

Quartz OSL dating of loess deposits from the eastern margin of the Tibetan Plateau

Shengli Yang^{1*}, Li Liu¹, Xiaojing Liu¹, Pushuang Li¹, Qiong Li¹

Poster ID: 68

¹Key Laboratory of Western China's Environmental Systems (Ministry of Education), College of Earth and Environmental Sciences, Lanzhou University, Lanzhou, 730000, China *Email: shlyang@lzu.edu.cn (S. Yang)

Introduction

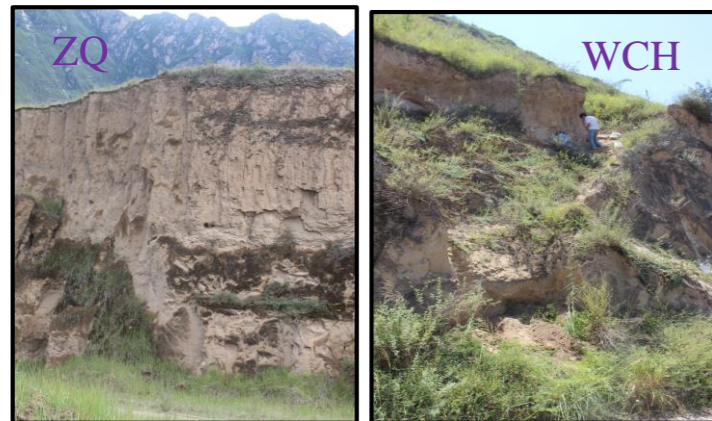
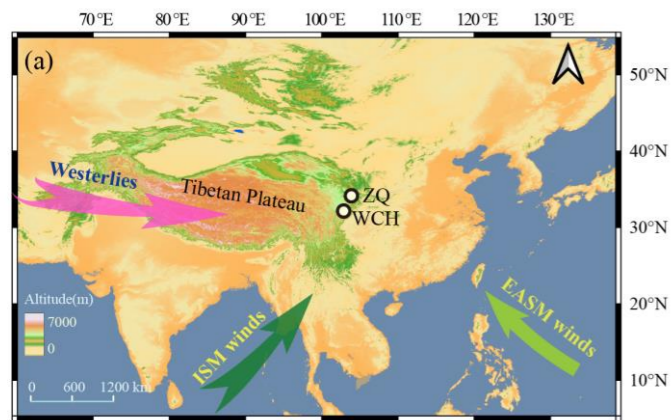


Fig.1 Geographic location of the study region

Loess sequences in the eastern Tibetan Plateau (ETP) are valuable paleoenvironmental archives for reconstructing the environmental history. The lack of detailed dating results limits the scope for understanding and interpreting the aeolian dust history and paleoenvironmental implications around the Tibetan Plateau.

The loess sequences investigated, named the Wenchuan (WCH) section and Zhouqu (ZQ) section, located on high terraces in the ETP.

Luminescence dating

Luminescence measurements were conducted by using an automated Risø TL/OSL-DA-20 reader. The single aliquot regenerative dose (SAR) protocol were used for De determination.

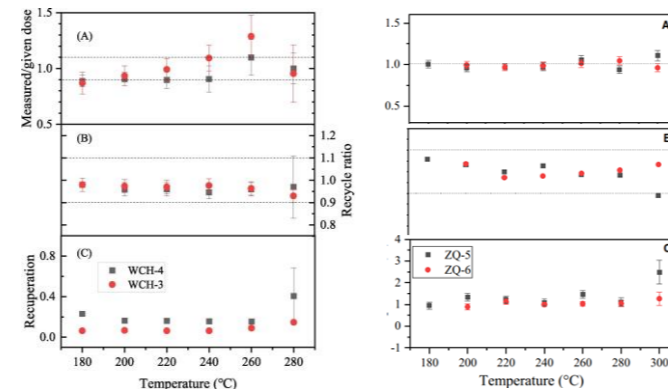


Fig.2 Preheat plateau and dose recovery test results

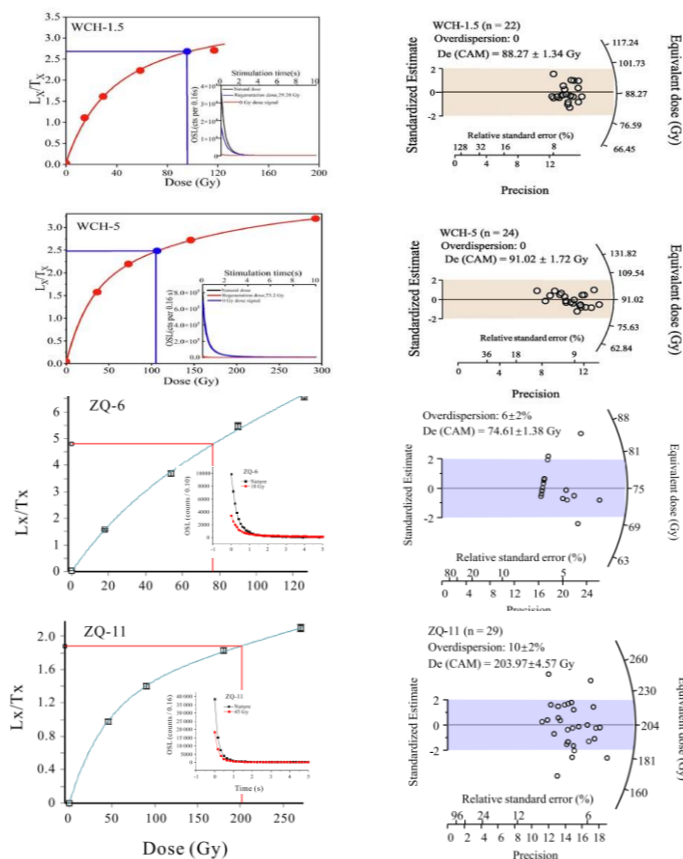


Fig.3 Decay curves and dose-response curves, radial plots of OSL De for representative samples

