

Supplementary material

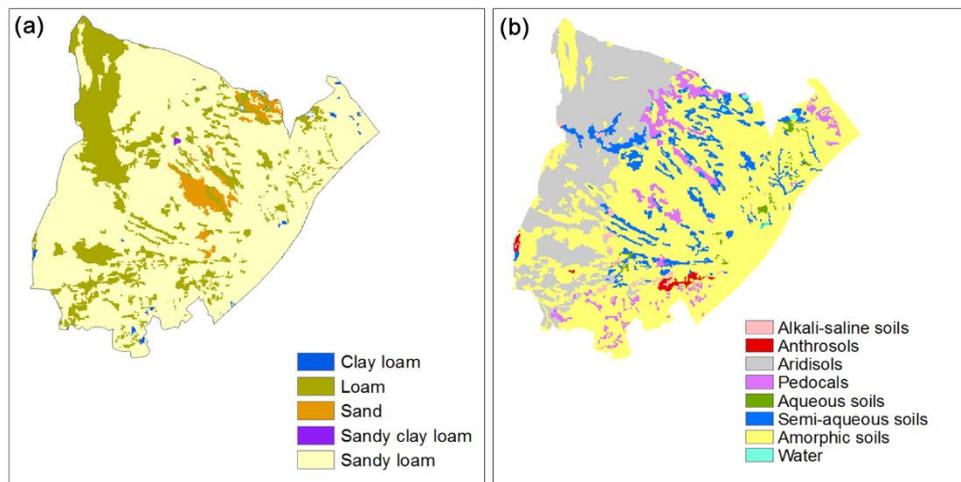


Figure S1. The soil texture classes (a) and distribution of soil types (b) in APENC.

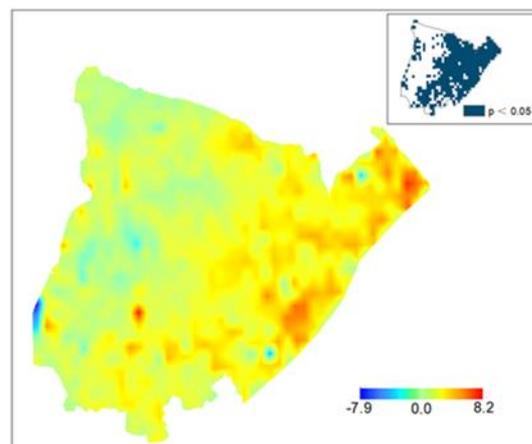
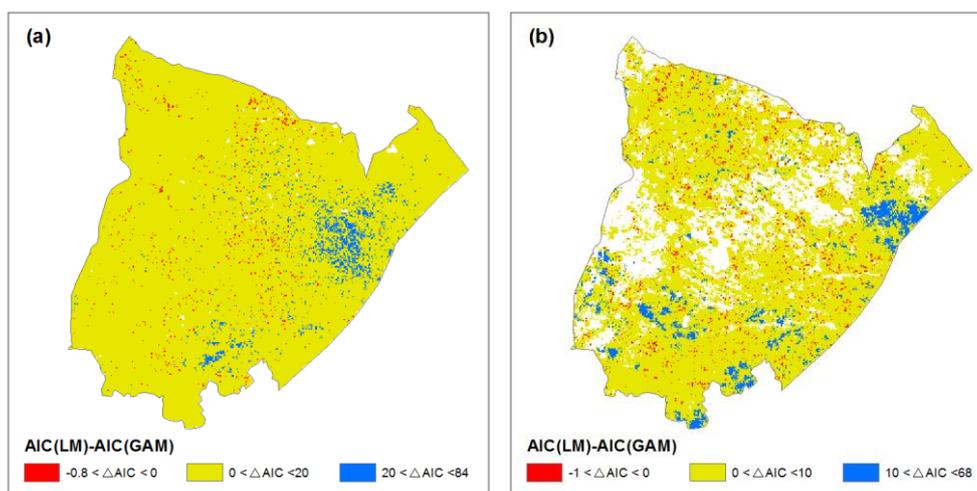
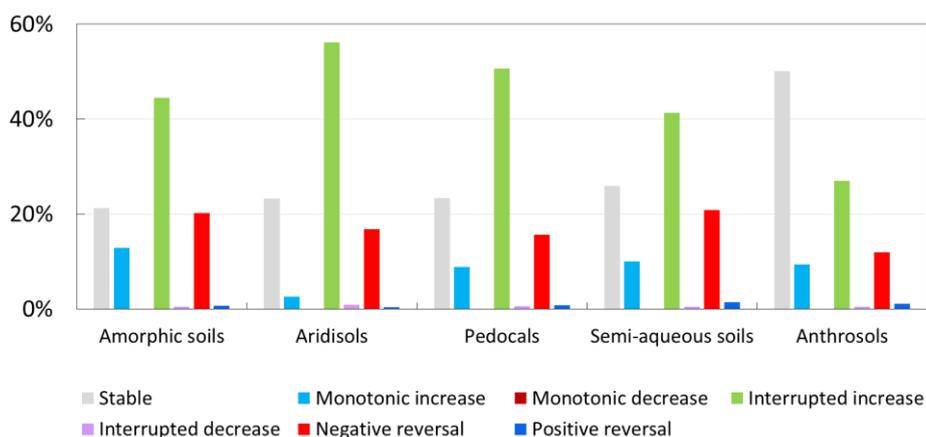


