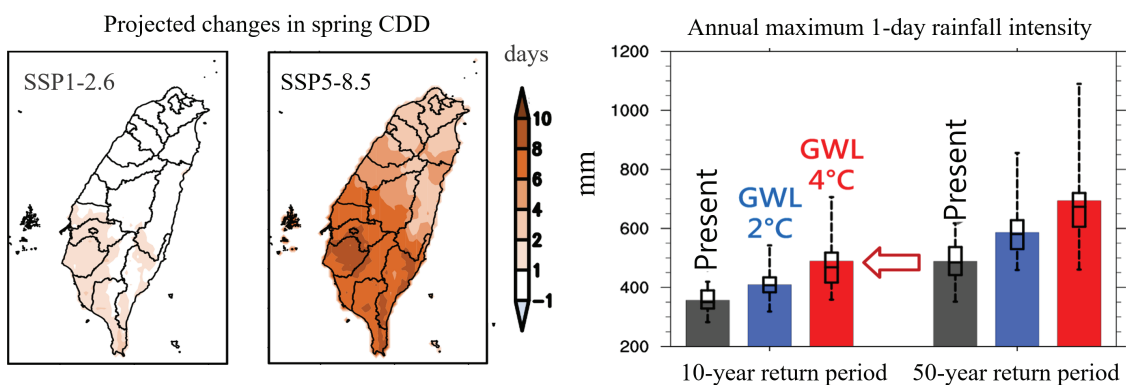


# PRECIPITATION POLARIZATION



Under warming scenarios, the trend in Taiwan’s rainfall is characterized by “precipitation polarization;” the maximum number of CDDs is projected to increase, as is the annual frequency of heavy rainfall events. For example, by the end of this century, springtime CDDs across Taiwan are projected to increase in number under all emissions scenarios. The southern regions—such as Chiayi, Tainan, Kaohsiung, Pingtung, and Taitung—which historically experience longer dry periods in spring, are projected to experience even longer dry seasons.

The results of an analysis of the 10-year and 50-year return periods of rainfall intensity reveal that under GWL 4°C, the 10-year return period rainfall intensity is projected to be 468 millimeters, comparable to the 50-year return period rainfall intensity of 485 millimeters in the current climate. This result indicates that extreme rainfall events currently expected to occur once every 50 years could occur every 10 years under a 4°C warming scenario. This shift may pose considerable challenges to flood and slope stability management (Figure).



Figure

(Left) Projected changes in number of CDDs for spring by the end of the century under warming scenarios (units: days/year; adapted from Chen et al., 2023) and (Right) average annual maximum 1-day rainfall intensity for Taiwan under various GWLs.

