

Oral

Improvised Flotation "Uitemate" as a Last Resort: Lessons Learned from Elderly Survivors and Victims of the 2018 Japanese Flood Disaster

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Genro Ochi MD, PhD



Presenter Profile

Genro Ochi

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One of his key areas of interest is nuclear disaster preparedness, particularly shelter-in-place and evacuation strategies for medical institutions located near nuclear power plants. In this field, he has been conducting research and surveys as a Visiting Professor at the Department of Radiation Disaster Medicine, Research Institute for Radiation Biology and Medicine, Hiroshima University. Additionally, he serves on the Advisory Board of the Society of Water Rescue and Survival Research, an organization established in 2011, through which he continues to engage in research and public education to prevent water-related accidents. A summary of his activities is available in Japanese at the following website.

<https://plaza.umin.ac.jp/~GHDNet/sennyu/home.html>

Takahiko Kimura PhD



Takahiko Kimura

Professor of Emergency and Rescue Sciences, Meiji University of Integrative Medicine

Director, Institute for Disaster Prevention Research

President, Society of Water Rescue and Survival Research

Doctor of Engineering

Water-related disasters claim many lives around the world. Due to the impacts of climate change, the number of heavy rainfall disasters has been increasing in Japan in recent years, leading to cases of houses being flooded and people drowning. To protect lives from water-related accidents, he has researched techniques that enable individuals to

Drowning at Home During the 2018 West Japan Heavy Rain Disaster and the Use of Survival Floating, “Uitemate”

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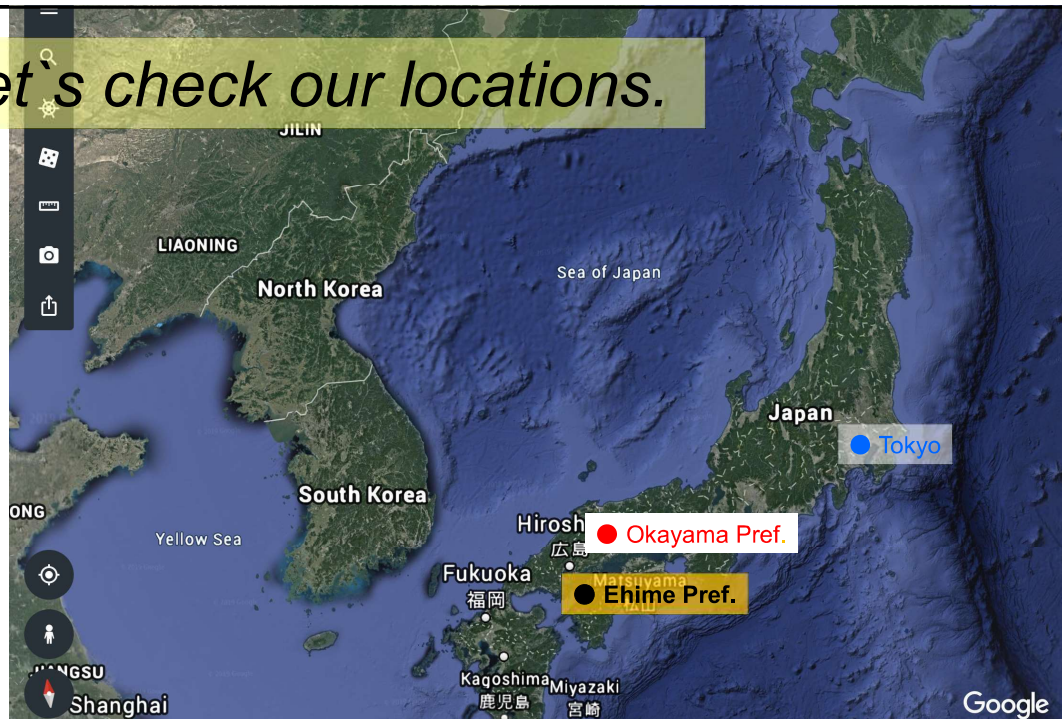


■ Background

There were many elderly fatalities of the heavy rain disaster that struck western Japan in July 2018, and it is noteworthy that there was a pattern of victims “**drowning and near-drowning at home.**” In this report, the characteristics of the victims of these incidents were analyzed according to the TV and newspaper reports to minimize future victims.



