

The Research and Development center of Fire and Environmental Safety

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Outline

The Research and Development center of Fire and Environmental Safety (RDFES) was established in April 2008 as a research institute within the Faculty of Environmental Engineering, at the University of Kitakyushu. Founded as an initiative of Prof. Kazuya Uezu, its first director, RDFES is the first academic institute in Japan to contribute to environmental engineering and firefighting technology with the aim of promoting social safety. RDFES has become well known among firefighting professionals for its development of an “Environmentally friendly soap-based firefighting agent,” as well as new equipment that maximizes the effectiveness of the agent. This is just one example of successful collaboration between RDFES, the Kitakyushu City Fire and Disaster Management Department, a local soap company, and major firefighting enterprises in Japan. Today, RDFES is entering a new research area involving local communities and governments, which aims to mitigate and minimize the risk of fire and natural disasters. Researchers are engaged not only in the development of hardware but also in the creation of an organized social movement that could ensure more effective use of the hardware. Reaching out to local communities reflects the center’s position to always welcome new partners to join our important and exciting research activities.

Research Achievements and Challenges

We have created innovative technologies through research and development activities that closely coordinated local industry, Kitakyushu City government and university researchers.

1. Environmentally friendly Miracle Form agent



This firefighting agent greatly reduces damages to the eco-system compared to other agents, yet maintaining good firefighting capacity.

2. Corruption precaution system for fire damaged structure



This robotic system estimates the strength of beams in a burnt structure from a remote position and helps firefighters to make decisions of safe entry into the burnt area.

3. High yield low electricity consumption LED light



Very small and low electricity consumption LED lights are introduced in the scene of disaster responses. This is a contribution of our advanced thermal design technology.

4. New evaluation method of functional exercise for disaster preparedness



Close collaboration with the Kitakyushu City government and a local software house resulted in this novel exercise management system. Now we can conduct a detailed quantitative assessment of coordinated disaster responses made through a network of government sections.