

After the Quakes: The Impact of Disasters on Japanese Archaeology and Heritage Management

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ABSTRACT

In earthquake-prone Japan, archaeology is strongly involved, in various manners, with past and present disasters. After the Great East Japan Earthquake 2011, archaeologists had been obliged to face with a number of challenges intensively both in archaeological studies and heritage issues after the disaster; 1) rescuing heritage, 2) reconstructing community with heritage, 3) managing and/or operating intensive rescue excavation prior to development for reconstruction, 4) investigating traces of past disasters during excavation and 5) coping with creation of new heritage (memorial monuments). Japanese archaeology looks in a good position to promote a model of disaster-led archaeology as a kind of 'public' archaeology for disaster prevention and risk management. The discipline would be a new archaeological field with interdisciplinary and international character.

KEYWORDS: disaster, earthquake, tsunami, Japanese archaeology, heritage management, disaster-led archaeology

1. Introduction

A big earthquake recently occurred in Kumamoto causing heavy damage to cultural heritage including Kumamoto Castle, temples and shrines and it will affect underground archaeological heritage in due course, as happened previously in Kobe and Tohoku. Unfortunately, Japan has suffered three severe earthquakes in the last twenty years: here in the Kansai area, we had the Hanshin-Awaji quake in 1995. At that time I was involved in a variety of activities to support archaeologists in the affected area along with some of the current WAC-8 Executives. It is said that 20% of all earthquakes in the world occur in Japan, and 70% of active volcano is concentrated here (Figure 1). I sincerely hope we will not have any quakes during this conference.

Thus in earthquake-prone Japan, archaeology and archaeologists are inevitably and strongly involved with past and present disasters in various manners. In my talk, I will firstly review what happened, particularly in relation to cultural heritage after the Great East Japan earthquake, and how it was rescued and researched. Then I will consider how

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Category: Review Article (solicited) Received: 25 October 2016

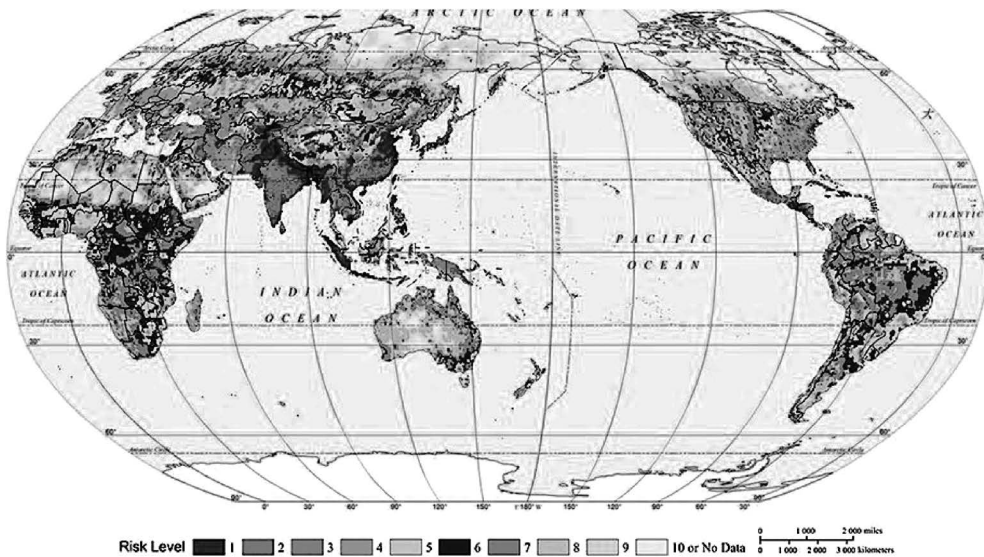


Figure 1. *The World Atlas of Natural Disaster Risk, Expected Annual Multi-hazard Risk Level of Mortality and Affected Population of the World (2015, Measured by Total Risk Index), Available at: <http://www.futureearth.org/news/world-atlas-natural-disaster-risk-ranks-exposure-11-natural-hazards> (accessed 30 September 2016)*

Japanese archaeologists can contribute to the archaeology of disaster in general, while previewing some presentations under the theme “Disaster” at this conference starting tomorrow.

2. Saving heritage

As you already know, the biggest earthquake ever recorded in Japan occurred off the Sanriku Pacific coast, with a magnitude of 9.0. The earthquake hit a vast area covering parts of the Tohoku and Kanto regions, stretching more than 500km from north to south, included in which are Iwate, Miyagi and Fukushima prefectures which suffered particularly severe damage. The resulting tsunami tidal-wave reached more than 30 meters in height at some areas, and spread more than a few kilometers inland from the coast, destroying virtually everything; people, cars and structures, along the way (Figure 2). Almost 20,000 people have died or been lost. To make things worse, the Fukushima No.1 Nuclear Power Station was catastrophically damaged and has since been causing serious radiation contamination, resulting in the evacuation of the residents. Definitely, the damage caused by the disaster is the worst since WW II.

