The first time I met Prof. Tsuneo Katayama about forty years ago, he was in the early 40s of the age, rising in the world community of earthquake engineering. From the first meeting, he relieved me with his gentle talking style and embracing the personal character, which everyone who has ever met him may feel similarly.

As for research discussions, however, he often showed the spirit of fighting. I saw he fiercely disputed with his fellow researchers on the problems of his specialty. He has never been satisfied with what he has completed, and he even now continues to challenge new areas.

When he was a student at the University of Tokyo, he played rugby football which he continued in the graduate schools in Japan and Australia. Perhaps, his personality and research attitude come from the experience in rugby.

He started his career in earthquake engineering in Australia studying dynamic analyses of tall buildings, then his research topic moved to the characteristics of ground motions, and to the disaster mitigation of lifeline systems, and further the wider field of urban seismic damage mitigation. These studies were implemented in Japan and other Asian countries and contributed to reducing the seismic damage and risk of communities and cities.

The damage caused by the 1995 Kobe earthquake shocked Prof. Katayama. He examined himself as an earthquake engineer and reached conclusions that "insufficient understanding," "overconfidence," and "lack of communication between experts and society" were the major causes of unforeseen damage.

This feeling drove him to leave the University of Tokyo before the retirement age, and work for management of fundamental researches as the director of the National Research Institute for Earth Science and Disaster Resilience (NIED). Now his work on the strong motion seismograph network and the world largest shaking table E-Defense is well-known as the highest research infrastructure for the earthquake engineering studies in Japan and the World.

Dr. Ryoji ISOYAMA
Eight-Japan Engineering Consultants Inc.

Always be humble and modest to the nature, and do not forget that you are serving for the safety of the people to the earthquake calamity.

Be aware that arrogance is the worst thing in research.

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CSI

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CSI/IAEE Masters Series

"Meet the Masters"

Tsuneo KATAYAMA (Japan)

The 17th World Conference on

Earthquake Engineering

Sendai, Japan

September 27 – October 2, 2021

Educations:

1958-1962 University of Tokyo
1962-1964 University of Tokyo, Master of Engineering
1964-1967 University of New South Wales (Australia), Ph.D.

Work Experiences:

1964-1967 Teaching Fellow, Uni. of New South Wales
1967-1971 Lecturer and then Assoc. Prof., Chuo Univ.
1971-1996 Assoc. Prof. and then Prof., Uni. of Tokyo
1996-2006 Director, Nat. Res. Inst. for Earth Sci. and Disaster Prevention, (NIED), Japan
2006-2013 Prof., Tokyo Denki Uni.

Professional Services:

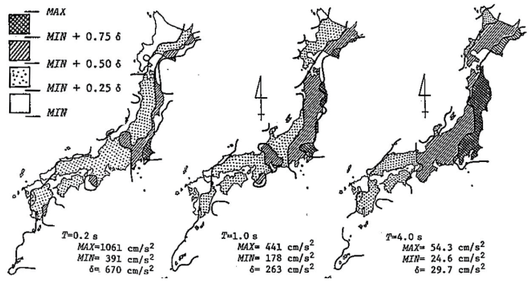
1988-2002 Secretary General, IAEE
2006-2010 President, IAEE
2008-2014 President, Real-time Earthquake & Disaster Information Consortium, Non-profit Organization in Japan

Awards:

2006 International Lifetime Contribution Award, JSCE
2007 Outstanding Civil Engineering Achievement Award, JSCE
2008 Best Paper of the Year, Geotechnical Engineering Magazine, The Japanese Geotechnical Society

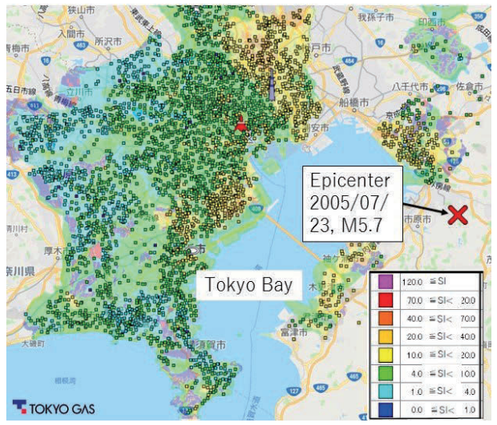
Selected works:

- Statistical analysis of earthquake acceleration response spectra
- Lifeline earthquake engineering in Japan, water and gas supply systems in particular
- Damage and restoration of lifelines caused by the 1964 Niigata and the 1978 Sendai earthquake
- Damage due to the Haicheng and the Tangshan earthquake in China
- Economic issues in urban earthquake policy and planning



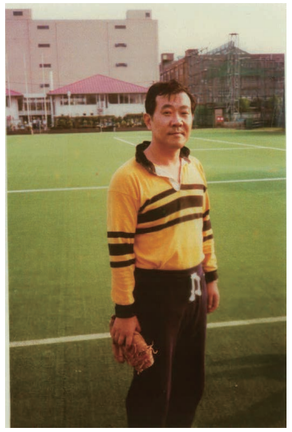
Example of period-dependent seismic zoning map (Tsuneo KATAYAMA: An Engineering Prediction Model of Acceleration Response Spectra and Its Application to Seismic Hazard Mapping, Earthquake Engineering and Structural Dynamics, Vol.10,1982

Based on regression analysis on 277 acceleration response spectra, a prediction model was proposed for the maximum acceleration response for given magnitude, distance, and site ground condition. A method was then developed to evaluate seismic hazard in terms of acceleration response spectrum by using the prediction model and the seismicity data. The result was applied to obtain period-dependent, seismic macro-zoning maps of Japan which indicated that a single seismic zoning map is not sufficient to cover a variety of structures with a wide range of periods.



SUPREME estimates SI value distribution by the observed SI values and the amplification factors of the ground assigned to 50m grid, also estimates damage to gas pipes according to SI value and characteristics of pipe in real-time manner.

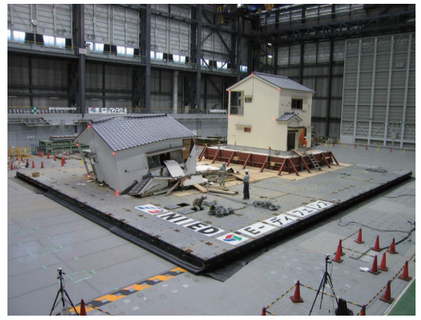
From the late 1970's on, Katayama's research interest began to incline towards urban earthquake disaster mitigation problems, especially those of lifeline systems. He, with the help of the Tokyo Gas Company's engineers, developed a real-time seismic damage mitigation system (SIGNAL) with about 300 seismometers placed in the company's service area. The seismometer was developed for this system by him and his colleague, named SI sensor. By using the records of the SI sensors, the system estimates the heavily damaged area to which gas supply is automatically shut off. SIGNAL was updated to the new system named "SUPREME" 2001. About 4000 improved SI sensors were set in the supply area, and constantly monitoring seismic ground motion.



Sydney 1966

After coming back from Sydney, Katayama started to teach in a private university and then moved to the University of Tokyo. He gradually became interested in the engineering properties of strong ground motion. His pastime in those days was playing rugby football, which he continued until he broke his ankle.

After the 1995 Kobe earthquake, Katayama was invited to be the director of NIED. While he was there, NIED accomplished two major works. One is the establishment of some 3,000 seismograph network covering all over Japan, and another is the construction of the world largest 3-dimensional shaking table that can test a real-sized 6-story RC building until breaking.



Provided by NIED, E-Defense

9th WCEE Tokyo-Kyoto, Japan

His first attendance to WCEE was the third conference held in New Zealand in January 1965. He was 25 years old, a Ph.D. student at the University of New South Wales in Sydney, Australia. It was a memorable occasion for him where he met such Professors as Housner, Hudson, and Penzien. Strictly speaking, he only saw them, he was too immature to talk to them.