
Holocene Volcanism and Human Occupation in the Middle Susitna River Valley, Alaska

Archaeological and stratigraphic evidence from the middle Susitna River Valley, Alaska, reveals a rich record of human occupation during the Holocene, punctuated by volcanic ash deposits locally referred to as the Devil, Watana, and Oshetna tephtras. Deposition of tephra in the middle Susitna River Valley had the potential to affect subsistence resources and lifeways of prehistoric peoples; however, ambiguities remain in dating both tephra deposits and cultural occupations, and in characterization of the tephra deposits.

There has been little formal consideration of how deposition of tephra may have affected prehistoric hunter-gatherers using the middle Susitna River Valley during the Holocene and this research seeks to fill that gap. Electron probe microanalysis is used to geochemically characterize the tephra, enabling correlation to reference tephra and aiding in evaluating the number of volcanic events present in the stratigraphic record. Assimilation of existing radiocarbon dates from multiple sources with new AMS radiocarbon dates produced as part of this study allows for modelling the timing of tephra deposition and evaluating the cultural chronology of the area. Characteristics of archaeological assemblages bounded by tephra deposits are also evaluated relative to existing frameworks for understanding prehistoric hunter-gatherer behavior in interior Alaska. Interpretation is aided by consideration of analogous tephra depositional events and their environmental and ecological effects.

Results suggest that at least four tephra depositional events took place in the middle Susitna River Valley, with significant hiatuses in cultural occupation of the area occurring following deposition of the Devil and Watana tephtras. No significant changes are indicated in archaeological assemblages bounded by tephra deposits; however, analogous events suggest that tephra deposition in the middle Susitna River Valley would have affected resource procurement in the area and therefore likely contributed to cultural hiatuses. This project has clarified the Holocene stratigraphic sequence of the middle Susitna River valley, Alaska, and provided a more complete context for interpretation of the archaeological record.