

**Introduction to
International Research Institute of
Disaster Science (IRIDeS)
Tohoku University**

東北大学 災害科学国際研究所

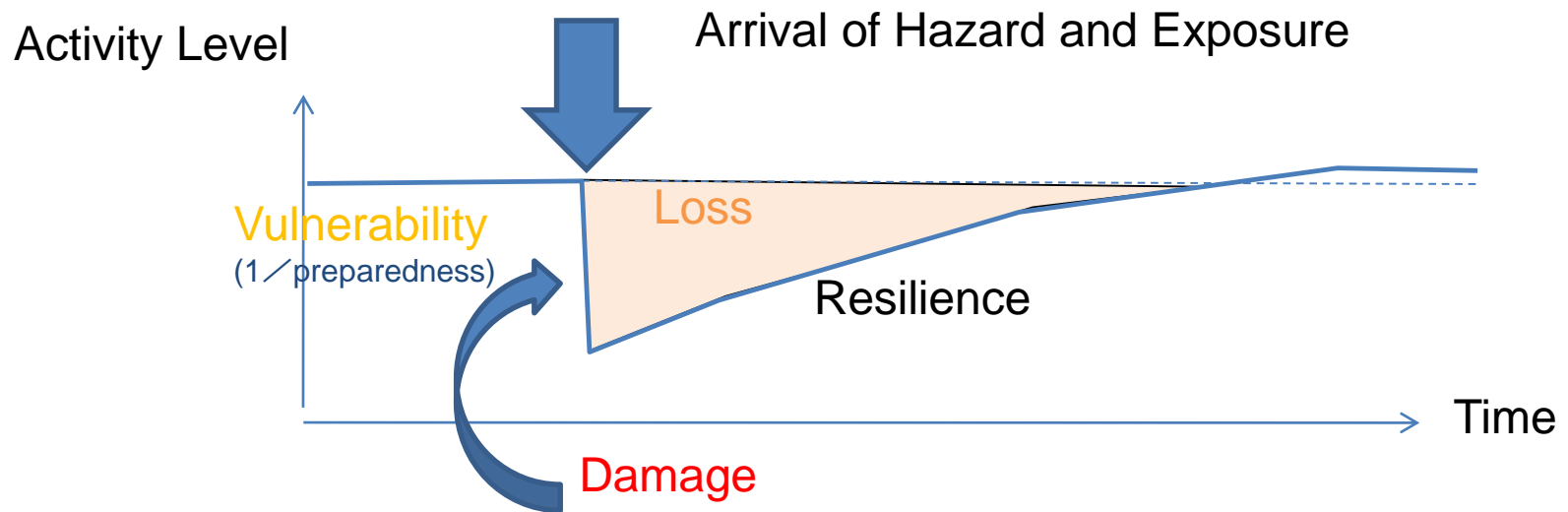
International Research Institute of
Disaster Science(IRIDeS), TOHOKU University



- IRIDeS overview:
 - IRIDeS: International Research Institute of Disaster Science
 - Founded in Tohoku University
 - Tohoku U. : one of a few universities worldwide to experience a historic mega-disaster
 - Established on April 1, 2012
 - 7 departments, 37 areas of specialization
 - Approximately 100 researchers
 - Annual budget: JPY 800 million (\$10 million); secured for the first 10 years

Key Concepts in Disaster Management

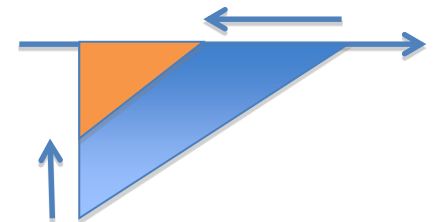
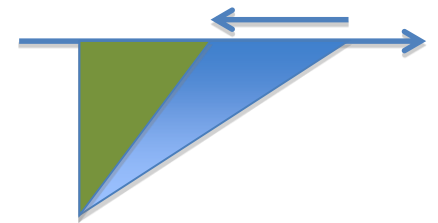
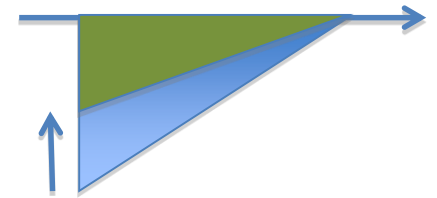
- Hazard Strength of natural event
- Exposure Inhabitants, industries, facilities
- Vulnerability weakness of human-social system
- Resilience Speed of bouncing back



