

## 歴史都市防災論文集 Vol.9 掲載論文・報告一覧

### 【論文】

#### 1. 史跡保全に配慮した鋼製部材を用いた土石流対策における大粒子の集積化に関する研究

*Counterplans for hazards due to debris flow around a historic site using small steel-grid SABO dam considering the larger-particles concentration at the frontal part of debris flow*

原田紹臣・里深好文

Generally, larger particles concentrate at the frontal part of debris flow under unsaturated-flow conditions; further explanation is required. In this study, in order to propose an effective countermeasure for debris flow around a historic site, experiments were conducted using a conveyor belt and an experimental flume to understand larger-particles concentrations better. Particles of two sizes were sieved on the conveyor belt. The results indicated that the concentration of larger particles on the conveyor belt, in the absence of water, was affected by the moving distance, the flow depth, the particle diameter ratio, the riverbed gradient and the internal frictional angle of the particles.

#### 2. 重要文化財後背斜面における比抵抗法電気探査を用いた地下水帯の把握

*Detection of groundwater in the slope behind an important cultural asset using an electrical resistivity survey*

檀上徹・高倉伸一・有光悠紀・藤本将光・石澤友浩・深川良一

The purpose of our research is to apply an electrical resistivity survey for detecting of groundwater in the slope behind an important cultural asset. The results indicated that there were constantly two groundwater area under the rock surface. Considering the pore-water pressures at rock surface, the measurement value may indicate the groundwater. In addition, the result of electrical resistivity survey was shown as same as the previous research results of the measuring method of sound of groundwater flow and one-meter depth ground temperature. Therefore, it can be shown that the positions of groundwater were detected using the electrical resistivity survey.

#### 3. アユタヤ地域における洪水が仏塔の不同沈下に与える影響に関する研究

*The effect of flood on the differential settlement of the pagoda in Ayutthaya*

千々和詩織・大矢綾香・石田優子・豊田祐輔・藤本将光・深川良一

Ayutthaya, registered by UNESCO as a World Heritage Site in 1991, is one of the most popular tourist areas in Thailand. Ayutthaya, which is surrounded by three rivers, was flooded for more than a month in 2011. Many of the ancient pagodas are leaning and there's a possibility that previous damage will be worsened by the damage from this recent flood. In this study, we analyzed one of the differential settlement of the pagodas as well as the simulations on the extent of future ground subsidence. According to the results of our analysis, the pagoda will not subside rapidly from the effects of secular changes of the ground and flooding will have a small effect on the pagoda.

#### 4. 延焼火災から伝統的な木造密集市街地を守る街路壁面散水設備の開発

～実大模型実験を通じた延焼抑止効果の評価～

*Experimental Evaluation of Water Shield System (WSS) which sprinkles limited water to façade of wooden narrow street for controlling radiant heat from spread fire and protecting historic districts*

大窪健之・中藪知孝

In high densely areas of wooden cultural city, it must be difficult to control spread as large-scale fire after earthquake etc. Water Shield System is a kind of firefighting equipment that sprays water to the surface of wooden walls facing toward spread, reduce the temperature from radiant heat and decrease the speed of fire spreading across narrow streets in traditional high densely areas. This study aims to develop an actual water spray nozzle which can sprinkle for a wide range of area and to evaluate the effectiveness for fire spread control in real scale experiment using model of traditional wooden townhouses.

### 5. 江戸の火災とその避難路に関する研究 - 橋梁と道路網の変遷に着目して -

*A Study on Fires in the City of Edo and Its Evacuation Routes - With a Focus on the Transitions of Bridges and Road Networks-*

森下雄治

Faced with the tremendous loss of lives inflicted by the Great Fire of Meireki (1657), the Edo Shogunate government conducted the construction of Ryogoku Bridge and widening of roads running through major choninchi (civilian neighborhoods) after the fire so as to enable the choninchi residents to evacuate to Honjo area. Following the initiative, in Genroku Era (1688-1704) until early Hoei Era (1704-1710), bridges and road networks were newly added along Sumida River to create several evacuation routes connecting to Honjo and Fukagawa areas. The fire-prevention infrastructures of these evacuation routes, completed by Kyoho Era (1716-1735).

