

Ministry of Education, Culture, Sports, Science and Technology (MEXT) has approved Tokyo Polytechnic University (TPU) Wind Engineering Research Center as the Joint Usage / Research Center

The Tokyo Polytechnic University (TPU: Atsugi Pre. Kanagawa Japan, Director Masaaki Oba) Wind Engineering Research Center was adopted as the "Joint Usage / Research Center" by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) on the 23rd of April and the authorized period will be from April 1st 2013 through March 31st 2019.

The Joint Usage / Research Center development project is led by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and its purpose is to develop a system to promote research using a large research facility or a large quantity of documents and data beyond the boundaries of individual universities. It had been promoted conventionally by research institutes in national universities, but in July, 2008, an authorization system was established for national, public, and private universities. The Institute for Frontier Medical sciences, Kyoto University and the International Center for Elementary Particle Physics, Tokyo University have been authorized so far.

WERC TPU has launched the 21st century COE program 2003 "Wind Effects on Buildings and Urban Environment", and the Global COE program 2008 "New Frontier of Education and Research in Wind Engineering" adopted by MEXT.

The center is promoting research on mitigation of typhoon and tornado disasters, on design of natural cross ventilation that efficiently utilizes natural draft energy to reduce consumer ventilation energy, and on countermeasures to the heat island problem and air pollution problems.



The Center is operating EVO (Engineering Virtual Organization) and VORTEX- Winds (Virtual Organization for Reducing Toll of Extreme Winds), which will integrate the work of research institutes all over the world. It will also develop a more advanced education/research system that will more effectively promote center-to-center-based education/research on a global scale.

There is a lot of worldwide interactivity among research institutes in the wind engineering field, including international symposiums, international workshops, and educational and research activities. The organization is recognized as a leader in research in the wind engineering field. Our purpose is to reinforce and develop human resources in the wind engineering field by sharing our world leading knowledge and our unique research facilities.

Request for Media Interview and Filming

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Outline of Joint Usage / Research Center

This center belongs to the Graduate School of Engineering and consists of the Wind Engineering Research Center, the APEC Wind Hazard Mitigation Center, the Wind Engineering Information Center, and research facilities. We have 6 members from TPU and 4 visiting researchers.

We have several attractive facilities including a turbulent atmospheric boundary layer wind tunnel, a thermally stratified wind tunnel, an active-control multi-fan climatic chamber, a tornado simulator, and exterior material wind resistance test equipment. Wind hazard databases, and natural ventilation databases have been established and disseminated via the web site.

<p>(1)Turbulent Atmospheric Boundary Layer Wind Tunnel</p>	<p>(2)Thermally stratified wind tunnel</p>
<p>This wind tunnel can simulate a turbulent boundary layer, and measure wind pressures, wind responses, wind environments and wind forces acting on buildings. The measurement section is 2.3m wide, 1.8m high, and 19.1m long, and it is the largest in a domestic university.</p>	<p>This is a special wind tunnel that can control floor temperature and airflow temperature. It consists of a fan, temperature stratification equipment, floor panel heating cooling equipment, an air flow cooling system, and a heat source device. The wind velocity range is 0.2-2m/s, and the air temperature range is 10-50°C.</p>
	
<p>(3) Active-control multi-fan climatic chamber</p>	<p>(4) Tornado simulator</p>
<p>48 plug fans are controlled individually by an inverter, and can create natural crosswind fluctuations and wind distribution. Wind humidity and temperature can be controlled. The climate chamber is 5m wide, 11m long, and 3m high (external dimensions). The wind velocity range is 0-3m/s, the temperature range is 20-35 °C , and the humidity range is 50-80%. It is evaluated as a unique facility.</p>	<p>A movement-type simulator and a standstill-type tornado simulator that consider tornado movement have been developed. These devices are capable of measuring wind pressures, as well as visualization and wind velocity measurement.</p>
