

2010ITFS (国際津波フィールドシンポジウム) 報告

ITFS 実行委員会一同

International Tsunami Field Symposium は、2006 年にカリブ海で初めて企画され、2 回目の会議は 2008 年イタリアで、今回日本での開催になり、3 回目の会議になる。今年はチリ地震・津波が発生してから 50 周年の節目にあたる。M9.5 以上と言われる超巨大地震により発生した津波は太平洋各地を襲い甚大な被害を出した。また、5 年前の 2004 年スマトラ沖地震によるインド洋大津波でも甚大な被害を繰り返している。今一度、津波研究に関する課題を共有化の中で整理し、減災へ向けての包括的な取組を実施しなければならない。そこで、今回のシンポジウムは、以下の 3 つのテーマについて発表・ディスカッションし、2010 年 2 月チリ地震・津波についての緊急報告も加わり、充実した議論が行われた。地震・津波の科学 (21 件)、津波防災への技術 (22 件)、総合減災に向けての総合対策 (22 件)、ポスター (31 件)、企業展示 (15 件) であった。

このシンポジウムでもう一つの柱が、現地を訪問する巡検であった。今回は、仙台市内 (貞観津波の痕跡、仙台湾での津波対策)、三陸沿岸 (歴史津波、対策の現状、地域との交流会)、沖縄 (明和地震津波、津波石) の 3 コースを企画し、延べ 145 名の参加を得た。我が国における津波研究の現状と課題を理解するだけでなく、地域と連携した減災対策などの現状を知る機会となった。

会議の様子は、2010 年 4 月 10 日宮城テレビ、2010 年 4 月 11 日付けの河北新報 (朝刊)、読売新聞 (朝刊)、4 月 12 日 NHK、で紹介された。



さくらホール (片平キャンパス) での会議の様子



シンポジウム 2 日目のバンケットの様子（ここはポスター会場も兼ねている）



三陸巡検での防潮林などの施設を見学している様子（陸前高田市）

シンポジウムの WEB サイト：

<http://www.tsunami.civil.tohoku.ac.jp/hokusai3/E/itfs2010/>

外国参加者内訳（ドイツ 11, イタリア 5, タイ 4, 米国 3, シンガポール 2, 韓国 2, ロシア 1, インドネシア 4, スウェーデン 1, ポーランド 1）

実行委員会のメンバーは以下である。

東北大学大学院工学研究科 附属災害制御研究センター	今村文彦（代表）
	越村俊一
	後藤和久
	保田真理
	網田早苗
東北大学大学院理学研究科	阿部郁男
	箕浦幸治
	菅原大助

Overall schedule

9 April, 2010

17:00- Registration available

17:00-19:00 Ice Breaker Party

10 April, 2010 (Symposium)

9:30-12:05 Oral session (morning)

12:05-13:30 Lunch time

13:30-16:45 Oral session (afternoon)

16:45-18:15 Poster session

18:15-19:30 Banquet

11 April, 2010 (Symposium, Sendai Trip)

9:00-11:55 Oral Session

12:30-18:00 Sendai field trip

Overall schedule –continue–

12 April, 2010 (Sanriku Trip)

<Participants who will join Sanriku Trip>

8:40 Leave Katahira Campus

13 April, 2010 (Sanriku Trip)

18:30 Arrive at Katahira Campus (or Sendai Station)

<Participants who will join Okinawa Trip>

16:59 Leave JR Shin-Hanamaki Station (Shinkansen Super Express Hayate no.24)

19:47 Arrive at JR Tokyo Station (Stay near the Haneda Airport)

14 April, 2010 (Okinawa Trip)

6:25 Leave Haneda Airport (JAL 71)

9:40 Arrive at Ishigaki Airport

15 April, 2010 (Okinawa Trip)

All day field trip

16 April, 2010 (Okinawa Trip)

14:05 Leave Ishigaki Airport (JAL614)

14:55 Arrive at Naha (Okinawa) Airport

16:10 Leave Naha Airport (JAL 916)

18:30 Arrive at Haneda Airport

Oral Session

ROOM 1

-----10April,2010-----

Room 1: Session 1-1 (Chair: Bruce Richmond)