### 6. 奈良県明日香村飛鳥・奥山大字における防火意匠の現状調査と火災調査書類による延焼分析

*A survey on the present condition of fire prevention design in Asuka and Okuyama districts, Asuka village, Nara prefecture and an analysis in the spread of the fire by the research of the fire investigation.*

高田駿平・平尾和洋・山本直彦

Buildings in Asuka and Okuyama districts have been saved and formed by historical landscape since ancient times. Recently, owing to removing the restrict of housing land development, the form restrictions of buildings are needed. On the other hands, in Asuka district, the fire which involded six buildings occured in 2012. This paper is planed to confirm the condition of fire prevention design in this area by an analysis of buildings' appearance design and to reveal the fire protecting performance of parts of buildings by an analysis in spread of fire written in the fire investigation.

### 7. 湖北地方における余呉型民家の防火性能の現状調査

*A survey on the present condition of fire prevention performance a in Yogo model, Kohoku district*  
平尾和洋・山本裕之

In this paper, the field survey in Kohoku district and Suganami village showed that there is the difference in fire prevention performance of Yogo model in comparison to existing results of other area. As a result, fire prevention performance of Yogo model is genarally lower than that of Kaya district. In addition, it showed the different part of fire prevention performance are main building of the roof and eaves, the vent hole of gable wall, the walls and fixture on Shimo,Omote. Based on the above, guideline every each part for prevention of fire damage is proposed.

### 8. 小地域地名の語尾と自然災害リスクの関連性

*Relationships between Suffixes of Small-Area Place Names and Natural Disaster Risks*

花岡和聖

The purpose of this study is to analyze relationships between small-area place names and disaster risks by using geographical information system. This study focused on the last letter (suffix) of Japanese place names because it often represents regional topographic characteristics. Gazetteers of Miyagi and Iwate prefectures were therefore constructed from the existing address database. The results of our statistical analysis suggest that the current place names still relate to topographic features and disaster risks. Small-areas with certain place names are more likely to have specific type of natural disasters. Place names shared by local residents are succinct labels for understanding multiple disaster risks. The importance of place names thus should be reconsidered and they should be used for disaster mitigation and education.

### 9. 地域遺伝子を考慮した防災まちづくり手法の基礎的研究

*A study on disaster mitigation city planning techniques in consideration of the geographic regional characteristics*

吉村方男・本間亮平・塚口博司

Urban planning in Japan needs to account for the various factors that will affect the social and environmental landscape, such as a declining and aging population and the threat of

natural disasters, and provide social mechanisms capable of addressing these issues. To promote urban planning that is sufficiently robust to deal with earthquakes and other natural disasters that could affect the natural environment, this study examines the relationship between elements that are strongly characteristic of particular localities—topography, place names, and the spatial configuration of Shinto shrines and Buddhist temples—and flooding caused by the tsunami following the Great East Japan Earthquake of 2011. On the basis of the knowledge extracted from this investigation, we propose methods of assessment and application for disaster- mitigation urban planning.

#### 10. 「記憶地図」による無形の文化遺産の現状と継承の課題

—宮城県南三陸町志津川地区における地域の祭礼を事例として—

*Succession of Intangible Cultural Heritage in the Post Disaster Recovery Phase by 'Memory Mapping': A Case of Religious Festivals in Shizugawa area in Minami-Sanriku-Cho, Miyagi Prefecture*

板谷直子（牛谷直子）・中谷友樹・前田一馬・谷端郷・平岡善浩

This paper aims to propose 'Memory Mapping' to summarise the situation of intangible cultural heritage like religious festival in Shizugawa area, Minami-Sanriku-Cho Tsunami affected area by the Great East Japan Earthquake. We conducted interview surveys about local festivals to associated persons to the five major Shinto-shirines in the area. The collected oral histories were geographically visualized in a GIS environment. At the result, we found the festival flexibly survived by supporting organisations adapting to the changing environments at ages, and the Memory Mapping is an effectivae tool to share personal memories of intabigle cultural heritage. The mapping activity provides fundamental information for enriching the local cultural environment in post-disaster recovery phases.

