
Almatourism

Journal of Tourism, Culture and Territorial Development

Risk Communication to Tourists: Towards the Definition of a Research Agenda for a more Effective Disaster Preparedness in Japan

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ABSTRACT

The Japanese government has recently demonstrated interest in increasing tourists' disaster preparedness. This is in part due to the need to develop an efficient disaster preparedness plan for the upcoming Olympic Games in 2020 that will be held in Tokyo. The aim of this paper is to present opportunities for future research able to facilitate a more effective risk communication between communicators and tourists regarding disaster preparedness information in Japan. The article is based on an analysis of the literature. The paper identifies research gaps in four main research topics including tourists' risk information seeking process, cross cultural analysis, the role of tourism suppliers within the risk communication process, and comparison of mental models of communicators and tourists. Opportunities for further research are also provided.

Keywords: Japan; Risk communication; Disaster preparedness; Tourism

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Introduction

On March 11, 2011, a 9.0-magnitude earthquake struck the northeast coast of Japan generating a destructive tsunami which caused one of the worst disasters in Japan's history. The disaster is a reminder of the level of exposure of residents in the country to earthquakes but also other hazards, including tsunami.

The Japanese government is constantly active in order to reduce the vulnerability of local community. The "White Paper Disaster Management in Japan 2015" has been defined by the United Nations International Strategy for Disaster Reduction (UNISDR) as one of the most noteworthy initiatives in the field of disaster risk reduction and management due to its comprehensive approach to disaster risk reduction (DRS) (Minister of State for Disaster Management, Cabinet Office, 2015). Several community-based disaster prevention activities have been conducted nationwide in Japan (Nakamura et al., 2016) improving the level of preparedness of residents.

Japan is also characterized by a continuous growth of the tourism industry. During the last two decades, inbound tourism has increased from 4.5 million travelers in 2000 to 24 million in 2016 (Japan National Tourism Organization, 2016). The number of people exposed to potential natural hazard events consequently has been increasing. The level of tourists' exposure to risks linked to natural hazards is characterized by the fact that they are mainly users of local infrastructure as, for instance, airports, roads, and sewage systems (Huan, Beaman, & Shelby, 2004). Tourists usually travel through unfamiliar environments facing several barriers such as a different language, different traffic rules, and little or no connection with the local communities (Jeuring & Becken, 2011; WTO, 1998). Due to the fact that tourists are mobile, the difficulty to reach them with relevant information (as well as warnings) tends to increase (Bird, Gisladdottir, & Dominey-Howes, 2010). In addition, their predisposition toward receiving information related to natural hazards is influenced by the will to receive only positive information linked to the holiday (Jeuring & Becken, 2011; WTO, 1998). According to Rittichainuwat (2013), most of the tourism suppliers do not want to remind tourists of previous disasters as they think it would frighten them. Risk communication may strongly influence tourists' risk perception and behavior during the process of reservation/fruition of the holiday. Cancellations (Wang, 2009) and last-minute bookings (Hystad and Keller, 2008) are typical in presence of risks linked to disasters. Tourists, in presence of too much perceived physical risk, tend to avoid traveling (Mair et al., 2016). Their behavior will depend on the degree of fear associated with the risk and the grade of familiarity with it (Slovic, 1999). Consequently, often, tourism suppliers fear that providing risk-related information to tourists would influence tourists' behavior and undermine their business (Becken & Hughey, 2013; Rittichainuwat, 2013; Bird, Gisladdottir, & Dominey-Howes, 2010).

The result is that tourists are often found to be inadequately informed about hazards and warning systems, and the risk those hazards pose (Johnston et al., 2007). Several studies have found that the tourism industry tends to be unprepared for disasters (Prideaux, Laws & Faulkner, 2003) taking an almost fatalistic or at best passive approach (Cioccio & Michael, 2007). These characteristics are common even taking in consideration different destinations, as for instance Indonesia (Prideaux, Laws &

Faulkner, 2003) or Australia (Cioccio & Michael, 2007). Risk communication plays a key role in disaster risk reduction. A successful risk communication strategy should be able to increase tourists' preparedness while maintaining a high appeal of the tourism destination.

Our study offers a focus on disaster preparedness for tourists in Japan. The aim of this paper is to present opportunities for future research able to facilitate a more effective risk communication between communicators and tourists regarding disaster preparedness information in Japan based on an analysis of the literature.

