

歴史都市防災論文集 Vol.12 掲載論文・報告一覧

【特別講演】

1. 黒潮町の言葉を通して防災とまちづくりについて考える

A Remarkable Style of Disaster and Community Management in Kuroshio Town, Kochi Prefecture, Proposed in Quotable Slogans

矢守克也

This paper discusses a remarkable style of disaster and community management in Kuroshio Town, Kochi Prefecture, proposed in quotable slogans. First, two tanka poems composed by an elderly women living in this town suggest the way to overcome negative socio-psychological responses towards serious tsunami estimation. Second, “we need philosophy rather than countermeasures,” declares for a holistic and integrated approach to disaster and community management. Third, “we have no museums in this town, but, beautiful coast is our museum,” can serve as a powerful logic to support vitalization of rural community under sever conditions of rapid depopulation.

【論文】

1. 限界耐力計算を用いた茅葺古民家の耐震性能評価及び耐震補強計画案に関する考察

Evaluation on seismic performance of traditional house with thatched roof by “calculation of response and limit strength” and the retrofitting plan

富田直樹・森 拓郎・田中 圭・清水秀丸

The number of traditional wooden houses with thatched roof at Shiwahori, Higashihiroshima city is decreasing due to decrease in the thatched roof craftsmen, change in lifestyle and values, and so on. This paper expressed the evaluation of seismic performance of traditional thatched house by “calculation of response and limit strength” method. As a result, the strength of one direction showed insufficient strength. Therefore the short length shear resisting wall using Oriented Strand Board is developed for keeping living functions. As a result, we presented the retrofitting plan using developed shear walls. In addition, the suggested plan was shown enough strength as continuation use.

2. 土塗り壁の耐力を用いた土塗り小壁の骨格曲線評価

Evaluation for Skeleton Curve of Strip-Shaped Horizontal Mud-Walls by Full-height Mud-Walls

山田耕司・中治弘行・長瀬 正・鈴木祥之

In this paper, the skeleton curve of strip-shaped mud-walls in a wooden frame is proposed from full-height mud-walls. This method is composed of 2 fracture mechanisms: the compression failure and the shear failure of a hanging wall derived from full-height mud plaster wall test in consideration of battens. This method is checked by both the comparison with the full scale tests and numerical analysis. Results are as follows: 1) the proposed method gives the approximate horizontal resisting force of wooden frame with a strip-shaped mud-wall. 2) Numerical analysis shows the proper assumption where the mud-plaster is crushed by the battens.

3. 垂れ壁と腰壁で分割された無開口土塗り壁の復元力特性

Restoring Force Characteristics of Blank Mud-walls Divided by Strip-Shaped Horizontal Mud-Walls

中治弘行・鈴木祥之・長瀬正

In order to improve the capacity and deformability of mud-walls, strip-shaped horizontal mud-walls such as hanging wall and window back wall are effective. Shear cyclic loading tests of two types of mud-walls without open which are divided by hanging wall and window back wall were carried out. Test results show that maximum restoring force of such mud-walls is around that of mud-walls without open but the deformability of them is greater than that of usual blank mud-walls. In addition, the restoring force characteristics estimated theoretically agree well with test results.

4. 柱脚浮き上がりを許容した壁を含む架構の水平耐力

Resisting Force Characteristic of A Bearing Wall without Fixing on its Foundation

山田耕司

A bearing wall needs the fixing the wall on its foundation to resist the horizontal force. But the column of a Japanese traditional wooden structure is not fixed on its foundation. In this paper, the resisting force calculation method of hanging walls made of mud plaster in a wooden frame without fixing the bottom of a column is proposed. This method gives the sectional dimensions of the beam attached mud plaster wall and the resisting force characteristic of the mud plaster wall. Results are as follows: 1) The revised resisting force characteristic of the mud plaster wall needs a linear analysis. 2) The proposed method also gives the approximate sectional dimensions of a beam in 2 storey structure.

5. 壁土の改良方法に関する基礎研究

Fundamental study on stability improvement of the structural performance of the Wall Clay

須田 達・鈴木 祥之

Improving the performance of the coated wall with mud is an important issue to reduce earthquake damage for traditional wooden buildings. This study proposes a method of incorporating additives to improve the performance of the mud wall. The fundamental material properties of the improved mud walls and their effect are clarified by experiments. Experiments were conducted on three admixtures. Specimens were prepared with a mixing amount of 0 to 5% as a parameter. Freshness characteristics were grasped by sensory test. Further, improvement of each stress was confirmed by material experiment.

