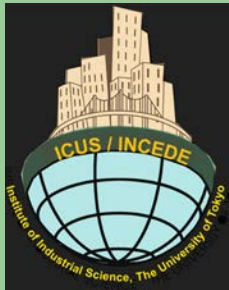
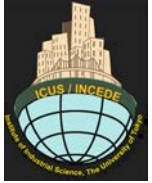


International Center for Urban Safety Engineering (ICUS/INCEDE)

Annual Report -2002-





Staff Members (ICUS/INCEDE) (2002)

Sustainable Engineering Division

- Prof. Taketo UOMOTO (Director and Professor)
- Prof. Sudhir MISRA (Visiting Professor)
- Dr. Yoshitaka KATO (Assistant Professor)

Urban Safety and Disaster Mitigation Division

- Mr. Takefumi TAKAHASHI (Visiting Professor)
- Dr. Kimiro MEGURO (Associate Professor)
- Dr. Dushmanta DUTTA (Research Associate)

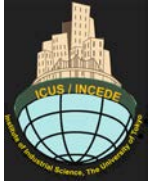
Infrastructure Information Dynamics Division

- Prof. Yoshifumi YASUOKA (Professor)
- Dr. Ryozo OOKA (Associate Professor)
- Dr. Shiro OCHI (Research Associate)



Staff Members (ICUS/INCEDE) (2002)





Research Topics of ICUS

(2002)

Sustainable Engineering Division

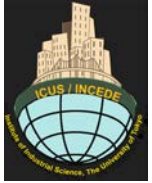
- Deterioration mechanism of existing structures
- Nondestructive testing technology for evaluation of deterioration
- Retrofitting and strengthening of structures based on mechanism of deterioration
- Standard specification for design, construction and maintenance

Urban Safety and Disaster Mitigation Division

- Urban safety and disaster mitigation strategy
- Development of a universal disaster environment simulator
- Disaster countermeasures for urban lifeline systems
- Use of earthquake-predicting information from an engineering viewpoint

Infrastructure Information Dynamics

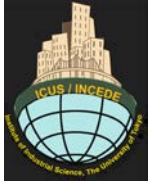
- Remote sensing/geographic information system
- Information network of urban infrastructure
- Space data analysis
- Urban warming/comprehensive environmental assessment



Research Topics (2002)

Sustainable Engineering

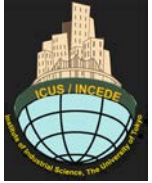
- Experimental study on strength and durability of pre-tension concrete using by FRP rods made of new materials to expose sea and reputation of wetting and drying
- Effect of condition at early age on the microstructures of hardened cement
- Influence of various factors on deterioration of repaired concrete structures
- Effect of the various chemical admixtures on physical properties and microstructures of hardened mortar
- Research on strength and durability of GFRP rods made of new glass fiber
- Application of multi-spectral method to chloride detection on the concrete surface
- The elucidation of the fundamental theory of concrete conveyance system using DEM
- Fundamental study on various types of cement resistance to sulfuric acid attack
- Evaluation of the resistance of substance movement in concrete by thermograph method
- The long-term continuous monitoring of behaviors on concrete structures



Research Topics (2002)

Urban Safety and Disaster Mitigation

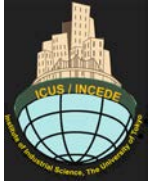
- Development of efficient supporting system for earthquake disaster countermeasures
- Next generation manual for total disaster management
- Quick estimation and monitoring of earthquake damage by using changes of the power supply
- System for proper personnel management during disasters
- System for promotion of retrofitting of existing low earthquake resistant structures
- Efficient and economic retrofitting method for masonry structures considering local availability of materials and workmanship
- Use of earthquake prediction information for engineering disaster mitigation measures
- Universal disaster environment simulator
- Numerical simulation of total collapse behavior of structures
- Effects of fault movement on surface geology and structures



Research Topics (2002)

Urban Safety and Disaster Mitigation (contd.)

