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- Prof. Toshiyuki TAKAGI (Institute of Fluid Science, Tohoku University)
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Local Organizing Committee

- Mr. Kazuo HIRATA (Dept. of Civil & Architectural Engineering, Tohoku Electric Power Co., Inc.)
- Prof. Fumihiko IMAMURA (Vice Director, IRIDeS(International Research Institute of Disaster Science), Tohoku University), Workshop Chairman
- Prof. Jun ISHIMOTO (Mixed Flow Dynamics and Cryogenic Fluid Dynamics, Tohoku University)
- Prof. Motoko KOTANI (Geometry and Energy Dissipation, Tohoku University)
- Prof. Yoshihito OZAWA (Human Support System and Fluid/Solid Interaction, Fukushima University)
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International Innovation Workshop on Off Shore Tsunami Energy Dissipation and Peak Height Alleviation

September 10-12, 2012

Aoba Memorial Hall 4F & 5F on the campus of School of Engineering,
Tohoku University, Sendai, Japan

- Fluid Dynamics of Tsunami and Energy analysis at Off Shore
- Structures for Tsunami Energy Dissipation
- Mega Float and Materials
- Multi-Purpose Structures



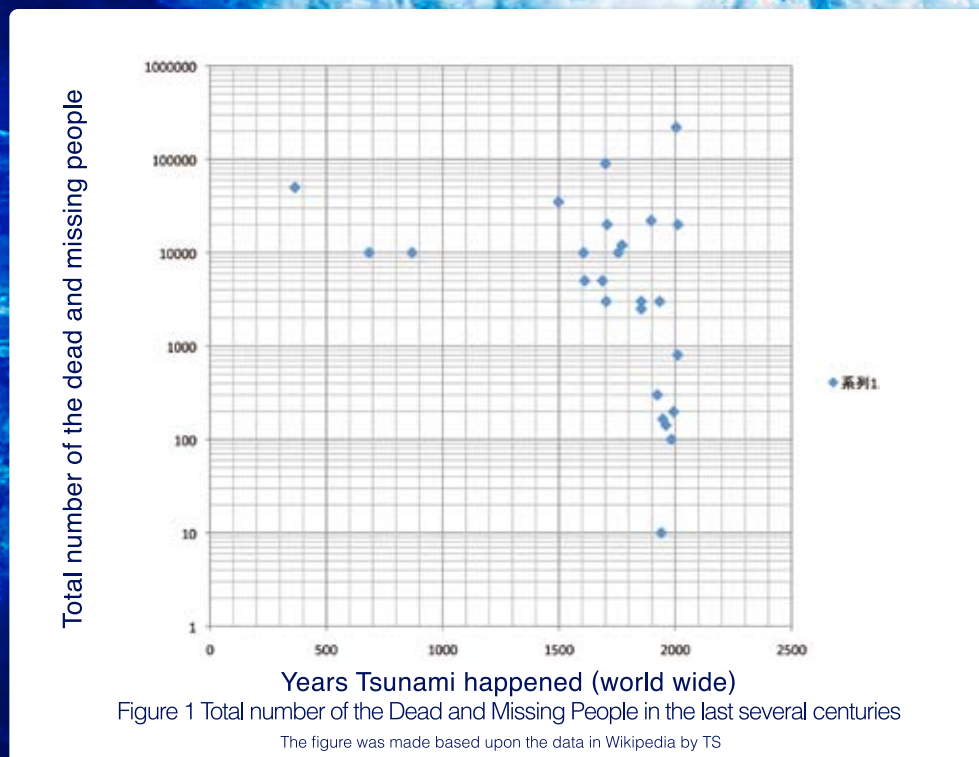
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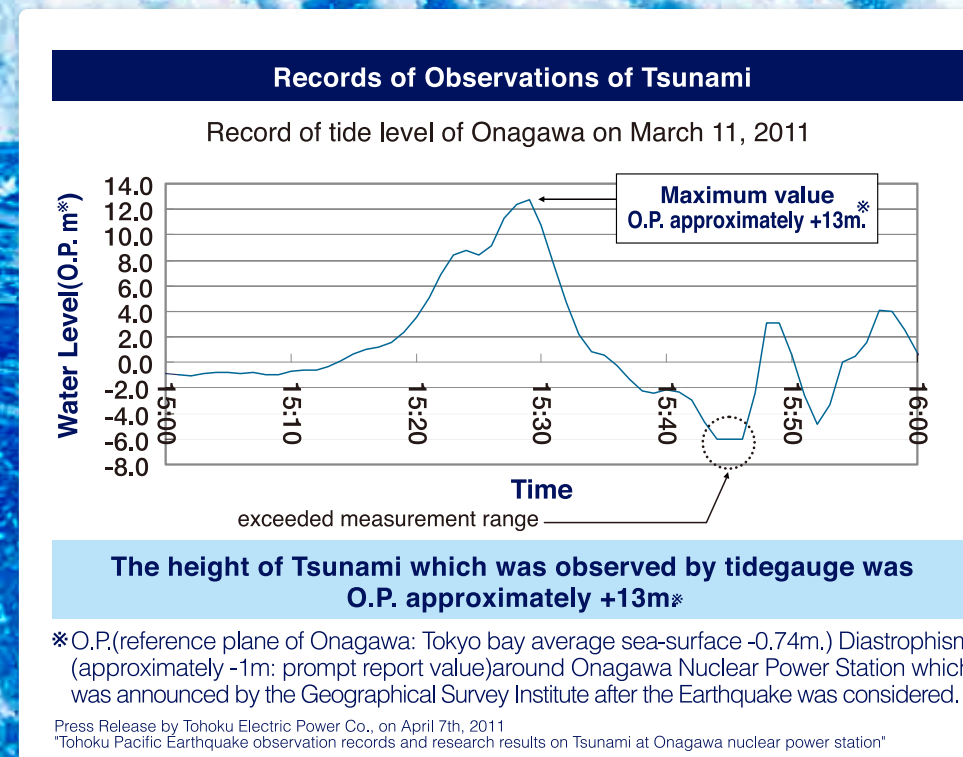
Tohoku University, Japan Society of Maintenology Tohoku/Hokkaido branch,
IRIDeS (International Research Institute of Disaster Science),
ELYT Laboratory, INSA de Lyon, UNIVERSITE DE LYON, Rhone-Alpes Region,
Science Council of Japan, Tohoku District Conference of SCJ and UNESCO
(Tentative)