6. 平成 29 年 7 月九州北部豪雨に伴う朝倉市内における文化財被害および斜面崩壊に起因する地質・地形・降雨量の空間分析

Damage of cultural heritage in Asakura city and spatial analysis of geology, topography, and rainfall factors of slope failure by heavy rainfall in Northern Kyushu district in July 2017

檀上徹・石澤友浩

Much of the cultural heritage in Asakura city, Fukuoka prefecture, was damaged heavy rainfall in Northern Kyushu district in July 2017. We conducted a field survey and interviews in the damaged areas and analyzed geology, topography, and rainfall factors involved in slope failure. Tangible cultural property and historic sites at five sites were damaged. The rate of slope failure on steep slopes was higher in areas of volcanic rocks than in areas of metamorphic and plutonic rocks. The 80 % of slope failures in Asakura city was occurred when the maximum hourly rainfall was ≥ 110 mm and total rainfall was ≥ 615 mm.

7. 2016 年熊本地震における伝統構法木造建物の 3 次元地震応答解析

Evaluation using 3-D Earthquake Response Analysis of Traditional Style Wooden House during 2016 Kumamoto Earthquake

井下 央章・村田 晶・宮島昌克

It has been clarified that traditional style wooden houses have good deformability and are strong against earthquakes. 3-D earthquake response analysis is significant to clarify seismic performance at each point. Considering the occurrence of huge earthquakes, seismic reinforcement is important task because of lack of rigidity and aging. Recently, a lot of buildings including traditional style wooden houses were damaged in 2016 Kumamoto earthquake. In this study, we evaluate seismic performance of a traditional style wooden house at Mashiki town.

8. 2016 年熊本地震における熊本城内の石垣被害および崩壊挙動解析

DAMAGE AND BEHAVIOR OF THE COLLAPSE OF STONE RETAINING MASONRY IN THE KUMAMOTO CASTLE DURING THE 2016 KUMAMOTO EARTHQUAKE

恒川怜央・池本 敏和・宮島 昌克・橋本 隆雄

The stone retaining masonry wall in the Kumamoto castle was subjected to severe damage during the 2016 Kumamoto earthquake. We investigated the damage and destruction mechanism and made that clear. In this study, a field investigation of the Kumamoto castle

stone retaining masonry wall has been carried out while densely cooperating with the Kumamoto castle center. We had to assess the damage of the stone retaining masonry wall in the Kumamoto castle due to the strong ground motion of the earthquake. Furthermore, we performed numerical simulations for the collapse of a wall using two-dimensional Discontinuous Deformation Analysis (2D-DDA).

9. ネパール・ゴルカ地震によるパタン Jhatapol 地区の歴史的組積造建物群の被災度分析

Damage Analysis of Historic Masonry Buildings in Jhatapol Area of Patan during the Gorkha Earthquake, Nepal

古川愛子・花房陸斗・清野純史・R.R. Parajuli・H.R. Parajuli・土岐憲三

On April 25, 2015, a Mw 7.8 earthquake struck the Gorkha district in Nepal. Prior to the earthquake, the authors conducted building survey for 91 historic masonry residential buildings in Jhatapol area in Patan. After the earthquake, the authors conducted damage survey for those buildings. It was found that unreinforced masonry building had damage but confined masonry buildings had no damage. It was also found that the buildings located at the corner have severer damage than the buildings with two adjacent buildings on both sides. The fragility curves proposed in the past research were found to estimate structural damage in the safety side.

10. イラン・聖ステファノス修道院における建造物及び表層地盤の動特性評価

EVALUATION OF DYNAMIC CHARACTERISTICS OF BUILDING AND SURFACE GROUND AT ST. STEPANOS MONASTERY IN IRAN

池本敏和・A. H. Fallahi・山口謙太郎・宮島昌克・吉田雅穂

Currently, 60% of the world's population resides in masonry structures, several of which are constructed using bricks of inferior quality. While inexpensive to construct, masonry structures are vulnerable to earthquakes. Herein, we studied the microtremors of the church and its towers at the Saint Stephanos Monastery in Iran. We also analyzed the subsurface characteristics using microtremors measurement and shear wave velocity by using the refraction method for elastic wave exploration by the stochastic green function method. We used these results to discuss the dynamic characteristics of the church building and its towers at the Saint Stephanos Monastery.

