



On the Reliability of Composite Analysis: An Example by Wet Summer in Northern China

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Composite analysis is a commonly used statistical technique. The result of composite analysis is shown as sensitive to the choice of base period, which may partly explain the conflicting findings documented in previous studies. A reliability analysis is therefore suggested to complete the composite analysis, using the notion of reversibility. A complete composite study (i.e. the traditional composite analysis plus reliability analysis) is illustrated using wet summers in northern China as an example. While the base period can largely affect the composite results and the subsequent interpretations, this study shows that the composite analysis is highly reliable when it has been formed appropriately. Based on the signals extracted from composite analysis, 10 of the 13 wet summers can be “predicted” in this study.