Damage caused to cultural heritage is also very serious and wide-ranging. It’s far

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Figure 2. The 2011 tsunami at 15:25 on the 11th of March, taken from the 5th floor of Miyako City Hall, Iwate Prefecture. Photo by Shin'ya Kumagaya (Iwate Nippou Press)

more severe than in 1995. Speaking only of designated national cultural properties, more than 700 such properties have been damaged, including 5 national treasures (Agency for Cultural Affairs 2012; Japan ICOMOS National Committee 2011). The stone walls of many castles and fortresses were damaged, and numerous stone monuments in temples and shrines collapsed. The total loss and damage to architectural heritage is most severe in the tsunami devastated areas. For instance, in Iwanuma City, Miyagi Pref. the half of the city area was flooded, and temple and shrines along the coast were completely swept away. This Rikuzen-Takata municipal museum in Iwate prefecture was completely destroyed. The disaster also took the lives of all six members of the museum staff. Rescue activities were very active in many areas across the devastated region. In total, 6,800 people joined in the rescue efforts at ninety locations over two years (Figure 3; Tateishi 2014). It will no doubt take a very long time to complete the rescue of tangible cultural properties, but as the phase was shifting from initial clean-up to the reconstruction of the destroyed infrastructure and villages/towns, problems concerning the protection of buried cultural properties were becoming increasingly acute by the day and demanded urgent response.

However, it is no easy task as we have to remind ourselves that there are some 6,000 archaeological sites in Miyagi and 13,000 in Iwate Prefecture. Especially in the Sanriku region, more sites are located on the hills than on the coastal plains, and the presence of many undiscovered sites is also expected. Some mass media reported on this issue claiming “archaeological sites on hills would be an obstacle to re-location.” In April 2012 the Agency of cultural affairs, issued a notice “Regarding Cultural Properties



Figure 3. Recovering historical documents from a warehouse on the 7th of April 2011 by the Miyagi Historical Documents Conservation Network in Ishinomaki City, Miyagi Prefecture. Photo by Shuichi Saito

Management Related to Restoration and Reconstruction Associated with the Great East Japan Earthquake, as they did in 1995. It consists of four articles, but the point is to encourage speedy excavation, so as to not delay reconstruction works, and the active dissemination of research results to local people and developers. As a practical means to undertake the necessary excavation, Iwate, Miyagi, Fukushima Prefectural Boards of Education, and the Agency of Cultural Affairs asked other local governments for an archaeological labour-force, and from April 2013 in total 60 archaeologists were sent to engage in excavation prior to the reconstruction development of towns. I was one of them. The Agency initially planned to continue this support system for 3 years, but extended the program in order to meet the demands from local governments.

In the case of the Hanshin-Awaji earthquake, more than 100 archaeologists in total were sent to the affected area from as many as 40 different prefectures for three years. Before they started excavation in the affected area in 1995, archaeologists were nervous, and seriously worried they might be stoned by angry local people who objected to excavation in such an urgent situation. But, actually it never happened. Surprisingly, archaeological investigations were carried out in the affected area in almost the same way as they had been before the earthquake, as the reconstruction works continued smoothly, thanks to the reinforced AHM and the efforts of the stakeholders. More than 500 excavations were undertaken prior to the construction of the houses, and many discoveries had enough impact to alter the understanding of the local history.

It was said that the area considered for excavation in the Tohoku region after the Great East Japan was expected to be 10 times bigger than that of 1995. For instance, Iwate

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Figure 4. Excavating the Niidate medieval fortified village site, Minami-sanriku town, the Miyagi Prefecture

Prefectural Centre for Archaeological Heritage excavated 170,000 square meters in total prior to reconstruction at thirty sites in fiscal 2013. This is one of the largest excavations before the Relocation project (Figure 4). The tsunami washed away the entire village at the foot of the hill. Despite the immediate issues faced by archaeologists, archaeological investigations were again surprisingly carried out in almost the same manner as they had before the quake. Numerous discoveries had greatly altered the understanding of the local history (Negita 2014) and the public was often invited to open days.

