Archives of Holocene geomorphological development in the Khangai Mountains, Mongolia

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Study area → Located in the forest-steppe, on the northern edge of Khangai Mountains.
Questions

1) During which periods over the Holocene did the landscape experience
   - aeolian activity,
   - erosion and colluvial deposition,
   - fluvial incision and sedimentation,
   - landscape stability and soil formation?

2) In which way and when was the geomorphological development affected by
   - climate changes
   - fires
   - human influence

Approach

Archives used for reconstructing landscape dynamics over time.→ Sedimentological and pedological analysis, dating by OSL and $^{14}$C.
Colluvial deposits on toe slopes, with dark layers rich in organic matter

*Periods of forest fires (ages of charcoal)? Periods of slope wash? Periods of soil formation? Periods of peat development?*
Sediments on pediments:

→ Aeolian and colluvial deposits, embedded palaeosols

Periods of geomorphological activity?

Periods of stability and soil formation?
Stratified alluvial sediments:

→ Sandy and silty sediments, including dark OM-rich layers and charcoal

When were the periods of sedimentation / incision?

Is there a relation between sedimentation and fire events?
Last Glacial Maximum, around 20 ka
Accumulation of terrace $T_{1b}$, formation of alluvial fans, extensive aeolian processes

Late Glacial, 17-10 ka
Incision of terrace $T_{1a}$ and aeolian deposition

Early to Mid-Holocene, 10-3 ka
Incision of terrace $T_0$, soil formation

Late Holocene, 3-2 ka
Alluvial sedimentation, erosion, slope wash

(Sub-)recent
Fluvial incision, deflation

Study area◼ Questions & approach◼ Examples of archives used◼ Preliminary scheme of landscape development

Preliminary scheme of landscape development in the northern Khangai Mountains.