graph JAEA

Studying Subsurface Geology #2
Horonobe Underground Research Center

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Japan Atomic Energy Agency
The Horonobe Underground Research Center conducts scientific research on geological strata and R&D on geological disposal, as part of R&D on geological disposal technologies for high-level radioactive waste.

For details, please visit the home page ⇒ [http://www.jaea.go.jp/english/04/horonobe/index.html](http://www.jaea.go.jp/english/04/horonobe/index.html)
The underground facility for this research

**Geological environment of the Horonobe Underground Research Center (Horonobe, Hokkaido)**

**Mudstone** (Sedimentary rock)  
**Soft rock**  
**Saline ground water**

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**Diagram of underground facilities**

- **[Shafts] As of Jan. 2016**
  - East access shaft  
    - Excavation depth 380.0m
  - Ventilation shaft  
    - Excavation depth 380.0m
  - West access shaft  
    - Excavation depth 365.0m

- **[Experiment drifts] As of Jan. 2016**
  - 140m drift  
    - Excavation length 186.1m
  - 250m drift  
    - Excavation length 190.6m
  - 350m drift  
    - Excavation length 757.1m

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*This diagram may change depending on the results of future surveys and research.*
Scenes of excavation

At penetration of gallery (350m in depth)
Full-scale engineered barrier system experiment

Full-scale engineered barrier (simulated overpack and shock absorbing material) has been installed in the 350m drift, and its performance is being verified based on data obtained from a variety of sensors.
A simulated overpack made of carbon steel machined into rod form was buried in the Niche No.3 of 350m drift, with heat applied via an electric heater, and the corrosion situation of the carbon steel is being checked.
In the 350m drift, a mass transport test is being conducted to measure the behavior of materials inside the natural barrier (bedrock) and engineered barrier (buffer material). The photo shows the scene of the in-situ tracer test for understanding the situation of mass transport within a single fracture.
Scenery around the center

When you visit Hokkaido, why not take a tour of an actual underground facility at our center?

To apply for an underground facility tour, please visit the following link:

http://www.jaea.go.jp/english/04/horonobe/access.html
The JAEA is committed to studying geological disposal technologies

Horonobe Underground Research Center
Here, research is focused on sedimentary rock and saline ground water. This center is the subject of this issue.

Nuclear Fuel Cycle Engineering Laboratories

Tono Geoscience Center
Mizunami Underground Research Laboratory, Toki Research Institute of Isotope Geology and Geochronology
Research at the Mizunami Underground Research Laboratory is focused on crystalline rocks and fresh ground water. The Toki Research Institute of Isotope Geology and Geochronology is investigating the geological environment in the past. The photo below shows a system for measuring age, featured in the previous issue.
Descending into the underground facility in a “kibble,” a construction elevator that looks like a birdcage. This is the scene when descending to the 350m drift.

[Public Information House "Yume Chiso-kan"]

Please follow the link below for a general explanation of geological disposal of high-level radioactive waste.