#### 11. 国有林野法による京都府社寺上地林の境内編入に示された「風致林野」の防災的意義

*THE ROLE OF DISASTER PREVENTION IN TEMPLES AND SHRINES' FORESTS OF KYOTO SHOWN IN THE NATIONAL FORESTS ACT (1899)*

青柳憲昌・山口祐史

Although, in the course of land reform in the early Meiji era, the government had confiscated and nationalized the domains, including the forests, of shrines and temples, it legislated on the incorporation of the national forests again into their precincts in accord with the National Forests Act enacted in 1899. The law required shrines and temples to testify that the forests were necessary as the "forest landscape", in terms of external beauty in appearance, administration of shrines and temples' activities, and disaster prevention. Judging from the survey maps, the incorporated areas tended to be clearly larger in the case when the reasons for disaster prevention had been accepted.

#### 12. 木造多層塔の振動計測データを利用した質量と剛性の同定手法

*Identification method to derive three-storied pagoda's mass and stiffness by using vibration measurement data*

吉富信太

In this paper, a physical parameter identification method is proposed for multi-storied wooden pagoda. This method can identify masses, stiffness and damping coefficients of each floor by using floor response data to a shaker disturbance. At first, an identification theory is explained. Secondary, some numerical examples are performed to examine the validity of the proposed method. Furthermore, this method is applied to the recorded data of site investigation at some important cultural property three-storied pagoda.

#### 13. 文化遺産を火災から守る消防設備の老朽化と耐震面の課題に関する研究

～京都府・滋賀県の重要文化財・国宝建造物を対象として～

*A Study of the Earthquake-Resistant and Superannuated Problems on Fire Extinguishing Systems of Cultural Heritage Structures in Kyoto and Shiga, Japan*

湯浅卓・大窪健之・金度源・林倫子

On Japan's wooden cultural heritage structures, the fire extinguishing systems have installed since 1950 by governmental fire prevention measures. On the other hands, if it may trouble

on these superannuated fire extinguishing systems when emergency like destructive earthquake occur, there is any measurement to protect cultural heritage structures from fire, for that means the systems need the earthquake-resistant. This study evaluated the risk of superannuated problems, and earthquake-resistant measurements of the current fire extinguishing systems on cultural heritage structures in Kyoto and Shiga. Firstly, by the inquiry survey it analyzed problems on 111 fire extinguishing systems based by its construction age. Secondly, by the field research it analyzed actual problems and measurement principles on 5 cultural heritage sites.

#### 14. 伝統構法架構の復元力特性に及ぼす対角線効果

*Diagonal Effect on Restoring Force Characteristics of Traditional Timber Frames*

棚橋秀光・岩本いづみ・鈴木祥之

There are many traditional timber buildings which should be conserved as valuable cultural assets in Japan. For their conservation, appropriate seismic evaluation and reinforcements are urgently required. The authors pointed out that the diagonal of horizontal beams expands the column spacing depending on the constraint conditions of both columns when they inclined due to horizontal loading. They named such an effect as “Diagonal Effect” and the effect affects the restoring force characteristics of the frame. This paper describes the diagonal effect of traditional timber frames on the restoring force characteristics based on the experimental results of traditional timber frames and some analyses.

#### 15. 顕しの貫がある土壁の復元力特性

*Restoring Force Characteristics of Mud-Wall with Penetrating Tie Beams in Front of Wall*

中治弘行・鈴木祥之

Based on cyclic shear loading experiments of mud-walls with large section size of penetrating tie beams in front of wall, the effect of tie beams on the restoring force characteristics of mud-walls is examined. Two types of specimens of mudwalls: 1) with two penetrating tie beams and 2) with three ones were prepared and tested. Test results were compared with the proposed design method for traditional timber buildings. The results shows that the restoring force characteristics of mud-walls with penetrating tie beams can be estimated by adding the shear force derived from moments of column joints and tie beam joints to the shear force of mud-wall panel.