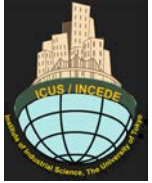
- Development of methodology for deriving detailed urban land cover information using high-resolution satellite images for flood loss estimation
- Investigative research on flood forecasting
- Modeling for fresh water resources assessment
- Rainfall-Runoff Modeling for predictions in Ungaged river basins
- GIS based mathematical modeling for urban flood risk analysis
- Loss function developments for economic risk analysis of flood disasters



Research Topics (2002)

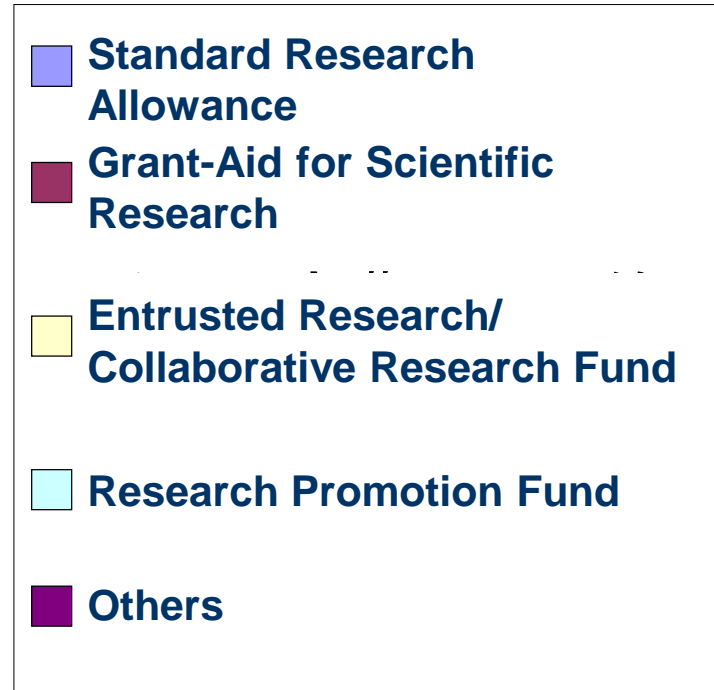
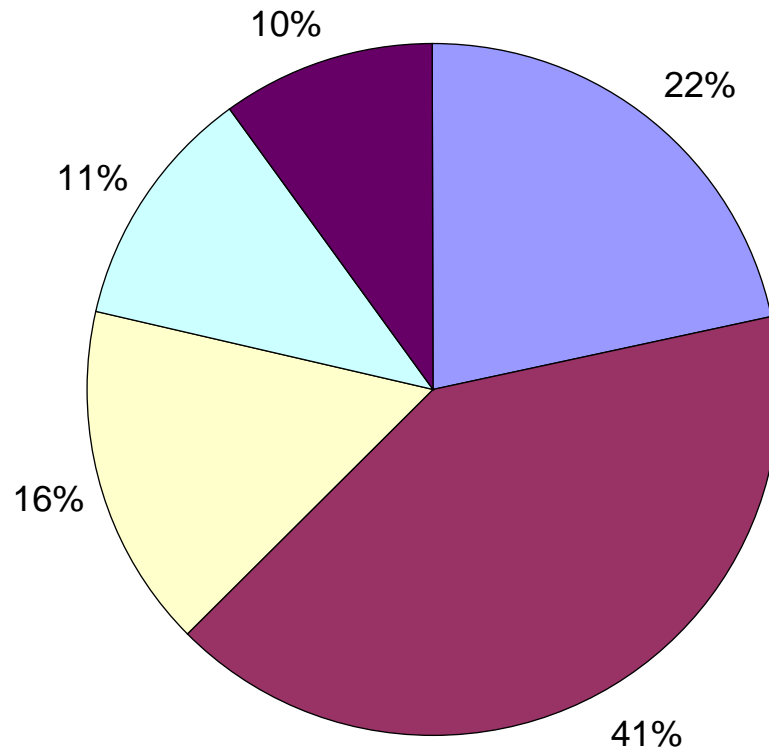
Infrastructure Information Dynamics