$$\propto \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$$
$$(\propto \text{Hazard} \times \text{Exposure} \div \text{Preparedness})$$

Adaptation Strategies

- We cannot control the Natural Hazards
- Decrease the vulnerability (prevention)
 - Building Facilities physically stronger
- Decrease the exposure (aversion)
 - Land-use control
 - Temporal pre-disaster evacuation
- Increase the resilience (mitigation)
 - Back-up, storage, Response
 - Insurance, special finance



Combinations

Need of Multi inter-disciplinary Approach

- Decrease the vulnerability (prevention)

- Building Facilities physically stronger

Natural Science,
Engineering

- Decrease the exposure (aversion)

- Land-use control
- Temporal pre-disaster evacuation

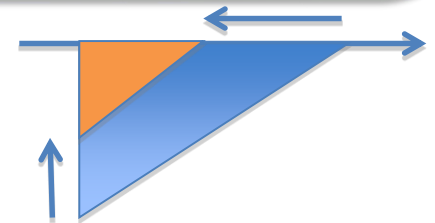
Social Science,
Behavior Science
Urban Planning

- Increase the resilience (mitigation)

- Back-up, storage, Response
- Insurance, special finance

Social Science,
Economics
Medical Science

Combinations



Uniqueness : Multi-interdisciplinary structure

Research area		Tohoku Univ. IRIDeS	Univ. of Tokyo E Institute	Kyoto Univ. D Institute	Niigata Univ. R Institute	Fukushima Univ. S Institute	D Institute
Hazard and Risk Evaluation Disaster Science	Earthquake, Tsunami	Hazard and Risk Natural Disaster Science	研究所全体 (4部門, 4研究 センター, 3マネ ジメントセン ター)	地震・火山研究 グループ	環境変動科学 部門 複合災害科学 部門 地域安全科学 部門		地震・火山 研究ユニット 兵庫県耐震工学 研究センター
	Volcanic						
	Wind and Rain			地盤研究 グループ 大気・水研究 グループ			水・土砂防災 研究ユニット
	Snow Storm						雪氷防災 研究センター
Human & Social Response		Human and Social Response		総合防災 研究グループ	地域安全科学 部門	研究所全体 (11研究会)	災害リスク 研究ユニット
Regional & Urban Reconst- ruction	Regional safety	Regional and Urban Reconstruction					
	Radiation Decontamination						
	Robotics						
Medical Relief		Disaster Medical Science			地域安全科学 部門		
Public Cooperation		Information management		総合防災 研究グループ		研究所全体 (11研究会)	災害リスク 研究ユニット
International Collaboration		Yes	Yes	Yes			

* Multi-interdisciplinary also includes research on different types/areas of hazards, low frequency high risk disasters