The rest of the paper is organized as follows. Section 2 presents the methodology used in the paper. Section 3 presents some disaster preparedness initiatives that been carried out targeting tourists in Japan in recent years, and Section 4 briefly discusses the risk communication literature. In Section 5 we present research gaps introducing four main research paths, and Section 6 concludes the paper highlighting opportunities for future research.

1. Methodology

We assessed the most relevant contributions (according to the authors' judgement) from the disaster tourism-oriented research community and the risk communication literature in order to clarify concepts linked to risk information seeking processes and to identify opportunities for further research that are able to contribute to facilitate a more effective dialogue between communicators and tourists in Japan. Our findings are based on the results of the articles included in the analysis. However, in order to assure the quality of the contents, papers published in peer-reviewed journals are included in the review. In addition, further interesting works, directly related to the subject and published in prestigious editorials have been considered in the analysis.

2. Disaster Preparedness for Tourists in Japan

In the above-mentioned "White Paper Disaster Management in Japan 2015", risk-communication to tourists is only briefly mentioned. However, several initiatives have been adopted within the country, including offline and online tourist-engagement initiatives. For instance, the Tokyo Metropolitan Government and Sumida Ward carried out an emergency drill in September 2016 at the Tokyo Skytree, a popular tourist destination. Loudspeakers and English-speaking translators were used to evacuate tourists from the tower. The PATA (Pacific Asia Travel Association) presented in 2015 a study focused on the strategies that have been adopted in Okinawa in order to increase the level of preparedness of the tourism industry (Takamatsu, 2015).

Information technology has been used in Japan in order to inform tourists about their risks and to suggest the correct behavior to be adopted in case of a natural hazard occurrence. For instance, travelers in Kansai Area may benefit from the "Osaka City free Wi-Fi" network. Once connected, the users are able to search and display an

English guide regarding safety information in case of an earthquake and/ or a tsunami. Other examples include the development of mobile Apps such as “Japan Shelter Guide” and “Safety tips.” Both apps provide disaster alerts and warnings, evacuation information, and other hazard information in several languages.

3. Risk Communication

The above-mentioned initiatives are praiseworthy. However, an essential component to implement disaster-related risk communication strategies is the ability to reach the desired audience to ensure that appropriate and effective steps are taken to reduce and mitigate the risk (Yamada et al., 2011). Risk communication needs to be accurately planned. Messages should be effective and able to facilitate the stakeholders’ engagement (Bier, 2001). Risk communication has basically five main targets: raising awareness; educating people; motivating people to act; reaching agreements; and obtaining people’s trust (Bier, 2001). Several approaches can be adopted in order to reach these goals. However, following recommended best practices in the field is not enough to ensure the success of a risk communication effort. Academia may play an important role to identify and more in-depth investigate those variables able to influence the success of tourist-oriented risk-communication strategies. Following this perspective, the selection of the correct message, language, timing, and media are fundamental (Wolshon et al., 2005). For instance, it has been suggested that further studies should investigate how separate messages and information from different sources are able to be read/deciphered and understood by tourists (Ritchie, 2008; Dash and Gladwin, 2007).

Several studies highlight the important role played by efficient warning systems and evacuation plans in the presence of different disasters triggered by natural hazard events, as well as those linked to hurricane/typhoon, flooding, earthquake, volcano, bushfire, and tsunami (Arce et al., 2017; Takabatake et al., 2017; Rittichainuwat, 2013; Murray-Tuite and Wolshon, 2012; Sharpley, 2005). The decision to adopt a specific behavior during an emergency is related to individual and psychological characteristics of the tourists (Riad et al., 1999) and to the level of credibility they have in the source of information (Spencer et al, 1992).

Many of the variables that influence success are not yet fully understood, and some are generally outside the control of the communicator (Lundgren & McMakin, 1998). In particular, variables such as fear, worry and empathy, result to be difficult to assess and, at the same time, tend to affect risk perceptions and influence tourists’ behavior (Mair et al., 2016). Tourists tend to be influenced by informational subjective norms, information sufficiency, protection efficacy, involvement (Jeuring & Becken, 2011). Mair et al. (2016) identified a gap in the tourism literature regarding the necessity to develop further research taking in consideration psychology, consumer behavior, and decision-making theories. This approach may surely support tourism managers risk-communication initiatives. Risk Information Seeking Processing (RISP) offers opportunities in that direction.

