

Reanalysis $\Psi(T)$

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1 Measure of Correlation

For both datasets, we first normalize $SSRD(t, x, y)$, $TCC(t, x, y)$ and $T2M(t, x, y)$ to have values in $[0, 1]$, and then subtract the mean value of $T2M(t, x, y)$ from $T2M(t, x, y)$ at every point in the domain.

We measure the correlation between these three values with the Kolmogorov-Smirnov test applied to $SSRD(t, x, y)$ and $TCC(t, x, y) + T2M(t, x, y)$, treated as distributions w.r.t time; i.e., representing how correlated these values are throughout the space, i.e., computing: $KS(x, y) = \sup_t SSRD(t, x, y) - TCC(t, x, y) - T2M(t, x, y)$.

2 How the Parameters are Related

We were unable to find any compelling relationships between the parameters in the first dataset, however we were able to find a relationship between the parameters in the second that was quite strong in some locations, but slowly decayed.

The relationship was:

$SSRD(t, x, y) - T2M(t, x, y)$ and $T(t, x, y)$ are approximately periodic functions with similar frequencies and amplitudes.

For example at the location **(8.5, 77.25)** (appropriate phase shifts done):

Figure 1: Plot