#### 16. 高山町家の構造的長を生かした耐震補強設計法の開発

*Development of Seismic Reinforcement Design Method for Traditional Wooden Houses by Taking Advantage of Structural Features in Takayama Area*

佐藤英佑・向坊恭介・鈴木祥之

In Takayama City, a large number of traditional wooden houses still exist and make regionally distinctive townscape. They are called “*Takayama-machiya*”. To clarify structural features of *Takayama-machiya* houses, structural detailed investigations were carried out. Based on the investigations, it is pointed out that traditional wooden houses have some problems on seismic performance and need some reinforcements. Therefore, it is necessary to establish a seismic reinforcement design method suitable for *Takayama-machiya* houses. In this paper, a case study of seismic reinforcement design is conducted for a typical two-storied *Takayama-machiya*. The proposed seismic reinforcement design method is useful and reasonable by taking advantage of structural features on traditional wooden houses.

#### 17. 石場建てを考慮した岐阜県高山市伝統構法建物の3次元地震応答解析

*3D Earthquake Response Analysis for Traditional Wooden Houses Considering Ishibadate Base in Takayama Style*

清水一史・村田 晶・吉富信太・向坊恭介

Traditional construction method has the part of images that are old and structurally inferior. However, it became clear that the traditional construction method is substantial against earthquakes by the smallness of the damages from past earthquakes, and doing numerous experiments. We have a problem that we don't have much analytical consideration of

Ishibadate base. In this study, we conducted seismic response analysis of traditional construction method building, including the Takayama, Gifu Prefecture of Ishiba denominated, and explore the impact of Ishiba denominated specifications on.

#### 18. 清水寺周辺における帰宅困難観光客避難誘導計画の改善に関する研究

～避難シミュレーションを用いた検証を通して～

*Study of The Evacuation Plan for The Concerning Stranded Tourists on Arouned Area of Kiyomizu Temple, Kyoto*

杉山貴教・大窪健之・金度源・林倫子

A lot of people from around the world visit historical city for sightseeing. The tourists do not know geography in touring places. The tourist is easy to lost their way back to safety place because of these reason. In order to reduce the damage caused by the earthquake disaster, both measures and hardware and software side are important. The research area is Kiyomizu Temple around in Kyoto. Kyoto City Government planned 'Emergency site' in December, 2013. However, the plan has not certain evacuation plan simulation. This study evaluate the current evacuation plan which is based on 'Emergency site' for suggesting more safety evacuation plan.

#### 19. 姫路城における大規模災害を想定した公助の観光客帰宅意図への影響に関する研究

*A Study on Influences of Public Support on Tourists' Intentions to Get Home after Large Scale Disasters in the Case of Himeji Castle*

酒井宏平・崔明姫・豊田祐輔・鐘ヶ江秀彦

Today, it is one of the most important issues to support tourists after disasters. Especially tourists need public supports to go back home. Accordingly, we need to know their behavior after disaster from the view point of public supports. There were some studies on this issues, however they don't focus on tourists. This study showed influences of public support on tourists' intention to get home after disaster. This paper was based on a questionnaire survey which was conducted in Himeji Castle. 88 questionnaires were collected. We compared with tourists' intention to get home under various conditions which is related to public supports. As a results, this study revealed that five factors have influences on their intentions.