Let's check our locations.





■ Method

The cases of drowning at home and those who narrowly escaped were analyzed according to the media reports in Ehime and Okayama prefectures in July 2018 to see if there were any possible ways to avoid becoming victims.

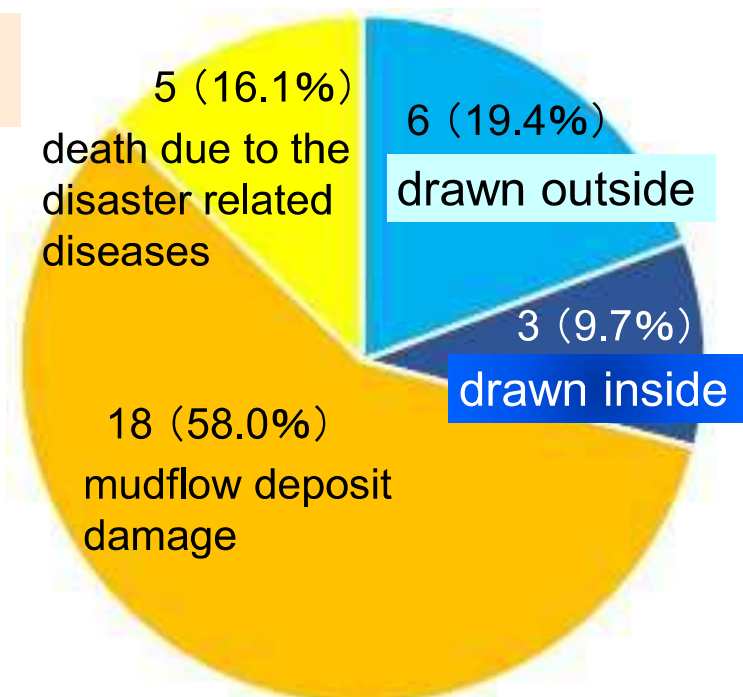


■ Result 1. Victims in Ehime Prefecture

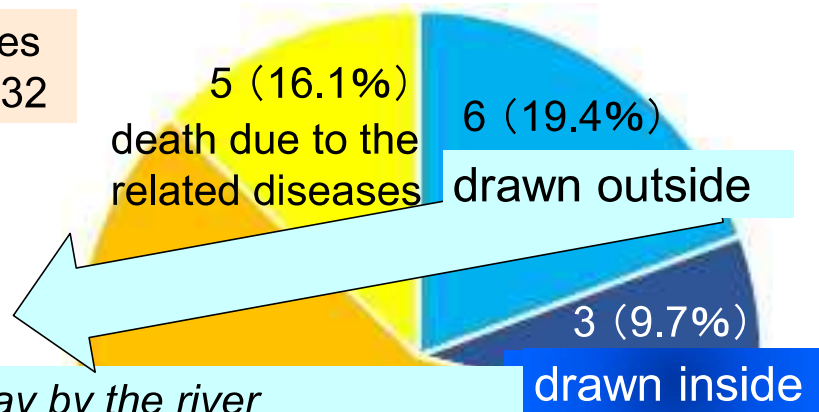
There were 9 drowning victims among the total fatalities of 32 (29.1%), and 3 of which drowned at home (9.7% of the entire number). All 3 were 70 years of age or older and found dead on the ground floor.



The total fatalities in Ehime were 32

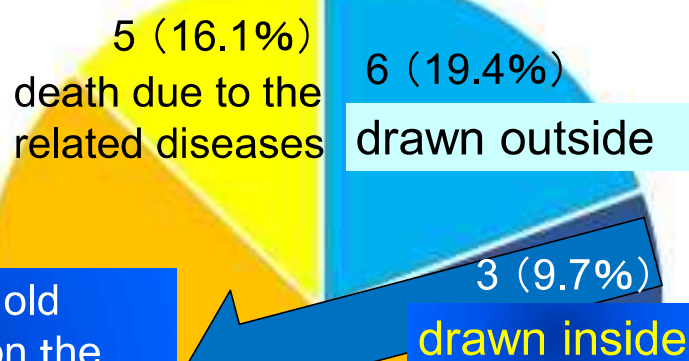


The total fatalities
in Ehime were 32



- 66ys - swept away by the river
- 76ys - fell into the river
- 90ys - fell into a waterway and was swept out to sea
- 47ys - the entire car fell into a waterway
- 59ys - found inside a car in a field after the water receded
- 74ys - found inside a car on the road after the water receded

The total fatalities
in Ehime were 32



In Ozu-City, 77 ys. old husband was dead on the ground floor while his wife survived on the second floor.