4. Gaps in the literature

Based on the literature review our results suggest that further studies should focus on four main research paths. These are:

a) Tourists' risk information seeking process

Even if tourism-oriented risk communication has been strongly investigated (Mair et al., 2014) most of the studies focused on information seeking process are focused on residents and the tourists' risk-information seeking processing result to be under-investigated (Cahyanto and Pennington-Gray, 2014). There is the necessity to focus on the analysis of appropriate communication strategies, including the selection of suitable messages and media, taking in consideration the characteristics of each category of stakeholders (Mair et al., 2014). According to several authors, the current research is not providing sufficient in-depth analyses. It seems necessary to go beyond simply descriptive case studies through providing a contribution to the currently limited development of theoretical and conceptual frameworks (Mair et al., 2014; Faulkner, 2001). In that sense, an application of the RISP model represents an interesting opportunity to investigate tourists' knowledge about the risk during their stay in Japan and their need/desire for accurate information. The Risk Information Seeking Processing (RISP) model, that is based on Heuristic-Systematic Model (HSM) (Chaiken, 1980) and the theory of planned behavior (TPB) (Ajzen, 1991) (Yang, Aloe, and Feeley, 2013), allows communicators to investigate the key elements that drive people to seek and process relevant risk information (Yang, Aloe, and Feeley, 2014; Griffin et al., 2002). Information seeking refers to the deliberate process of selecting (or avoiding) determinate information channels to be informed about a specific risk (Dunwoody and Griffin, 2015). Information processing can be divided into fast/automatic/heuristic cognitive-process and the purposive/effortful/analytic cognitive-process (Dunwoody and Griffin, 2015) as explained by the HSM (Chaiken, 1980) that distinguishes between heuristic and systematic processing. The heuristic process requires less effort than systematic process in judging message validity, as the latter requires a comprehension and evaluation of the message's contents as well as an assessment analysis of its validity in relation to its conclusion (Ryu and Kim, 2015). The RISP model analyzes the factors that influence the decision to alternatively follow one of the two processes (Eagly and Chaiken, 1993). Yang, Aloe, and Feeley's (2014) review identifies and describes the following variables: "information insufficiency"; "informational subjective norms"; "relevant channel beliefs"; "perceived information gathering capacity"; "perceived hazard characteristics". Further studies may evaluate these elements in order to verify the applicability of the model in the Japanese setting and put in evidence new (or missing) correlations between the variables.

b) Cross-cultural analysis

In Japan, a cross-cultural analysis seems to be particularly important due to the presence of two different main tourist flows. Tourist flows to Japan are mainly from Asian countries (72% of the travelers) such as China, and Western countries (14,7% of the travelers) such as the United States (US) (Andonian et al., 2016). The latter is estimated to grow during the Olympic Games. The necessity of diversification among tourists' nationalities and the revenue-opportunities guaranteed by Western tourists represent the real challenge for the Japanese government (Andonian et al., 2016). The Tokyo 2020 Olympic games represents the opportunity to pursue this target taking in consideration that during previous Olympic games, as for instance in Rio 2016 and London 2012, most of the tourists were coming from the US and the European Union (lead by Germany and France) (Marca.com, 2016; Visitbritain.com, 2012). The Tokyo Olympic Committee is aware that delivering a safe and secure Games will contribute to enhance Tokyo's and Japan's reputation for safety (TheGuardian.com, 2016) and the level of disaster-preparedness of the country will be surely influenced by the quality of risk-information provided to the tourists. Due to these reasons, further studies are needed to compare Asian and Western cross-cultural differences, with the final aim to improve Japanese natural-hazard risk-communication among these two fundamental and different categories of tourists.

c) The role of tourism suppliers within the risk-communication process

The WTO (1998) suggests that tour operators and tourism suppliers play a crucial role during the risk communication process (Ritchie, 2008). At the same time, hotels can also play a fundamental role as host of disaster preparedness communications through using common areas to increase the tourists' awareness to disaster (Nguyen, Imamura, and Iuchi, 2017; UNISDR et al., 2015). This actor-to-actor (suppliers-to-tourists) interaction is influenced by the disaster-related fears and this is a key-point to keep in mind as risk and uncertainty perception tend to influence consumers' behaviors (Aliperti et al., 2017). In this sense, a special focus should be dedicated to the typology of information to be communicated to the tourists and to the timing to be selected in order to deliver it.

