

# The Asian Monsoon Precipitation Classification based on the ISOMAP Analysis

John Chien-Han Tseng<sup>Central Weather Bureau</sup>、Bo-An Tsai<sup>National Central University</sup>、Kao-Shen Chung<sup>National Central University</sup>、Jia-Ching Wang<sup>National Central University</sup>

(1)Research and development center, Central Weather Bureau, MOTC

ISOMAP (isometric feature mapping) is one kind of nonlinear dimensionality reduction technique for extracting the features in spatial-temporal data. This research is aim at the Asian monsoon (10S-30N, 30E-150E) precipitation classification based on the low dimensional components of the ISOMAP analysis. The 2020-2021 Asian monsoon precipitation patterns were especially shown because Taiwan area was suffering the extreme drought events and the shortage of water supplies. The connection between the Niño 3.4 index and the ISOMAP reconstructed precipitation points was checked in order to understand the correlation between ENSO and Asian monsoon precipitation pattern. The preliminary results showed the past recent 31-month precipitation pattern in Asian monsoon area was very different in the past 40 years. The extreme low precipitation in Taiwan area was the miniature of the large-scale precipitation anomaly.

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