Figure S2. The linear trend of ER\_ET changes during 2000 to 2015 in APENC.

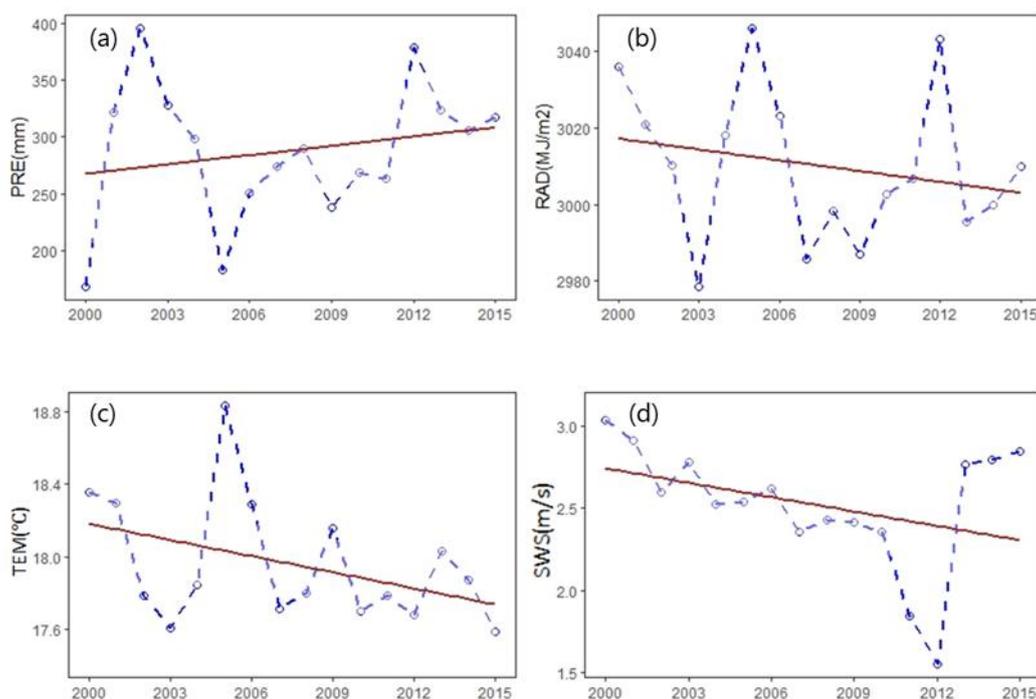


**Figure S3.** The difference between the linear model (LM) and the generalized additive model (GAM) in (a) fitting NDVI and (b) TVDI in the value of Akaike Information Criterion (AIC), similarly structured with the same climatic predictors of air temperature, precipitation, near surface wind speed and total downward solar radiation.

For the five main soil types, the proportions of the “Negative reversal” were almost equal (Figure S4). The share of the “Stable” type in Anthrosols (50.11%) was larger than that of the other soil types (21.32%–25.96%), but the “Interrupted increase” type (27.02%) was smaller than for the other categories (41.30%–56.12%).



**Figure S4.** The trend change types for the main soil types in APENC.



**Figure S5.** (a) The temporal trend of the growing season accumulated precipitation, (b) growing season accumulated total downward solar radiation, (c) growing season mean temperature, and (d) growing season mean near-surface wind speed. All analyses cover the period during 2000–2015.