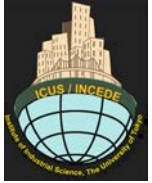
- Monitoring of the environment in East Asia using satellite data (TERRA/MODIS)
- 3D city modeling using airborne laser scanning data and high resolution satellite imagery
- Measurement of suburban forest using multi-temporal airborne laser scanner data
- Estimation of parameters of vegetation using hyperspectral remote sensing
- Analysis of urban heat island structure in use of urban meteorological model
- Relaxation effect of urban greening on urban heat island
- Urban fire simulation in aid of CFD method
- Prediction of air pollution by wind tunnel experiment and numerical simulation
- Study on the mechanism of CO₂ emission in urban region



Budget of ICUS

(2002)



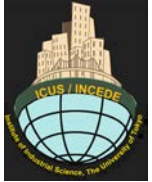


Projects

(2002)

- Sustainable Engineering -

- **Grant-Aid for Scientific Research**
 - Integration of multi-scale simulation system and non-destructive inspection technique
- **Collaborative Research with Industry**
 - Development of prediction method for deterioration of concrete structure
 - Study on the evaluation of the repair materials for concrete structure
 - Development of new type GFRP
 - Evaluation of transport performance of concrete by using DEM
- **Others**
 - Development of the evaluation method for structural performance of concrete structures in consideration of materials deterioration

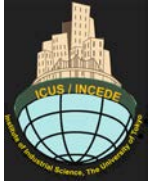


Projects

(2002)

- Urban Safety and Disaster Mitigation-

- **Grant-in-Aid for scientific research**
 - US-Japan Cooperative Research on Urban Earthquake Disaster Mitigation “Study of Earthquake Disaster Response Process by Multi-media Technology”
 - Control of Failure Behavior of Structures Considering Spatial Deformation of Surface Ground Near Seismic Fault
 - Economic and Efficient Method for Retrofitting of Unreinforced Masonry Structures
 - Development of Integrated Numerical Simulator for Tsunami Disaster in Coastal Region
 - Development of high precision computational techniques of evapotranspiration in urban areas using for water and energy balance methods
 - Modelling for Fresh Water Resources Assessment in Mekong River Basin
- **Cooperative research with the private sector**
 - Failure mechanism of seismic fault using Applied Element Method
 - Dynamic large deformation analysis of railway structures
 - Development of next generation of disaster manuals for increasing total disaster management capacity
 - Effects of power outage on urban social systems



Projects

(2002)

- Urban Safety and Disaster Mitigation-

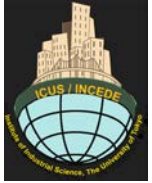
- **Special Coordination Funds for Promoting Science and Technology (RR2002)**

Special Project for Urban Earthquake Disaster Mitigation IV-1「Study for Integration of Earthquake Disaster Reduction Countermeasures, - Pre-Event Measures」

- **Social Technology Research System**

「New Technology for Earthquake Risk Assessment and Disaster Mitigation and Crisis Management」

- **The Development of Earthquake and Tsunami Disaster Mitigation Technologies and Their Integration For the Asia-Pacific Region**
Survey Method for Earthquake and Tsunami Disasters

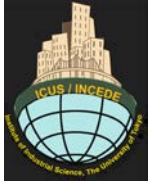


Projects

(2002)

- Infrastructure Information Dynamics-

- **Grant-Aid for Scientific Research**
 - Development of Network for Monitoring Natural Disasters in ASIA using Satellite Remote Sensing (JST)
 - Development of Urban Design Method for Fifty Percent Reduction of CO₂ Emission
- **Collaborative Research with Industry**
 - Development of Geothermal Air Conditioning Method using the Foundation Pile



Workshop and Open Lecture

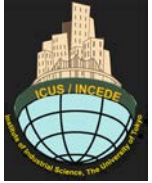
(2002)