Results and Discussion

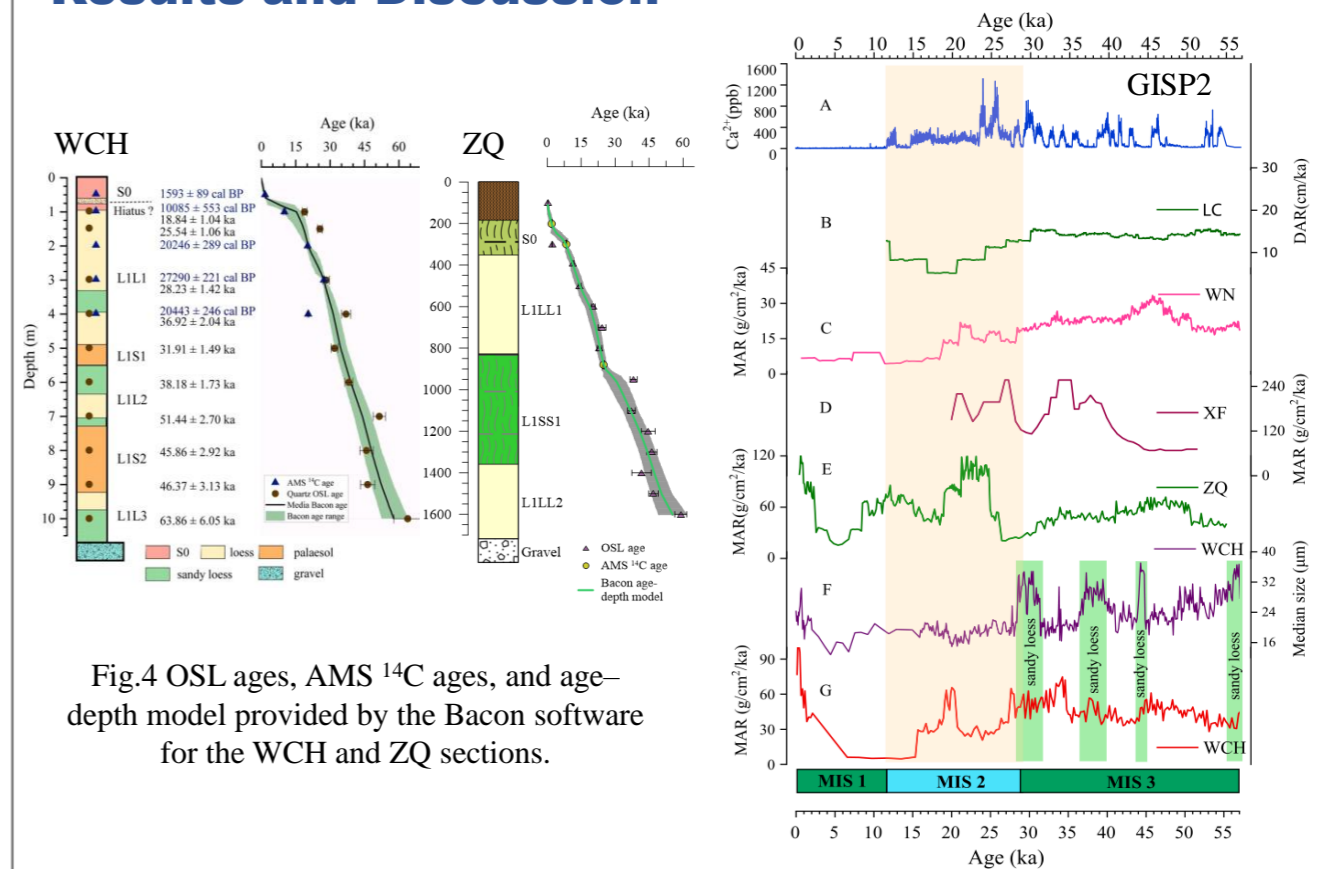


Fig.4 OSL ages, AMS ¹⁴C ages, and age-depth model provided by the Bacon software for the WCH and ZQ sections.

Fig. 5 Comparison of MAR in different regions. XF: Xifeng, WN: Weinan, LC: Luochuan.

Conclusions

- Quartz SAR OSL results demonstrate that the WCH and ZQ loess deposits had begun accumulating before ~60 ka.
- The reconstructed MARs varied substantially during the last glacial. The MAR in MIS 3 was the relatively high, and four enhanced dust events were superimposed on the long-term changes in MAR records.
- The variation in the MAR of the ETP is different from those in the CLP.

References

- 1) Yang, S., Liu, N., Li, D., et al., *BOREAS* 50, <https://doi.org/10.1016/j.aeolia.2021.100748>.
- 2) Liu, L., Yang, S., et al., 2021. *Aeolian Research* 53. <https://doi.org/10.1111/bor.12473>.