11. 大阪府の「式内社」の立地傾向と災害危険性から見た古代の神観念

RELATION BETWEEN LOCATION TREND OF NATIONAL SHRINES IN THE OSAKA PREF. AND ANCIENT IDEA FOR HOLY BASED ON DISASTER RISK

榎原拓大・青柳憲昌・石田優子

SHIKINAISHA are shrines receiving offerings from the bureau of Divinities. This research target 178 shrines in KAWATINOKUNI, IZUMINOKUNI and SETTUNOKUNI which Osaka prefecture corresponds ancient provinces of Japan out of all 2,861 SHIKINAISHA in Japan. This research reveals the location tendency of SHIKINAISHA in Osaka including relation with disaster risk. In addition, it is considered necessities of SHIKINAISHA's locations why they were founded in such places where risk of disaster is high. As a result of the analysis, SHIKINAISHA in Osaka are many in flat area, mountain foot and river side. In short, from a broad perspective, SHIKINAISHA in Osaka are in places hard to be affected by disaster such as above the high altitude. On the other hand, in regard to things that are located in places considered highly disaster risk, especially in waterside (rivers and oceans) that are closely related to people's lives, shrines where the deity who has divine virtues such as repose of disaster and protection of water traffic and it shows that the reflection of the idea for sacred things for ancient people is deeply involved in the location of shrines.

12. 関東大震災における地震火災と防火体制

Earthquake Fires and Fire Protection Systems in the Great Kanto Earthquake

森下 雄治

This article aims to trace the efficacy of the fire protection systems against earthquake fires in the Great Kanto Earthquake, focusing on their fire spread limits. The regulations of fire-

safety constructions were partially effective. At the same time in-city park depositions, or urban open area, at the time were highly eccentrically-located, so that these functions were restrictive. Fire organizations were too vulnerable to converge on fire hot spots.

13. 全国社寺調査からみた文化財保有社寺における獣害

Animal Damage at Temples and Shrines Having Nationally Registered Cultural Properties: An Analysis of a Nation-wide Social Survey in Japan

米島万有子・中谷友樹・崔明姫

The aim of this article is to examine the recent situations of animal damage at temples and shrines having nationally registered cultural properties of buildings and historical art works through a nation-wide social survey in Japan. In this survey, we revealed that more than half of the temples and shrines are damaged by animals. Among them, lots of cultural properties are also damaged. It was found that there were regional differences in the reported number of damage depending on the type of animals. We analyzed the characteristics of temples and shrines damaged by each animals from the attribute of shrines and temples and the surrounding environment.

14. 松山城における非合理的避難の割合と被害の推移に関する研究

—マルチエージェントを用いた避難シミュレーション—

A Study of the Ratio of Irrational Evacuation and the Transition in the Number of Victims in Matsuyama Castle-Evacuation Simulation by Multi-Agent System-

中島昌暉・山田悟史

The Matsuyama Castle is located in Matsuyama, Ehime. There are only two staircases to out outdoors from the castle. One staircase is narrow and steep, the other one is wide and gentle gradient by comparison. There is a problem that it is obscurity that how many people to conduct to the staircase when an earthquake occurs. So the purpose of this study is to research the changes evacuation time and extent of danger density by changing rate that how many people to conduct to the staircase. And suggest the appropriate evacuation conduct rate that minimizes damages when evacuation from Matsuyama Castle.

15. 重要文化財・道後温泉本館の改修へ向けた公衆浴場の避難計画に関する研究

Evacuation simulation for cultural heritage public bath as Dougo-Onsen main building in the different environment before and after the renovation project

大窪健之・鷲尾龍之介・金度源・林倫子

If actual situation is reproduced in evacuation simulation from the closed space in the virtual space on the PC and analysis of the result obtained becomes possible, the learning effect on the disaster can be enhanced without risk. In this research, it is important to consider the characteristics of the evacuation from the public bath (such as not to wear clothes, to escape from the bathroom with bare feet), to consider the environmental conditions at the renovation period. This paper is aimed to become one of the basic way of planning for evacuation plans in the public bath, evacuation guidelines and evacuation plans at the renovation period.