IRIDeS: A new institution in a disaster stricken area

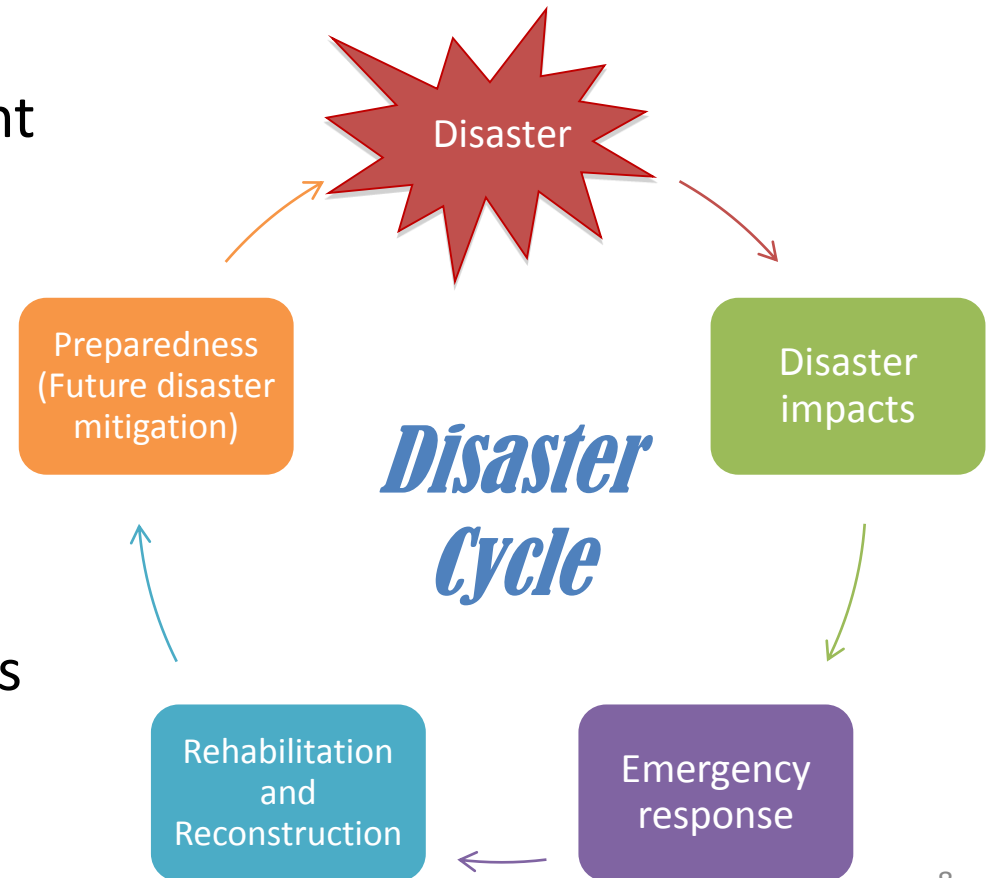
- Principle:
 - Promote world's leading research on natural disasters through:
 - learning from the GEJE and tsunami;
 - contributing to the regional recovery; and
 - set an international paradigm on disaster management studies



