

New Frontier of Education and Research in Wind Engineering

Major Activities in Global COE Program

1. Construction of the Database and Data Mining Approach for Wind Disasters

Background

Recently, the many disasters due to the **strong wind** and the **gusty wind** are reported. Reasons of strong and gusty winds are predictable. But occurrence locations and times of strong wind and gusty wind are unpredictable.

Objective

Establishment of **assessment procedure** for the wind hazard and **minimization of the damage** by wind hazard. First Objective of this project is making the database for wind hazard given by the various types of information sources.

Activities in 2009 FY

1. Field investigation

- *Tatebayashi city, Gunma-prefecture
- *Kujukuri city, Chiba-prefecture
- *Tsuchiura city, Ibaraki-prefecture
- *Ryugasaki city, Ibaraki-prefecture
- *Noshiro city, Akita-prefecture

was conducted.

2. Wind disaster resources during 2009FY were collected via the Internet.

3. Meeting about EVO damage database contents with Prof. Kareem and Dr. Kwon at University of Notre Dame was conducted. And contents of the damage database are discussed and fixed.

4. Editing of the contents for EVO damage database was conducted.

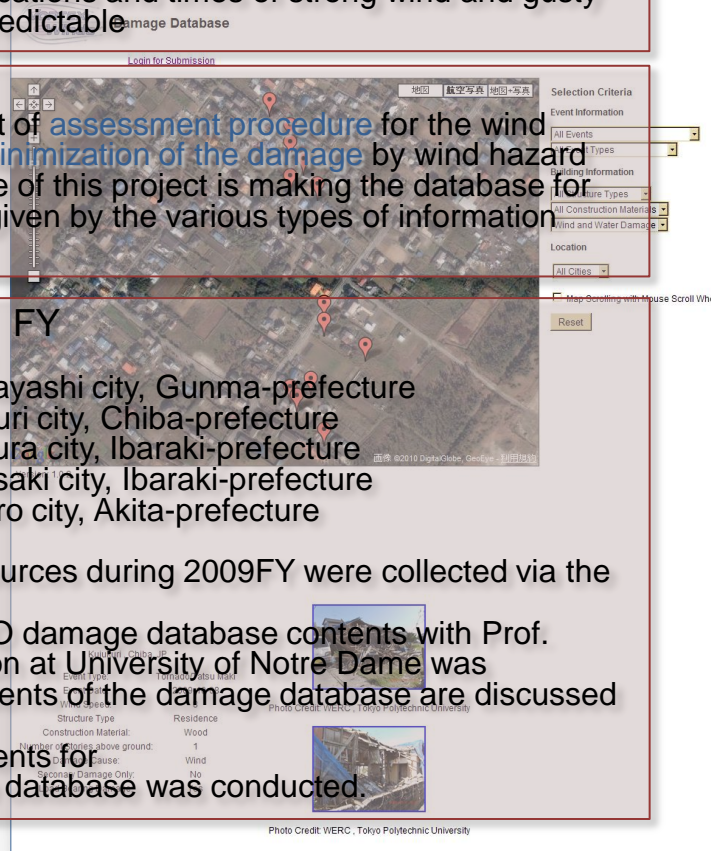


Photo Credit: WERC, Tokyo Polytechnic University



Name and Stand
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Hometown
Shinjuku, Tokyo, Japan

Profile Study

I earned Ph. D degree at Tokyo Institute of Technology in 2001

Work

University of Illinois at Urbana Champaign, Nihon University, Tokyo Institute of Technology (Center of Urban Earthquake Engineering, and Tokyo Polytechnic University (Wind Engineering Research Center) in nearly a decade.

2. Real-time-monitoring system for wind-resistant performance of buildings in sustainable urban area

-Establishment of its infrastructure technique-

Background

~Importance of Monitoring system~

The number of disasters will increase gradually **based on climate change** in the cities such as Tokyo, Taipei, Shang-hai, and Hong Kong etc (in the East Asia region). The development of cities in the less industrialized countries such as BRICs is remarkable. Basically, in the current wind resistant design, the **'wind load of the building'** is examined while projects are still in the planning stages. Basically, it is not confirmed after the completion of construction. The wind load of building in urban area is changing with the growth of cities. So establishment of monitoring system is important.

~Why we use GPS technique for monitoring?~

Wind responses have mean component. Estimation of them is important.

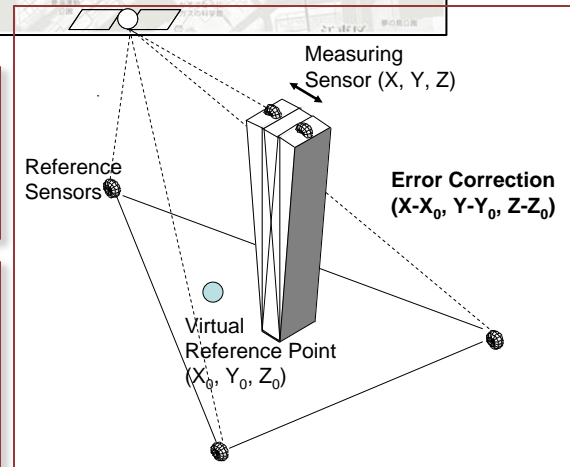


Objective

Establishment of **real-time-monitoring system using RTK-GPS for wind-resistant performance** of buildings.

Activities in 2009 FY

- ✓GPS sensors were set at top of the Kogakuin Univ. Build., Marunouchi Build., and Shin-Marunouchi-Build.
- ✓Development of infrastructure of monitoring system for building condition such as end moment, stress distributions, and base shear



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The titles of my past research topics are "Wind tunnel test of wind-induced oscillations for high-rise building with hysteretic damper [TIT]", "Rational polynomial approximation modeling for dynamic characteristics of visco-elastic damped structure [UIUC]", "Development of hybrid technique for verifying effect of interactions between oscillating structure and surrounding flow [Nihon Univ.]", "Consideration for methodology of wind environment assessment in vicinity of buildings [Nihon Univ.]", "Effective ventilation considering fluctuation component of pressure distribution [Nihon Univ.]", "Wind pressure acts on mesh seat in temporary housing work [Nihon Univ.]", and "Dynamic collapse tests of miniature reinforced concrete frames under high-gravity field using large centrifuge [TIT]". I find great pleasure in being part of many kinds of research topics. Fortunately, I have researched under many different environments and enlarged number of friends and colleagues. And now, I am very happy to be able to work as a member of Global COE in TPU!!