

## Let's enjoy Geo-Tetsu through Train Windows -the Fourth Geo-Tetsu Line, JR Oito Line

UENO, Shoji<sup>1\*</sup>, FUJITA, Masayo<sup>2</sup>, YOKOYAMA, Shunji<sup>3</sup>

<sup>1</sup>OYO Corporation, <sup>2</sup>Fukada Geological Institute, <sup>3</sup>Sci., Kochi Univ.

### 1. Aims of Geo-Tetsu activities

Geo-Tetsu is the name of the activity that shows everyone ways to enjoy and learn about geology and related sciences, using railways (Kato et al. 2009). The word "Geo" comes from geoscience, and the word "Tetsu" is an abbreviation of railway in Japanese, and common name for railway fans. Following three year's Geo-Tetsu (Fujita et al., 2010, 2011), promotion activities of Geo-Tetsu tours are continued by geological engineers who love railways, organized with the corporation of the Fukada geological institute. We selected Geo-Tetsu courses and Geo-points through which people can see representative geoscientific phenomena through the train windows and at the stopovers alongside the route. In Geo-Tetsu, geological features of the landscape are explained scientifically in a guide-book provided by a group of specialists. As much information is obtainable and can be gathered from various perspectives; the railway itself, geology, geography, cultural heritage and sight-seeing as well. We hope that the general public will enjoy a new style of railway traveling provided. The JR Oito Line is presented in this fourth route by the cooperation of Itoigawa City.

### 2. JR Oito Line, the fourth Geo-Tetsu project

#### (1) Abstract of the Oito Line

The Oito Line (105.4km) runs from Matsumoto station in Nagano Prefecture to Itoigawa station in Niigata Prefecture. It is operated by express trains between Matsumoto and Minami Otari (JR-East), and by the local trains between Minami Otari and Itoigawa (JR-West). The history of Oito line started as Shinano Railway in 1916, from Matsumoto to Shinano Omachi. JNR succeeded the extension from Shinano Omachi to Itoigawa. But it became difficult constructions because a part of this line was positioned in disaster area due to the avalanche and huge landslide. After the Pacific War, it was restarted by people's aspirations in 1952. The remainder Nakatsuchi-Kotaki section was opened completely and it became "Oito Line" in 1957. Since then, this line has been loved for a long time by alpinists, skiers, tourists who enjoy hot spring, and railway fans.

#### (2) The rich geological and sight-seeing resources of the Oito Line

The Oito Line runs along "Fossa Magna" which separates Japan into eastern and western. When the train leaves Matsumoto station and goes across the Azusa River, it appears beautiful Geo-points; Northern Alps Mountains of 3000m class located on the outside of Fossa Magna western margin on the west window, and the mountains of 1000m class located on the inside of Fossa Magna on the east window. Through Azumino agricultural area in the Matsumoto basin, we can see also geographical features of many alluvial fans. "Nishina Three Lakes" is approached through Shinano Kizaki station. Lake Kizaki is a natural dam damming up by the deposits of alluvial fan, and Lake Aoki is also a landslide dam by blocking the valley with the collapse deposits from the westward mountain. The beautiful ridge line of the Hakuba Three Mountains shines until arriving at Shinano Moriue station. Many famous skiing resorts around here are constructed by using of the landform. Arrived at Minami Otari station, we change the train to go to Itoigawa. Going through the Nakatsuchi station, there are many tunnels and sheds that let us know the toughness of nature in this region. The huge collapse scale of Mt. Manaita and Hieda is memorized in the valley width with the deposits around Kita Otari. In summer, the bus for the Renge hot spring leaves at Hiraiwa station, and it becomes the starting point for a climb of the Mt. Shirouma. Kotaki River became famous for the jade is joined Himekawa River near the Kotaki station. The Itoigawa-Shizuoka Tectonic Line can be observable near Nechi station. The Miyama Park is on the hill seen from the Himekawa station. Finally we arrive at Itoigawa terminal, and can transfer to JR Hokuriku Line. If you walk around the terminal, you will actually feel coming to the Sea of Japan.

Keywords: Geo-Tetsu, Oito Line, Fossa Magna, Itoigawa-Shizuoka Tectonic Line, Himekawa River, Jade