- Mission

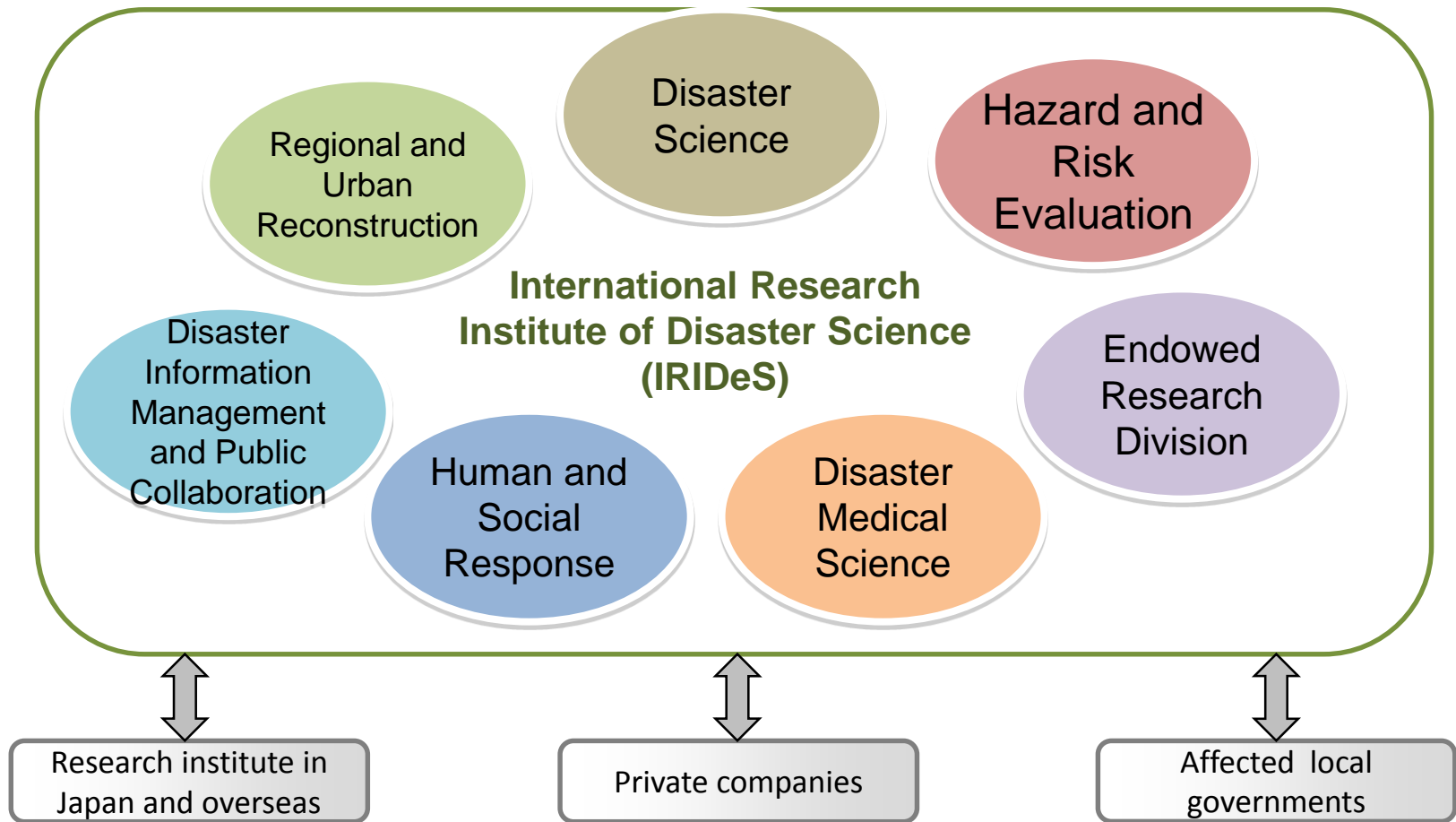
- Establish “practical” disaster management studies

- Identify and theorize disaster-related phenomenon in each stage of disaster cycle
 - Establish an area of disaster management study that supports building societies more resilient to disasters
 - Internationally-driven research/ educational activities



- Institutional structure

- 7 departments, extensive collaboration beyond IRIDeS



- Mid- and long-term objectives
 1. Elucidate mechanisms related to global-scale natural disasters and its impacts
 2. Restructure disaster prevention and reduction technologies (reflecting on the GEJE case)
 3. Establish “Disaster Supportology”;
Reevaluate disaster management and rebuilding utilizing historical knowledge
 4. Strengthen urban and regional resiliency with multiple redundancies against natural disasters
 5. Constitute mega-disaster and wide-area responsive medical treatment system
 6. Design society with better disaster risk management, incorporating knowledge and lessons learnt

- Origin:

- IRIS (plural)
- Violet (Color of Iris)



(Color of Tohoku Univ.)

