

Precipitation frequency and N₂O emission

Precipitation is a critical factor in the N₂O emission simulation. We compared interpolated precipitation events and observed precipitation events in 2000 (Fig. 1). The selected meteorological station was in Lanzhou (36°18'N, 103°30'E; Fig. 4), China. Although the interpolation method produced a larger number of rainfall events with less rain per event, the annual precipitation was quite close to the observed value (Fig. 1). To assess the difference in N₂O emission we compared the interpolated and observed precipitation – we ran the DNDC using the same parameters with the exception of precipitation. The results suggested that there was no significant difference ($P < 0.05$) in N₂O emissions using the two precipitation datasets (Figs. 2 and 3).

Fig 1 Comparison of interpolated annual rainfall and observed rainfall

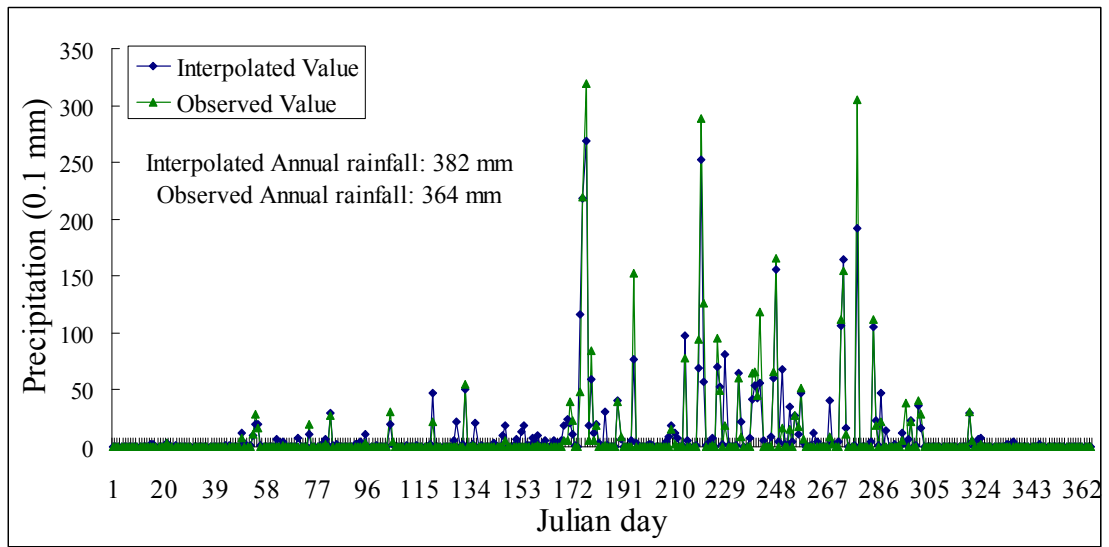


Fig 2 Comparison of simulated N₂O emission with interpolated precipitation and observed precipitation, respectively. Except precipitation, two simulations used same parameters including temperature.

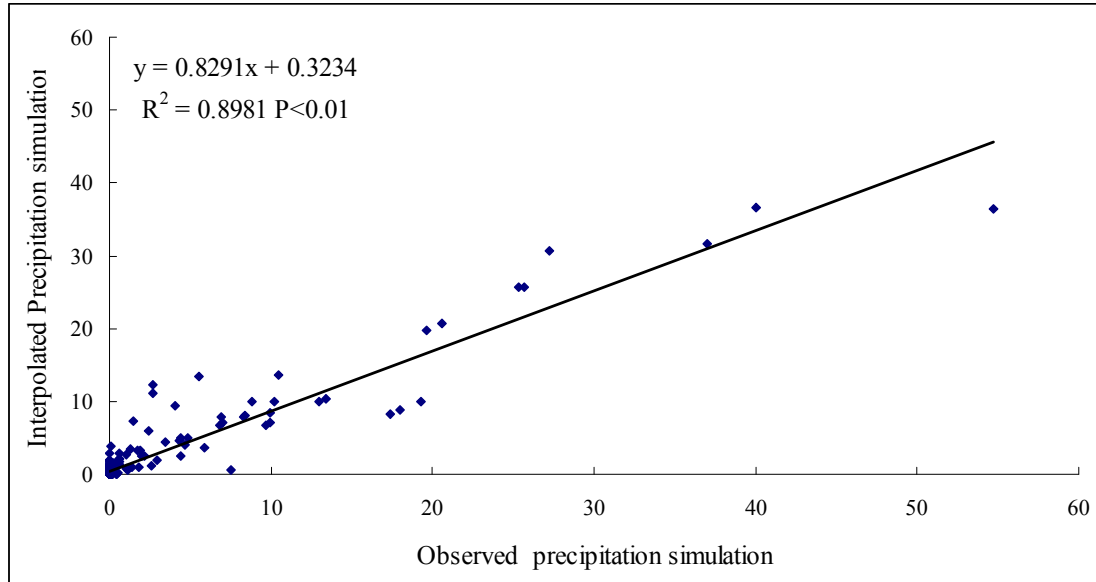


Fig3 Comparison of N₂O emission simulation with interpolated precipitation and observed precipitation

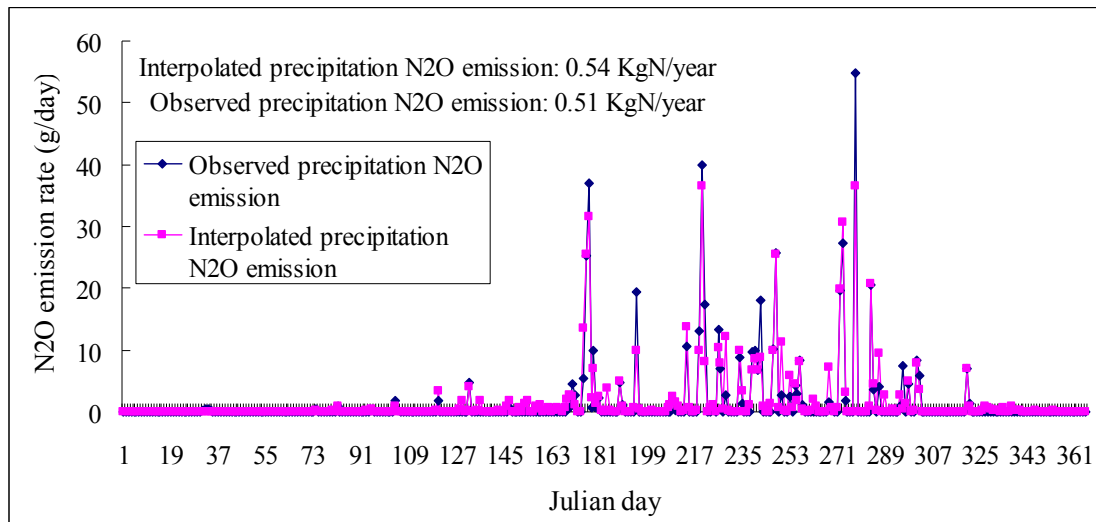


Fig 4 Metrological stations used in this study