– Domestic

- SEIKEN Open House (2002.6.6-7) IIS
- 3th ICUS Open Lecture (2002.10.7) IIS
- 4th ICUS Open Lecture (2003.3.24) IIS

– Outside Japan

- International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (2002.10.28)
Bangkok, Thailand (Grand Pacific Hotel)
- Establishment of RNUS (2002.10.28) SCE, AIT, Thailand



3th ICUS Open Lecture

(2002.10.07)

- 「Modeling of heat island phenomena」
 - Dr. Ryozo Ooka (Associate Prof. ICUS/INCEDE)
- 「Investigation of urban heat island in Tokyo metropolis based on the ground monitoring system」
 - Prof. Takehiko Mikami (Professor, Tokyo Metropolitan University)
- 「Global warming and urban disaster」
 - Mr. Kohtaro Takemura (Advisor, Water Resource Environment Technology Center)
- 「Mortality rate due to heat disorder by place of occurrence using vital statistics in Japan」
 - Prof. Yutaka Inaba (Professor, Juntendo University)

International Symposium on New Technologies for Urban Safety of Mega Cities in Asia



(2002)

Bangkok, Thailand (Grand Pacific Hotel)



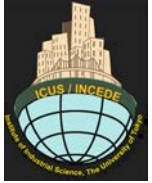


Establishment of RNUS

(2002)



(2002.10.29 at SEC,AIT)



4th ICUS Open Lecture

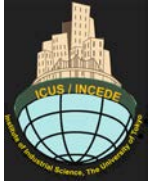
(2003.03.11)

- 「Emerging Challenges in the 21st Century to meet the demand of water supply in the fast growing Mega cities of Asian Developing Countries」
 - Prof. Ashim Das Gupta (Professor, Asian Institute of Technology, Thailand)
- 「Integrated Urban River Basin Management: Experiences from Past and Future Direction in Japan」
 - Prof. Katumi Musiake (Professor, University of Tokyo, Japan)
- 「Strategic Framework and Institutional Arrangement for Flood Disaster Management in Large Cities in Thailand」
 - Prof. Tawatchai Tingsanchali (Professor, Asian Institute of Technology, Thailand)
- 「Towards sustainable development and management of the water supply of Hong Kong」
 - Prof. A.W. Jayawardena (Professor, Hong Kong University, Hong Kong)
- 「Importance of hydrological forecasting for integrated urban water management」
 - Prof. Kuniyoshi Takeuchi (Professor, Yamanashi University)

4th ICUS Open Lecture

(2003.03.11)





Publications

(2002)

1) News Letter

- Volume2 Number1 April - June
- Volume2 Number2 July - September
- Volume2 Number3 October - December
- Volume2 Number4 January - March

2) Proceedings of the International Symposium: “New Technologies for Urban Safety of Mega Cities in Asia” (2003.3)

3) Activities of ICUS/INCEDE 2002 (2003.3)

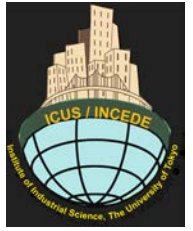
4) ICUS/INCEDE committee report 2002 (2003.3)