- Nobility and desire
- Logo: reversing Chinese Character for disaster



- A proverb: “Disaster turns into blessings”



IRIDeS

International Research Institute
of Disaster Science

災害科学国際研究所

Current Activities

- Project-based research activities
 - Research with domestic and international universities
 - 12 projects granted for type A (corporation with leading institutions); US \$4million
 - 70 projects granted for type B (inside IRIDeS and cooperative); US \$2million
 - Grants will be provided every fiscal years, up to 10 years



- Collaboration with media

- Kahoku Newspaper

- Articles published for Tohoku community to learn.
Published once every month, on the 11th day
 - Recent topics
 - Restructuring to create resilience to/from natural disasters;
communication collaboration is critical (October 11)
 - Need to prepare for possible
isolation in an emergency;
evacuation closer and higher
(September 11)
 - Need to reassess
recommended emergency
goods; the importance of
speaking in an authoritative
tone in an emergency
(August 11)



- Events and seminars
 - Periodical
 - IRIDeS Friday Forum:
 - Open to public, presentations of the researcher
 - GEJE watcher
 - Open to public, guests from outside institution
 - Public seminars
 - Non-Periodical
 - Public reporting by Tohoku university
 - 1 month report, 3 months report, 6 months report, one year anniversary report
 - Symposium
 - 1611 Keicho earthquake 400 year anniversary (Dec. 2011)



- Archival project [*Michinoku Shinroku Den*]
 - Collect and archive disaster information
 - Data will be collected in Tohoku
 - Collecting different events' data, including historic ones
 - All types of data will be archived for future needs
 - Establish global standard on archival science
 - Will be practical
 - System to link with government and industry
 - Linking with education
 - Create new jobs around this system

- Government-academic collaboration
 - National governments
 - Cabinet office, central disaster management committee
 - Ministries:
 - Agriculture and fisheries (MAFF)
 - Education, Culture, Sports, Science and Technology (MEXT)
 - Land, Infrastructure, Transport and Tourism (MLIT)
 - Agencies:
 - Japan Aerospace Exploration Agency (JAXA)
 - Japan International Cooperation Agency (JICA)
 - Japan Meteorological Agency (JMA)
 - Prefectural governments
 - Local governments (Cooperative Agreements)

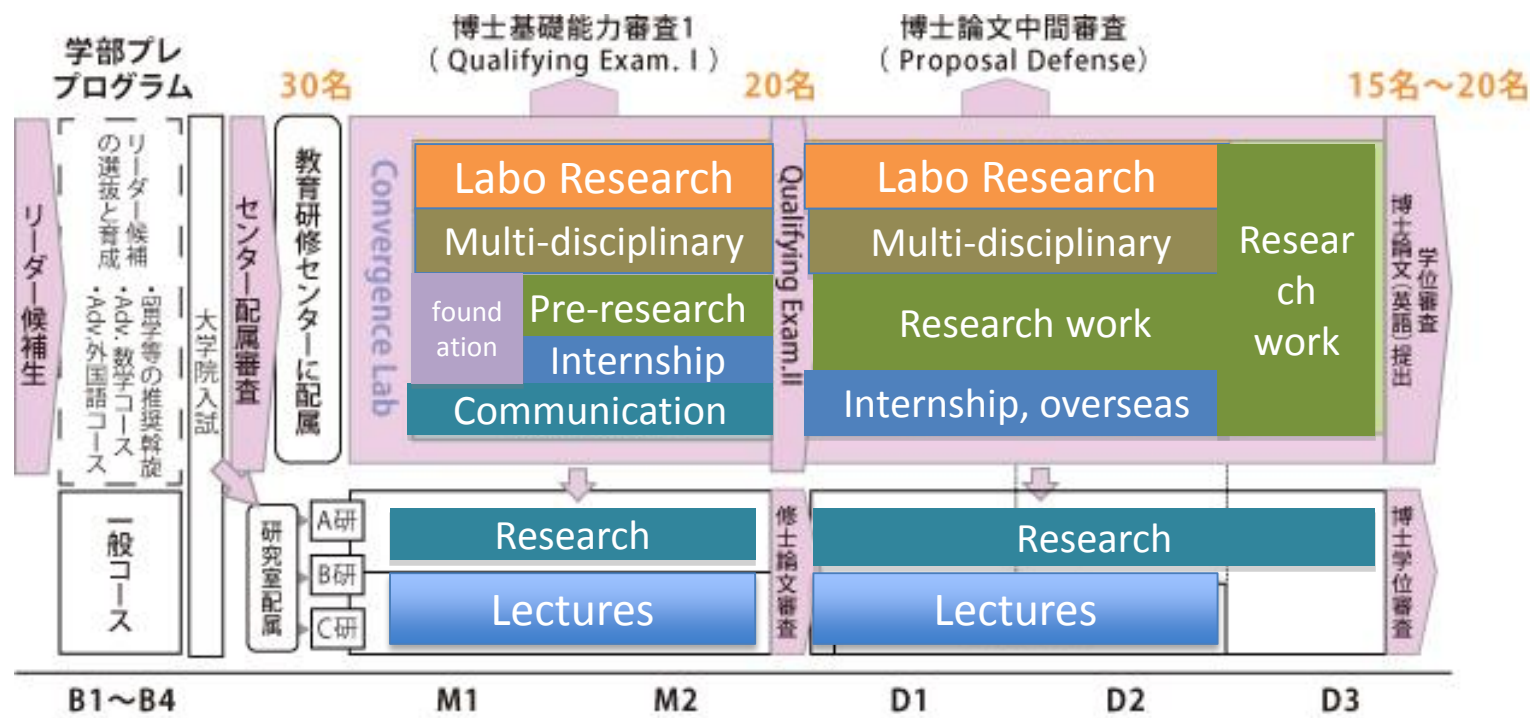
- Educational program
 - Establishing a disaster management program for higher education
 - Aims to educate internationally-prominent researchers in disaster management



