

# Sharing of Local Disaster Experiences: Publication of a Digital Archive Map Showing Disaster Monuments

Hinako Suzuki, Wataru Tanikawa, Shoichiro Uchiyama, Goichiro Uramoto



Digital Archive Map Showing Disaster Monuments

## What are disaster monuments?

- ◇ They are monuments with information about natural disasters carved on their surface.
  - They have various names: stone monuments, disaster monuments, traditional natural disaster monuments, tsunami monuments, etc.
  - They are made of a variety of materials, such as stone and wood.
- ◇ Contents: Disaster monuments usually include one or more of the following items of information.
  - (1) Past disaster experiences and the extent of the damage to the region
  - (2) Commemoration of victims
  - (3) Lessons from the past and warnings of future disasters
- ◇ Installation situation: usually outdoors
  - Monuments can tell us how far inland a tsunami or a flood penetrated, or report that their own location was flooded.
- ◇ Problems: Stone monuments may be lost, and their significance is not always understood.
  - Carved letters are often weathered, and cursive script can be difficult to read.
  - Stone monuments may be moved or lost due to natural disasters or road construction.

A digital archive of tsunami monuments introduced by realistic 3D models.

(Tanikawa, et al. 2016)

## the Digital Archive Site of Earthquake Tsunami Monuments

<http://www.jamstec.go.jp/res/ress/tanikawa/index.html>

- Publication of 3D software models
- Browsing of letters carved on the stone monuments and the information they convey



Earthquake monument of Kishimoto Asuka shrine (Kochi pref.)



Hagitani Amida Buddha Stone (Kochi pref.)

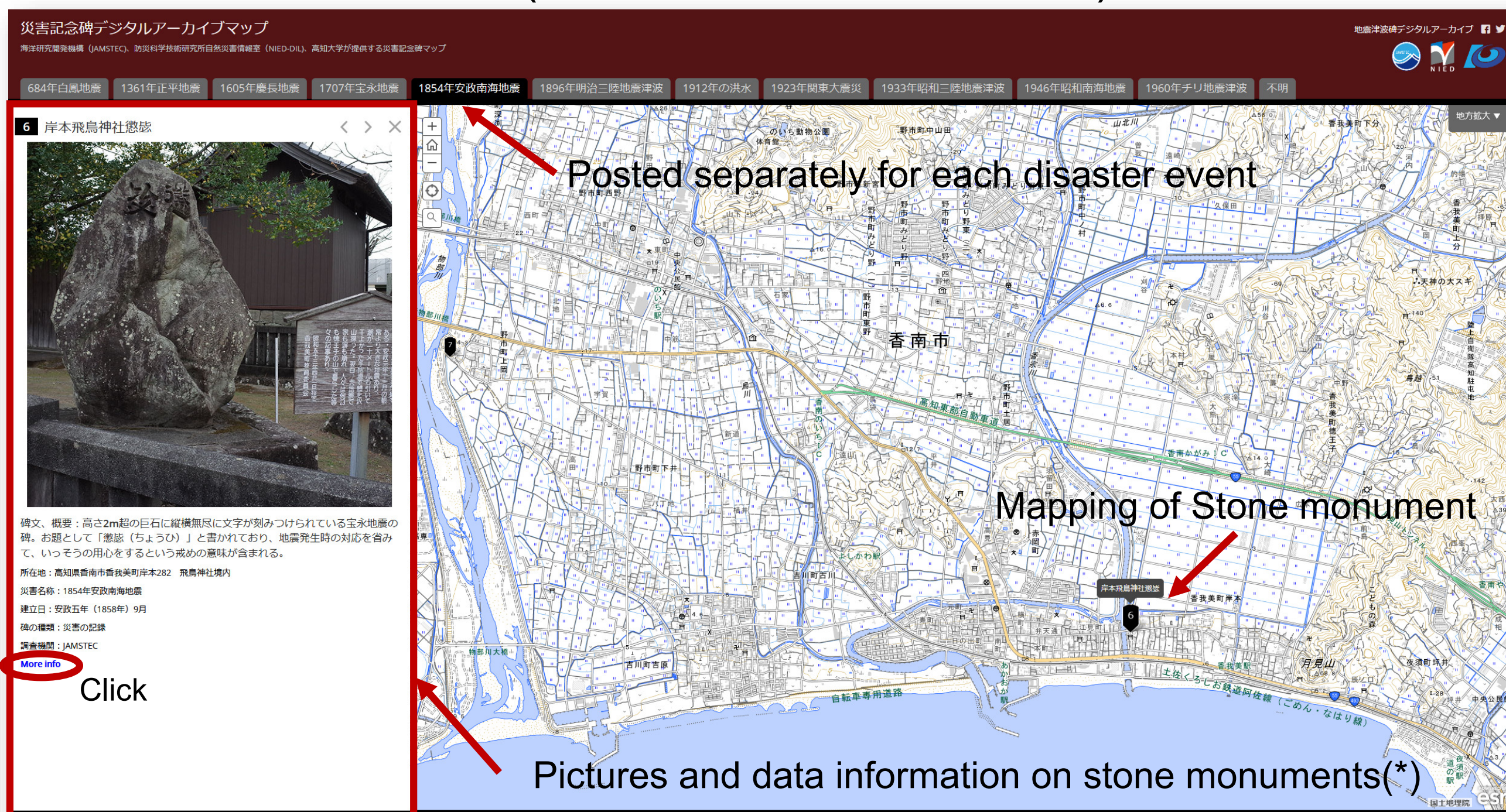
## Digital Archive Map of Disaster Monuments