Research Papers

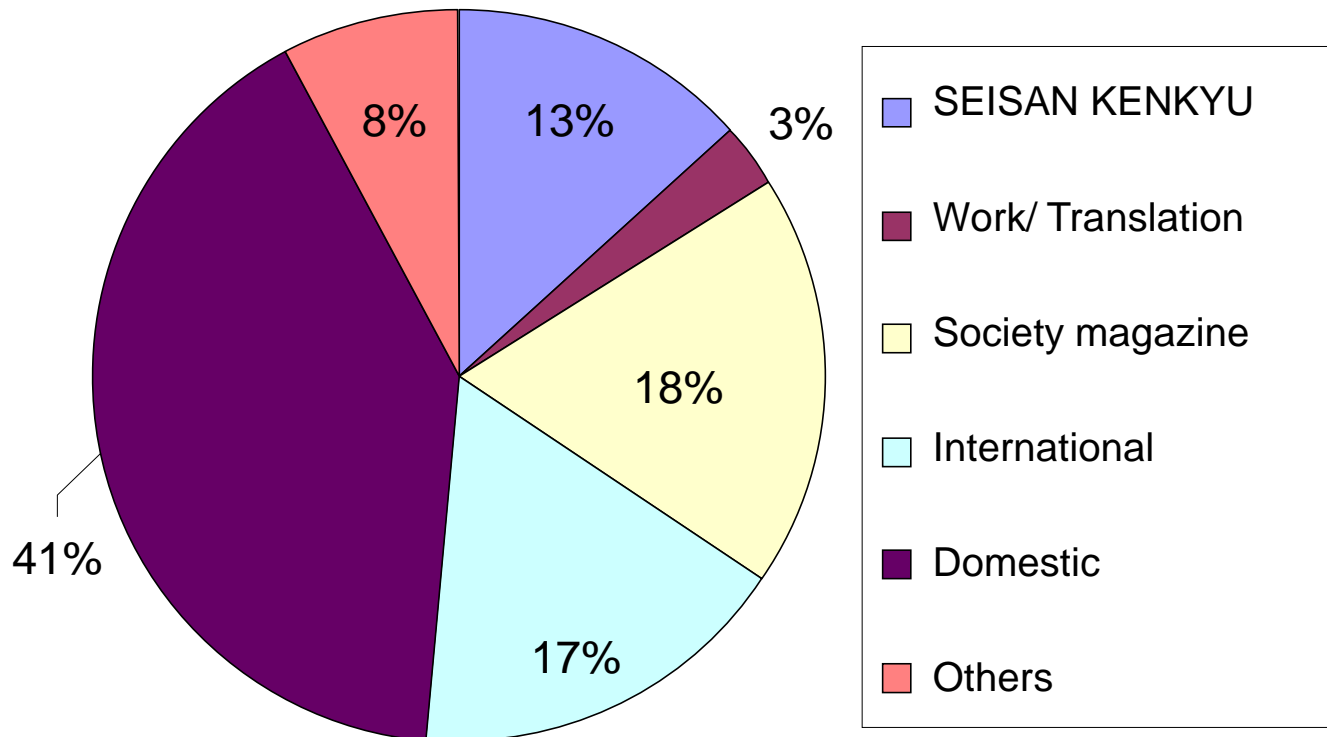
(2002)

	Sustainable Engineering	Urban Safety and Disaster Mitigation	Infrastructure Information Dynamics
SEISAN KENKYU	27	4	5
Work/Translation	2	2	4
Society magazine	20	22	7
International	8	9	29
Domestic	28	26	57
Investigate	0	0	0
Others	11	8	2
Total	95	71	104



Research Papers

(2002)





ICUS Activities Recognized (2002)

Name	Date	Prize Name	Organization	Supervisor
T Sugiyama	June-02	Excellent presentation	JCI	Prof. Uomoto
K Miyamoto	June-02	Excellent presentation	JCI	Prof. Uomoto
T Sugiyama	Sept-02	Excellent presentation	JCA	Prof. Uomoto
H Kanada	Nov-02	Excellent presentation	JSCE	Prof. Uomoto
W Takeuchi	Nov-02	Excellent paper	JAS	Prof. Yasuoka
Mayorca Paola	Nov-02	Excellent presentation	JSCE	Dr. Meguro
M Enomoto	Nov-02	Excellent presentation	JSCE	Dr. Meguro
S Fujita	Nov-02	Excellent presentation	JSCE	Dr. Meguro

**International Center
for Urban Safety Engineering (ICUS/INCEDE)
Institute of Industrial Science, The University of Tokyo**

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Tokyo 153-8505, Japan

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E-mail: icus@iis.u-tokyo.ac.jp

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