Time	No.	Presentation Title	Authors
9:30	1-1	Tsunami deposit from the 7.3 ka Kikai-Akahoya eruption preserved in the Yokoo midden, north Kyushu, west Japan	O. Fujiwara <i>H. Machida</i> <i>J. Shiochi</i>
9:50	1-2	Recent field data on pre-Colombian tsunamis in the Southern Caribbean	M. Engel <i>H. Brückner</i> <i>D. Kelletat</i> <i>A. Scheffers</i> <i>A. Vött</i>
10:10	1-3	Investigations of tsunami deposits on Kamchatka and Kuril Islands, Russia	T. Pinegina <i>J. Bourgeois</i>
10:30	1-4	Geochemical parameters of tsunami deposits offshore Phang Nga Province, Thailand	D. Sakuna <i>P. Feldens</i> <i>K. Schwarzer</i> <i>K. Statterger</i>

Room 1: Session 1-2 (Chair: Tatiana Pinegina)

11:05	1-5	Three-dimensional hydrostatic numerical simulations on tsunami-induced sediment transport in a model harbor	N. Kihara <i>M. Matsuyama</i>
11:25	1-6	Modeling of the sediment transport by the 2004 Sumatra-Andaman tsunami in Lhoknga, Banda Aceh, Indonesia	A. R. Gusman <i>Y. Tanioka</i> <i>T. Takahashi</i>
11:45	1-7	Prediction of maximum possible tsunami flooding using Terrestrial Laser Scanner techniques and geomatic analysis	G. Mastronuzzi <i>D. Capolongo</i> <i>S. Ferilli</i> <i>A. Marsico</i> <i>M. Milella</i> <i>L. Pennetta</i> <i>C. Pignatelli</i> <i>A. Piscitelli</i>

Room 1: Session 1-3 (Chair: Osamu Fujiwara)

13:30	1-8	Some subjects and problems of tsunamiite sedimentology (Invited talk)	T. Shiki
14:10	1-9	The state of the art of tsunami geology (Invited talk)	J. Bourgeois

Room 1: Session 1-4 (Chair: Giuseppe Mastronuzzi)

15:05	1-10	Boulder deposition in the Samoa Islands from the September 29, 2009 South Pacific tsunami	B. M. Richmond <i>M. L. Buckley</i> <i>B. E. Jaffe</i> <i>S. Watt</i> <i>G. R. Gelfenbaum</i> <i>A. A. Apotsos</i> <i>S. Etienne</i>
15:25	1-11	Boulders moved by the 29 September 2009 Tsunami: Flow-Speed Estimates at Taga, Samoa	R. Weiss <i>H. Fritz</i>
15:45	1-12	Discrimination of tsunami and storm wave boulders at Ryukyu Islands, Japan	K. Goto <i>K. Miyagi</i> <i>F. Imamura</i>
16:05	1-13	Analysis of large boulders along the coast of south-eastern Sicily: storm or tsunami deposits?	<i>C. Pirrotta</i> M. S. Barbano <i>F. Gerardi</i>
16:25	1-14	Geological evidence of tsunami inundation in south-eastern Sicily: a record of the 365 A.D. Crete earthquake?	F. Gerardi <i>M. S. Barbano</i> <i>C. Pirrotta</i> <i>P. M. De Martini</i> <i>A. Smedile</i> <i>S. Pinzi</i> <i>P. Del Carlo</i>

----- **11April, 2010**-----**Room 1: Session 1-5 (Chair: Klaus Schwarzer)**

Time	No.	Presentation Title	Authors
9:00	1-15	Tsunami recurrence along the Andaman and Nicobar Islands subduction zone	<i>A. L. Prendergast</i> <i>M. L. Cupper</i> K. Jankaew <i>Y. Sawai</i>
9:20	1-16	Tsunami deposits from the west coast of Thailand: predecessors of the 2004 Indian Ocean tsunami- identification and dating	H. Brückner D. Brill <i>K. Jankaew</i> <i>D. Kelletat</i> <i>N. Klasen</i> <i>A. Vött</i>
9:40	1-17	Impacts of the 2004 Indian Ocean tsunami backwash offshore Pakarang Cape, Thailand	P. Feldens <i>D. Sakuna</i> <i>K. Schwarzer</i> <i>K. Stattegger</i> <i>P. Somgpongchaiyikul</i>

