

# Inter-Graduate School Doctoral Degree Program on Science for Global Safety

Understanding, Creating,  
 and Living in Safety and Security

## VOICE

Disaster management of Merapi Volcano in Indonesia is my theme of student self-organized work. On our field work, I saw that local students play an active part on the grass roots movement for the education of disaster management in some villages near the volcano.



**Asaka  
 KONNO**

D1

Earth Science, Graduated school of science

This program gives me some opportunities. I will go abroad to Technische Universität Chemnitz, Germany to study the more industry-oriented MEMS engineering for about six months. My theme of student self-organized work is the development of "disaster mitigation action card game" for young generations.



**Rosuke  
 KANEKO**

M1

Bio-robotics, Graduated school of Engineering

We usually have less opportunities to attend international symposiums, international meetings and so on. In the C-lab of this program, I joined Discussion about risk, safety, security, and equality, and cultural exchange with members from the Stanford University. It was very helpful for my work.



**Gong  
 SHUN**

M1

Humane studies, Graduate school of Arts and Letters

**[Number of Student Recruitment]**  
 About 30 students /year  
**[Number of Researcher in Charge of this Program]** 67  
 Tohoku University 63, others 4  
**[Contributing Graduate Schools and Departments]** 8 Graduate Schools, 21 Departments  
 (Graduate School of Arts and Letters) Department of Humane Studies, Department of Linguistic Studies, Department of Historical Studies, (Graduate School of Law) Department of Legal and Political Studies, (Graduate School of Economics and Management) Department of Economics and Management, (Graduate School of Science) Department of Astronomy, Department of Geophysics, Department of Earth Science (Graduate School of Engineering) Department of Mechanical Systems and Design, Department of Nanomechanics, Department of Aerospace Engineering,

Department of Quantum Science and Energy Engineering, Department of Electrical Engineering, Department of Chemical Engineering, Department of Civil and Environmental Engineering, Department of Architecture and Building Science, Department of Management Science and Technology, Department of Bioengineering and Robotics  
 (Graduate School of Information Sciences) Department of Applied Information Sciences (Graduate School of Environmental Studies) Department of Environmental Studies (Graduate School of Biomedical Engineering) Department of Biomedical Engineering  
**[Cooperating Universities]**  
 1 university Stanford University  
**[Cooperating Organizations]**  
 4 institutions  
 Independent Administrative Agency: Japan Aerospace Exploration Agency

Dowa Holdings Co., Ltd.  
 U.S. Geological Survey  
 Education in Miyagi Prefecture  
**[Program Coordinator]**  
 Hiroo Yugami Professor  
 (Graduate School of Engineering Department of Mechanical Systems and Design)  
**[Special Instruction]**  
 Based on results of advance research by International Research Institute of Disaster Science newly established at the university, International Research Institute of Disaster Science, Engineering research course, Science research course, Arts research course and others jointly provide educational program.

**Organization for Promotion of Leading Graduate School Programs  
 Center for Education and Research on Science for Global Safety  
 Tohoku University**

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## Cultivation of leaders of Science for Global Safety

Protection of human life and society from global disaster

The Great East Japan Earthquake and the ensuing tsunami caused immense damage to Tohoku district geographically, socially and globally. Long-term restoration is necessary. The social and industrial infrastructures of the damaged areas have not yet recovered substantially. Furthermore, the great transformation of energy policy, including the resumption of nuclear power plants, needs serious discussion. This program is a human resource cultivation program with continuing education through the former and latter halves of the doctoral course. Students who are enrolled in this graduate leadership program are educated in a team beyond the framework of their departments. We aim to produce global safety leaders who can contribute to the protection of human life, society and industry from global disasters like the Great East Japan Earthquake and tsunami, to play important roles in diverse fields, including world enterprises, local and national governments, international institutions and academia.



Example of training at a site struck by the Great East Japan Earthquake

## Image of human resources to be cultivated

Leaders with a sophisticated understanding of human studies and clear vision

The Great East Japan Earthquake identified a lack of societal consensus for disaster prevention means and a lack of crisis-management abilities at leadership level. With this program, we aim to produce top leaders in the global safety field who have a sophisticated understanding of international human studies, ethical viewpoints, definite vision, and the ability to execute their own ideas based on solid academic knowledge, and who are capable of coping with diverse phenomena, such as the huge earthquakes and tsunamis, climate changes, and energy issues.