- Inter-graduate School Doctoral Degree Program on Science for Global Safety
- 2012-2018 supported by MEXT



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Thank you!

URLs:

<http://irides.tohoku.ac.jp/eng/index.html>

<http://irides.tohoku.ac.jp/index.html>



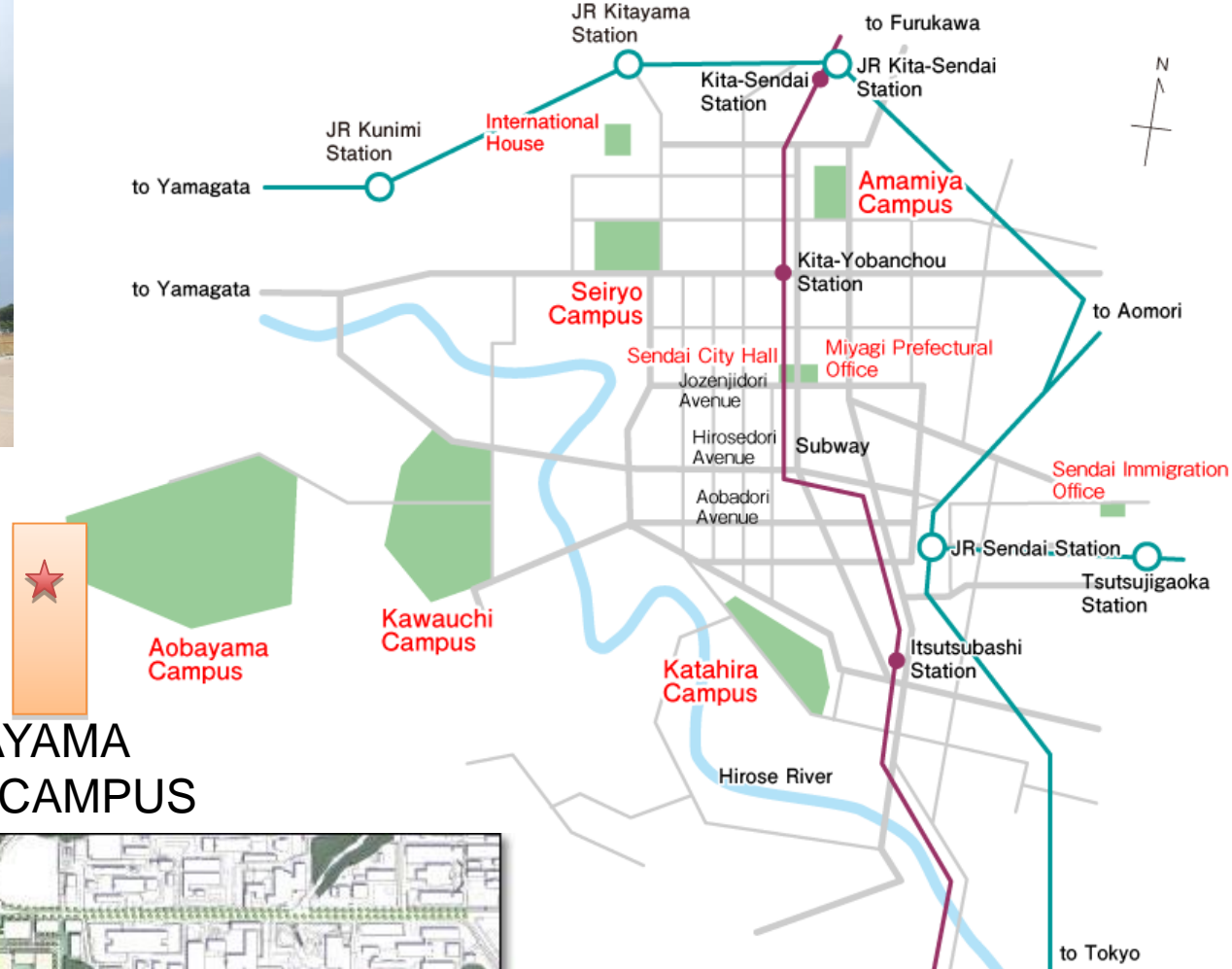
March 11, 2011 disaster and IRIDeS

- March 11, 2011 disaster
 - Costliest disaster in history from triple tragedy
 - JPY 16.9 trillion (\$210 billion)
 - e.g. \$81 billion (JPY 6.5 trillion) for Hurricane Katrina
 - Uncovered limitations of modern science and technology
 - Large-scale disaster impacts can't be prevented
 - Need longer time horizons for better understanding; importance of referencing ancient documents
 - Holistic approach is needed to respond to mega-scale disasters
 - Need wider spatial horizons for getting enough cases and experiences : International cooperative research

Disaster	Disaster Institute settled in Major National University
1923 Great Kanto Earthquake	→ The University of Tokyo Earthquake Research Institute (1925-)
1950 Typhoon Jane	→ Kyoto University Disaster Prevention Research Institute (1951-)
2011 GEJE and Tsunami	→ Tohoku University International Research Institute of Disaster Science (2012-)



IRIDeS Building, opened this Autumn.