d) Comparison of mental models of communicators and tourists

We found that there is a need for studies that compare the mental models of communicators and tourists. Mental models approach aims at identifying the risk-communication gaps and misperceptions taking in consideration experts' and general public's behaviors, beliefs, and knowledge (Sheppard, Janoske, and Liu, 2012). It consists on a two-way approach focused on "expert" and "lay" perspectives (Boase et al., 2017). Those "experts" are recognized to having a more in-depth understanding of the technical aspects of a risk, as well as the hazard development and the potential effects (Boase et al., 2017). The mental models approach aims at facilitating a dialogue between these two categories of stakeholders in order to allow the development a more appropriate risk-information based on effective final audience's knowledge and concerns (Boase et al., 2017). De facto, it is a comparison between two different mental models (expert vs. lay) (Boase et al., 2017) that consists of five main steps: (1)

Identify the mental model of the “experts” (interviews and analysis of the literature); (2) Identify the mental model of the “lay-stakeholders” in order to compare it with the experts’ mental model (interviews); (3) Develop a confirmatory questionnaire to be administered to a representative group (broader population) in order to estimate the prevalence of those beliefs emerging from the step 1 and step 2; (4) Draft risk communication able to fill knowledge gaps and correct inaccurate beliefs among final audience; (5) Evaluate the effectiveness of the proposed messages taking in consideration their effect on the final audience (Cousin and Siegrist, 2010). Further research should evaluate and compare tourists’ and suppliers’ perspectives regarding tourists’ information seeking process to identify communication gaps and misperceptions. In addition, focusing on the Japanese case, several further aspects may be analyzed following mental models approach, as for instance: a) the current existing tourism-oriented risk communication strategies; b) the actors in charge to inform tourists; c) the role played by tourism firms; d) their perspective regarding tourists risk information seeking processing; e) their perspective regarding the necessity to develop different risk communication strategies depending on the cultural characteristics of tourists; f) the best timing to inform tourists; h) the opportunities provided by IT. The comparison between experts and lays mental models will highlight the discrepancies and will facilitate the identification of more effective risk-communication strategies.

Conclusions

This paper sheds light on further research opportunities that may support the risk-communication strategies adopted in Japan. The country has been selected as setting of the study due to the above-described presence of natural hazards, especially tsunami, summed to the constantly growth of the tourism industry. The forthcoming Olympic Games which will be held in Tokyo in 2020 will increase the need for more aware and better prepared tourists.

The paper identifies research gaps in four main research topics including tourists’ risk information seeking process, cross cultural analysis, the role of tourism suppliers within the risk communication process, and comparison of mental models of communicators and tourists. Fig. 1 summarize the emerging findings. Future work could include a systematic and interdisciplinary literature review to further enrich the discussion with the final aim to identify a more comprehensive research agenda.

Figure 1: A tourist-oriented research agenda for disaster preparedness in Japan

Tourists' risk information seeking process ✓ Most of the studies focuses only on residents' risk information seeking process; ✓ Additional tourist-oriented studies are needed to evaluate the efficacy of communication strategies, messages, and media; ✓ Further research need to evaluate the RISP (Risk Information Seeking Processing) variables in the Japanese setting.	Cross-cultural analysis ✓ Cross-cultural studies are needed due to the presence of two different main tourists flow: Asian (China 72%) and Western (USA 14,7%); ✓ Cross-cultural studies may help to refine Japanese risk-communication and reputation for safety.
The role of tourism suppliers ✓ Previous studies suggest that tourism suppliers play a crucial role during the risk communication process; ✓ Further studies are needed to evaluate timing and typology of communication that should be delivered by tourism suppliers.	Mental models of communicators and tourists ✓ There is a need for studies that compare mental models of communicators and tourists; ✓ Mental models approach may be used to compare different stakeholders' perception regarding tourists' information seeking process; ✓ Mental model approach may be used to identify structure and involved actors of the Japanese risk information tourism-framework.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.

Aliperti, G., Cruz A.M., Rizzi, F., Frey M. (2017). Risk and Uncertainty: A Side-Effect of a Natech Event on Residents in Japan, *Kyoto University DPRI Annuals*, No 60 B 2017, pp. 335-342.

