



## **The vegetation history and climate change in Taiwan from MIS 6**

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Three pollen records sampled from Yuchi Basin, Toushe Basin and Liyu Lake, respectively, of central Taiwan provide valuable vegetation history and climate information from MIS 6. During the MIS 6, the Yuchi Basin (500 m AMSL) was occupied not only by temperate conifer and broadleaved mixed forest but also by subtropical evergreen forest. In the interval of MIS 4 and 2, the Toushe Basin (650 m AMSL) was occupied completely by the temperate conifer and broadleaved mixed forest; however, the warm-temperate evergreen forest appeared occasionally during the MIS 2. Comparing the inferred paleo-vegetation types of MIS 2, 4, and 6, we suggest that the climate condition of MIS 4 was colder than MIS 2 and 6. In addition, the penultimate glacial period, i.e. MIS 6, also shows abundant herb pollen in Yuchi, indicating the driest climate condition among the three stages.

The Holocene (11.5 kyr BP - present) is characterized mainly by warm-temperate evergreen forest and subtropical evergreen forest. The warm-temperate evergreen forest dominated Toushe between 11.5 and 8.0 kyr BP. Following this, the subtropical evergreen forest appeared between 8.0 and 4.0 kyr BP. An alternation between warm-temperature and subtropical evergreen forests occurred during the interval 4.0 to 1.7 kyr BP.

The subsequent record is shown in the Liyu Lake. The basin was dominated mainly by subtropical evergreen forests during the last 2.6 kyr BP; however, shift of vegetation was especially frequent between 1.6 and 1.2 kyr BP. Charcoal value also fluctuates remarkably during the same interval, corresponding with an increase in sedimentary rate. Thus, the shift of vegetation could be considered as the result of frequent fire events, which also induce the change in sediment influx into the lake. This interval coincides with Little Ice Age, indicating the relationship between frequent fire events and cool/dry climate condition. In addition, the fire events are probably partly resulted from human influence because that anthropogenic activity was documented to exist in the Liyu Lake region within the recent 4000 yrs.