Radiocarbon calibration of the Inca State chronology.

The purpose of the Inca State Radiocarbon Calibration Project is to attempt to reconstruct a precise chronology of events from the prosperous period of Tawantinsuyu, or the Inca State, based on radiocarbon and dendrochronological studies. The period under study is from the late 14th century to just before the arrival of the Spaniards on the coast of South America in 1532 AD. While this is a remarkably close period in history, we have yet to learn the history of the Incas, as no known direct written record has been left. The accounts of Spanish chroniclers who tried to reconstruct the history of the Incas are not accurate enough. Even in recent years, archaeological and radiocarbon studies have shown that many assumptions based on ethnohistorical data must be corrected. Based on radiocarbon dating from the area of the Inca provinces (Ogburn 2012, Marsh 2017, Ziolkowski 2020), it has been shown that the chroniclers' accounts miscalculated the periods of expansion of the Inca state. Calculations based on ethnohistorical data assumed that the Inca imperial expansion began after 1438 (Rowe 1945), while studies from the Machu Picchu area showed that it occurred almost half a century earlier.

The proposed project will compare radiocarbon dates based on dendrochronological analysis of selected Inca wooden artifacts to answer the question of whether accurate dating of the Inca period is possible. To date, radiocarbon tools give an accuracy of about +- 15 years, while the reconstruction of the dynamics of the Inca conquest requires a more precise dating. Therefore, an attempt will be made to obtain dendrochronological scales that will allow us to understand the transformations and the nature of the changes during the Inca imperial period.

The aim of the project is to analyze wood remains from contexts in the Cusco region and from Arequipa in southern Peru, which in turn will be complemented by radiocarbon dating of short-lived species preserved in the same archaeological contexts. The archaeological contexts sampled (or to be sampled) are from excavations related to the Inca presence in the region. Wooden elements used for construction, ceremonies, etc. will be analyzed, as well as short-lived species such as grass or food remains that the Inca left behind in the contexts studied. In the case of the wooden remains, an attempt will be made to apply the wiggle-matching method to the examined wood in order to obtain precise radiocarbon dates, which will be subjected to Bayesian modeling.

The project will first clarify the chronology of the development of the Inca state. The attempt to create floating chronologies for the Inca period, which could form the basis for extensive pre-Columbian chronological research, is the primary goal of the presented project. If successful, the creation of short developmental chronologies based on specific archaeological contexts related to the key will be considered in the context of our knowledge of the history of the Inca state. At the same time, chronicle accounts of the expansion of the Inca state into other areas of the Andes, mainly during the reigns of Pachacuti Inca Yupanqui and Topa Inca, as well as Huayna Capac, will be taken into account (Rowe 1945).

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