#### 20. 外国人観光客を対象とした京都市における観光資源としての文化遺産の評価

*A Study on the Evaluation of Urban Cultural Heritage as Tourist Attractions in Kyoto City Considering the Foreign Tourist Behaviors*

小川圭一・漆谷友香・安隆浩

It is necessary to make social consensus to protect urban cultural heritage from natural disasters, to make clear the necessity of cultural heritage disaster mitigation in disaster mitigation planning in historical cities. For this purpose, it is necessary to show the necessity of cultural heritage disaster mitigation in historical cities objectively and quantitatively. In this paper, evaluation of urban cultural heritage as tourist attractions in Kyoto City considering the foreign tourist behaviors is estimated using travel cost method. As a result, total travel cost of foreign tourists for 16 major tourism spots having urban cultural heritage in Kyoto City is estimated about 56.6 billion yen per year.

#### 21. 2011年タイ洪水における世界遺産アユタヤの経済的復興過程の再現

*A Study on Economic Recovery Process of Ayutthaya in 2011 Thailand Floods*

崔明姫・I-soon Raungratanaamporn・酒井宏平・Siriluk Monkonkerd・豊田祐輔・鐘ヶ江秀彦

Both preservation of culture heritage and building disaster resilient environment are needed for disaster mitigation in historic cities. Especially in the tourism city where its economy is formed mainly by the cultural heritage, it is necessary to implement the disaster prevention measures with consideration to tourism sector. This Study focuses on the case of Ayutthaya suffered by 2011 Thailand Floods, estimate the economic damage based on survey of tourists consuming behavior, and reconstructs economic recovery process with a analysis combining the survey results of tourists and business offices.

**22. 京都市「ちびっこひろば」において実施した防災イベントを含む活動に対する近隣住民の評価構造**  
*The Analysis of the Evaluation Structure on the Social Gathering Events Implemented in Chibikko-Hiroba in Kyoto City by the Neighborhood Residents.*

武田史朗・山口純・久保田貴大

In this study, several types of events including disaster mitigation trainings in a small privately owned public space called chibikko-hiroba in Kyoto was conducted, and the evaluation on the event was carried out through questionnaire survey of the neighbourhood residents. From the analysis of the survey results, it was concluded that there is importance of enhancement of learning and valuable experience contents to increase the participation willingness to the disaster mitigation training events. It is also found that learning and valuable experience enhance the female and the elderly people's participation willingness, and funness and sense of communication enhance the participation willingness of the male participants.

**23. 津波被害を受けた集落における居住者の環境認知に関する研究**

～岩手県宮古市鉾ヶ崎を対象として～

*Study On Formulation Of Environmental Recognition Of Coastal Fishery Areas Residents*

岩瀬功樹・北本英里子・宗本晋作・山田悟史

Residents' recognition of living environment, which had been perpetually inherited, was suddenly lost by Tsunami occurred by the Great East Japan Earthquake on March 11, 2011. Residents who lost their original homes had to move to a higher sea level area to evade from another possible tidal wave in the future. On the other hand, there were also residents whose homes remained, but whose town suffered by a tidal wave disaster. They also must set up their dwelling. The goal of this thesis is to study the difference of tendencies of the two groups of resident's environment recognition, using a recognition territory figure. Even if the difference of each resident's environment recognition is trivial in this case, it may be useful knowledge to plan a new environment in suffered area.

**24. 重要伝統的建造物群保存地区における大字間の相互支援防災計画の検討方法に関する研究**  
～兵庫県篠山市福住における住民防災ワークショップを通じて～

*The Workshop Program of Community Disaster Mitigation Planning for Mutual Support in Sasayama-Fukusumi Preservation Districts, Hyogo*

金度源・吉田暉・大窪健之・林倫子

This study aims to implement the workshop program for planning the cooperational disaster risk management among the local areas in Japan's preservation districts. The research area, Sasayama-Fukusumi preservation districts of Hyogo Prefecture has four traditional local areas (it calls "O-Aza" in Japanese): Fukusumi, Kawara, Hadakasu and Nishinono that there have individual disaster risks and there have been already existed own managements. This study is to evaluate how the workshop programs work local community decide to cooperating risk management among the neighbor local areas and what the cooperating ways are, on community based disaster mitigation plan.

