# **The History of Natural Disasters**

## Past Disasters

Fukuroi City has experienced the following disasters according to the Disaster Prevention History of Fukuroi City.

Vear	Typhoon ( $\bigcirc$ ) Elood ( $\bigcirc$ ) Wind Damage ( $\blacksquare$ )	Farthquake (+) damage
1/08	Typhoon ( $\bigcirc$ ), Thord ( $\bigcirc$ ), while Damage ( $\blacksquare$ )	★Meio Earthquake (cracks 5m tsupami)
1400		★ Keicho Earthquake
1680	⊖Storm surge_flood (Inochivama) (100 ~ 300 deaths)	
1707		★Hoei Farthquake (35 deaths, 3m tsunami)
1854		★Ansei Tokai Earthquake (200 deaths)
1002	Tornado(5 deaths, 10 homes completely destroyed)	
1902	$\bigcirc$ Strong winds and flood (typhoon) (21 deaths)	
1926	OTyphoon (5 deaths)	
1020		★Tonankai Farthquake
1944		(143 deaths, 1 ~ 2m tsunami, cracks, liquefaction)
1951	OTyphoon	Dessible Disectors in Euleursi Othe
1952	OTropical cyclone, seasonal rain front	Possible Disasters in Fukurol City (Source: The regional disaster provention plan of Eukuroi City)
1953	OTyphoon	(Source. The regional disaster prevention plan of rukuror city)
1954	OStrong winds and flood, waves, storm surge	City is frequently affected by typhoons, torrential raise, and winter
1959	⊖lsewan Typhoon	monsoons. Risk of flooding for many small and medium-size rivers
1960	OSeasonal rain front	such as Ota River and Haranova River.
1961	OTyphoon	Mountain landslides, landslides
1963	⊖Heavy rain	- No risk of large-scale occurrences, risk of small-scale occurrences.
1971	■Tornado ○Typhoon	<ul> <li>Earthquakes</li> </ul>
1974	OTanabata Heavy Rain	- Risk of a Tokai Earthquake (M8 level), Tonankai-Nankai Earthquake (M
1975	OHeavy rain	8 level), Nankai Trough Megaquake (M9 level) occurring.
1976	OHeavy rain ■Tornado	<ul> <li>Risk of a nuclear power plant accident releasing radioactive material</li> </ul>
1982	OTyphoon and autumn rain front	and radiation
1998		Tsunami
2002	lornado or downburst	- Risk of occurrence due to an earthquake
2004	O Heavy rain	
2007	Gusts (Morol area)	
2008	Gusts (Kawai area)	+Suruse Pov Fortheueko
2009		(M6.5. soismic intensity of lower 5 to upper 5)
2011		
2011	OTyphoon heavy rain ■Gusts (Kasahara area)	
2012	$\bigcirc$ Typhoon No 18	
2018	OTyphoon No.24	
2019	OHeavy rain, East Japan Typhoon (Typhoon No.19)	(Source: The Disaster Prevention History of Fukuroi City)

#### Tonankai Earthquake



Tanabata Heavy Rain





Amount of rainfall: Total precipitation 348.5mm Maximum rainfall per hour 41.5mm (Fukuroi City) Main damage within the city: Deaths None Houses Flooded above floor level 7 Flooded below floor level 54 Road shoulder sinkage, road flooding Evacuees in shelters 413 (Source: correspondence report)



#### Make the best use of the Inochiyama and maritime forests that have been cultivated since the Edo and Meiji periods.

### Inochiyama (Evacuation Hills)

The largest typhoon in Edo period occurred in 1680. It caused great damage all over the country. In the coastal areas of Fukuroi City, it is estimated that about 300 people were killed by the storm surge.

In the Asaba district, 33 villages were surrounded by the Asabaogakoi Embankment. Artificial hills were built as evacuation sites in the center of the Doris Hinden (Ono) and Nakashinden villages located outside of the embankment with the assistance of the Yokosuka Domain.





The present ruins of these hills are called Inochiyama. They have been designated cultural properties by Shizuoka Prefecture.

After the Great East Japan Earthquake, Fukuroi City constructed 4 more disaster prevention hills (Minato Inochiyama in 2013, Kibo no Oka in 2016, Egawa no Oka and Yoriki no Oka in 2017) as temporary shelters during earthquakes or tsunami. These are known as the 'Inochiyama of the Heisei Period,' which can accommodate 2,300 evacuees in total.

### Maintenance of Embankments

There are coastal forests of broad-leafed trees and Japanese black pine extending about 500 km along the coast of Shizuoka Prefecture. Many of the black pine forests often found by the Enshu-nada Sea have been cultivated by the residents since the Meiji period in order to protect the lives of people living near the coast. In recent years, however, an increase in the death of black pine forests due to damage by salt and pine wilt has been observed. For this reason, we are working to improve safety by utilizing the inherited wisdom of disaster prevention forests and ensuring the maintenance of embankments against a Level 2 tsunami.



#### Map Since the Great East Japan Earthquake, we have been taking all possible measures to prevent/ reduce the impact of a tsunami on coastal areas, combining old wisdom with new technology.