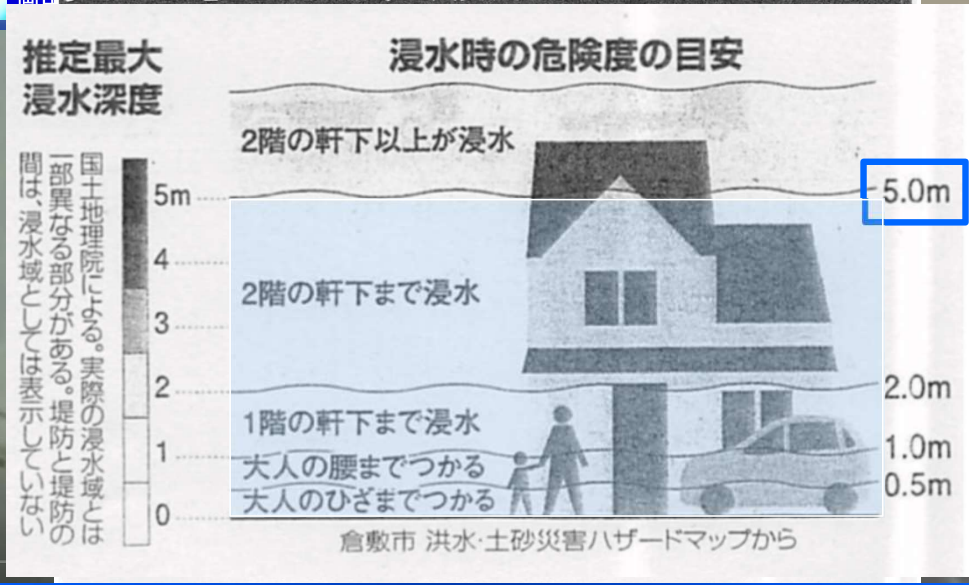
In Seijo City, 74 ys. old wife and 82 ys. old husband drowned on the ground floor.

■ Result 2. Victims in Mabicho / Okayama Prefecture

All 51 fatalities were drowning victims, and 84.3% of which, 43 people, drowned at home.

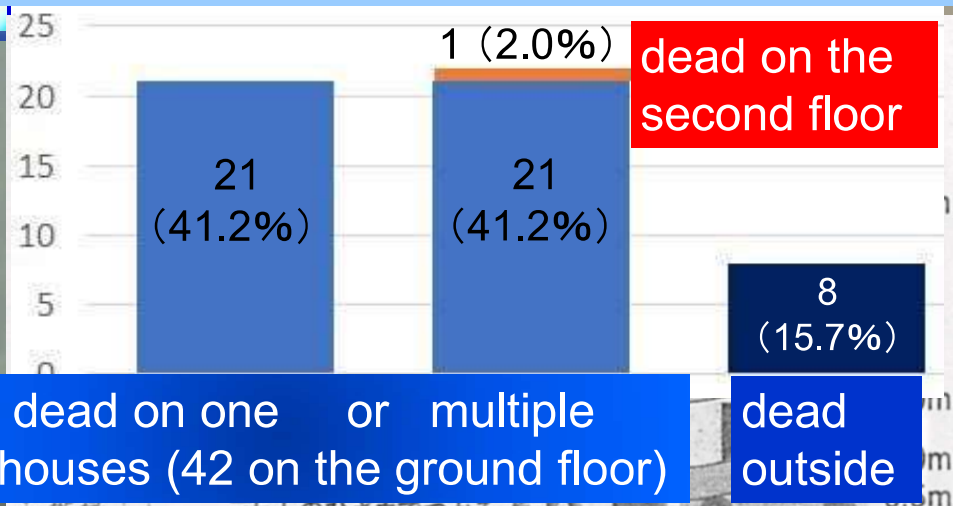


7 西中 力けて」 3000人救助してもなお



Inundation height exceeded 5.0 meter (5.8 meter max.)