**25. 論文題目に基づく歴史都市防災に関する研究活動の傾向分析**

*An Analysis of the Research Activities on Disaster Mitigation of Cultural Heritage and Historical Cities Based on Titles of Academic Papers*

小川圭一・高野隼也・安隆浩

This study focuses classification of research activities on disaster mitigation of cultural heritage and historical cities, to know the current conditions of research activities and to consider the future activities on this field. Academic papers related with the research activities on disaster mitigation of cultural heritage and historical cities between 1995 and 2014 are classified from the viewpoints of types of cultural heritage and types of disasters. They are compared with the research activities on surrounding academic fields based on titles of academic papers and the public interest for disaster mitigation of cultural heritage and historical cities based on titles of newspaper reporting.

## 【報告】

### 1. 清水寺後背斜面における土層内の間隙水圧値の変動特性の把握

*Characteristics of pore water pressures in soil layer on the hillslope behind Kiyomizu temple*

有光悠紀・藤本将光・平岡伸隆・檀上徹・石田優子・深川良一

To prevent damage to important cultural assets by natural disasters, we evaluated the characteristics of groundwater movement, which is a significant factor in potential slope failure. The pore water pressures in the soil layer were monitored on a slope behind the historic Kiyomizu-dera Temple. Our results indicated that the pore water pressure responded quickly, reaching a positive peak value until the accumulated amount of rainfall fell below 20 mm. Although the responses of pore water pressure to rainfall were similar among observation points, there were differences in decreasing pore water pressure following the peak value. These characteristics were related to the highly porous soil structure at this site.

### 2. 火災シミュレーションによる火災リスク評価と水利整備方針に関する研究

～兵庫県篠山市福住地区を対象として～

*Development Planning of Fire Fighting Water Conservancy by Fire Risk Assessment of Simulation*

大和田智彦・大窪健之・金度源・林倫子

Traditional wooden buildings must be subjected to some measures against fire it can be fire around fast when fire occurs. The initial fire fighting becomes important as a countermeasure. For the actual conditions of irrigation equipment present, the value of the fire risk assessment obtained by fire simulation, it is necessary to continue to propose the development of more effective irrigation facilities. In this study, using a fire simulation of physical properties prediction model gutter this have developed as a target Hyogo Prefecture Sasayama Fukuzumi preservation district, Calculating the fire risk assessment based on the characteristics of the building, that propose a water conservancy development guidelines .

### 3. 黒部市宇奈月温泉地区における大火前後の土地利用の変容

*The transition of land use before and after the big fire in Unazuki hot spring district*

松井大輔・岡井有佳

Unazuki hot spring district of Kurobe City experienced a big fire after the WW2, which destroyed more than 300 buildings. Over years, It was found difficult to explore the historical context of its townscape. This paper aims to clarify the transition of the land use and townscape before and after the big fire in Unazuki. We describe that certain original forms are inherited after the big fire including the hotels near the edge of the cliff, while the central district consists of vacant land. We conclude the existing form of the city can attract further attention by planners to promote Unazuki for tourism purposes.

### 4. Study on the Fire Defense Problems in Traditional Settlements in Southwest China

—Taking Shangri-La in Yunnan as the Example

劉弘濤・王璇 (Hongtao Liu and Xuan Wang)

In recent years, frequent fire of traditional settlements happened in southwest China. Based on fire happened in Shangri-La in Yunnan, this paper has analyzed the reasons of the fire which has caused massive damage, and the related issues about fire defense in traditional settlements in southwest China. Results show that climate, building materials and narrow space are main reasons of the large-scale fire spreading. The key of the problem that fire of traditional settlements occurred frequently in southwest China is that the traditional fire prevention technology has been lost, however, effective modern fire prevention technology and management system has not been established yet.

