

8-9 Visualization at Depths between 0 and 1000 m Below Sea Level — Subsurface Geological Mapping of the Japanese Islands —

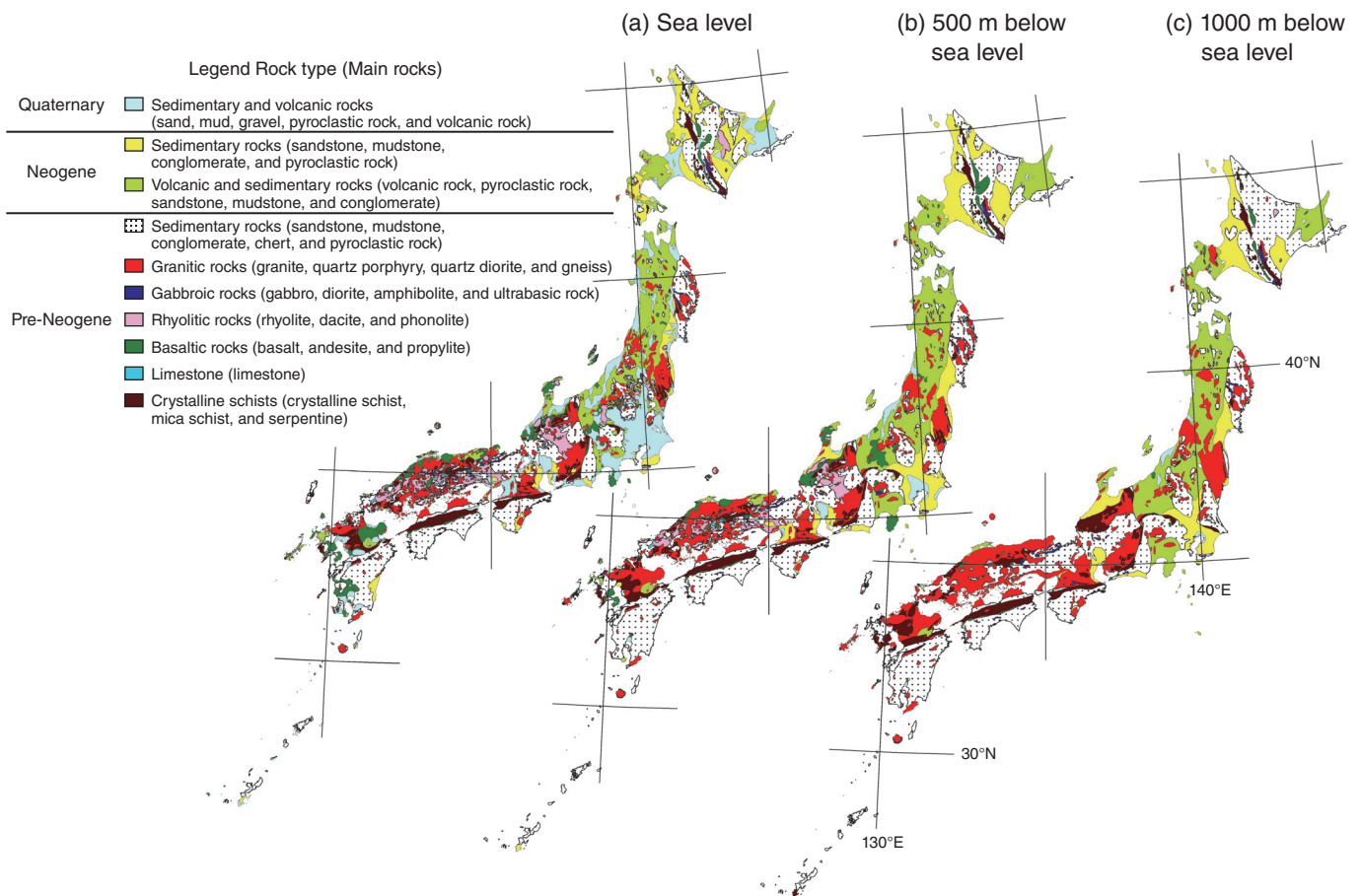


Fig.8-22 Subsurface geological mapping of the Japanese Islands

Horizontal slices at sea level (a), and depths of 500 m (b), and 1000 m (c) below sea level throughout the Japanese Islands showing the distribution of various rock types.

From the viewpoint of utilizing underground space for purposes such as the geological disposal of radioactive waste and carbon dioxide, it is imperative to understand subsurface geological structures.

In general, widely-used conventional methods of subsurface mapping convert subsurface geological information into two-dimensional space. We present the horizontal geological cross sections at depths of 0, 500, and 1000 m below sea level throughout the Japanese Islands. These are extrapolated mainly from geological maps, vertical geological cross sections, and borehole data (Fig.8-22). The data were collected from studies published prior to 2001.

Synthesized borehole data were compiled from a total of 291 sites. The density of borehole data varies widely by region. When data are insufficient, tectonic lines and the

granite are mapped vertically in the subsurface. Therefore, it is hard to estimate the subsurface geological structures in the individual region based on these maps in detail. However, these maps are helpful for understanding the subsurface geological outline in the Japanese Islands.

The legend of these maps followed a classification based on a unified legend proposed by the Geological Survey of Japan. Depending on the purpose, it is possible to simplify the display of these maps. For example, in the geological disposal of radioactive waste, rock type is often divided into two categories: sedimentary and crystalline. It is possible to visually recognize a three-dimensional distribution of the two categories in the Japanese Islands.

Improvement of the accuracy of these maps is expected due to recent information.

Reference

Yasue, K., Kobori, K. et al., Subsurface Geological Mapping of the Japanese Islands, *Chishitsugaku Zasshi (Journal of the Geological Society of Japan)*, vol.120, no.12, 2014, p.XIII-XIV.