



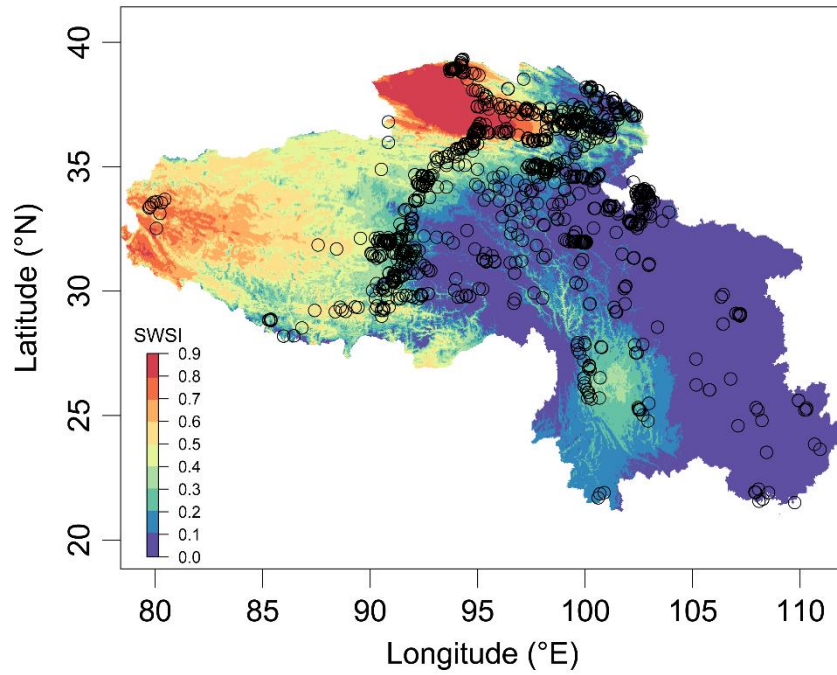
*Supplement of*

## **Different facets of dry–wet patterns in south-western China over the past 27 000 years**

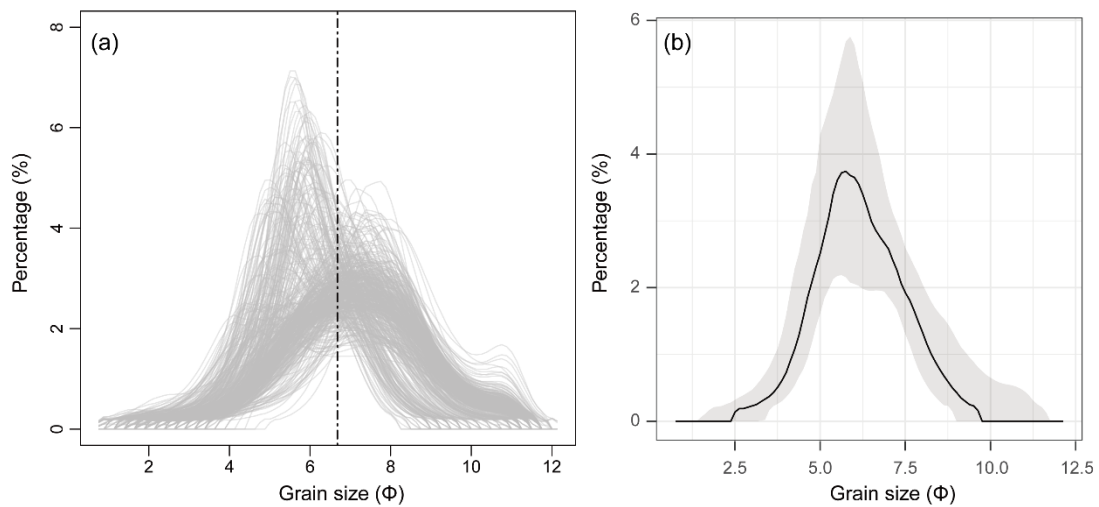
**Mengna Liao et al.**

*Correspondence to:* Jian Ni ([nijian@zjnu.edu.cn](mailto:nijian@zjnu.edu.cn))