Background

As one of the most serious natural disaster is Tsunami as can be seen in Fig.1
Tens of thousands of people have been loosing their lives periodically.



- Current countermeasure such as global tsunami Warning system plays more important role in future.
- Also we may consider more active action to mitigate Tsunami damage to minimize such a periodic tragedy by Science, Technology and Innovation



Objectives

- As an active countermeasure against Tsunami, feasibility study of a new approach for Off-Shore Tsunami energy dissipation and Peak Height Alleviation will be discussed as a main topics of this first Innovative workshop.
- This new potential countermeasure needs a cross-disciplinary approach with a brain-storming type discussion in depth and this workshop provides a unique opportunity for it to those who should be involved in this new approach.
- The approach will strengthen a current countermeasure against Tsunami by constructing higher breakwater and higher elevation construction of houses and buildings.
- Peak Height Alleviation will be effective to minimize a damage by Tsunami for any residences and their properties and any industrial constructions built near the coast

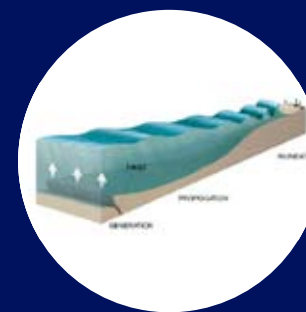
Possible effective energy dissipation at off-shore

- Mega civil engineering structures such as mega float
- Possible effects structures in the sea
- Foamed metals (Float and energy dissipation filter)
- Formation of air curtain in the sea by bubbling from the bottom of the sea
- Submarine topography
- Many others



● U.S. Navy photo by Mass Communication Specialist 3rd Class Alexander Tidd

Concept of Tsunami Alleviation and Multipurpose Approach



- Fundamental Energy Dissipation
- Conceptual Design of Energy Dissipation System
- Estimation of Potential Energy of Tsunami
- Sea Water Fluid Dynamics and Wave Propagation
- Ocean Wave Evaluation and Wave Interaction
- Maximum Tsunami Energy Dissipation System
- Off Shore countermeasure



- New Technology for energy dissipation
- Mega Structure for Tsunami Energy Dissipation,Structural Strength,
- Structural materials
- Any ideas for possible energy dissipation (see next page)
- Optimum Structural Design for Maximum
- Tsunami Energy Dissipation at Off Shore
- Optimum Placement of Structures for
- Maximum Energy Dissipation
- Design of Mooring Gear and Energy Dissipation



- Multi Function
- Multi-Purpose Structures
- Electric Power Generation (Wind Power, Tidal Power, Solar Energy)
- Electric Power Storage (Emergency Back-up Power)
- Off Shore Dock
- Off Shore Shipping Ports
- Off Shore Harbor
- Other purposes

Interaction and cost minimum for general purpose