

Approaches to evaluating weekly cycle significance: the Good, the Bad, and the Absent

John Daniel[†]; Robert Portmann; Susan Solomon; Daniel Murphy

[†] NOAA/ESRL Chemical Sciences Division, USA

Leading author: John.S.Daniel@noaa.gov

All time series, including randomly generated ones, exhibit weekly cycles. Nevertheless, many studies have simply used the existence of a weekly cycle in some meteorological variable as evidence of an anthropogenic link. Other studies have misused statistical tests in an attempt to prove the significance of a weekly cycle. We will discuss some of the statistical approaches that have been used in the past to determine whether weekly cycles are significant and therefore likely the result of human activity. We will also describe and evaluate a statistical test that we are using to determine the significance of temperature weekly cycles at individual stations and across large geographical areas.