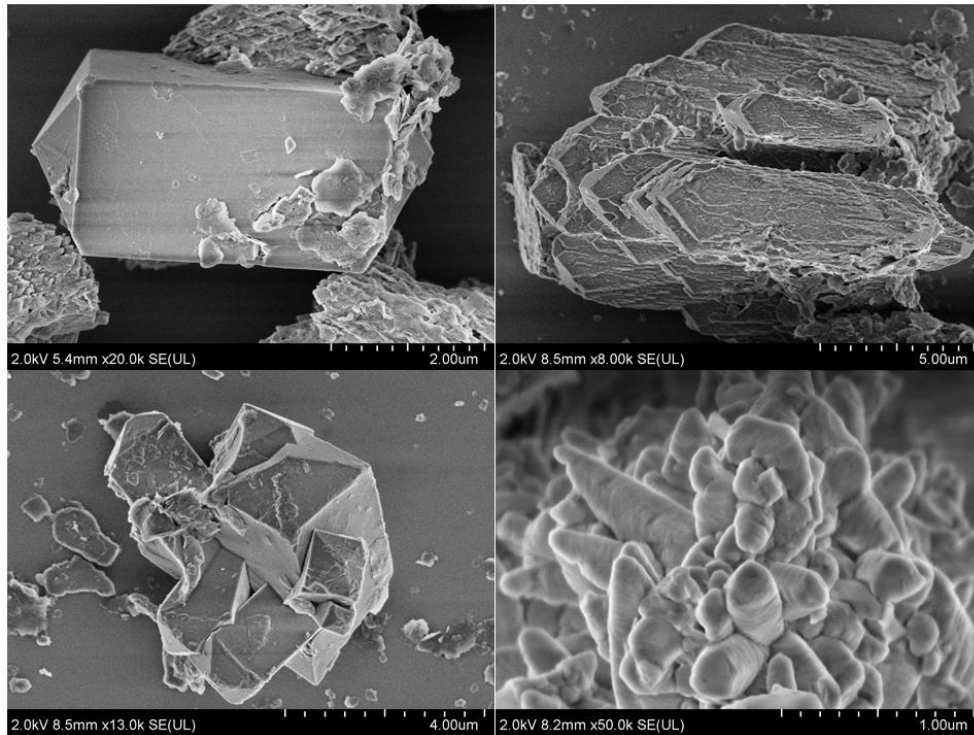
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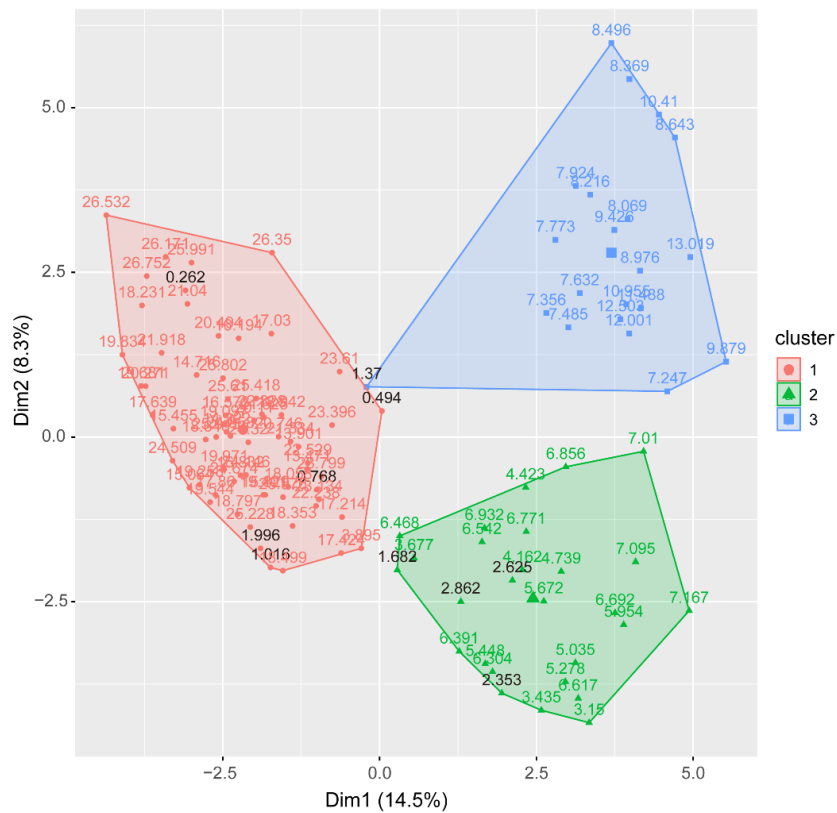
**Figure S1** Locations of the surface pollen sites used for reconstructing soil water stress index (SWSI). The base map shows the distribution of modern SWSI.



**Figure S2** (a) Grain-size distributions of all samples from core YLH. The dotted line separates two distinct distribution modes at 6.8  $\Phi$ ; (b) synthetic grain-size distribution for sediment samples with percentage peaks distribute on the left side of the boundary in the subplot (a).



**Figure S3** SEMs of authigenic carbonate from four selected samples at 41, 95, 161 and 257-cm depths.



**Figure S4** Result of the K-means cluster analysis for pollen data from core YLH. The numbers denote the deposition ages of the samples, those from the recent 3,000-year sediments are marked in black.

**Table S1.** Results of the leave-one-out cross-validation of the WA-PLS models. The values given are: components, root mean squared error of prediction (RMSEP), prediction  $R^2$ , average and maximum bias of parameter estimate (Avg.Bias, Max.Bias).

|        | RMSEP | $R^2$ | Avg.Bias | Max.Bias |
|--------|-------|-------|----------|----------|
| Comp01 | 0.168 | 0.57  | 0.00173  | 0.248    |
| Comp02 | 0.159 | 0.62  | 0.00076  | 0.191    |
| Comp03 | 0.154 | 0.64  | 0.00160  | 0.182    |
| Comp04 | 0.153 | 0.65  | 0.00195  | 0.177    |
| Comp05 | 0.153 | 0.65  | 0.00253  | 0.171    |