## 5. 地域防災力を高める市民消火栓の継続的な日常利用促進に関する研究

～高機能型消火栓の開発と設置環境に即した利用方法の提案に着目して～

*A study on continous promotion of daily use about the hydrant for citizens aiming to raise local disaster prevention power*

*- Focusing on suggestion of the usage conforming to setting environment and development of the hydrant of the high-performance model -*

中村圭佑, 大窪健之, 金度源, 林倫子

In the important preservation district of historic buildings through Japan, it is often crowded with wooden building. It is difficult to stop the spread of a fire when a fire breaking out, so initial fire extinguishing by resident is very important. A government is installing many hydrants which are easy to operate by residents it in Kiyomizu area, one of those district, and promoting daily use by residents to raise local disaster prevention power. However some residents in this area don't use hydrants for daily use much because of operability challenges for these hydrants, having little understanding how to use them. This paper aims to improve these issues by focusing on suggestion of the usage conforming to setting environment and development of the hydrant of the high-performance model.

## 6. Fire Protection in Qiang's Stockaded Villages Planning

張先慶・張榮霞・劉弘濤 (Xianqing Zhang, Rongxia Zhang and Hongtao Liu)

Qiang nationality is one of the most ancient ethnic groups in China. Qiang people respect for nature, especially have fear of fire. In the process of the development of their fire culture, the challenge and inspiration to the fire are also produced. The article summarizes Qiang's traditional fire protection methods from five aspects, including Site Selection, Spatial Distribution Form, Road System, Water System in the Countryside and Qiang Achitecture, to provide a reference for Qiang villages' protection and the fire plan of historical areas.

## 7. 宝永地震（1707年）による大坂市中での被害数

*Damage Caused by the Hoen Earthquake (1707) in Osaka City*

長尾武

After the disaster, people investigated the damage, and reported totals to the Magistrates Office. Unfortunately original documents cannot be found. In order to know the damage accurately, data from twenty-six documents was compiled. It was concluded that about 1,000 houses facing street collapsed, 540 people who registered as townspeople died, 10,600 houses including tenanted houses in back alleys collapsed, 15,000 people including not registered as townspeople died. Fatalities would be large. However two years after the disaster, the population of Osaka City increased about 30,000, from 351,708(1703A.D.) to 381,626(1709A.D.).

## 8. ウェブ・マッピング・システムを用いた歴史地震記録の整理と公開方法の検討

*A study of the public and organizing way of historical earthquake recording by using a web mapping system*

大邑潤三

In recent years, various information using a web mapping systems have been published. Rapporteurs have attempted to publish historical earthquake documents on the web mapping systems. To create a distribution map of earthquake phenomena, it's useful to use a web mapping systems. However, to expose the various data it is necessary to devise. Also in the study of historical earthquakes, the task of ensuring the reliability of the recording is important. Therefore, by constructing a database in consideration of the nature of the recording, it is necessary to create a distribution diagram according to the subject matter.



### 9. 古民家で用いられたスギ・ツガ古材の材料試験

*Strength tests of old Japanese cedar and Japanese hemlock used in old Japanese traditional timber residence*  
大岡優・山崎葵

This paper examines the strength properties of old Japanese cedar and Japanese hemlock used in old Japanese traditional timber residence by means of strength tests. Strength tests are embedment and compression tests. As a result of strength tests, most of old members have similar or larger Young's moduli and strengths compared to reference values. Moreover, the tendency is found that the Yong's modulus and strength in the fiber direction of old Japanese cedar and Japanese hemlock depend on density.

### 10. 住民主体の防災計画実現に向けた活動項目の抽出と評価

～与謝野町加悦重伝建地区での防災ワークショップを通して～

*Disaster prevention plan realization of residents extraction and evaluation of activity item*

吉田篤司, 大窪健之, 金度源, 宮田雄大, 林倫子

The local community in the Kaya preservation district of Kyoto prefecture, have haven plans of the disaster-mitigation activity in cooperation with citizens' organizations. The policies were decided for practicing the continuous disastermitigation activity in hitorical in March 2012 in Kaya. They include the opinions of residents. Although the fact was shown that part of the plan is not promoted enough, by the reserch for estimation. Therefore, both of mapping workshop and on-site workshop were held for promoting 6elements of disaster mitigation activities which were not implemented enough. As a result of research,Achievement of action items were scattered in every residents. As the cause, Disaster prevention activities guidelines appears to be that the thing that has not been well-known to residents. Therefore, Future became results that must be considered well known methods for residents.

