

## Interdisciplinary Education by Development of Instruments for Active Volcano

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[Graduate school program] Inter-Graduate School Doctoral Degree Program on Science for Global Safety (G-Safety) is promoted by Division for Leading Graduate School Programs, Tohoku University Institute for Promoting Graduate Degree Programs, Tohoku University.

Our "Science for Global Safety" is an academic attempt to systematically organize various studies regarding safety, which have developed within different specialized domains, according to their space, time and social aspects from a global perspective, placing disaster prevention/ mitigation for natural disasters and other risks as the central pillars.

This program is constructed based on the three viewpoints of "Understanding safety and security," "Creating safety and security," and "Living in safety and security," supported by collaborations among researchers in science, engineering and humanities & social sciences.

[Student project] It is project-based learning program to provide students with opportunities to obtain in-depth knowledge and experience about natural disasters and disaster prevention. By students of multiple fields, carry out the voluntary planning and management.

[Proposal of development and the plume observation system of long-term operation can be unmanned volcano observation apparatus]

This project consists of 7 members on Engineering and Science. The aim of that is development and the plume observation system of long-term operation can be unmanned volcano observation apparatus under the active volcano. Roles of members is follows,

Device system team

A: Engineering DC1, Unification

B: Engineering DC2, System control design

C: Engineering DC2, Thermal control design

D: Engineering DC1, Web system design

Observation system team

E: Science DC2, Digital image algorithm development

F: Science DC2, Volcanic observation application design

G: Science DC1, Volcanic observation application design

Device system team performs the development of the observation apparatus of the external power supply system that has been subjected and the improvement of the livelihood of the imaging system of independent power source (battery) system which was developed last year, the measures to snow and freezing, current, cooperation of the Sendai District Meteorological Observatory the obtained, it is carried out operational testing at Zao Jizodake.

The concept of "The development of simple and flexible system" makes the frame of this project. Science team was limited the priority under any condition such as the equipment installation conditions, the available amount of power. Engineering team has the accountability for selections under each conditions.

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