The Cultural Heritage Management issues in Fukushima are rather different from those of other areas due to radiation contamination, in addition to the effects of the quake and tsunami (Kikuchi 2015, Schlanger, Nespoulous & Demoule 2016). Even though more than 5 years has passed since the quake and tsunami, 90,000 people are still affected by the evacuation from the disaster area or their home with many people still living in temporary housing. As for cultural heritage, most of the major cultural properties have been rescued from the restricted area thanks to committed archaeologists and heritage managers. These are now being stored safely, but where and how to exhibit them has not been decided and is under serious consideration. Mr. Honma, a Fukushima archaeologist, said that we first appreciate the meaning of local community, culture, and heritage (including intangibles), only once we've lost them. Heritage is more than just objects (Honma 2012). One ongoing serious issue for archaeological heritage is a plan by the Ministry of Environment to make an "interim" storage facility for contaminated soils in Okuma and Futaba Towns. Since it is so large, 19 square km, it will affect the historical landscape, and archaeological resources.

Salvage excavations dramatically increased in Fukushima too. Since it is so large, the third largest prefecture in Japan, they had to survey the area to identify all the sites within the potential development area as soon as possible. During 2012–13, 5 million square metres were to be surveyed in mountainous areas planned for soil extraction to build up the soil in the sunken coastal area. At some sites we first measured the radioactivity contamination level, and found it was higher than permitted: 1 micro ceevel. So we started peeling off the surface until we reached a safer level. The removed soil was temporarily put outside the site, but it would eventually be moved to the ‘interim’ storage facility. Though the site here is located 50km from the affected power station, generally speaking, forested areas gain relatively high contamination.

3. Pursuing past disasters

I want to turn from heritage issues to archaeology. Since the quake, Japanese archaeologists, particularly in the Tohoku region, have worked hard on research and re-examination for traces of past earthquakes and tsunami, and have tried to utilize such information for public disaster prevention as a duty of their profession. Behind the scenes, they agonize over whether or not they properly disseminated information about past tsunamis. An example of archaeologists’ work on the accurate recognition of traces of past tsunamis can be seen at the Kutsukata site, Sendai City (Saino 2012). The site is located 4.3km from the present shoreline, and here they found 2000BP (middle Yayoi Period) paddy fields covered by a layer of white sand. They carried out a number of drillings to confirm the horizontal distribution of the sand, and the continuity of tsunami deposit from the inland limit to the paleo-shoreline of 2000 years ago. Through thorough research of the deposits, including grain size analysis, they finally determined that the white sand was definitely tsunami deposit, and then conducted further research to compare the scale of the 2000BP tsunami with the 2011 tsunami by measuring deposit inundation distance from the then shoreline. Finally the research clarified that a tsunami of the same scale as the one in 2011 occurred 2000 years ago. They also found traces of three well-known historically tsunami together at the Takaose site, 200m west of Kutsukata.

I remember that in 1996, one year after the Great Hanshin Awaji quake, we edited “Earthquake traces unearthed” with the cooperation of 150 archaeologists from all over Japan. It covered all the traces of the past earthquakes excavated at nearly 378 sites (Maibun-kyuen renraku kaigi & Maizou-bunkazai kenkyu-kai 1996). However, as time passes, the attention and interest once directed at earthquake has fizzled out, and the message we managed to bring through the mediation of archaeology has been forgotten. However, in April 2014, it was decided that the Nara National Research Institute for Cultural Properties should start creating a database for all the traces of natural disaster