16. 観光客の防災意識に影響する要因に関する研究—世界遺産姫路城を事例に—

A Study on the Factors of Tourists' Disaster Prevention Awareness: A Case Study of Himeji Castle, World Cultural Heritage

酒井宏平・豊田祐輔・鐘ヶ江秀彦

It is important to understand the disaster tourists' prevention awareness in considering policies for disaster prevention in tourism areas today. In this research, we aim to reveal tourists' disaster prevention awareness, and factors that affect disaster their prevention awareness to finds measures to raise their disaster prevention awareness. We analyzed using the survey results on disaster prevention awareness collected from 225 tourists at Himeji Castle. Tourists' disaster prevention awareness is low. Their disaster prevention awareness is related to sex, residential area, number of visits, daily disaster prevention activities and knowledge about an evacuation area near their house. The results confirmed that attribution,

tourism style and daily disaster prevention awareness as the factors affects parts of disaster prevention awareness.

17. 団体客を考慮した歴史都市における観光客の避難場所と避難経路に関する研究

A Study on the Evacuation Sites and Evacuation Routes for Tourists in Historical Cities Considering the Group Tourists

小川圭一・安隆浩

In this paper, evacuation sites and evacuation routes for group tourists from cultural heritage as sightseeing spots in historical cities are considered. The survey site is Higashiyama Ward in Kyoto City, which is a typical historical city in Japan. Evacuation sites for individual tourists and group tourists are separated, and some major tour bus parking lots are identified as evacuation sites for group tourists. Then, evacuation capacities of tour bus parking lots and characteristics of evacuation routes between sightseeing spots and tour bus parking lots are analyzed.

18. 地震火災時の文化財建造物に対する防火対策検討プロセスの開発

—東福寺及び周辺地区を事例として—

Development of general planning process for fire risk management of urban cultural heritages from spreading after earthquake : Casestudy for Tofuku-ji temple and surrounding areas

荒川昭治・加村大輔・中畑摩耶・大窪健之・金度源

For protection of frameable cultural heritage buildings in Japan, the fire risk management is indispensable. Sometime fire starts spreading from surrounding high densited urban area to the wooden cultural heritage sites. But it is difficult to use governmental subsidy for fire protection measures at the site out of designated cultural heritage, without logical and clear reason. This paper aims to develop the general planning process for fire risk management of urban cultural heritages from spreading after earthquake through the casestudy in Tofuku-ji temple and surrounding areas using mathematical fire spreading simulation system.

19. 福島県西会津町奥川流域における中門造民家の残存状況及び防火性能に関する現状調査

A survey on the present condition of fire prevention efficiency of Chumon-zukuri in Okugawa valley, Nishi-Aizu town, Fukushima Prefecture

平尾和洋・小池潤

Chumon-zukuri is a specific housing formats of the area with heavy snowfall in Tohoku region. Okugawa valley in the west of Fukushima prefecture is one of the distributional areas of Chumon-zukuri. However, the accurate residual status has not been clarified. The purpose of this study is to disclose its distributed condition by the field survey, and to propose the guidelines for prevention of fire damage of roofs, exterior walls and so on, based on quantitative analysis of the fire prevention efficiency.

20. 山梨県早川流域における兜造り民家の残存および防火意匠の現状調査

A survey on the present condition of fire prevention design and the proposals of rural house in Hayakawa basin, Yamanashi Pref.

遠藤直久・小林和敬・平尾和洋

The rural house called “Kabuto-zukuri” is distributed throughout Yamanashi prefecture. Hayakawa basin is located on southwest area of Yamanashi prefecture. In this basin, it has been reported that a special “Kabuto-zukuri” exists by previous studies. However, the distributed condition and the character of “Kabuto-zukuri” in Hayakawa basin has not been clarified. Then the purpose of this study is to disclose its distributed condition and character by field survey, and propose the guideline every each part for prevention of fire damage based on quantitative analysis of the fire prevention efficiency of “Kabuto-zukuri”.

21. 京都市西陣地区の事前復興計画を想定した建築物の類型化およびその評価と防災型復興住宅モデルの提案

Typology of buildings assuming preliminary reconstruction plan in Nishijin area of Kyoto and those evaluation and proposal of disaster prevention type housing model

平尾和洋・石川一平

This paper covers Kyoto-Kamigyo-ku where there are many traditional buildings with a large estimated damage scale due to the earthquake, quantitative grasping and typing of the appearance elements of the building towards the preliminary recovery plan, type examination of reconstruction level by another impression evaluation, and proposal of a reconstruction housing model with certain disaster prevention capability.

