Two severe famines (1809-1810, 1814-1815) in Korea during the last stage of the little ice age

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Abstract

From the eruption of an unknown volcano in 1809 until that of Tambora in April 1815, large and small volcanoes erupted in succession, causing various climatic changes around the Earth. During this period, the monsoon climate zone of East Asia, including Korea, had a very dry summer, and the rice yield was very poor, which resulted in two severe famines that lasted until early summer in the following years. During the famines in 1809-1810 and 1814-1815, about 24 percent of the population of Korea (approx. 14 million people) died. The severity of the drought varied widely depending on the region in Korea. Famine was more severe in the southern region, due to the higher degree of drought than in the northern region, resulting in deaths concentrated in southern Chŏlla-do and Kyŏngsang-do provinces. Based on the works of a Korean bureaucrat-scholar, Chŏng Yak-yong, and official documentary data produced by the Chosŏn dynasty, this article shed lights on the famines in southern regions of Korea, caused by the droughts in the last stages of the "little ice age."

Keywords: successive volcanic eruptions, last stages of the "little ice age," monsoon climate zone in East Asia, variation in precipitation, drought, rice farming, 1809-1810 famine, 1814-1815 famine, massive deaths

1. Introduction

Western climate academia has conducted numerous discussions on climatic-environmental changes and socio-economic impacts caused by successive eruptions of large and small volcanoes, starting from the unknown volcano in 1809 to Tambora volcano in April 1815. In particular, Western academia was interested in the climatic and environmental disasters of

1816-1817, known as the “year without summer.” Their studies were focused largely on falling temperatures, increasing precipitation, poor harvests, rapid increases in grain prices, and people’s protest and social unrest (Post, 1977; Wood, 2014; Brugnara et al., 2015; Raible et al., 2016).

However, the situation in the years 1816-1817 on the Korean peninsula was quite different from Europe and the northeastern United States. In the previous study, this author noted that Korea was significantly different from them, in that it saw moderate crop conditions, stable grain prices, and no peasant riot, though the nation experienced drops in temperature and steep rise in precipitation as Europe and the northeastern United States did (Kim, 2023). This difference was due to the fact that the West was more dependent on the farming of barley, wheat, and potatoes in dry fields (Flückiger et al., 2017), while Korea was the land of rice, a representative hydrophilic crop.

Western academia has succeeded in reconstructing the paleoclimate to some extent using numerous natural proxies, early instrumental measurements, and documentary evidences. As climate-related studies from China and Japan were also introduced to Western academic circles, they could have a general understanding of the situation in East Asia. However, few Korean cases have been reported, leaving the Korean situation almost blank (Burgdorf, 2022; White et al., 2018). Hence, this article accentuates the need to unearth climate-related historical data in other areas for clearer understanding of natural disasters and climate change on a global level.

The Chosŏn dynasty of pre-modern Korea (1392-1910) had a tradition of long-term tracking of climate change with great interest in changes in precipitation, which were critical to the growth of rice (based on Ch’ŭgugi (測雨器, rain gauge) records). In the event of a famine, the government investigated the harvest condition in each prefecture to produce the Annual crop reports (災實分等狀啓) according to its official manual and determined the size of tax-exempt land for each province. The Relief status reports (畢賑狀啓) shows the government measures to find out the number of refugees, and secure and distribute relief grains. In this process, the dynasty left behind a large number of documents that chronicled how relief measures were implemented. Korean Confucian intellectuals also recorded the disasters in detail in their diaries, letters, anthologies, and books on statecraft, and suggested ways to overcome the crisis.

This article took a closer look at the famine situation and the extent of damage in the southern regions of the Korean peninsula, Chŏlla-do and Kyŏngsang-do, where damage was concentrated during the two severe famines of 1809-1810 and 1814-1815. This study was based on official government sources and personal records of intellectuals in Korea in the 18th and 19th centuries. Chapter 1 examined the evidence of climate change, crop conditions, severity of famine and the number of deaths in Kangjin prefecture and Chŏlla-do province, based on the writings of Chŏng Yak-yong (丁若鏞; 1762-1836), who was in exile in Kangjin at the time. Chapters 3-4 cited various data compiled and recorded by the Chosŏn government to examine the concrete aspects and extent of damage of the great famines in the southern regions of the Korean peninsula, and the impact of the two severe famines on Korean society.