

Exploring for climate proxy records based on historical documents for Japanese history

*Kaoru kamatani¹, Masaki Sano²

1. Ritsumeikan University, 2. Nagoya University

A collaboration study of history and paleoclimatology is able to understand how climate changes affected human activity in the past. We have also examined the relationship between rice yields and climate changes during the Edo period in previous studies. For example, we found that amounts of precipitation significantly modulated rice yields in regions on the shores of Lake Biwa. However, the influence of climate on rice production in the Edo period might change both spatially and temporally.

In this study, we explored the relationship between climate and rice productivity by utilizing precipitation reconstructed from tree rings and historical document. Specifically, we extract multiple years with extremely high or low amounts of precipitation in the Edo period using the tree-ring data. Descriptions related to climate or agricultural yields are also collected from historical documents that originate from multiple sites over Japan. Based on these data, we explore the impact of climate changes on agricultural yields in different regions and periods. Also, we observe the association between climate described by humans and tree-ring-based climate, in order to explore for climate proxy records based on historical documents.

Keywords: Japanese history, Paleoclimatology, Historical documents, Tree rings