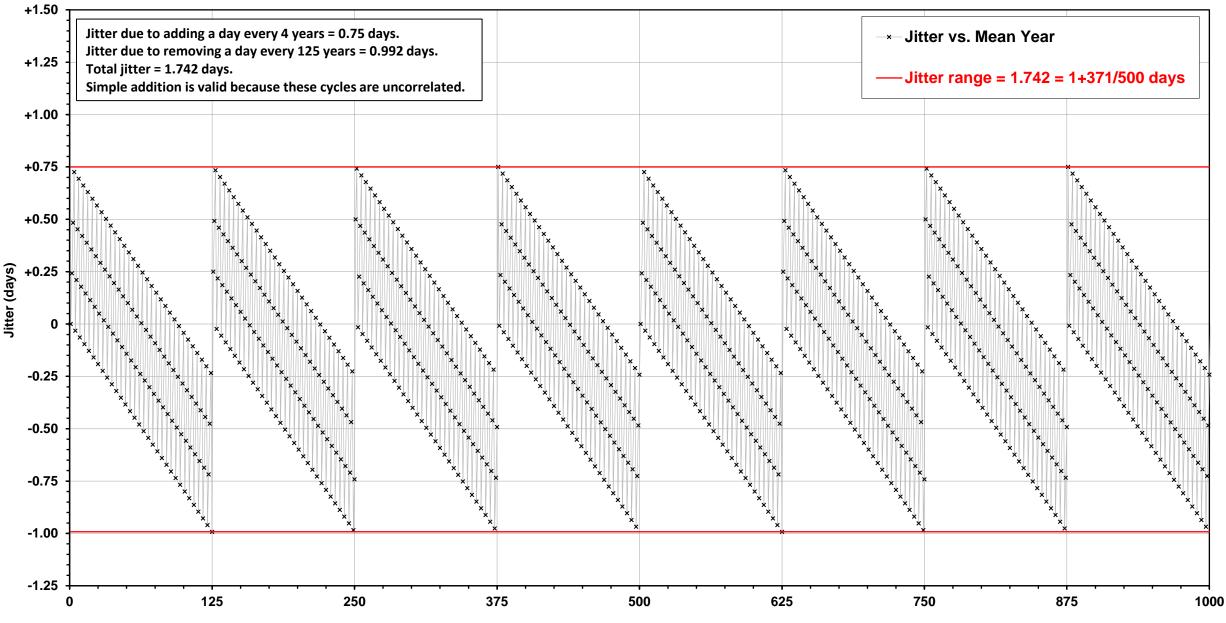# Jitter of Dual Uncorrelated Cycles, an Educational Example from Karl Palmen

Add a day if year is divisible by **4**, Remove a day if year is divisible by **125**. Cycle = 4 x 125 = 500 years

Jitter due to adding a day every 4 years = 0.75 days.
Jitter due to removing a day every 125 years = 0.992 days.
Total jitter = 1.742 days.
Simple addition is valid because these cycles are uncorrelated.

Legend:
- ✕ Jitter vs. Mean Year
- Jitter range = 1.742 = 1+371/500 days

Y-axis: Jitter (days), ranging from -1.25 to +1.50

X-axis: Year (mean year of $365+^{121}/_{500}$ days = 365d 5h 48m $28+^4/_5$s = 365.242 days = mean southward equinoctial year)