

1. AREA OF INUNDATED LAND  
 2. DISTRIBUTION OF LANDSLIDES  
 3. EPICENTERS OF DESTRUCTIVE EARTHQUAKES AND THE AREAS WHERE TSUNAMIS OCCUR.  
 DISTRIBUTION OF INTENSITY OF MAJOR DESTRUCTIVE EARTHQUAKES

1. Area of Inundated Land

The principal causes of flood disasters are, the heavy and torrential rains generated by typhoons, cyclones, fronts, etc., and the tsunamis and high tides caused by earthquakes and typhoons.

In terms of percentage, the amount of damage sustained, as classified by kind, such as river and seacoast, differs to a considerable degree, depending on the year, but stands at 49% for Class A rivers, 18% for Class B rivers, 23% for other rivers, 3% for seacoasts and 7% for steep slopes. The aggregate amount of damage classified by major river systems (computed on the basis of the 1970 indices) was greatest for the Sinano Gawa river system with ¥88,100 million during the period from 1965 through 1972, followed by the Yodo Gawa and Gō Gawa river systems.

The areas inundated by floods during the decade from 1963 to 1972 covered an aggregate total of 1,920,000 m<sup>2</sup> of which three-fourths were farmlands and the remainder was housing areas. The inundated area differs, depending on the year, but reached a low of 74,000 ha. in 1968 and a high of 314,000 ha. in 1966. The dwellings damaged by inundation, when those inundated by floods are included, amounted to an aggregate total of 2,720,000 buildings in that decade.

Salient Points of the Legend and Map Compilation

The area of land inundated and the number of inundations were taken as a yardstick to show the conditions of flood disasters.

The area of land inundated, as referred to in this map, represents an aggregate total number of areas of land inundated, as classified by Si, Mati and Mura inundated by floods, etc. The number of times of inundation, as referred to in this map, is the frequency of inundation in that decade, as classified by Si, Mati and Mura, while the inundations ascribable to one and the same cause are counted as one.

Source

1. Ministry of Construction, Statistics of Damage by Floods, 1963-1972.

2. Distribution of Landslides

A landslide is the phenomenon in which a part of the land slides at a relatively moderate speed. Landslides take place in areas where there exist special strata or tectonics. They also tend to occur frequently in one and the same area.

Under the Law for the Prevention of Landslides, the places where landslides take place or are likely to take place are designated as landslide control areas and a wide variety of measures are stipulated, because landslides produce damage to forests, cultivated lands, buildings, roads, etc.

There were 70,180 landslides (excluding those in Okinawa Prefecture) in 1972, of which 3,626 places are designated as landslide control areas and the remaining 6,554 places are not designated as such. The aggregate number of landslides, both designated and nondesignated, was 378,000 ha., or about 1%

of the national land. Classified by prefectures, landslides were greatest in Niigata Prefecture with 76,000 ha. which was followed by Tokushima, Isikawa and Kōti prefectures.

A check of the interrelationships between landslides and tectonics reveals that the occurrence of landslides was greatest in the Tertiary strata. Practically every landslide in Niigata, Isikawa and other prefectures takes place in Tertiary sediments. Landslides also frequently take place in the fracture zone which consists of metamorphic rocks and Paleozoic strata, such as in Sikoku. Then there are cases in which landslides take place as rocks are made clayey by hydrothermal processes. The highly clayey landslide areas, such as the Tertiary sediments and the fracture zone, are used as paddy fields in most instances. Particularly in the mountains of the Sikoku Region and Niigata, Isikawa and Nagasaki prefectures, landslide areas on the more moderate slopes than the sides of ordinary mountains have been used as farmlands particularly, as paddy fields from the old days.

Salient Points of the Legend and Map Compilation

Landslide control area designated by Government: The landslide area designated under the Law for the Prevention of Landslides, and controlled by the Ministry of Agriculture and Forestry, Forestry Agency, and Ministry of Construction.

Landslide hazard areas other than designated control areas: Of all the landslide areas surveyed by the aforementioned ministries and agency, this map shows the areas whose designation as landslide control areas is considered necessary under the Law for the Prevention of Landslides.

The landslide area, as referred to in this map, is the area which has more than 5 ha. and for which landslide control projects are conducted. Even in the case of larger landslide areas, they do not exceed 700 ha. in area.

This map does not represent Okinawa Prefecture, whose survey has not been completed.

Source

1. Ministry of Agriculture and Forestry, Forestry Agency and Ministry of Construction, Landslides in Japan, 1973.

3. Epicenters of Destructive Earthquakes and the Areas Where Tsunamis Occur

Many earthquakes occur in Japan and its peripheries. There occur about 1,000 earthquakes that can be felt a year, of which there are several destructive earthquakes.

