

Response to the Editor's Review Comments

Dear editor,

Thank you very much three thoughtful comments. We sincerely appreciate your careful review and your recognition that our fieldwork and analysis advance understanding of loess landslide initiation under different vegetation types. Regarding your technical comments, we have provided detailed responses below.

We agree that the suction-stress curves for the two soil layers in woodland and shrubland shown in Figs. 7c and 7d were not actually used in our analysis because the approach is approximate. We have removed the suction-stress curves map, as suggested. At the same time, we have added a clarification in lines 236–242 of the manuscript on the criteria used to define the sliding layers in woodland and shrubland. Accordingly, we have revised both the caption of Fig. 5 and the definition of z in Eq. (3). The changes made in the manuscript are as follows:

1. Lines 107-110:

The landslide depths in the woodland and shrubland were measured during field investigations. Landslide point and areal densities are calculated by dividing the total number of landslides and the total scar area by the woodland and shrubland areas, respectively. The lateral extent of each landslide is the sum of the sidewall and head scarp areas. The unit upslope contributing area is the ratio of the total **contributing area** to the scar width.

2. Lines 174-175:

z is the **landslide depth** (m),

3. Lines 217-218:

Figure 5. Landslide characteristics in woodland and shrubland. (a) point density by slope-gradient class; (b) areal density by slope-gradient class; (c) **landslide width and volume**; and (d) **landslide depth and lateral area**.

4. Lines 236-242:

Mean landslide depths in woodland and shrubland are 0.84 m and 0.55 m, respectively (Fig. 5d). Soil-moisture monitoring and soil sampling were conducted at three depth intervals (0–30, 30–60, and 60–90 cm), as described in Sect. 3.2. Because observed landslide depths in woodland were mostly within 60–90 cm, this layer was taken as the representative sliding layer for woodland. Likewise, because observed landslide depths in shrubland were mostly within 30–60 cm, this layer was taken as the representative sliding layer for shrubland. Loess slopes generally remain unsaturated during natural rainfall infiltration and drainage (Lan et al., 2021; Wei et al., 2022). Therefore, we used the SWCCs and HCFs to analyze unsaturated hydro-mechanical differences between sliding-layer soils in woodland and shrubland.

5. Lines 216-318:

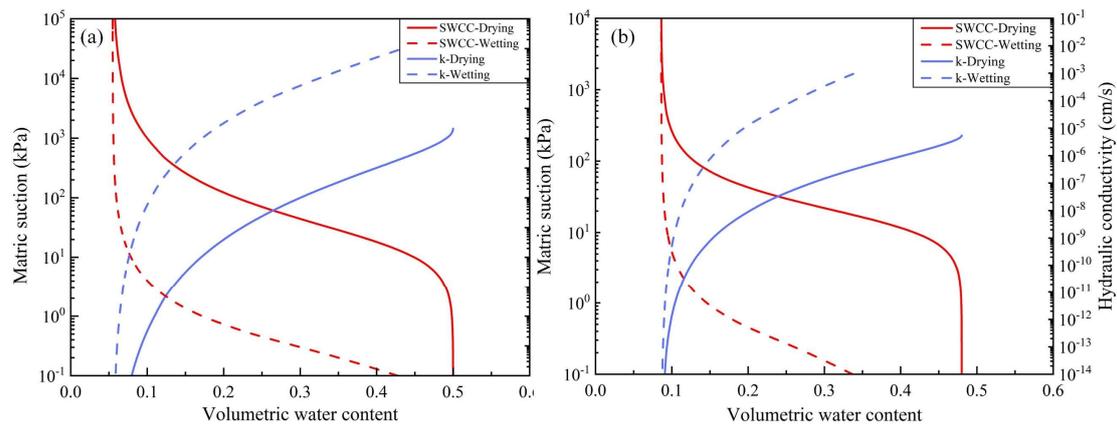


Figure 7. Differences in the hydromechanical properties of the sliding-layer soils. **(a)** SWCC for layer 3 of the woodland soil profile; **(b)** SWCC for layer 2 of the shrubland soil profile.

In addition to the revisions detailed above, we have also made several minor editorial corrections, which are documented in the file with tracked changes.

Thank you once again for your support and guidance throughout the review process.

Best regards,

Yang Ruijie (on behalf of all coauthors)