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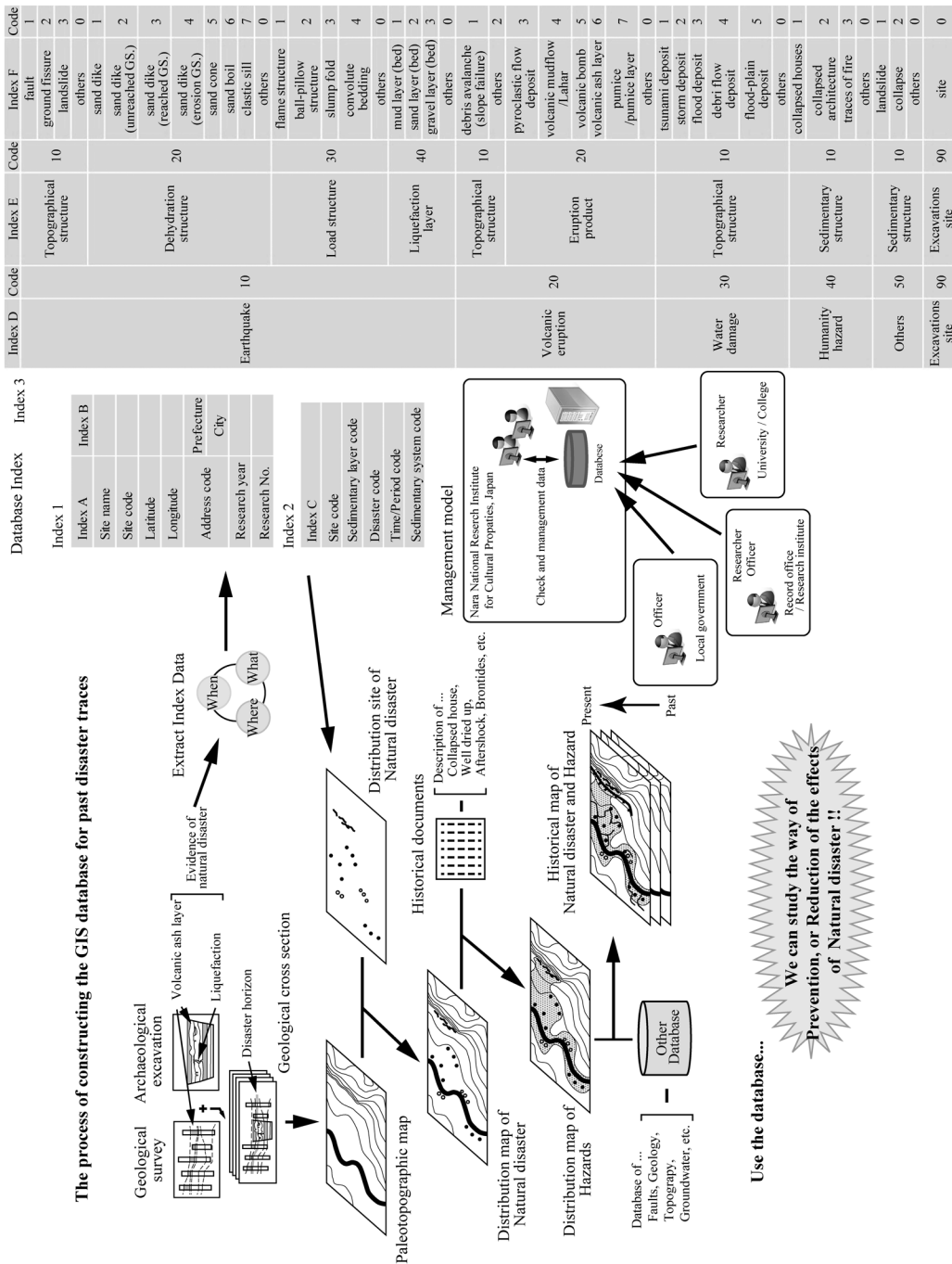


Figure 5: The GIS database model of the historical natural disaster and hazards (from Murata 2016)

across the country from excavation reports and set up a network of experts while developing research methods and technology over the following 5 years (Figure 5). I really hope it will continue to the next step and establish a system where any discovery of a disaster is recorded and automatically reported to the national storehouse for the sake of disaster prevention and risk management. When this happens archaeology will be accepted as a discipline more relevant to contemporary society. At WAC-8, Japanese geo-archaeologists will talk about traces of past disasters with a desire to convey a message of ‘learning from the past.’

The final issue concerning archaeology & heritage after the quake is preservation of memorial buildings or structures to commemorate the disaster. Who can or should decide on the preservation of memorial structures after a great disaster? Does the decision lie with local residents, the local government or even the central government? The people concerned with managing heritage should observe how new ‘heritage’ is being created, as once we did for the Hiroshima Peace Memorial.

4. ‘Disaster-led archaeology’ as our role and mission

I mentioned 4 topics concerning archaeology and heritage management after the great earthquakes. They are associated with each other, and often discussed altogether. I was wondering what we should concisely call this ‘package,’ but a friend of mine, Prof. Nathan Schlanger created a new word, ‘Disaster-led archaeology’ after the better-known notion of ‘developer-led’ archaeology. I want to adopt this term.

From the investigation of the true power and mechanism of the Great East Japan Earthquake and the frequency of aftershocks, plus the recent Kumamoto earthquake, a number of seismologists and geologists argue that the Japanese archipelago and the surrounding areas have entered a phase of increased seismic activity. Disaster-led archaeology would be a fatalistic subject, and should be considered as a kind of ‘public archaeology’ for archaeologists living in earthquake prone countries like Japan. This is very challenging, but would be an opportunity to promote a number of aspects of contemporary archaeologies. What we should do now is to connect the past to the future. Combining “disaster, heritage and archaeology” together, and thinking hard about what we can do about them are our responsibility and mission.

We call for the cooperation and collaboration of the archaeologists across the world. Let’s get together!

Acknowledgements

I would like to express my deep gratitude to Robert Condon for his advice and assistance

with translation and proofreading.

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