Development of the Geologic Map of Volcanoes in Japan (1:200,000) Viewer System

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The Geological Survey of Japan, AIST has developed the Geologic Map of Volcanoes in Japan (1:200,000) Viewer System, which displays the distribution of the 440 Quaternary Volcanoes in Japan and detailed information of their erupted deposits. The system provides information obtained from one of the most detailed Quaternary volcanoes databases in the world using the same legend across the whole country. This system can be used for volcano research including volcanic hazards assessments and other endeavors needing volcano information. GSJ is planning to open the system for public viewing in March 2020 at https://gbank.gsj.jp/volcano/vmap/ (Fig.).
The viewer system implements vector tile (SVG tile) technology. This means that each tile contains machine-readable attribute data that is different from image tiles, making it possible to formulate relatively complex search queries for the system. The developed volcano database is structured based on different levels of information. Level 1 data contains whole volcano or volcanic group information, such as name, style, topographical characters, facies, rock types, lithology, SiO_2 contents, formation processes, lower age, upper age, eruptive volume, activity period and remarks. The levels 2, 3, 4 and 5 data contain volcano subcategory information. Users will be able to obtain database information by clicking one of the polygons on the map (Fig. A). The data are subdivided into Kunashiri & Etorofu, Eastern Hokkaido, Western Hokkaido, Tohoku, Chubu & Kanto, Fuji & Izu Peninsula, Izu & Ogasawara Islands, San-in, Northern Kyushu, Southern Kyushu, and Nansei Islands regions. The legends of whole deposits (about 2000) are shown on the left side of the viewer (Fig. A). By clicking one of the legends, the distribution of the selected unit will be shown on the map. By moving the cursor on the map, the distribution of the selected unit and the legend are highlighted (Fig. B). This helps the user view the distribution of the unit. Users can display only the volcanic unit of interest by selecting the checkbox at the top of the legend. The query system provides basic and detailed query tools. The basic query tool can be used to type text searching for information using the attribute data in the database. Figure B shows the result of distributions of volcanic units, which contain “Kirishima” in the text of datasets. The search results are shown on the map. The detailed query tool allows users to search one of the categories such as the name of the volcano, lithology, facies, and age. This can be used to search for information using complex conditional sentences, like searching for the Holocene rhyolitic rocks in Japan. The vector data download feature of the system is still under development.

Figure. The viewer of the Geologic Map of Volcanoes in Japan (1:200,000). **A.** Towada and Hakkoda volcanic region. Detailed information is shown in the pop-up window. **B.** The query result using the search text “Kirishima” on the viewer system. The distributions of Kirishima are shown on the map. By moving the cursor on the map, the distribution of the selected unit and the legend are highlighted.

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