22. 密集市街地における街並み誘導型地区計画の効果と課題に関する研究

—神戸市長田区野田北部地区を対象として—

A study on the effect and challenge of streetscape promoting district planning in densely built-up areas—a case study of the Nodahokubu district in Kobe—

山際大貴・岡井有佳

Narrow roads in densely built-up areas have problems of disaster prevention. It is necessary to improve the disaster prevention performance within the district by rebuildings with widening the roads. However, the road widening has not proceeded, because rebuilding have not progressed. Streetscape promoting district planning has possibility to promote rebuilding and lead to the road widening. Therefore, this study aims to identify the effect and challenge of streetscape promoting district planning on narrow road widening through a case study of the Nodahokubu district in Kobe.

23. 避難所設備の評価に基づく寺院・公益施設の活用可能性に関する研究

～福井県若狭町熊川宿重伝建地区を対象として～

Research of Availability of public Facility as Shelter at the time of Earthquake for Residents and Visitors in Kumagawajuku

福永靖史・大窪健之・金度源

In this study, the questionnaire survey for setting the importance of evacuation center facilities were executed. So the evaluation of evacuation center based on usability of the facility under earthquake and the method of deciding priority level for maintaining facility were presented for alternative facilities in Kumagawajuku. Finally We suggest how to improve about shelter facilities.

24. A Spatial Study on Risk Analysis of Disasters Caused by Natural Hazards to Cultural Heritage in Indonesia

Kartika Puspita Sari

Cultural heritage is at risk of disasters caused by natural hazards, especially in growing countries, such as Indonesia. By adopting the Taboroff's concept of risk analysis (hazard, control mechanism, and receptor), this study spatially examines the risks of natural hazards to cultural heritage. This approach is applied to identify areas need to be prioritized in mitigation by at least including disaster risk reduction (DRR) in their spatial plan. This study confirms that regions with high proportions of cultural heritage inventory are also highly exposed to natural hazards. However, this study also shows that those areas do not necessarily have a disaster mitigation-based spatial plan.

25. 被災後の町の復興を支える神輿渡御—宮城県南三陸町保呂羽神社の春祭り—

Festival Event Carrying a Portable Shrine Supports Post-disaster Recovery: Case Study of Religious Festival at Horowa Shrine in Shizugawa Area in Minami-Sanriku-Cho, Miyagi Prefecture

谷端 郷・板谷直子（牛谷直子）・中谷友樹

This study analyzes the changing process of carrying portable shrine, that is event of religious festival at Horowa Shrine in Shizugawa area in Minami-Sanriku-Cho, Miyagi Prefecture in post disaster recovery phase (2011-2018). The survey results reveal that this religious festival of Horowa Shrine, where is top of the symbol mountain (Mt. Horowa), contribute to the recovery of Shizugawa area. Because the participants of this festival was returned and people recognized history and culture of this town by changing route of portable shrine to the housing complex and shopping village reconstructed.

【報告】

1. 地盤環境に配慮した歴史的建造物の基礎補強対策工に関する提案

Proposal for the reinforcement of foundation ground under a historical structure considering the geological environment

原田紹臣・藤本将光・里深好文・小西成治・疋田信晴

In general, it is important to preserve historical buildings and pagodas that have become inclined due to changing geological conditions. As a countermeasure to inclination, we proposed a soil-nailing technique that fixes a root pile in place via a steel rebar on a net, and considers the underground water conditions. An experiment was conducted to elucidate the reinforcement mechanisms of the root pile. We found that reinforcement efficacy was affected by the pile angle, pile density, and soil type.

2. ネパール・ゴルカ地震によるバクタプルの歴史的煉瓦造住宅建築の被害状況と常時微動性状に関する調査研究

Observation Study on Damage Situations and Ambient Vibration Characteristics of Historical Masonry Buildings in Bhaktapur after the 2015 Gorkha Earthquake in Nepal

竹内雅人・星野隼人・向井洋一・山本直彦・増井正哉・宮内杏里

The 2015 Gorkha earthquake in Nepal caused serious damage to many historical masonry buildings. By observing the seismic-damaged buildings during this earthquake, which were in the old town of Bhaktapur in the Kathmandu valley of Nepal, damaged buildings distributions were seen locally and intensively in the specified area. To evaluate vibration characteristic of the masonry buildings, micro-tremor measurements at the residential buildings which were placed in the observation area in Bhaktapur were carried out. This report focuses on the historical construction-style masonry buildings in Nepal about their dynamic properties under ambient vibrations.