10:00 1-18 Impacts of 2004 Indian Ocean tsunami on mid continental shelf of Andaman Sea *W. Szczuciński*

Room 1: Session 1-6 (Chair: Witold Szczuciński)

10:35 1-19 Tracing Tsunami Impacts on- and offshore in the Andaman Sea Region (TRIAS) *K. Schwarzer*
A. Snidvongs
C. Richter
H. Brückner
H. Oumeraci
H. Sterr
S. Khokiattiwong
W. Weinrebe

10:55 1-20 Sources of run-up tsunami deposits: analysis based on the transportation of foraminiferal tests and hydrodynamic verification *J. Uchida*
S. Hasegawa
O. Fujiwara

11:15 1-21 Numerical evaluation of the coral damages by the 2004 Indian Ocean tsunami at Surin and Similan islands, Thailand *H. Kawamata*
K. Goto
F. Imamura
S. Chavanich

ROOM 2

-----10April, 2010

Room 2: Session 2-1 (Chair: Yuichi Namegaya)

Time	No.	Presentation Title	Authors
9:30	2-1	Reconstruction of the 2009 Samoa Tsunami with a two-way nested, dispersive wave model	<i>Y. Yamazaki</i> <i>K. F. Cheung</i>
9:50	2-2	Analysis of the real time tsunami forecast of the September, 29,2009 Samoa Island tsunami for Tutuila Island	<i>V. V. Titov</i> <i>C. Chamberlin</i> <i>D. I. Dilmen</i>
10:10	2-3	Tsunami disaster survey in the Samoan Islands	<i>T. Shibayama</i> <i>T. Mikami</i> <i>R. Matsumaru</i> <i>H. Takagi</i> <i>F. Latu</i>
10:30	2-4	A rapid-response field survey of the 2009 Samoa earthquake tsunami in American Samoa	<i>Y. Namegaya</i> <i>S. Koshimura</i> <i>Y. Nishimura</i> <i>G. Fryer</i> <i>A. Akapo</i> <i>L. S. L. Kong</i>

Room 2: Session 2-2 (Chair: Shunichi Koshimura)

11:05	2-5	Resilience and Sustainability of Port Facilities (Invited)	M. Shinozuka
11:45	2-6	3-D seismic hazard and risk mapping in digital city for improving disaster consciousness of citizens	S. Midorikawa H. Miura

Room 2: Session 2-3 (Chair: T. Vu)

13:30	2-7	Characteristics of SAR intensity images for the affected areas of the 2008 Iwate-Miyagi, Japan, earthquake (Invited)	F. Yamazaki H. Inoue
14:10	2-8	Building Damage Estimation to Earthquakes and Tsunamis Using Satellite SAR Imagery	M. Matsuoka S. Koshimura N. Nojima
14:30	2-9	Extraction of tsunami inundation area in the eastern part of Sri Lanka due to the 2004 Sumatra earthquake using high-resolution satellite images	H. Miura S. Midorikawa

Room 2: Session 2-4 (Chair: Masashi Matsuoka)

15:05	2-10	Automated building extraction from satellite images for tsunami early damage estimation	T. T. Vu S. Koshimura
15:25	2-11	Integration of 3s technologies for mangrove destruction and reforestation monitoring after the 2004 Indian Ocean tsunami in Phang Nga, Thailand	D. Kamthonkiat C. Rodfai A. Saiwanrunrkul S. Koshimura M. Matsuoka
15:45	2-12	Inspection of building damage by the 2009 Samoa tsunami	S. Koshimura H. Gokon Y. Namegaya Y. Nishimura Y. Nakamura G. Flyer A. Akapo L. Kong
16:05	2-13	Integration of $k-\omega$ model into shallow water equation for numerical simulation of wave propagation and run up	M. B. Adityawan H. Tanaka
16:25	2-14	Three dimensional numerical analysis for the drift behavior in tsunami run-up	N. Yoneyama H. Nagashima K. Toda

