

4.1.P19**Last 30 kyr climate change of Qinghai-Xizhang (Tibet) Plateau recorded by carbon and oxygen stable isotopes of Zabuye Lake sediments**

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Before 30 kyr BP climate was cool and wet in the Qinghai-Xizhang (Tibet) Plateau, which was, relative flat, there were many lakes connected each other. The Qinghai-Xizhang Plateau occurred fourthly lift since 30 kyr BP. The sublime mountains obstruct warm and wet airflow from the Indian Ocean. The climate gradually tended towards aridity and the conterminous lakes were isolated because difference of rising size inside of the Qinghai-Xizhang Plateau. An 84 meter core drilled in the north basin of Zabuye Salt Lake was analyzed for $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ values of carbonates. Our results indicate that the $\delta^{13}\text{C}_{\text{PDB}}$ and $\delta^{18}\text{O}_{\text{PDB}}$ values vary from -11.4 to 7.7 and from -23.6 to 10.6 respectively. The $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ values show an inerratic change with 1.6 kyr periods. Before 30 kyr BP the lithological composition of the core is sand with carbonates; the $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ values were lower; climate was cool and wet. The $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ values have a rapid positive shift at 28 kyr BP, the lithological composition changed from sand to carbonate clay, the climate from cool-wet to cool-dry. The intense climatic changes have led to a drastic negative shift at 18 kyr BP and a rapid positive shift at 15.5 kyr BP. A drastic negative shift of $\delta^{18}\text{O}$ values at 13.5 kyr BP indicates the end of last glaciations. During 13.5~10.1 kyr BP the climate occurred many cold-dry events and warm-wet events; the most severe cold-dry event was Younger Dryas (YD) event, the most strong warm-wet event occurred at the transition from Pleistocene to Holocene (10.1 kyr BP). The Early and Middle Holocene were characterized by unstable climatic conditions with alternating warmer/cooler episodes as indicated by the severe fluctuations of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ values. Since 3.5 kyr BP to present the climate tended towards aridity and the mirabilite and halite concentrations steadily increased and became the dominant minerals in the sediments, the $\delta^{18}\text{O}$ values gradually increase.