An earthquake not only destroys buildings and other things with its seismic vibrations but also gives rise to secondary disasters, such as landslides, tsunamis, fires, etc.

When a big earthquake occurs on the seabed of the Pacific Ocean, a tsunami may take place. There are cases in which tsunamis generated along

the coast of South America and Alaska produce damage to Japan. Along rias coasts, such as the Sanriku Coast, the tsunami becomes particularly high in the deep parts of bays, thus posing the danger of huge damage.

Salient Points of the Legend and Map Compilation

The epicenter of each destructive earthquake, the year of its occurrence and its magnitude were shown in this map based on the Japan Meteorological Agency (1968) and USAMI (1966, 1974). The data on the destructive earthquakes that have occurred since 1968 are supplemented on the basis of the Earthquake Monthly Report.

The indication of the areas in which tsunamis occur is based on the aforementioned references and Hideo WATANABE (1968), and this map provides an outline of the coastlines which are believed to have been assaulted by tsunamis more than 1 m in height.

Sources

1. Japan Meteorological Agency, Descriptive Table of Destructive Earthquakes in Japan, Earthquake Observation Guideline, 1968.
2. Tatsuo USAMI, Table of Major Earthquakes In and Near Japan Which Were Accompanied by Damages, Bulletin of the Earthquake Research Institute, University of Tōkyō, Vol. 33, No.4, 1966.
3. Tatsuo USAMI, Error Estimation for Epicenters of Japanese Historical Earthquakes, The Special Bulletin of the Earthquake Research Institute, University of Tōkyō, No-12, 1974.
4. Japan Meteorological Agency, Seismological Bulletin, 1969-74.
5. Hideo WATANABE, Descriptive Table of Tsunamis In and Near Japan, Journal of the Seismological Society of Japan, Second Series, Vol. 21, No. 4, 1968.