-----11April, 2010

Room 2: Session 2-5 (Chair: B. H. Choi)

Time	No.	Presentation Title	Authors
9:00	2-15	Evaluation of tsunami force on bridge in the northwest coast of Sumatra by use of detailed tsunami simulation	Y. Shigihara K. Fujima

9:20	2-16	Applicability of CADMAS-SURF to detached breakwater effects on solitary tsunami wave reduction	M. Hanzawa <i>A. Matsumoto</i> <i>H. Tanaka</i>
9:40	2-17	Three dimensional simulations of bore type tsunami propagation and run-up	I. Wijatmiko <i>K. Murakami</i>
10:00	2-18	Impulsive bore pressure due to Tsunami	T. Arikawa

Room 2: Session 2-6 (Chair: Kenji Harada)

10:35	2-19	Interactions of leading tsunami waves with mangrove forests: A laboratory study with numerical simulations	Z. Huang <i>Y. Yao</i> <i>S. Y. Sim</i> <i>A. Deng</i> <i>Y. Yao</i> <i>Q. Qiu</i>
10:55	2-20	Tree parameterization for modeling tsunami damping performance of mangrove forest	S. Husrin <i>H. Oumeraci</i>
11:15	2-21	Tsunami attenuation due to coastal forest	A. Strusińska <i>S. Husrin</i> <i>H. Oumeraci</i>
11:35	2-22	Identification of tsunami evacuation problems on highly populated areas	M. Mück <i>J. Post</i> <i>S. Wegscheider</i> <i>K. Zosseder</i> <i>T. Riedlinger</i> <i>G. Strunz</i> <i>A. Muhari</i> <i>H. Z. Anwar</i>

ROOM 3

-----10 April, 2010

Room 3: Session 3-1 (Chair: Hideo Matsutomi)

Time	No.	Presentation Title	Authors
9:30	3-1	Tsunami hazards of far-field tsunamis in the South Pacific islands	H. Yanagisawa <i>Y. Shigihara</i>
9:50	3-2	New techniques for recent tsunami source studies applied to the 2007 Bengkulu tsunami in Indonesia, and 2009 Suruga Bay tsunami in Japan	Y. Tanioka <i>A. Gusman</i> <i>Y. Namegaya</i>
10:10	3-3	Simulation of the 1771 Yaeyama earthquake tsunami propagation into the Yellow Sea	B. H. Choi <i>K. O. Kim</i> <i>B. I. Min</i>
10:30	3-4	Tsunami magnitudes in Samoa, Tonga and New Zealand	T. Hatori

Room 3: Session 3-2 (Chair: Yuichiro Tanioka)

11:05	3-5	Tsunami-trace distribution around building and its practical use	H. Matsutomi K. Harada
11:25	3-6	Applying empirical relationship of tsunami height between offshore and coastal stations for real-time tsunami information	Y. Hayashi
11:45	3-7	Method of sharing common awareness regarding particular issues under wide-area catastrophic disaster—a case study of the Tonankai–Nankai earthquake tsunami disaster	Y. Okumura S. Nagamatsu Y. Kawata

Room 3: Session 3-3 (Chair: Hironobu Kan)

13:30	3-8	Tsunami vertical evacuation with considering of potential damage by ground shaking in Padang, Indonesia	A. Muhari S. Diposaptono F. Imamura S. Koshimura
13:50	3-9	Tsunami hazard mitigation and countermeasures in Peru	E. Mas F. Imamura S. Koshimura
14:10	3-10	Coastal zoning and evacuation site planning for tsunami mitigation using spatial analyses on GIS	A. A. D. Oktopura K. Murakami T. A. Argo
14:30	3-11	Community preparedness level in facing disaster: A case of tsunami disaster threat in Cilacap city	I. Prasetiana K. Murakami L. P. Subanu

14:50-15:05 Coffee Break (15 minutes)

Room 3: Session 3-4 (Chair: Fumihiko Imamura)

15:05	3-12	Smong, Local knowledge of tsunami among the Simeulue community, Nangroe Aceh Darussalam	E. Yulianto H. Yogaswara
15:25	3-13	Structure-preferred countermeasures after the Chile Tsunami of 1960 (Invited)	N. Shuto
16:05	3-14	Tsunami forecast and warning: Impacts of 1960 and 2004 tsunamis (Invited)	K. Satake

