

Outline

We are striving to contribute to global environmental improvements and the preservation of local environments, and to develop disaster management technologies and systems that will help prepare us for natural disasters.

We organize our instructors in such a way that they can work across the boundaries of various research fields, having created a cooperative structure between Muroran-IT's various centers on campus. At the same time, we are contributing to society by promoting research in the fields of environmental science, disaster management, and new energies.

In every era, science and engineering strive to create a positive future for us all, playing a key role in the creation of a prosperous and comfortable society. In the coming years, we will be working to create an even more positive future, a place where people, the earth, and science can all interact with and engage one another seamlessly.

Research Areas:

—Environmental Science Area:

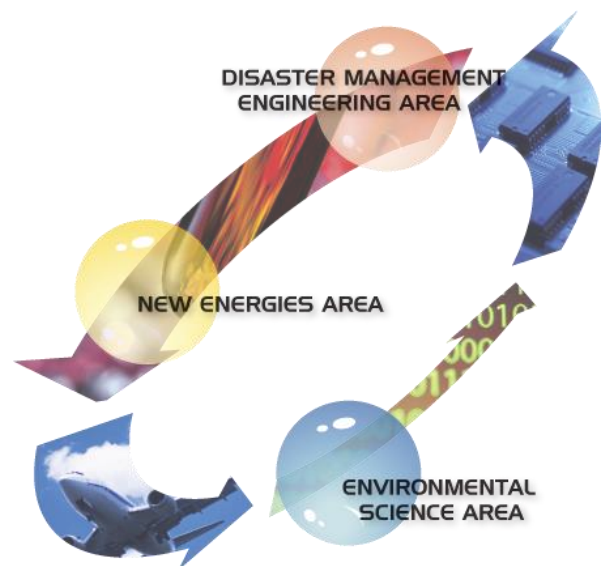
Treatment and recycling of environmental contaminants, development of environmental clean-up technologies, environmental preservation, environmental assessment, and more.

—New Energies Area:

Hydrogen energy applications, development of unused resource energies, natural energies, and more.

—Disaster Management Engineering Area:

Disaster management engineering area water and soil disaster management, crisis management systems, structural performance control, construction materials performance control, development of environmental control systems, and more.



Features of Research Activities:

With "the environment" as our key concept, we have been working to improve technologies from scientific and engineering perspectives, and to raise awareness of related issues.

The Joint Seminar on Environmental Science and Disaster Mitigation Research (JSED) is held every year. The event features lectures by both Japanese and overseas researchers, a report on the year's research by the Center of Environmental Science and Disaster Mitigation for Advanced Research, and posters displayed in English highlighting our research presentations.

Research Achievements and Challenges

Water and Soil Disaster Management

We are exploring the natural disaster mechanisms of earthquakes, tsunamis, floods, rock falls, and landslides, and are researching technologies for protecting infrastructural elements, such as bridges, roads, and embankments.

Crisis Management Systems

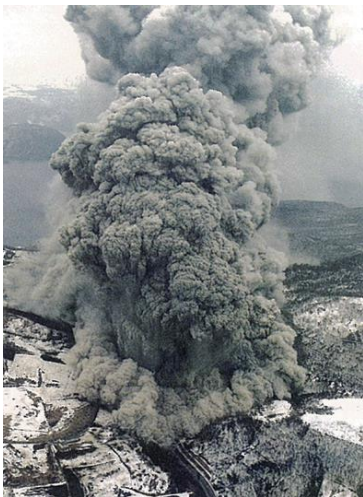
We are developing crisis management systems for volcanic eruptions and PCB, and are engaging in community disaster management efforts based on engineering technologies from an organizational standpoint, such as disaster management forums, hazard maps, disaster management education, disaster management databases, support to the Japanese Red Cross Society, stress measurements, risk management, and event tree analysis. Cooperation between infrastructural and organizational aspects is essential in disaster management.

Performance Control Structure

We are studying mechanisms of structural damage caused by disasters such as earthquakes and strong winds, and are developing technologies for creating structures that are safer and more comfortable, and that offer a greater sense of security in everyday living, through the development of new environmentally sound construction methods.

Construction Materials Performance Control

To offer building safety, security, and comfort while ensuring longevity, we are conducting research and development to develop construction materials including concrete that offer high strength, high durability, and high performance properties. To conserve resources, save energy, and protect the environment, we are also working to develop and disseminate techniques for effectively using industrial by-products, as well as building maintenance technologies.



The eruption of Mt. Usu in 2000



Damage to the Atsubetsugawa River Basin caused by Typhoon No. 10



Maintenance of concrete structure such as bridge, building etc.



Intermediate layer destruction by the Great Hanshin-Awaji Earthquake