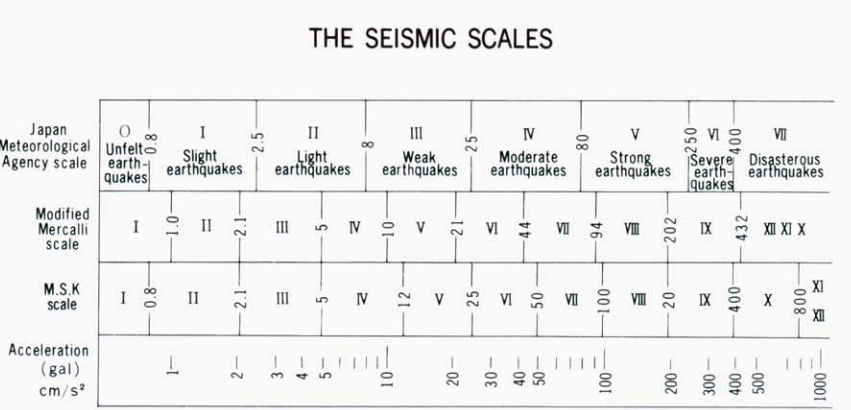
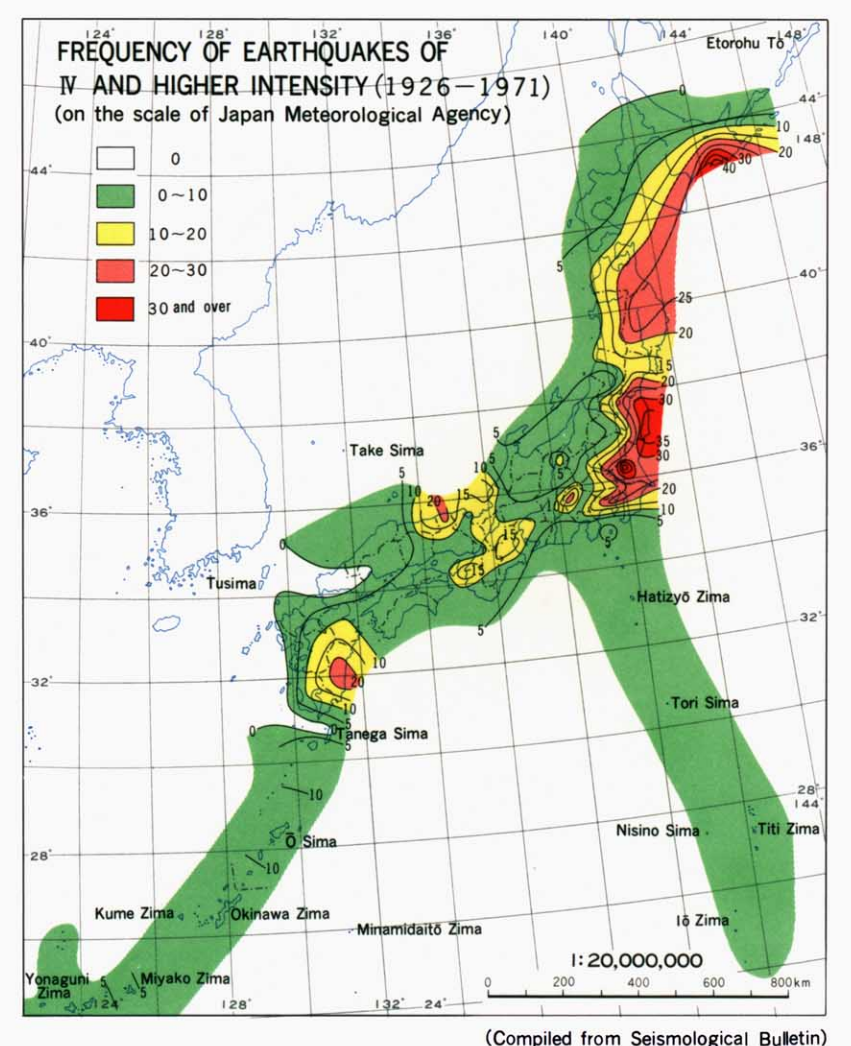
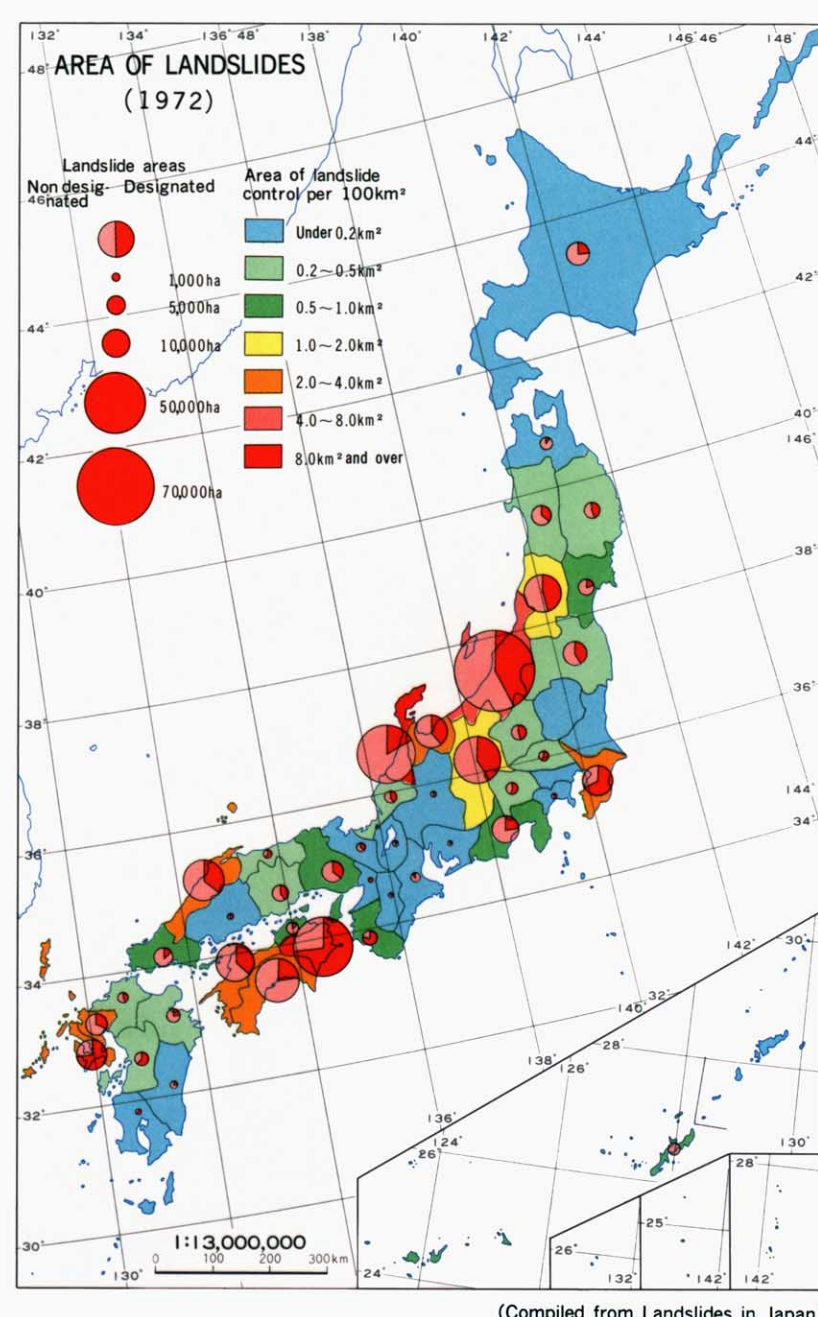
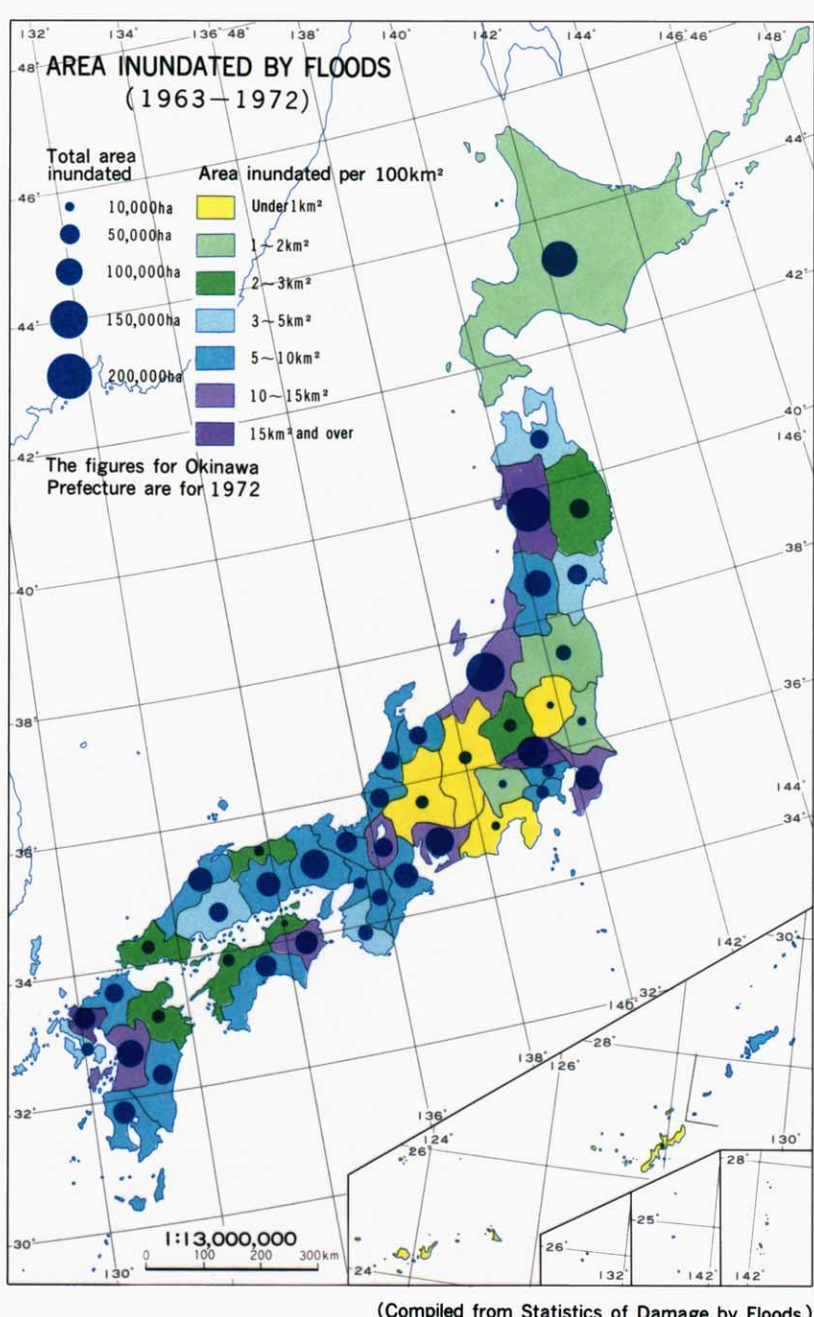
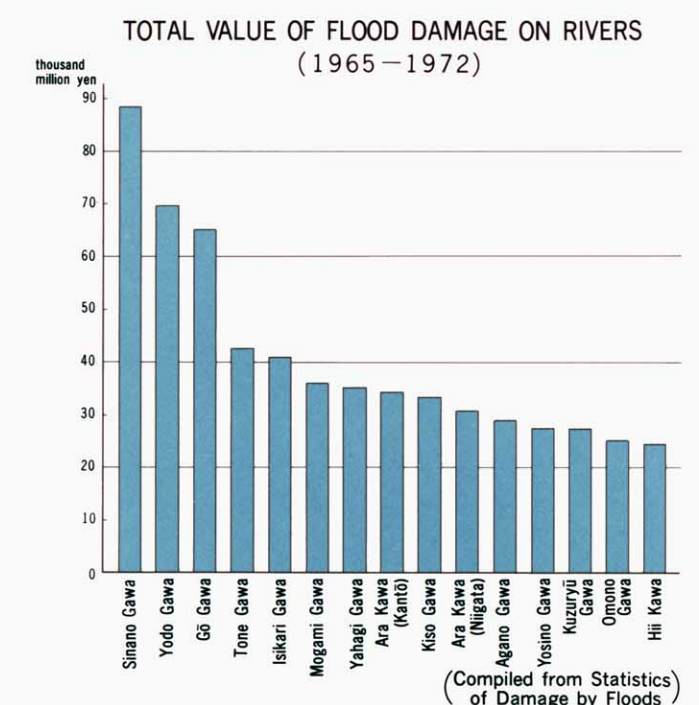
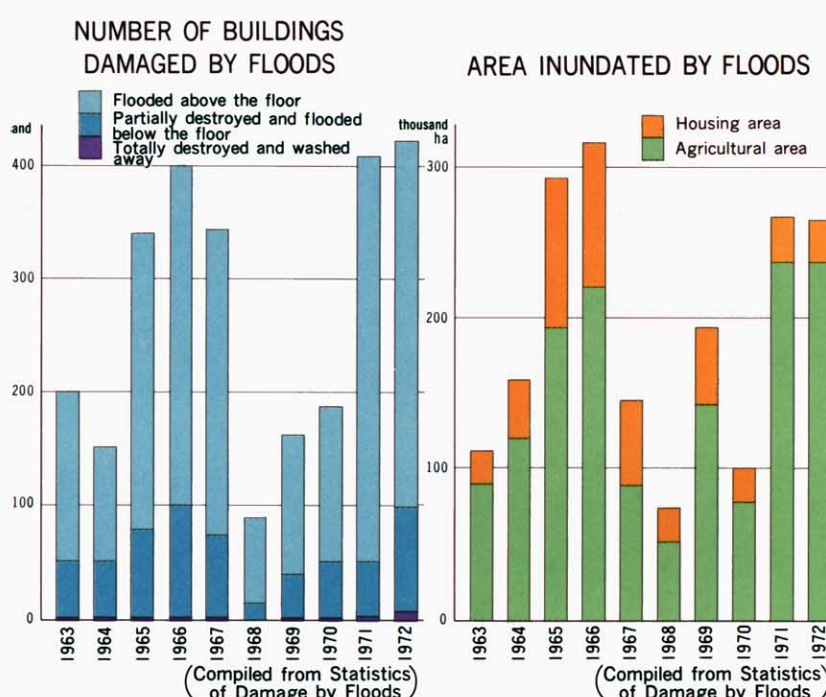
