

Visual Communication of Tsunami Warnings/advisories in Japan

Yuji NISHIMAE
Chair of TOWS-WG TTTWO
Japan Meteorological Agency (JMA)

Background and Issues

>it is necessary to quickly and surely inform people on beaches, including bathers and people engaged in marine sports and sea fishing, that tsunami warning has been issued because the coast is the first place where a tsunami will strike.

>In the 2011 Great East Japan Earthquake, the death rate of people with hearing difficulties was twice that of people without hearing difficulties in Iwate, Miyagi, and Fukushima prefectures.

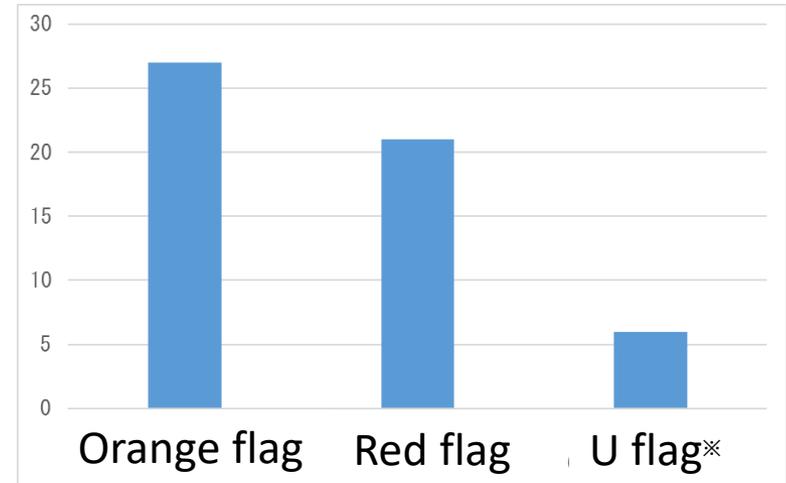
Background and Issues

>JMA conducted questionnaire surveys of local governments in 2012 and 2018.

>>Visual communication methods were less common than audio communication methods.

>>There were some progressive municipalities that use flags to call for evacuation from tsunami (see figure on the right), but there had been no uniformity across the country.

>The regulations that stipulate visual and auditory means of communication of tsunami warnings, did not stipulate the method of visual communication.



Number of municipalities communicating tsunami warnings/advisories by flag (as of September 2018, including planned)

※U flag: red and white lattice pattern flag, one of the international signal flags

Study group of experts

>JMA held a "Study Group on Visual Communication of Tsunami Warnings/Advisory." to examine the desirable "visual communication of tsunami warnings/Advisory" from October 2019 to February 2020, giving first consideration to the people with hearing difficulties who receive tsunami warnings at beaches and other locations.



The 1st Session: October 29, 2019

The 2nd Session: December 25, 2019

The 3rd Session: February 13, 2020

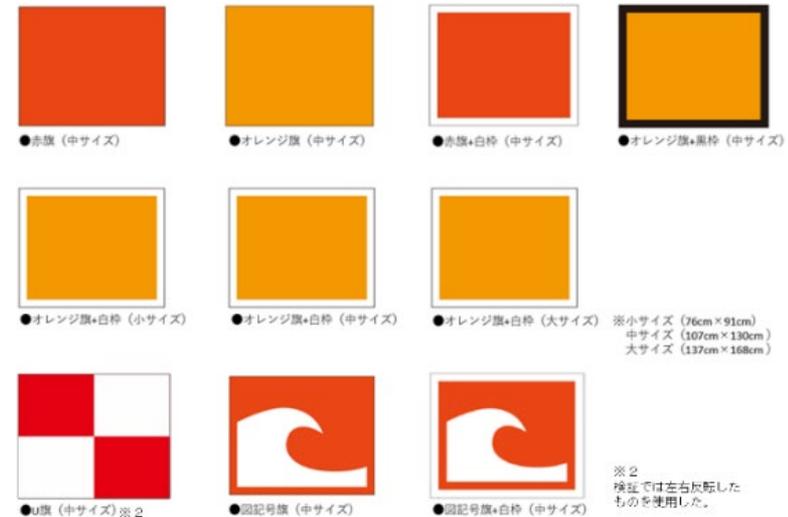
Publication of Report): February 21, 2020

Policy of investigation in the Study group

>The study group discussed the use of "flags" to communicate tsunami warnings/advisories in consideration of existing efforts.

>In this study, the effectiveness of the use of flags was verified at Sea Park in Yokohama City in cooperation with Tsukuba University of Technology, the Japan Lifesaving Association, and the All Japan Federation of the Deaf.