3. 寛文十年（1670）、大坂を襲った高潮災害

The Flood-tide Hit Osaka in the 10th-Year of Kanbun-period (1670A.D.)

長尾 武

In the Edo era, Osaka was flourishing as an important port of Japan. In the 10th year of Kanbun period, a big typhoon hit Osaka. The Flood-tide rushed into the Osaka-Bay and into the canals in Osaka City. Many ships were broken and 15 bridges collapsed. It was very shocking for Tokugawa government that the Osaka-funate which was the coast guard was seriously damaged. I researched this disaster by the “Ryuei-Hinamiki” which is the diary of the Tokugawa government. Introduced the summary of the damages by the typhoon and its flood-tide. Next, I showed the flooding areas on “The Map of the mouths of the Osaka River (The Yodo River)”. Last, I estimated that the height of inundation was the maximum 3.3 meters and the depth of inundation was the maximum 30 cm at Kamibakuro in Osaka City.

4. 四川省綿竹市靈官樓木塔火災の被害調査

Investigation report on Lingguan Tower Fire in Mianzhu City, Sichuan Province

劉弘涛・江俊涛

The Lingguan Tower is located in Jiulong temple, Jiulong town, Mianzhu city, Sichuan province, the original tower was destroyed in the 2008 Wenchuan earthquake, and then rebuilt in the original place. In December 2017, when the Lingguan Tower was about to be built, the Tower suddenly burned. Through the investigation of the fire incident in the Lingguan Tower, this thesis will contact the many incidents of cultural heritage that have occurred in China. In conjunction with Japan's early experience in disaster prevention, the fire prevention system for China's wooden structural buildings will be explored.

5. 3項道路指定における地域住民等の役割に関する研究

A study on the role of local residents in utilization of the Building Standard Law Article 42 paragraph (3)

小池貴大・岡井有佳・加藤仁美

Narrow roads that remain much in wooden densely built-up areas have problems on hygiene

and disaster prevention. It's required to improve the disaster prevention performance in the district by widening the road along with updating of roadside buildings. But now improvement by roads widening isn't proceeded. In addition, improvement by road widening has the possibility of the risk to lost historical value and a unique atmosphere. Therefore, it's required to ensure disaster prevention performance while maintaining the atmosphere of an attractive narrow road space. This study focuses on the Building Standards Law Article 42 Paragraph (3), and clarifies the role of local resident's, activity in each district.

6. Study on the Disaster Prevention Countermeasures about Historic Blocks in China —Taking A Yi Dun District of Yi Ning in Xingjiang province as the example

甘秋林・劉弘濤

Yi Ning A Yi Dun, Xinjiang located in the northwestern region of China has a well-preserved and valuable historical site. The most building structures are based on brick-wood which is often suffered by natural disasters such as earthquakes, fires, floods, and windstorm. According to the records, there were many natural disasters in Yi Ning area and based on current conditions in terms of disaster prevention, the existing environment and procedure is unable to prevent future nature disaster attack. In order to preserve these valuable historical relics, this paper will apply classification methods and analyze vast amounts of data targeting to two areas of A Yi Dun which are mainly suffered by earthquake and nature fires and propose a specific strategy to prevent these that also can be referenced for disaster prevention in urban historical districts in other countries.

7. 重伝建地区における防災訓練の実施とその改善方針の提案 ～島根県津和野重伝建地区を対象として～

*Study on Implementation of Disaster Prevention Drills and Proposal for Improvement Policy
～ In the case of Important Preservation Districts for Groups of Traditional Buildings in Tsuwano ～*

中林秀光・大窪健之・金度源

Disaster prevention drills have not been held in Important Preservation Districts for Groups of Traditional Buildings in Tsuwano, Shimane Japan. This study aims to propose adequate disaster prevention drills and improve it for next step. Research on people's consciousness for disaster preparedness was used for development of drill programs. And after the disaster prevention drill, opinions of peoples who participated it were collected. Finally, the improvement policy is proposed to enhance the effects of the disaster prevention drills through the outcomes of opinion research.

