Choice

1. What is the name of the robotic submarine that was lost?

- Option: Ran
- Option: Ran II
- Option: Thwaites
- Option: Dotson

2. Who operated the autonomous underwater vehicle Ran?

- Option: University of Gothenburg
- Option: Voice of the Ocean Foundation
- Option: NASA
- Option: MIT

3. In what year did Ran disappear during its mission?

- Option: 2022
- Option: 2023
- Option: 2024
- Option: 2025

4. When is the advanced Ran II expected to be delivered?

- Option: 2025
- Option: 2026
- Option: 2026/2027
- Option: 2027

5. How far did Ran travel under the Dotson Ice Shelf?

- Option: 500 kilometres
- Option: 750 kilometres
- Option: 1,000 kilometres
- Option: 1,500 kilometres

6. Which glacier's underside did Ran reveal vital images of?

- Option: Thwaites Glacier
- Option: Dotson Glacier
- Option: Antarctic Glacier
- Option: Greenland Glacier



True-False

7. Ran provided data from places that are easily accessible by humans or ships.
8. Ran completed over 40 successful missions before disappearing.
9. The discoveries made by Ran confirmed the previous views of a smooth ice base.
10. Ran II will aim to improve navigation and decision-making during missions.
11. Ran was not an autonomous underwater vehicle.
12. The information provided by Ran is crucial for understanding global sea levels.

Gap-Fill

13. Ran disappeared during an important mission in _____ 2024.
14. The advanced Ran II will be delivered in the winter of _____ 2026/2027.
15. Ran allowed researchers to see the glacier's _____ underside.
16. Ran's discoveries showed a _____ landscape under the ice.
17. Ran completed over _____ successful missions before its disappearance.
18. Despite its risks, Ran was _____ out of contact for over 24 hours.

Answer

Multiple Choice: 1. Ran 2. University of Gothenburg 3. 2024 4. 2026/2027 5. 1,000 kilometres 6. Thwaites Glacier

True-False: 7. False 8. True 9. False 10. True 11. False 12. True

Gap-Fill: 13. January 14. 2026 15. under 16. complex 17. 40 18. occasionally

Vocabulary quizzes



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

1. What is a core sample mainly used for in geological studies?
Option: To measure temperature
Option: To analyze sediment layers
Option: To assess wildlife
Option: To determine weather patterns
2. Which type of vehicle can complete tasks without human intervention?
Option: Manual
Option: Semi-autonomous
Option: Autonomous
Option: Unmanned
3. What is the primary function of propulsion systems in vehicles?
Option: To aid in steering
Option: To provide navigational support
Option: To generate movement
Option: To enhance passenger comfort
4. Which of the following is a primary component in nuclear power generation?
Option: Turbine
Option: Reactor
Option: Boiler
Option: Generator
5. What typically accumulates at the bottom of lakes and oceans?
Option: Sand
Option: Sediment
Option: Fish
Option: Plants
6. What is measured in pascals in fluid dynamics?
Option: Temperature
Option: Velocity
Option: Pressure
Option: Density
7. What is a common issue observed in ice sheets due to climate change?
Option: Thickening
Option: Stability
Option: Thinning



Option: Cooling

8. Which of the following describes the speed of an object in a specific direction?

Option: Acceleration

Option: Velocity

Option: Distance

Option: Momentum

9. What do vehicles emit that contributes to air pollution?

Option: Odors

Option: Emissions

Option: Noise

Option: Vibrations

10. What type of materials are often used in medical treatments and energy generation?

Option: Thermal

Option: Electrical

Option: Chemical

Option: Radioactive

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

11. In physics, _____ is described as the force applied per unit area.

12. An _____ vehicle can operate independently without human intervention.

13. A sediment _____ provides valuable information about the geological history of an area.

14. Modern ships rely heavily on GPS for accurate _____.

15. The layers of _____ in the riverbed can indicate the ecological changes over time.

16. The _____ of polar ice caps is a significant concern for scientists studying climate change.

17. Reducing carbon _____ is essential for improving air quality.

18. The nuclear _____ is a critical component for generating electricity in power plants.



19. Earthquakes can produce _____ that travel through the ground.
20. A _____ of species can be found in diverse ecosystems across the globe.

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

21. The construction project was halted upon discovering exposed bedrock beneath the site.
22. Engineers assess the stability of structures to ensure safety during earthquakes.
23. The outflow from the river increased significantly during the rainy season.
24. There were several unaccounted expenses in the financial report that needed clarification.
25. The software returned to its default settings after the error occurred.
26. The difficulty of the test surprised many students who were unprepared.
27. The project had a limited budget, restricting its scope and ambitions.
28. Sailors use stars to navigate their way across the open ocean.
29. Plasma is often referred to as the fourth state of matter, distinct from solids, liquids, and gases.
30. The satellites maintained their orbital paths around the Earth for years.

Answer

Multiple Choice: 1. To analyze sediment layers 2. Autonomous 3. To generate movement 4. Reactor 5. Sediment 6. Pressure 7. Thinning 8. Velocity 9. Emissions 10. Radioactive

Gap-Fill: 11. pressure 12. autonomous 13. core 14. navigation 15. sediment 16. thinning 17. emissions 18. reactor 19. shockwaves 20. variety

Matching sentence: 1. bedrock 2. stability 3. outflow 4. unaccounted 5. default 6. difficulty 7. limited 8. navigate 9. plasma 10. orbital

CATEGORY

- 1. Sci/Tech - LEVEL3

POST TAG

- 1. B1



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4. Level 3
5. mysteriously disappears
6. scientists
7. submarine

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