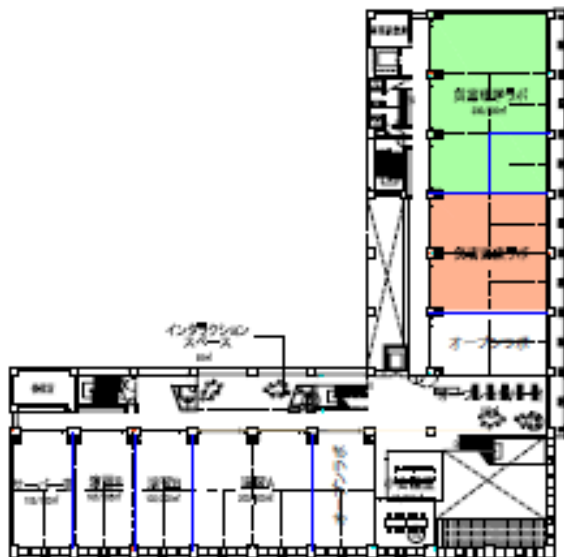


AOBAYAMA NEW CAMPUS

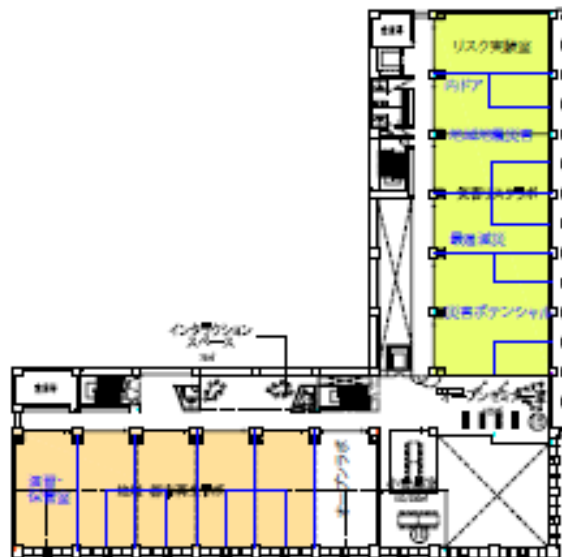


- Permanent space for the institution has just prepared!

You are here!



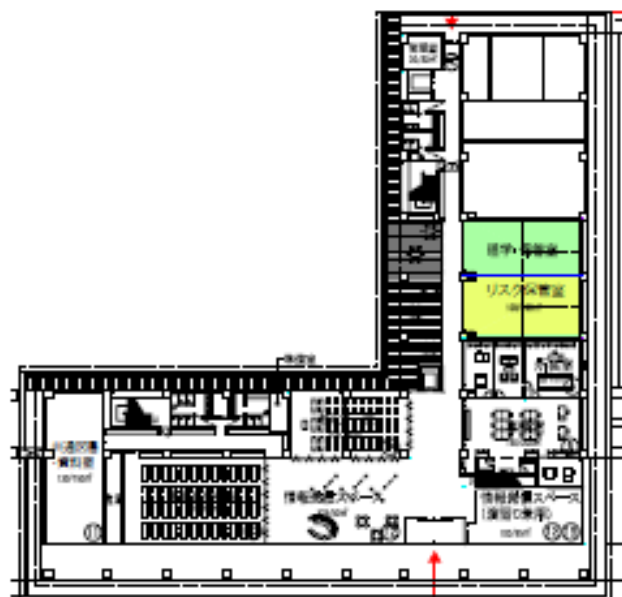
2階



4階



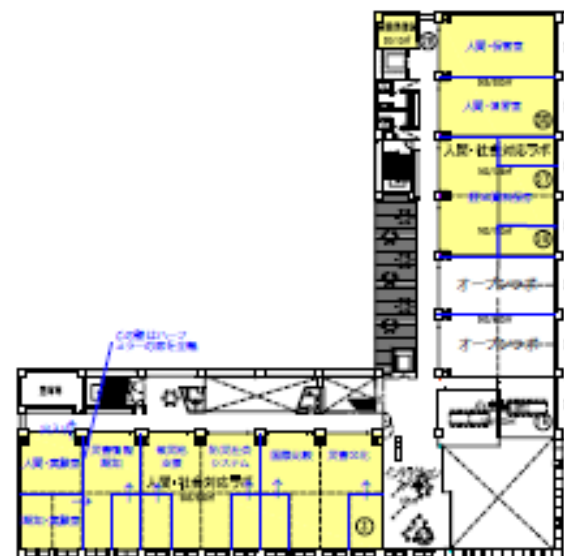
- 専任スペース
- 研究所共通スペース
- 部門ごと共通スペース
- 災害理学
- 災害リスク
- 人間・社会対応
- 地域・都市再生
- 災害医療
- 情報管理・社会連携
- 専用講座



1階



3階



5階