

# Geochronology and Mineral Composition of the Pleistocene Sediments in Xitaijinair Salt Lake Region, Qaidam Basin: Preliminary Results

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**ABSTRACT:** Xitaijinair (XT) Salt Lake, located in the western Qaidam Basin, is significant for reconstructing the evolution of inland drying climate. However, the chronological and mineralogical records from this lake are rare. This study investigated the chronology (accelerator mass spectrometry (AMS)  $^{14}\text{C}$  ages and optically stimulated luminescence (OSL) ages) and mineral compositions of sediment in the 240-cm-deep XT Section of the Xitaijinair Salt Lake region. The conclusions are drawn as follows: (1) Nine AMS  $^{14}\text{C}$  ages, ranging between 33 and 40 cal ka BP, are obviously younger than the two OSL ages (57.9 and 69.1 ka). The  $^{14}\text{C}$  ages probably reflect contamination with modern carbon. (2) Both  $^{14}\text{C}$  and OSL ages indicate that the surface of Xitaijinair Salt Lake region has suffered erosion. (3) The sediments of XT Section are composed of silicates (quartz, muscovite, clinocllore and albite), carbonates (calcite, dolomite, and ankertie), halite and gypsum.

**KEY WORDS:** Qaidam Basin, Xitaijinair Salt Lake, geochronology, Pleistocene.

## 0 INTRODUCTION

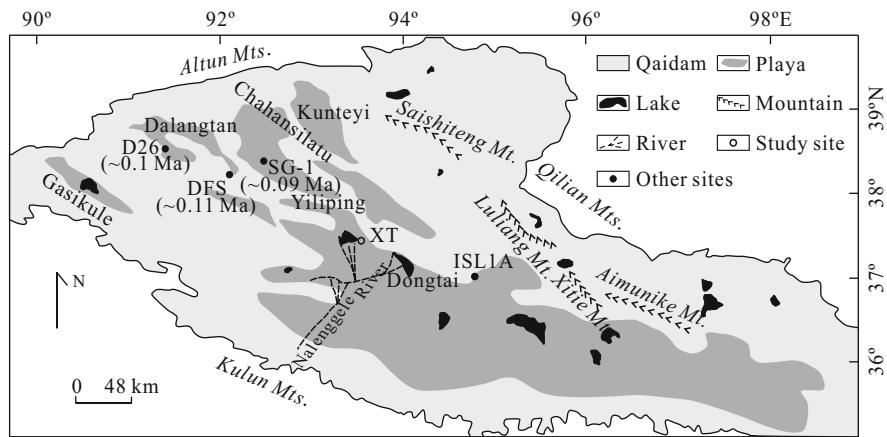


Figure 1.

## 1 MATERIALS AND METHODS

### 1.1 Section Setting

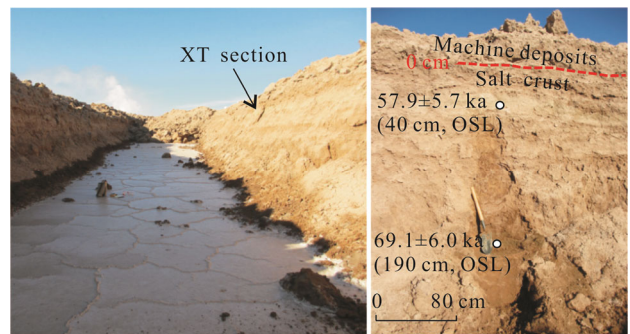


Figure 2.

## 2 RESULTS AND DISCUSSION

### 2.1 Chronology of Radiocarbon and OSL

### 1.2 Laboratory Analysis

μ

μ

Table 1

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$\delta$	$\sigma$
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Table 2

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$\mu$
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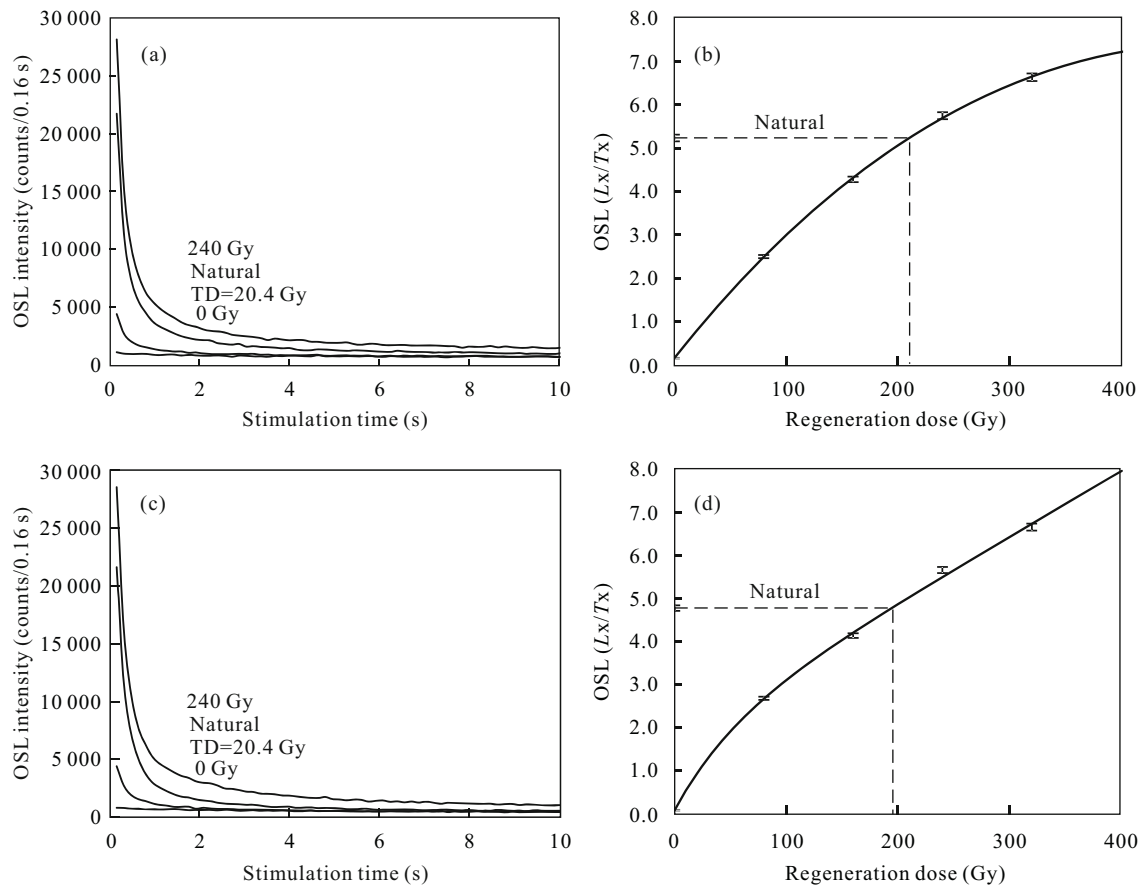


