

Article 2:

# Closure of the Onagawa Magnetic Field Observatory of Tohoku University

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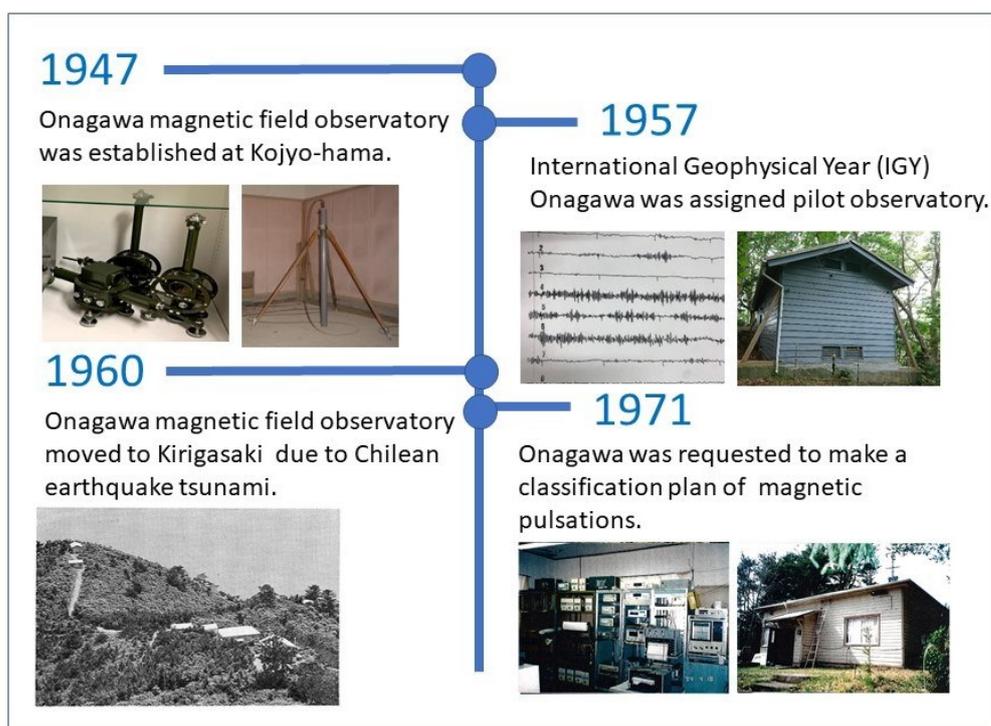
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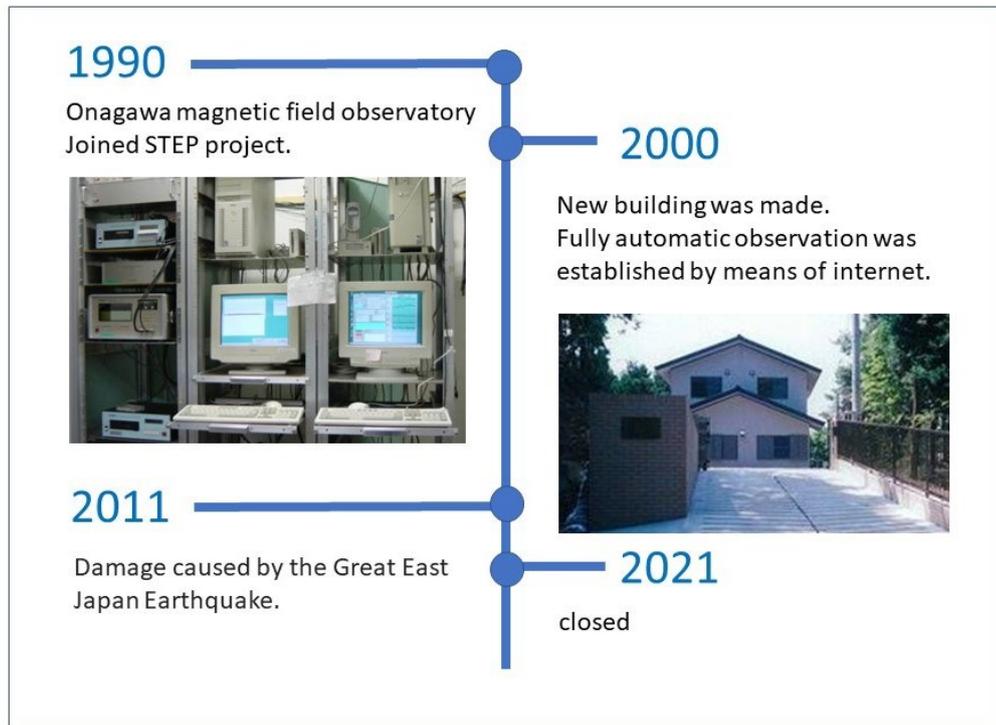
The magnetic field observatory of Tohoku University at Onagawa Town in Miyagi Prefecture closed at the end of March in 2021 with an illustrious history of over 60 years. This article is an overview of the history of the observatory during the past 60 years. Its various scientific achievements are also highlighted.

The Onagawa Magnetic Field Observatory of Tohoku University was built at Kojyo-hama in 1947 with the assistance of Onagawa Town. Facilities are equipped with government building, a laboratory with absolute observation room and a detector room. A state-of-the-art induction magnetometer and an electron tube automatic equilibrium magnetometer were also installed. In 1957, the Onagawa observatory was assigned as a magnetic pulsation pilot observatory. Since then, Onagawa observatory has been internationally recognized as a leading magnetic observatory. Kojyo-hama rapidly urbanized and precise measurements were in jeopardy due to artificial disturbances. In 1960, the

Chile earthquake and tsunami struck Onagawa Town, and the observation room and the magnetometer were destroyed. So, the observatory was relocated to the current Kirigasaki location and it continued fully automated electronic measurement there. Research on the geomagnetic pulsation based on the magnetometer observations extensively progressed. The phenomenon “Pc” and “Pi” were named here. These names were certified by the IAGA in 1971. They have become terms widely used by researchers all over the world. Research on magnetic pulsation has extensively progressed, especially in the studies of Pc-3 to Pc-5 and Pi-2 magnetic pulsations. More than one hundred scientific papers have been published up to now on these topics.

The international research project STEP was started in 1990, and Onagawa observatory played an important role as a key station of the observation network along the geomagnetic longitude 210°. Joint research in Japan and overseas has been performed involving Nago-





ya University, Kyushu University, Hokkaido University, Tohoku Institute of Technology, and Stanford University. In addition, the development of magnetometer mounted on "Akebono" satellite and an interplanetary probe "Sakigake" were performed by Prof. Fukunishi and Prof. Saito, respectively.

**D**ue to the reorganization of Tohoku University in 1999, Onagawa observatory was re-assigned to the Planetary Plasma and Atmospheric Research Center (PPARC), and the new main building was opened in 2000. At that time, the Internet was connected, and thus

fully automatic observation became possible and this data has been available on the website.

**I**n the March of 2011, a massive earthquake caused the magnetometer to collapse, and it was ruined. The situation was getting worse because it hindered the maintenance of other observation equipment. Hence, unfortunately, it was closed at the end of March in 2021. Before the closure of the observatory, Planetary Plasma and Atmospheric Research Center transferred the Kyushu University magnetometer to the site of Zao observatory at the foot of Mt. Zao.