## Arts, sciences, and engineering fusion education with participation by many departments

Education led by the International Research and Institute of Disaster Science (IRIDeS)

One of the features of this program is interdisciplinary advanced education and research based on the "Practical disaster-prevention" courses provided by the newly established International Research Institute of Disaster Science (IRIDeS). Cultivation of human resources is performed through activities at disaster restoration sites and of worldwide researches with participation of IRIDeS, Graduate Schools of Engineering, Science, Art and Letters, Environmental Studies and so on. Furthermore we will extend this program to cultivate human resources for the issues common to human society such as climate change, energy security, accidents of huge system such as nuclear power plants.



To develop top leaders of science global safety by arts and sciences fusion type education with participation by 12 departments and 21 specialties.

## Education to "understanding", "creating" and "living in" safety and security

Aiming at cultivation of all-round human resources called "Konpeito" model

In this program, education is provided by cooperation with researchers of science, engineering and humanities and social science. The three courses of "Natural disaster science," "Safety and security engineering" and "Human science" create all-round players by equipping human resources with the following capabilities.

- A core of professional capability through cutting-edge research and applied capability for the resolution of diverse tasks.
- The ability to set and follow independent paths for task setting, problem resolution, research and development, business development, grand design, and the like.
- The ability to provide oversight, to prioritize events and to convey their own ideas accurately to others.
- The international scene.
- Ethical views, showing leadership responsibilities.

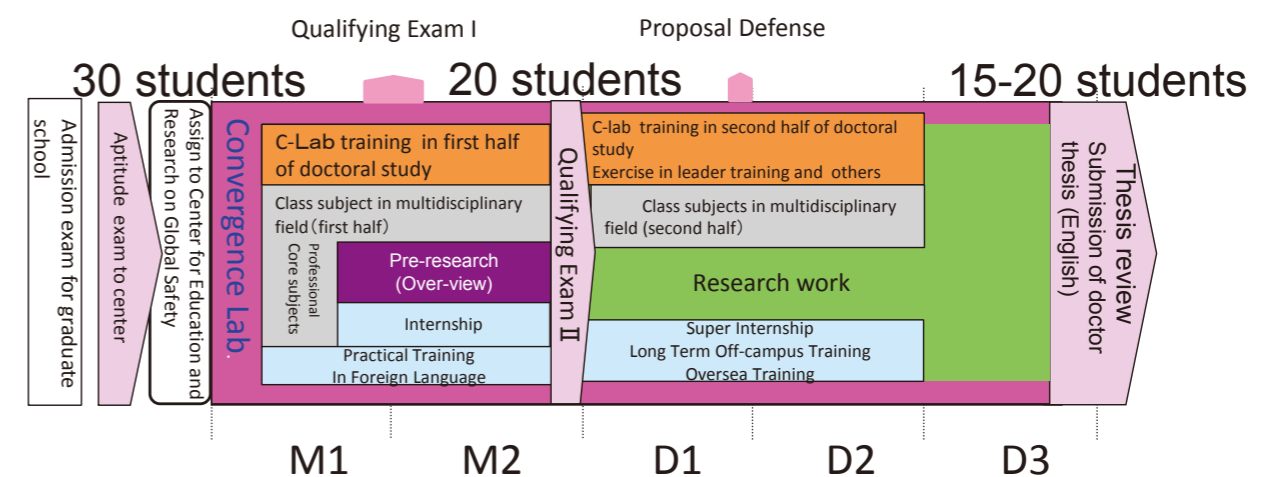


Cultivation of "hexagonal" human resources with diverse capabilities of expertise, development capability in various fields and functions necessary to support leadership.

## Studying in the Center for Education and Research on Science for Global Safety as a unit beyond research courses

Those allowed to join the graduate school leadership program will grow-up to be leaders through learning with students of different fields in the Convergence Laboratory.

In this center, teaching staffs from diverse departments and specialties (including those from industry and government) belonging to one of three units of "Understanding Safety and Security," "Creating Safety and Security," or "Living in Safety and Security," will instruct the multi-disciplinary interdisciplinary study team in the "Convergence Lab," which is formed mainly by students under the plural mentors.



Outline of leader cultivation program