8. Blue Shield Australia and the protection of Cultural Property in the event of Armed Conflict and Natural Disasters

Dr Tanya L. Park

Blue Shield Australia [BSA] was established in 2005 as a non-governmental organisation bringing together professional representatives active in the field of the protection of cultural heritage across Australia. Blue Shield Australia is one of a wide network of committees formed under the auspices of Blue Shield International [1996]. In the wake of the Second World War, UNESCO adopted The Hague Convention [1954] which formulated guidelines to protect cultural property during armed conflicts. Recently, Blue Shield [International] has expanded its remit to include environmental disaster (Article 2.1, 2016 Statutes). Recent initiatives for BSA have resulted in Cultural Property Protection Expert Group roundtable meetings in Canberra focusing on The Hague Convention and signing of Protocols I and II for Australia [Australia is a signatory to the convention, but has yet to ratify protocols I and II] Signing of the protocols is viewed as providing additional protection. Current Australian protection legislation is under "Protection of Movable Cultural Heritage Act 1986" which does not consider armed conflict.

9. 歴史都市における大規模震災を想定した被災後情報共有システムモデルの枠組みの検討

A Study on Constructing Framework of Disaster Information Sharing System with Participatory Process among Residents, Public Sectors after Big Earthquake -Case Study in L'Aquila, Italy-

清水泰有・Quirino Crosta・Micaela Merucuri・留野僚也・小野聡・鐘ヶ江秀彦・Paola Rizzi

In this study, it is considered constructing framework of Disaster Information Sharing System based on resident's Quality of Life factors and Sense of Place in historic areas in case study in L'Aquila, Italy. This study conducted Questionnaire survey for 27 residents in L'Aquila. It is clarified that if Disaster Information Mismatch is happened in a disaster time, resident's QOL and Sense of Place factors is decreased by them. For solving these kinds of problems, it is considered constructing framework Disaster Information Sharing System based on sustainable participatory process with residents and public sector and PDCA cycle regarding on risk management, communication, assessment.

10. 歴史都市における災害対策の研究項目に関する調査

－『文化遺産防災ハンドブック』の改訂を目指して－

Investigation of research items of disaster mitigation for urban cultural heritage: Aiming for revision on 'Handbook for Disaster Mitigation of Cultural Heritage'

山口奨・金度源

In March 2013, 'Handbook for Disaster Mitigation of Cultural Heritage' was compiled as a result of the Global Center of Excellence Program of disaster mitigation for urban cultural heritage. 4 years passed since the handbook was published, but the outcomes of disaster mitigation for urban cultural heritage have been progress. The necessity to reflect the results of the research has been increasing. This study targeted the contents of the handbook and the outcomes of them between 2013 and 2017. It sorted research items of disaster mitigation for urban cultural heritage and analyzed them. As a result, it found the trend in the research and elaborate the feature and items to be addressed.

11. 災害文化遺産の展示手法と防災教育への活用－禹王遺跡展の事例から－

Exhibition of Disaster Cultural Heritage and Application to Education on Disaster Prevention: A Case of Exhibition of Yu Wang as God of Flood Control in Japan

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The rotating exhibit Cultural Heritage of Disaster, The Remains of Yu wang in Japan and its Belief in God of Flood Control was held from March to May 2018 at the Institute of Disaster Mitigation for Urban Cultural Heritage Ritsumeikan University. Many people looked at this exhibit and 148 people answered a questionnaire about this exhibit. The results of analysis of the questionnaire indicate that Yu wang the Great as the god of flood control is not only a symbol of local culture but also a useful figure for education on disaster prevention.

12. 『災害文化遺産 日本の禹王遺跡と治水神・禹王信仰展』の目的とその意義

Purpose and Significance of Exhibition as Cultural Heritage of Disaster, The Remains of Yu Wang (禹王) and its Belief in God of Flood Control in Japan

植村善博

The existence of remains of Yu Wang and its belief in God of flood control in Japan has been forgotten till recently. There were three well researched districts: Takamatsu city on stone monument of 大禹謨, Kyoto city on shrine of 禹王廟 and River Sakawa on stone monuments of 文命碑 and 文命宮. Society of remain of Yu Wang and belief in God of flood control studies was founded in 2013 and as only one society of this subject has been working. Under the joint auspices of our society and Institute of Disaster Mitigation for Urban Cultural Heritage, Exhibition as Cultural heritage of disaster, The remains of Yu Wang and its belief in God of flood control in Japan was held in the Institute from 16th March to 16th May. Because over three hundreds peoples visited till end of April and two newspapers reported this exhibition, existence of Yu Wang remains and its belief of God of flood control has been widely known.