Figure 3.

L

T

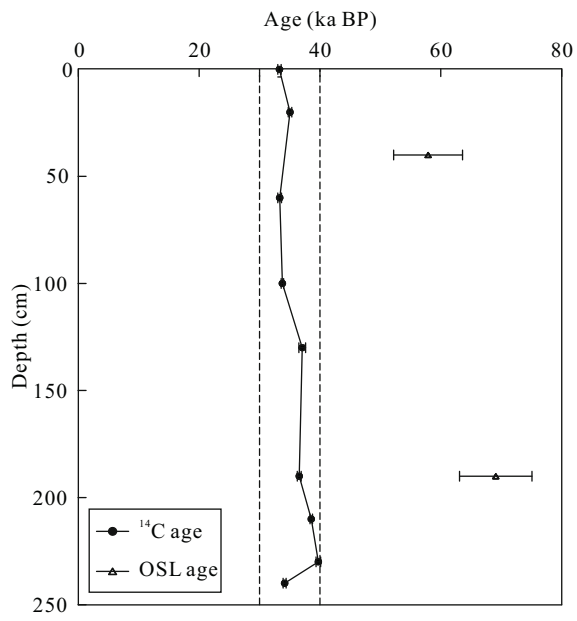


Figure 4

### 2.3 Mineral Compositions

### 2.2 Erosion in the Xitaijinair Region, Qaidam Basin

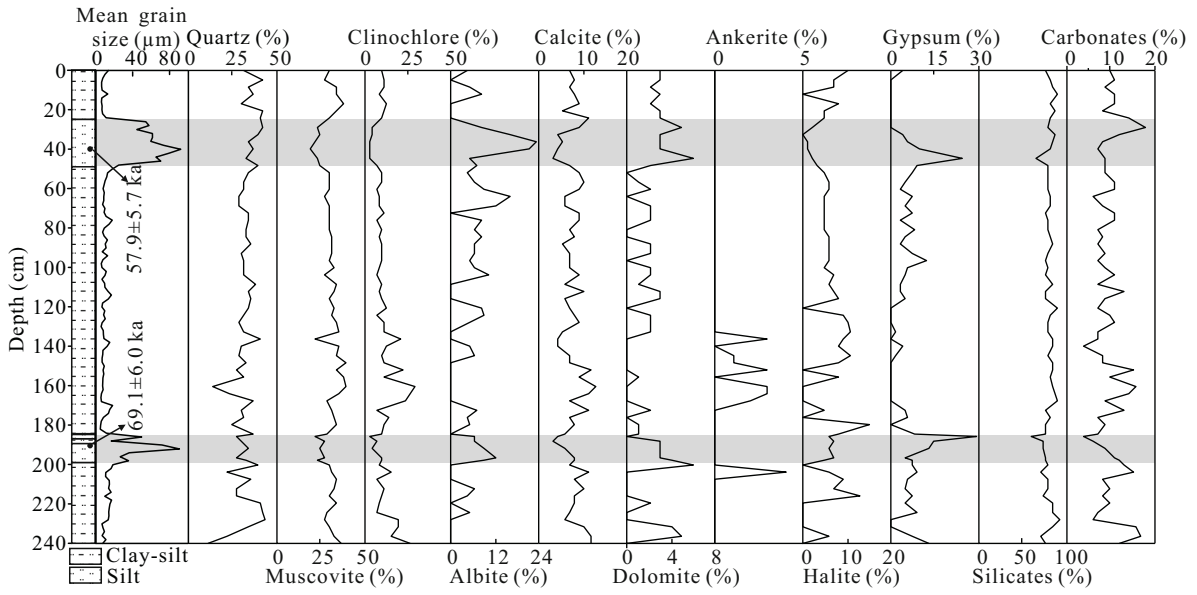


Figure 5.

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3 CONCLUSIONS

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ACKNOWLEDGMENTS

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