



The late Quaternary vegetation and climate changes inferred from the pollen record in Dongyuan Lake, southern Taiwan

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A pollen record sampled from a valley basin in southern Taiwan shows the environmental change—specifically vegetation and climate—that has occurred there since 22000 cal. yr BP. In contrast to the subtropical evergreen forest found there today, temperate broadleaved and conifer mixed forest occupied the basin between 22000 and 16000 cal. yr BP, which suggests that climate conditions were considerably cold during the Last Glacial Maximum (LGM) and early deglacial period. During the interval from 16000 to 11400 cal. yr BP, this basin was situated near an ecotone of two altitudinal vegetation zones, i.e. a temperate conifer, broadleaved mixed forest and a warm-temperate evergreen forest, which suggests the gradually warming climate conditions of the late-glacial period. The climate experienced further warming between 11400 and 8200 cal. yr BP, as evidenced by the dominance of warm-temperate evergreen forest elements. Subsequently, the subtropical evergreen forest prevailed in the basin between 8200 and 4100 cal. yr BP, which reflects a considerably warmer mid-Holocene. In addition, tropical evergreen forest appeared in the area circa 6100 cal. yr BP, marking the Holocene Thermal Optimum (HTO). Following that, a warm-temperate evergreen forest thrived between 4100 and 2100 cal. yr BP. Finally a subtropical evergreen forest began its reemergence in the basin from 2100 cal. yr BP and continues to grow there today.