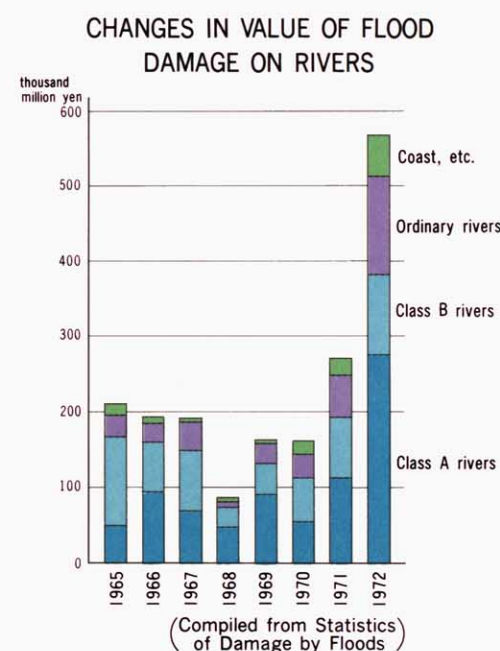
3. Distribution of Intensity of Major Destructive Earthquakes

Salient Points of the Legend and Map Compilation

Eight of the earthquakes that have produced conspicuous damage to Japan since 1868 were selected, and their epicenters and the degree of their intensity were indicated in this map.

Source

1. Japan Meteorological Agency, Distribution of Major Destructive Earthquakes in Japan, Earthquake Observation Guideline, 1968.







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