Andonian, A., Kuwabara, T., Yamakawa, N., & Ishida, R. (2016). The future of Japan's tourism: path for sustainable growth towards 2020. *McKinsey Japan and Travel, Transport and Logistics Practice*, October, available at: www.mckinsey.com/global-locations/asia/japan/en (accessed May 8, 2017).

Arce, R. S. C., Onuki, M., Esteban, M., & Shibayama, T. (2017). Risk awareness and intended tsunami evacuation behaviour of international tourists in Kamakura City, Japan. *International Journal of Disaster Risk Reduction*, 23, 178-192.

Becken, S. and Hughey, K.F. (2013). Linking tourism into emergency management structures to enhance disaster risk reduction. *Tourism Management*, 36, pp.77-85.

Boase, N., White, M., Gaze, W., & Redshaw, C. (2017). Evaluating the mental models approach to developing a risk communication: a scoping review of the evidence. *Risk analysis*, 37(11), 2132-2149.

Bier, V.M. (2001). On the state of the art: risk communication to the public. *Reliability engineering & system safety*, 71(2), pp.139-150.

Bird, D., Gisladdottir, G., & Dominey-Howes, D. (2010). Volcanic risk and tourism in southern Iceland: implications for hazard, risk and emergency response education and training. *Journal of Volcanology and Geothermal Research*, 189, 33e48.

Cahyanto, I., & Pennington-Gray, L. (2015). Communicating hurricane evacuation to tourists: Gender, past experience with hurricanes, and place of residence. *Journal of Travel Research*, 54(3), 329-343.

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of personality and social psychology*, 39(5), 752.

Cioccio, L., & Michael, E. J. (2007). Hazard or disaster: tourism management for the inevitable in Northeast Victoria. *Tourism Management*, 28, 1e11.

Dunwoody, S., Griffin, R. J. (2015). Risk information seeking and processing model. In Cho, H., Reimer, T., McComas, K. A. (Eds.), *The SAGE handbook of risk communication*, Thousand Oaks, CA: SAGE, 102-116.

Dash, N., & H. Gladwin. (2007). Evacuation Decision Making and Behavioral Responses: Individual and Household. *Natural Hazards Review*, 8 (3), 69-77.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Belmont, CA: Wadsworth.

Faulkner, B. (2001). Towards a framework for tourism disaster management. *Tourism management*, 22(2), 135-147.

Griffin, R. J., Neuwirth, K., Giese, J., & Dunwoody, S. (2002). Linking the heuristic-systematic model and depth of processing. *Communication Research*, 29, 705–732.

Huan, T., Beaman, J., & Shelby, L. (2004). No-escape natural disaster. Mitigating impacts on tourism. *Annals of Tourism Research*, 31(2), 255e273.

Hystad, P. W., & Keller, P. C. (2008). Towards a destination tourism disaster management framework: Long-term lessons from a forest fire disaster. *Tourism management*, 29(1), 151-162.

Japan National Tourism Organization – JNTO (2017). Statistical information. Foreign visitors & Japanese Departures. <https://www.jnto.go.jp/eng/ttp/sta/>

Jeuring, J., & Becken, S. (2011). Who is protecting tourists in New Zealand from severe weather hazards? An exploration of the role of locus of responsibility in protective behaviour decisions. In *Advancing the social science of tourism*. United Kingdom: University of Surrey, 28th Junee1st July 2011.

Johnston, D., Becker, J., Gregg, C., Houghton, B., Paton, D., Leonard, B., et al. (2007). Developing warning and disaster response capacity in the tourism sector in coastal Washington, USA. *Disaster Prevention and Management*, 16, 210e216.

Lundgren, R. E., & McMakin, A. H. (1998). Stakeholder Participation. Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risks, Fourth Edition, 229-252.

Mair, J., Ritchie, B.W. and Walters, G. (2016). Towards a research agenda for post-disaster and post-crisis recovery strategies for tourist destinations: a narrative review. *Current Issues in Tourism*, 19(1), pp.1-26.

Marca (2016), Rio de Janeiro welcomed 1.17 million tourists in two weeks, accessible at <http://www.marca.com/en/olympic-games/2016/08/24/57bda7a0468aeb3e158b4596.html>

Minister of State for Disaster Management - Cabinet Office, 2015. Disaster Management in Japan White Paper (2015).

http://www.bousai.go.jp/kaigirep/hakusho/pdf/WPDM2015_Summary.pdf

Murray-Tuite, P., & Wolshon, B. (2013). Evacuation transportation modeling: An overview of research, development, and practice. *Transportation Research Part C: Emerging Technologies*, 27, 25-45.