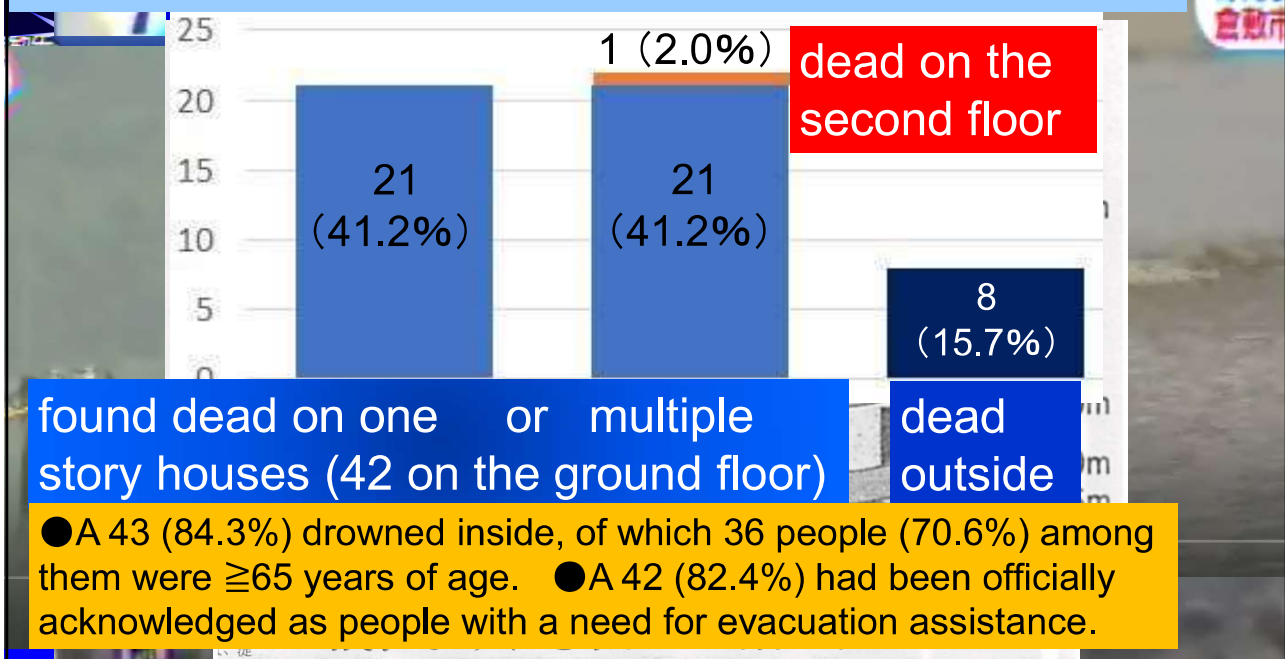
Locations where 51 victims were found in Mabi-Cho



(Asahi Shimbun Osaka Headquarters, August 5, 2018)

犠牲51人 8割が1階で見つかる

Locations where 51 victims were found in Mabi-Cho



A case of a victim

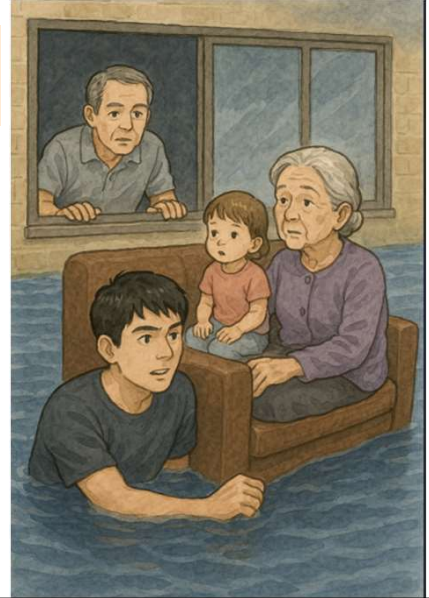
As floodwaters rose indoors, an elderly husband managed to climb the stairs to the second floor by himself. From upstairs, he shouted to his wife on the first floor, "Hurry! Get upstairs!" However, the wife was overtaken by the water. The husband looked down at her from the second floor, filled with sorrow.



