

A Study on Geographical Characteristics of Ulleungdo and Dokdo Islands

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Abstract

Ulleungdo and Dokdo is special island to all Korean people, The purpose of this study is to collect, sorting, analysis and rearrangement the photo data. The data collected from the published books and new photos. The quantity of data is so big, that it is necessary to divide the volume to publishing the books.

For example , aerial photos(including marine topography), the relief of surface, culture and history, urban and settlement, sightseeing and economy, maps and figure and etc.

The effect of the study is clear to the civics and students about patriotic sentiment etc.

Keywords : Ulleungdo, Dokdo, marine topography, urban, settlement, sightseeing, economy

I. The aim of this article

The article summarizes geographical findings for both Ulleungdo and Dokdo Islands.

II. Geomorphological characteristics

In terms of geomorphological characteristics, both islands were formed successive volcanic eruptions. In addition to volcanic processes, continues marine erosion since the exposure of the islands have been generating unique geomorphological features. Seungin-Bong

and Nari basin are two most representative volcanic features (caldera and caldera basin) in Ulleungdo. Other commonly found geomorphic features include pillow lavas and columnar joints. Along the coast, various coastal landforms, such as sea caves, marine clives, and sea stacks, can be found. Those geomorphological features provides valuable resource for tourisms. Dokdo shows similar geomorphological features with them of Ulleungdo, even though the size of them is small. Dokdo was originally one island formed by volcanic activities, but was eroded into two islands due to the high seawater erosion.

Due to porous volcanic rocks and steep relief, the development of fluvial systems on both islands is poor. About 20 stream channels could be found on Ulrungdo with few water falls along the stream channels. On the other hand, stream can not be found on Dokdo. The steep relief and active erosions by wind, rains and the sea, development soils on both islands are poor. The main soil types of Ulrungdo are dark-colored sandy loams and loams derived from basalt and trachyte, but large area of Ulrungdo shows the exposure of rocks. The development of soils in Dokdo is much poorer than that of Ulrungdo, which allows only weakly developed grass cover. Both islands are the end tips of the first Dokdo seamount. There are two more Dokdo seamounts located at the southeast of the first Dokdo seamount. The second seamount is about 15km and the third seamount is about 55km away from the first seamount. Unlike the first seamount, the second and third seamounts have flat-top plains that were submerged under the sea. These flat top plains were formed by marine erosion, and the depth to the flat-top plain is about 200m for the second and 600m for the third seamount. The Dokdo seamount began to form about 4.6 million

years ago during the period of the Pliocene and Pleistocene. The formation of Dokdo seamount is believed to be successive plume shooting out of deep mantle, whose hotspot was located at about 2,000m below the sea level. It is believed that the third seamount is the oldest among three. Dokdo first appear above the sea around 2.7 million years ago. The forming process of Ulrungdo is identical with that of Dokdo, but about 1-2 million years younger. The volcanic activities to forms both islands were ceased after the formation of Ulrungdo. The majority of Dokdo seamount consists of alkalic basalts. Ulrungdo itself was formed by five different modes of volcanic eruptions and covered by trachy basalts and tuffs. The formation of Seungin-Bong and Nari basin are the remnant of caldera. The geology of dokdo consists of trachyte, which were also formed by three successive phases of volcanic eruptions. The first phase was an underwater eruption, which form basalt. At the second phase, the seamount grew above the sea level that caused explosive eruptions. During this time period, clastic tuff and bedded tuff were formed. This phase was followed by the formation of trachyte through the injection along and at

the existing faults.

Despite of small size and remoteness of Dokdo on the mid of East Sea of Korea, the island contains about forty plants and sixty insects as well as twenty five bird species. Presence of relatively large number of common plants and animals between Dokdo and neighbouring Ullungdo might indicate a frequent biological exchanges in the past.

III. Plant species

Though high wind, wind-borne sea salt and volcanic substratum of Dokdo create the hostile environment for the plants and animals to survive, the island successfully maintained its biological diversity. Several alien plant species seem to directly introduced from the mainland of Korean Peninsula by human-being, but precautions are required to minimize the unintended introduction of alien plants and animals to the island.

IV. People

The people lived in Ulleungdo from one century. From King Gojong the population of Ulleungdo increased, and from 1930, men exceed women in Ulleungdo and the

structure of population is decrease in youth age and the plenty of people are adults

The development of argiculture in Ulleungdo is from late Cheosun dynasty, and that time the forests are luxuriant. The main industry of Ulleungdo is the marine products of industry.

V. Old map

Existing old maps made in the early Joseon period reveal that even maps of the world listed Dokdo under the name 'Usando', suggesting Ulleungdo and Dokdo were considered Korean territory. But up until the 17th century, most maps drew Usando to the west of Ulleungdo. It is believed that was influenced by <Paldo chong-do>(A complete map of eight provinces) and <Gangwon-do>(Map of Gangwon-do Province) that are included in <<Sinjeung Dongguk Yeoji-seungnam>> (Newly Enlarged Geographical Survey of Korea), a geographical gazetteer of the early Joseon.

Maps made after the 18th century, in particular Jeong Sang-gi's <<Dongguk ji-do>>((Map of East Country [Korea]) maps in the categories of both complete maps of Korea and of provincial maps, depicted 'Usando' to the east, southeast or

northeast of Ulleungdo. It clearly shows that Korea was aware of the accurate location of Dokdo. <<Dongguk ji-do>> type maps describe Ulleungdo and Dokdo Island as a round shape, closer to actual shape.

Although Ulleungdo and Dokdo are not administratively independent county, since the 18th century they are depicted on separate sheets indicate national interest in the two islands. The same practice is found in maps made in private sectors. It is particularly significant that the maps produced by the Korean government are relatively accurate as to location, shape and size of Ulleungdo and Dokdo.

King Gojong(r. 1864~1907) showed an immense interest in exploring Ulleungdo and its neighboring islands. Reflecting King Gojong's interest in the island, Ulleungdo and Usando are clearly drawn in the maps made during the Great Han Empire period.

But Dokdo Island is missing from maps made after 1905 is believed to be the result the Protectorate Treaty of 1905 and increased influence of Japan. Introduction of Japanese map making skills to Korea was a signal heralding the advancement of Japan into Korea.

VI. Rearrangement the photo data

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VII. Conclusions

a) In terms of geomorphological characteristics, both islands were formed successive volcanic eruptions.

b) Along the coast, various coastal landforms, such as sea caves, marine clives, and sea stacks, can be found.

c) The development of soils in Dokdo is much poorer than that of Ulrungdo, which allows only weakly developed grass cover.

d) The formation of Seungin-Bong and Nari basin are the remnant of caldera.

e) Though high wind, wind-borne sea salt and volcanic substratum of Dokdo create the hostile environment for the plants and animals to survive, the island successfully maintained its biological diversity.

f) The people lived in Ulleungdo from one century.

g) The development of agriculture in Ulleungdo is from late Cheosun dynasty, and that time the forests are luxuriant. The main industry of Ulleungdo is the marine products of industry.

h) Existing old maps made in the early Joseon period reveal that even maps of the world listed Dokdo under the name 'Usando', suggesting Ulleungdo and Dokdo were considered Korean territory.

i) Although Ulleungdo and Dokdo are not administratively independent county, since the 18th century they are depicted on separate sheets indicate national interest in the two islands. The same practice is found in maps made in private sectors.

j) It is necessary to collect, sorting, analysis and rearrangement the photo data.