Nakamura, H., Umeki, H. and Kato, T. (2016). Importance of communication and knowledge of disasters in community-based disaster-prevention meetings. *Safety Science*.

Nguyen, D. N., Imamura, F., & Iuchi, K. (2017). Public-private collaboration for disaster risk management: A case study of hotels in Matsushima, Japan. *Tourism Management*, 61, 129-140.

Prideaux, B., Laws, E., & Faulkner, B. (2003). Events in Indonesia: exploring the limits to formal tourism trends forecasting methods in complex crisis situations. *Tourism Management*, 24, 475e487.

Riad, J. K., Norris, F. H., & Ruback, R. B. (1999). Predicting evacuation in two major disasters: Risk perception, social influence, and access to resources. *Journal of Applied Social Psychology*, 29(5), 918-934.

Ritchie, B. (2008). Tourism disaster planning and management: From response and recovery to reduction and readiness. *Current Issues in Tourism*, 11(4), 315-348.

Rittichainuwat, B.N. (2013). Tourists' and tourism suppliers' perceptions toward crisis management on tsunami. *Tourism Management*, 34, pp.112-121.

Ryu, Y., & Kim, S. (2015). Testing the heuristic/systematic information-processing model (HSM) on the perception of risk after the Fukushima nuclear accidents. *Journal of Risk Research*, 18(7), 840-859.

Sharpley, R. (2005). The tsunami and tourism: A comment. *Current issues in Tourism*, 8(4), 344-349.

Sheppard, B., Janoske, M., & Liu, B. (2012). Understanding Risk Communication Best Practices: A Guide for Emergency Managers and Communicator. Human Factors/Behavioral Sciences Division, Science and Technology Directorate, US Department of Homeland Security. College Park, MD: START.

Slovic, P. (1999). Trust, emotion, sex, politics, and science: Surveying the risk-assessment battlefield. *Risk analysis*, 19(4), pp.689-701.

Spencer, J. W., R. Seydliz, S. Laska, and E. Triche. (1992). The Difference Influences of Newspaper and Television News Reports of a Natural Hazard on Response Behavior. *Communication Research*, 19, 299-325.

Takabatake, T., Shibayama, T., Esteban, M., Ishii, H., & Hamano, G. (2017). Simulated tsunami evacuation behavior of local residents and visitors in Kamakura, Japan. *International Journal of Disaster Risk Reduction*, 23, 1-14.

Takamatsu, M. (2014). The Okinawa Tourism Crisis Management Initiatives. *International Journal of Event Management Research*, 8(1), pp.19-34.

The Guardian (2016). Olympic task: Tokyo is already in crisis management mode for 2020 Games, accessible at: <https://www.theguardian.com/public-leaders-network/2016/sep/01/tokyo-2020-olympic-games-crisis-management-earthquakes>

UNISDR, PATA, & GIDRM. (2015). Developing strategies to strengthen the resilience of hotels to disasters: A scoping study to guide the development of the Hotel Resilient Initiative: The United Nations Office for Disaster Risk Reduction.

Visitbritain (2013). Foresight Issue March 2013, accessible at https://www.visitbritain.org/sites/default/files/vb-corporate/Documents-Library/documents/Foresight_113.pdf

Yamada, F., Kakimoto, R., Yamamoto, M., Fujimi, T., and Tanaka, N. (2011). Implementation of community flood risk communication in Kumamoto, Japan, J. Adv. *Transportation*, 45, 117–128.

Yang, Z. J., Aloe, A. M., & Feeley, T. H. (2014). Risk information seeking and processing model: A meta-analysis. *Journal of Communication*, 64(1), 20-41.

Wang, Y. S. (2009). The impact of crisis events and macroeconomic activity on Taiwan's international inbound tourism demand. *Tourism Management*, 30(1), 75-82.

Wolshon, B., E. Urbina, C. Wilmot, and M. Levitan. (2005). Review of Policies and Practices for Hurricane Evacuation. *Natural Hazards Review*, 6 (3), 129-42.

World Tourism Organization (WTO), 1998. *Handbook on Natural Disaster Reduction in Tourist Areas*. Madrid: World Tourism Organization

Acknowledgements

This article was supported by the Japan Society for the Promotion of Science with a Postdoctoral Fellowship (short term) in 2018.