-----11 April, 2010

Room 3: Session 3-5 (Chair: Yutaka Hayashi)

Time	No.	Presentation Title	Authors
9:00	3-15	Tsunami height poles to visualize past and future disasters	M. Sugimoto F. Imamura M. H. Pradono I. Febrin

9:20	3-16	Experience of Maldives at the 2004 Indian Ocean tsunami: toward the hazard mitigation in atoll nations	H. Kan <i>M. Riyaz</i> <i>M. Ali</i>
9:40	3-17	Long term recovery from the 2004 Indian Ocean tsunami	N. Maki <i>N. Yamamoto</i> <i>K. Huda</i>
10:00	3-18	Role of regional Geoscience organization for tsunami risk reduction and hazard mitigation in South and Southeast Asia	N. Chaimanee

Room 3: Session 3-6 (Chair: Eko Yulianto)

10:35	3-19	An experimental study on tsunami generation due to landslides	T. Kakinuma <i>L. Liu</i> <i>K. Nakamura</i>
10:55	3-20	Written records of historical tsunamis in the northeastern South China Sea –challenges associated with developing a new database	A. Y. A. Lau, <i>A. D. Switzer</i> <i>D. Dominey-Howes</i> <i>Y. Zong</i> <i>J. C. Aitchison</i>
11:15	3-21	Estimating Impact of Historical Tsunamis in Asian/Oceanian and their mapping	A. Suppasri <i>T. Iwasaki</i> <i>T. Asada</i> <i>F. Imamura</i>
11:35	3-22	A Trial Calculation of Effect on Disaster Reduction at Fishing Port Using Input-Output Analysis	K. Otsuka <i>F. Imamura</i> <i>S. Oka</i> <i>K. Satoh</i> <i>N. Asakawa</i> <i>M. Hosaka,</i>

Poster Session

Number	Presentation title	Authors
P1	Tsunami hazard mitigation by using coastal forest in a practical field –Case study of Iwanuma-Natori coast in Sendai Bay–	K. Imai <i>K. Harada</i> <i>F. Imamura</i>
P2	Study on effective area by coastal forest with limited length against tsunami run up	K. Harada <i>K. Uchiyama</i> <i>Y. Matsumoto</i>
P3	Analysis of the reconstruction process of urban facilities in Indonesia based on recovery curves after the 2004 Indian Ocean tsunami	K. Sugiyasu <i>O. Murao</i>

- P4 Making tsunami hazard map through pTA and evaluating recognition at Higashi-Matsushima city in Japan **H. Ukawa**
N. Shishido
F. Imamura
- P5 Installation of the GPS tsunami monitoring system in the Sanriku coast **I. Abe**
F. Imamura
- P6 Endeavor to make widely known as well as educate about the knowledge on tsunami **M. Yuki**
- P7 Near-field tsunami forecasting from ocean bottom pressure and onshore GPS data **H. Tsushima**
R. Hino
H. Fujimoto
Y. Tanioka
F. Imamura
- P8 A development of tsunami monitoring system using GPS buoy **Y. Terada**
T. Kato
T. Nagai
S. Koshimura
H. Yoshida
- P9 Tsunamis affecting New Caledonia : a catalog from 1875 to 2009 based on field investigations and archive research **A. Sahal**
- P10 Were boulders around Hashigui-iwa, pacific side of central Japan, transported by tsunamis? **H. Maemoku**
A. Nagai
M. Shishikura
T. Echigo
Y. Namegaya
- P11 Why were tsunami boulders deposited below the high-tide line at Pakarang Cape, Thailand? **K. Goto**
K. Okada
F. Imamura
- P12 Massive *Porites* coral boulders cast shore by 1771 Meiwa tsunami, demonstrated by high-precision ^{230}Th dating **D. Araoka**
M. Inoue
A. Suzuki
Y. Yokoyama
R. L. Edwards
H. Cheng
H. Matsuzaki
H. Kan, N
Shikazono
H. Kawahata
- P13 Distribution and characteristics of tsunami boulders at Miyara Bay of Ishigaki Island, Japan **T. Shinozaki**
K. Goto
K. Minoura
K. Okada
D. Sugawara
F. Imamura

