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昭和27年3月十勝沖地震調査報告

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中央気象台

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序

昭和27年3月4日の朝，北海道の太平洋沖に津波を伴う大地震が起り，北海道東岸地域にかなりの被害をおよぼした。この地震は十勝沖地震と命名された。関係気象官署では地震後直ちに現地調査を行うほか，本台地震課においては全国の地震観測結果および検潮儀記録を収集して綜合調査を行い，あわせて報告全体の編輯を行つていたが，これがまとめられたのでこゝに発表する次第である。

本地震は昭和24年12月わが国に津波警報組織が確立されて以来初めて起つた津波地震であつた。その際同組織は適切に発動され，相当の効果をおさめ得たのであるが，その警報伝達の経過についての調査結果もあわせて掲載されている。

なおこの調査の一部は，文部省災害調査研究費によるもので，編輯は中央気象台地震課とくに広野，野口両技官が主としてこれに当つた。記して感謝の意を表する。

昭和28年1月

中央気象台長　和達清夫

十勝沖地震調査報告

目　　次

THE TOKACHI EARTHQUAKE OF MARCH 4, 1952.

A big earthquake accompanied by a severe tsunami occurred on March 4, 1952, causing considerable damage in the south-eastern part of Hokkaido.

The epicenter was located at 143°52′E, 42°09′N with an accuracy of ±10km, and the depth of the focus was 45±10km. The origin time was fixed at 10h 22m 41.9s (J.S.T.).

Seismic intensities observed by weather stations of C.M.O. net-work are shown in Fig. 2.1. The furthest station where the tremor was felt was the Oshima WS, 884 km distant from the epicenter. The distribution of initial motions illustrated in Fig. 2.4. shows that, except those observed at Nemuro, Urakawa, Mito and Tomisaki, all are of push direction. A nodal line dividing this distribution into is push and pull groups involves an inversion circle having the radius of 110 km, which the same as expected from a shock with the depth of 45 km.

The magnitude of the shock determined by Dr. Kawasumi's method was 8.0, or by Dr. Tsuboi's method 7.9. It shows that the Tokachi Earthquake has the magnitude somewhat smaller than the great Kanto Earthquake of 1923 or the Nankaido Earthquake of 1949, and somewhat larger than the Tonankai Earthquake of 1944.

The tsunami following the earthquake attained as high as 3~4 m at the coasts of Kombu nori, Tokotan, Monshizu and Kiritappu in Hokkaido, while the tsunami of 1~2 m was observed at many other places. The damage caused by tsunami was the greatest at Kiritappu village, aggravated by ice packs flowing into the land with sea water. Oscillations due to the tsunami were scarcely traced in the records of the mareographs installed in the further places of Japan west of Ito, Izu peninsula.

The arrival times and heights of tsunami observed along the coast of Hokkaido and the Ou districts, when compared with those evaluated by the theory based upon the Huygens' Principle, suggest that the ocean bottom from where the tsunami wave originated does not lie under the epicenter but a little western place of it.

The tsunami warnings were issued successfully from the Sapporo and Sendai D. C. M. O. and the Kushiro Weather Station.

It caused damage all over the area covering the Tokachi, Kushiro and Hidaka districts in Hokkaido, especially in these towns such as Toyokoro, Urahoro, Otsu and Ikeda where the percentages of demolished houses reached 5~15%.

Damage due to this earthquake was as follows: death 28, injured 287, missing 5, demolished houses 815, partially demolished houses 1324, partially damaged houses 6395, burnt houses 14, half burnt houses 6, houses washed away 91, submarged houses 1949 ; and other many damage sustained on high ways, railways, ships etc. was reported.

The total number of after shocks amounted to 908 during the same month containing 751 unfelt earthquakes, out of which 6 are remarkable, 6 maderate 23 small felt area and 119 local earthquakes.

The greatest after-shock occurred at 2h 04m on 10th (J.S.T.), March resulting in a slight damage in Hokkaido and some unusual oscillations of sea water recorded by the mareographs at Hachinohe and Miyako. This shock was of magnitude 7.0.