### 11. Disaster risk management indicators for cultural heritage in Taiwan

Cheng, chin-fang and Yen, ya-ning

There have been great advances in the concepts and application techniques of conservation since the entry of the 21<sup>st</sup> century. Value priority and the understanding of authenticity and integrity of heritages are becoming the most important issues of the conservation. Affected by this trend, the conservation of cultural heritage (CH) has rapidly developed into an interdisciplinary subject which requires integrating diverse disciplines. Risk management and public participation are among the most important issues of those disciplines. Based on the collected information and evaluation, this research develops fire safety measures in heritage conservation.

One is for the researchers to measure the risk of the heritage; the other is for the site managers to and manages the risk of their monument with ease. In conclusion, most hazard indicators of CH can be mitigated mainly by management mechanism such as daily review, scheduled maintain and integrate with appropriated equipment. The cognition and execution of site managers is the key issue for the implementation of disaster management.

### 12. 大規模災害に備えた大字間支援を活かした防災活動指針の提案

～兵庫県篠山市福住重伝建地区における住民防災ワークショップを通して～

*A Suggestion of The Disaster Prevention Activity Guidance of Mutual Supporting Disaster Risk managent Among The O-aza in Sasayame Fukusumi Preservation District in Hyogo Prefecture*

吉田恭祐・大窪健之・金度源・林倫子

In the preservation district, it has been the development of the district disaster management plan that takes into account the residents activities, and are specific disaster prevention activities guideline also proposed implementation. The Fukuzumi district because it is divided into four O-aza, consider the disaster prevention measures that utilize the characteristics of each of the four O-aza, it may be desirable to formulate the district disaster plans for the entire area. Through workshops often used as a method to combine the opinions of residents in this study, we proposed the disaster prevention activities guidelines that take advantage of the O-aza between support.

**13. 地域防災研究拠点における ICT 技術の利活用に関する一提案**

*Proposal on ICT Utilization by Local COE for Disaster Prevention*

崔青林・金度源・米島万有子・崔明姫・半田信之・李泰榮

University as a Core of Excellence (COE), plays a big role in providing technical and scientific knowledge for regional disaster prevention activities. Moreover, regarding utilization of disaster risk information, expert support is also required not only for awareness of hazard risk but also expanding farther prevention activities. Therefore, on each phase of “knowledge advancement”, “knowledge exchange” and “knowledge utilization”, it needs to provide efficient measures to responding to regional needs, based on the perspective of support to regional disaster prevention activities. This study proposes ICT Utilization and states the possibilities of it at Local COE for Disaster Prevention, based on the cases of Institute of Disaster Mitigation for Urban Cultural Heritage, Ritsumeikan University (R-DMUCH) and National Research Institute for Earth Science and Disaster Prevention(NIED).

**14. 東日本大震災に学ぶ歴史都市防災まちづくりに向けて**

**第 3 回国連防災世界会議 パブリックフォーラム「歴史都市防災シンポジウム仙台」**

*Lessons from the Great East Japan Earthquake –Disaster Mitigation Community Planning for Historical Cities’*

*Third UN World Conference on Disaster Risk Reduction, Public Forum, Symposium on Disaster Mitigation of Cultural Heritage and Historical Cities, Sendai*

金度源・石田優子・崔明姫・米島万有子・板谷直子（牛谷直子）・大窪健之

This symposium aimed to make the public awareness of the importance of protection of cultural heritage from disasters by focusing on the case studies based on the researches undertaken by R-DMUCH. These helped in appreciating the importance of considering tangible and intangible cultural heritage, traditional knowledge and skills while undertaking post disaster recovery and disaster mitigation for future.