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| P14 | Event deposits and geomorphology of the Lefkada – Preveza coastal zone, NW Greece – evidence of tsunami-induced coastal changes | S. M. May
<i>A. Vött</i>
<i>H. Brückner</i>
<i>D. Sakellariou</i>
<i>A. Smedile</i>
<i>N. Klasen</i> |
| P15 | A numerical study of tsunami-induced erosion along the coast of Painan, Indonesia | Z. Huang
<i>L. Li</i>
<i>Q. Qiu</i> |
| P16 | Recovery of spits eroded by the 2004 Indian Ocean tsunami along southwestern shore of Thailand | N. Koiwa
<i>S. Sugisawa</i>
<i>H. Matsumoto</i>
<i>M. Kasai</i> |
| P17 | Sediment records of paleo-tsunamis in the last 4000 years at Shima Peninsula, central Japan | S. Fujino
<i>H. Kimura</i>
<i>M. Shishikura</i>
<i>Y. Sawai</i>
<i>J. Komatsubara</i>
<i>Y. Namegaya</i> |
| P18 | Post-depositional changes of onshore 2004 tsunami deposits layer in Thailand –review of five years of sedimentological and geo-chemical monitoring | W. Szczuciński |
| P19 | Tsunami deposits and tsunami modeling: how field work contributes to our understanding of earthquakes | J. Bourgeois
<i>B. T. MacInnes</i>
<i>M. E. Martin</i> |
| P20 | Radiocarbon chronology of tsunami impacts on the Apulian coast (southern Italy) | G. Mastronuzzi
<i>G. Quarta</i>
<i>A. Colaianni</i>
<i>C. Pignatelli</i>
<i>A. Caramia</i>
<i>M. D'Elia</i>
<i>L. Romaniello</i>
<i>L. Calcagnile</i>
<i>L. Schiavulli</i> |
| P21 | Holocene marine terraces as an evidence of repeated great earthquakes off western Myanmar | M. Shishikura
<i>Y. Okamura</i>
<i>S. Fujino</i>
<i>K. Satake</i>
<i>T. T. Aung</i> |
| P22 | Tsunami inundation history along the Pacific coast in Miyagi and Fukushima prefectures, inferred from tsunami deposits | <i>Y. Sawai</i>
M. Shishikura |

- P23 Fault models of the AD 869 Jogan earthquake inferred from tsunami deposit and numerical simulation **Y. Namegaya**
K. Satake
Y. Sawai
M. Shishikura
S. Yamaki
- P24 Sediment distribution and inundation area by the AD 869 Jogan tsunami in Sendai Plain, Northeast Japan **D. Sugawara**
F. Imamura
H. Matsumoto
K. Goto
K. Minoura
- P25 Probabilistic tsunami hazard analysis in Thailand perspective **A. Suppasri**
F. Imamura
S. Koshimura
- P26 Tsunami Source of the 1960 Chilean Earthquake inferred from Tide Gauge Data **Y. Fujii**
K. Satake
- P27 Fault model of the 1771 Yaeyama earthquake and interplate coupling along the Ryukyu Trench **M. Nakamura**
- P28 Effect of wide fringing reefs on the estimation of the tsunami source model: A case study for the 1771 Meiwa Tsunami at Ishigaki Island, Japan **K. Miyazawa**
K. Goto
F. Imamura
- P29 Tsunami loading signature observed by broadband Seismometer and Borehole Strainmeters **K. Takatsuka**
S. Miura
Y. Ohta
T. Sato
I. Abe
F. Imamura
- P30 Making of high definition animation of tsunami propagation **B. I. Min**
K. O. Kim
B. H. Choi
- P31 Start-up of a SATREPS project: Enhancement of earthquake and tsunami disaster mitigation technology in Peru **F. Yamazaki**
S. Nakai
Y. Maruyama
C. Zavala
Z. Aguilar
M. Estrada
S. Koshimura
T. Saito
S. Midorikawa
H. Yamanaka
H. Miura