Cases of Survivors

"A quick-wit, sofa floating tube" in the Ehime Shimbun on-line news.

A high school student and his father pushed a two-seater sofa outside through a window and used it as a floating device to swim with to the neighboring house. They swam about 40 meter, taking 1 year old girl and her great grandmother to their house.



Another cases of survivors

On a "floating bed", a wife and a husband spent a night floating at the room in Mabicho.

There was a case of an elderly couple who were able to spend the night on their bed that had floated up to the lights of the ceiling.



DISCUSSION



Skills to float

Key concept of the Society of Water Rescue and Survival Research



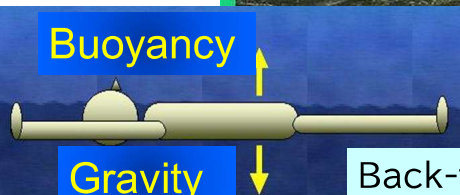
We are offering rescue training courses in a room that simulates flooding, where we encourage elderly and physically disabled people to float on the water, secure their breathing, and ultimately survive until the water recedes.

Clothes, shoes and floating devices help floating to survive

Sealed backpack can be a floating device



Photo provided by the Society of Water Rescue and Survival



Back-floating technique

Samples of floating devices



School backpacks with winter gear in a plastic bag



Kerosene container with a handle



Back-floating technique using PET bottles

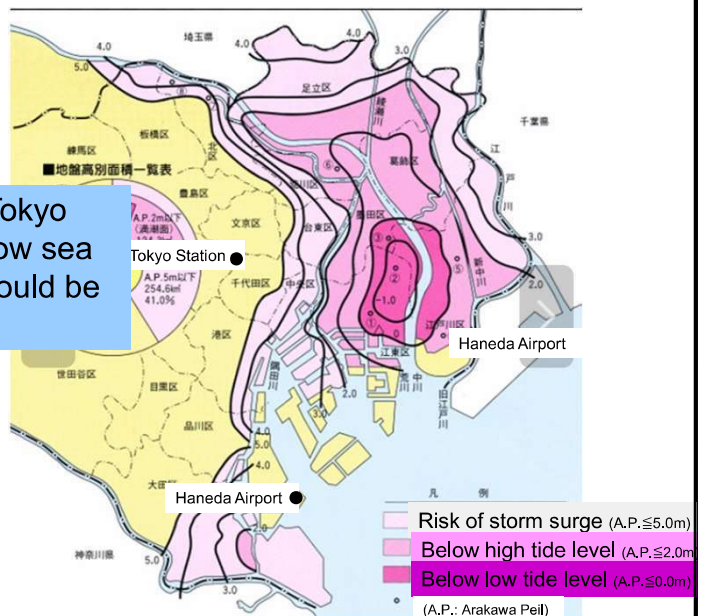
Photo provided by NHK TV program, "Today's Health".



Life jackets (hopefully as gifts for elderly residents)

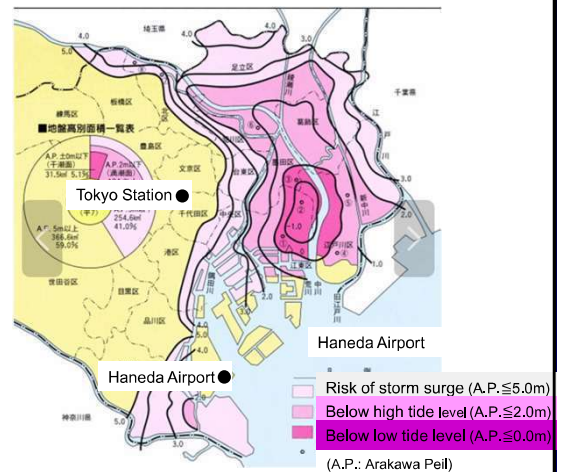
Discussion and conclusion

It should be noted that large areas of Tokyo and other major cities in Japan lie below sea level, and that several million people could be affected by flooding or earthquakes.