[https://dil-db.bosai.go.jp/saigai\\_sekihi/](https://dil-db.bosai.go.jp/saigai_sekihi/) (Japanese only)

- Publishing information on stone monuments, etc., on the Web map.
- Sharing information on stone monuments (their content and location) on the Web.

Sharing the information on stone monuments on the Web map

Linking to Web pages describing the stone monument in 3D



The screen layout of the digital archive map of disaster monuments

### \*Pictures and data information on stone monuments

- Stone monument information
- Epigraph or its summary
- The disaster it records
- Construction date
- The type of monument
- Investigation agency

### Stone monuments classified by prefecture published on the map

(as of November 2019).

Disaster	Stone Monuments	Iwate pref.	Miyagi pref.	Tokushima pref.	Kochi pref.
684 Hakuho earthquake (M8.4)	1				1
1361 Shohei earthquake (M8.5)	2			1	
1605 Keicho earthquake (M7.9)	2			2	
1707 Houei earthquake (M8.6)	14			3	11
1854 Ansei Nankai earthquake (M8.4)	42			18	21
1896 Meiji Sanriku earthquake (M8.2)	9	9			
1912 flood	1			1	
1920 flood	6				6
1923 Greate Kanto earthquake (M7.9)	1				1
1933 Showa Sanriku earthquake (M8.1)	9	7	2		
1946 Showa Nankai earthquake (M8.0)	27			8	14
1960 Great Chilean Earthquake (Valdivia Earthquake) (Mw9.5)	2	1			1
2001 heavy rain disaster on west-southern area of Kochi prefecture	4				4
Other	6	6			

### [Web-GIS specifications]

- ◇ Data used
  - The digital archive of earthquake tsunami monuments
  - The monument to the Sanriku Coast Tsunami, the investigational data
- ◇ The engine used
  - System: ArcGIS ONLINE Story Map Shortlist
  - Background map: GSI Maps

### [Future developments]

- Superimposition on past flood records or flood prediction maps, browsing
- Cooperation with other organizations

[reference] Tanikawa, et al. (2016) 3D modelling for digital archive of monuments that records historical Nankai earthquakes at Kochi Prefecture, JpGU G02-P01.