>The flags used for verification were the red flag, the orange flag, and a red and white lattice pattern flag (the "U flag" of the International Signal Flag), etc., as shown in the figure on the right.



Verification

>The verification was conducted with the cooperation of persons with hearing difficulties aboard a rescue boat to investigate the difference in visibility of various flags flown by lifesavers on the beach from 100m, 150m, and 200m from the beach.



(left) participants on the rescue boat, (middle) (right) lifesavers flowing flags on the beach

The results showed, among other things, that red and U flags are more visible from a distance than orange flags.

Questionnaire survey

>Furthermore, using photographs taken during this verification, Prof. Seiya Inoue of Tsukuba University of Technology, a member of the study group, conducted a questionnaire survey of 70 people with hearing difficulties and 6 people with color discrimination difficulties regarding flag visibility

As a result, it was confirmed that, similar to the verification on the beach, the visibility of the red and U flags was higher than that of the orange flag, and furthermore, the U flag was more visible even to those who have difficulty seeing red.

7. 下の写真にある赤と白の旗はU旗とよばれます。海水浴中に浜でU旗が掲げられた場合の見え方や、伝わるイメージについて、あなたの考えをお答え下さい。



U旗

※横ではU旗そのものではなく、上図のとおり左右反転したものを示した。

(1) 浜でU旗が掲げられた場合の見えやすさについて、あなたの考えに合う番号を○で囲んで下さい。
①とても見えやすい ②どちらかといえば見えやすい ③どちらかといえば見えにくい ④とても見えにくい

(2) 浜でU旗が掲げられた場合に、「何か間違ではない、聞いて聞かなくては」という意味やイメージは伝わりますか? あなたの考えに合う番号を○で囲んで下さい。
①とても伝わりやすい ②どちらかといえば伝わりやすい ③どちらかといえば伝わりにくい ④とても伝わりにくい

(3) U旗の見えやすさやイメージの伝わりやすさについて、(1)②③より回答した理由をお書き下さい。

(4) 海水浴場における津波警報等の伝達にU旗を使用することについて、何かご意見があればお書き下さい。

questionnaire form

Proposal from the study group

○The study group proposed the following flags that should be used to communicate tsunami warnings in the report

- The colors should be a red and white lattice pattern like the U flag.
- The shape should be a rectangle.
- The size should be at least 100 cm on the short side.
- The same flag should be used for all tsunami warnings, tsunami advisories, and major tsunami warnings, and should not be used to announce the cancellation of warnings.



Tsunami flag

- >In response to the report, JMA made amendments to the regulation, which went into effect on June 24, 2020.
- >JMA is working to promote tsunami flag to coastal municipalities throughout Japan.

Tsunami Warnings

How to know Tsunami Warnings

Tsunami Warnings* can come from TV, radio, mobile phone and tsunami flag.
If you see **tsunami flag** in coastal regions, evacuate immediately to a safer place.

*Tsunami Warnings means Major Tsunami Warning, Tsunami Warning and Tsunami Advisory.

Radio: A woman is shown listening to a radio broadcast with the word "Tsunami!" and a red lightning bolt icon.

TV: A woman is shown watching a TV news broadcast with the text "Evacuate immediately!" and a red lightning bolt icon.

Siren: A man is shown ringing a bell, with a red lightning bolt icon and the text "Warning bell".

Mobile phone: A man is shown holding a smartphone displaying a tsunami warning icon.

Tsunami flag: A red and white checkered flag is shown on a pole. Text below it says "This informs Tsunami Warnings on the beach."

Design of tsunami flag

Tsunami flags feature a red and white checkered pattern. The flags have a design similar to that of the U-flag used internationally as a marine warning.

■ Tsunami flag may be also displayed on building.

津波フラッグは避難の合図

海から離れて 高いところへ!

いつ使われる? 津波警報などの発表時
※大津波警報・津波警報・津波注意報

どこで使われる? 海水浴場など
波音や風で音が聞き取りづらいため、旗で視覚的に伝達

見かけたら? 高いところへ上げて!
すぐに海から離れ、高台や津波避難タワーなどへ避難を

監修: 気象庁 制作: Yahoo!ニュース

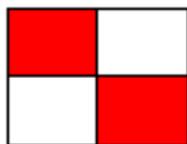
This picture is produced by Yahoo News under the supervision of JMA

>U Flag is an international signal flag that means "Danger in the path of your ship"

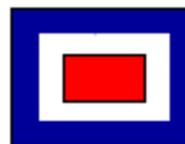
>U Flag is often used overseas as a flag for emergency evacuation from the sea. However, the U Flag can have a different meaning when combined with other international signal flags.

ご安航を祈る。

I wish you a pleasant voyage.



U



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