■ Discussion and conclusion

It should be noted that large areas of Tokyo and other major cities in Japan lie below sea level, and that several million people could be affected by flooding or earthquakes.



We should be ready to stay afloat during home floods using life jackets or alternative floating devices.

Improvised Flotation as a Last Resort: Lessons Learned from Elderly Survivors and Victims of the 2018 Japanese Flood Disaster (Abstract)

Background: The 2018 Western Japan floods resulted in numerous fatalities among elderly residents, with many cases of "drowning at home" reported. This study analyzes victim characteristics to explore mitigation strategies for a society experiencing increasing climate-related disasters.

Methods: We collected cases of home drowning fatalities during the floods in Ehime and Okayama Prefectures through media reports (newspapers and television) and analyzed survival patterns.

Results: In Ehime Prefecture, 9 (29.1%) of 32 victims drowned, with 3 (9.7%) drowning at home. All three were over 70 and found on the first floor. In Okayama's Mabi town, 43 (84.3%) of 51 drowning victims died at home, with 36 (70.6%) being elderly (65+). Among the 43 victims, 42 died on the first floor, one on the second floor. Both prefectures reported cases where surviving elderly residents reached the second floor but failed to convince their spouses to follow, resulting in spouse fatalities. In one case, an elderly couple survived by floating on their bed, which rose with the water level near the ceiling. In Ehime, a family successfully rescued a one-year-old girl and her great-grandmother using a two-seater sofa as flotation.

Discussion and Conclusion: Swimming while clothed is challenging, particularly for elderly individuals with reduced physical strength. Given that most elderly victims drowned on the first floor, survival probability could increase through flotation strategies. When external evacuation risks are high during indoor flooding, improvised flotation devices (life jackets, coolers, sealed backpacks with clothing) may contribute to survival. This survival technique, internationally known as "Uitemate" (Float and Wait), effectively prevents drowning in various flood disasters and represents a household-level disaster risk reduction strategy.

Oral Presentation Guidelines

**Eight-minute presentation time, plus two minutes for Q&A.
Your file should be formatted in Widescreen (16:9).**

- Select the key points only for each PowerPoint slide. Keep the information on each slide to a minimum.
- Minimize the use of animation. Although animation can enliven a presentation, it may also be distracting. If you plan to animate components in your presentation (slide titles, graphic elements, bulleted text), try to be as consistent as possible.
- Please ensure any video used is embedded within your PowerPoint file, and you do not have to open a separate file to run it. You should not stream video clips for presentations from YouTube or similar sources.

Virtual Questions and Answers for the World Association for Disaster and Emergency Medicine (WADEM)

■ **Question 1:** In large-scale and violent floods that can wash away entire houses, isn't a strategy like "Float and Wait" for indoor flooding ineffective?

Answer: Yes, I agree with you. However, even if one is thrown into a fast and deep current, the ability to float and maintain breathing should still be considered the most fundamental condition for survival.

■ **Question 2:** If there are any cases where people endangered by floods or tsunamis survived using the "Float and Wait" technique, could you share them?

Answer: Yes. During the 2011 Great East Japan Earthquake, a tsunami more than several meters high inundated the gymnasium of an elementary school where many students and residents had taken shelter. At this school, our instructors had been holding annual clothed swimming classes for seven years prior to the disaster. The children used the back-floating technique they had learned, enduring the situation calmly for several hours until the tsunami receded.

■**Question 3:** What kind of organization is the Society of Water Rescue and Survival Research?

Answer: The Society of Water Rescue and Survival Research is a general incorporated association established in 2011. Its purpose is to promote research related to water rescue particularly focusing on clothed swimming and surrounding fields, and to disseminate the findings as academic knowledge, thereby contributing to the development of a society that coexists with water.

The society's office is located at the laboratory of Professor Hidetoshi Saito in the Department of Materials Science and Bioengineering at the Nagaoka University of Technology, Nagaoka City, Niigata Prefecture, Japan. Our activities span across Japan and abroad. For more details, please visit following website (in Japanese).

<https://uitemate.jp/>

■Information about the presenter, Summary and Slides are available.

<https://virtual.oxfordabstracts.com/event/73375/submission/120>