Synthesis test 1:

$$x = x1 + x2 = 1 \times \cos(2 \times \pi \times \frac{1}{27.2122} \times t + \pi) + 1.5 \times \cos(2 \times \pi \times \frac{1}{27.5545} \times t)$$

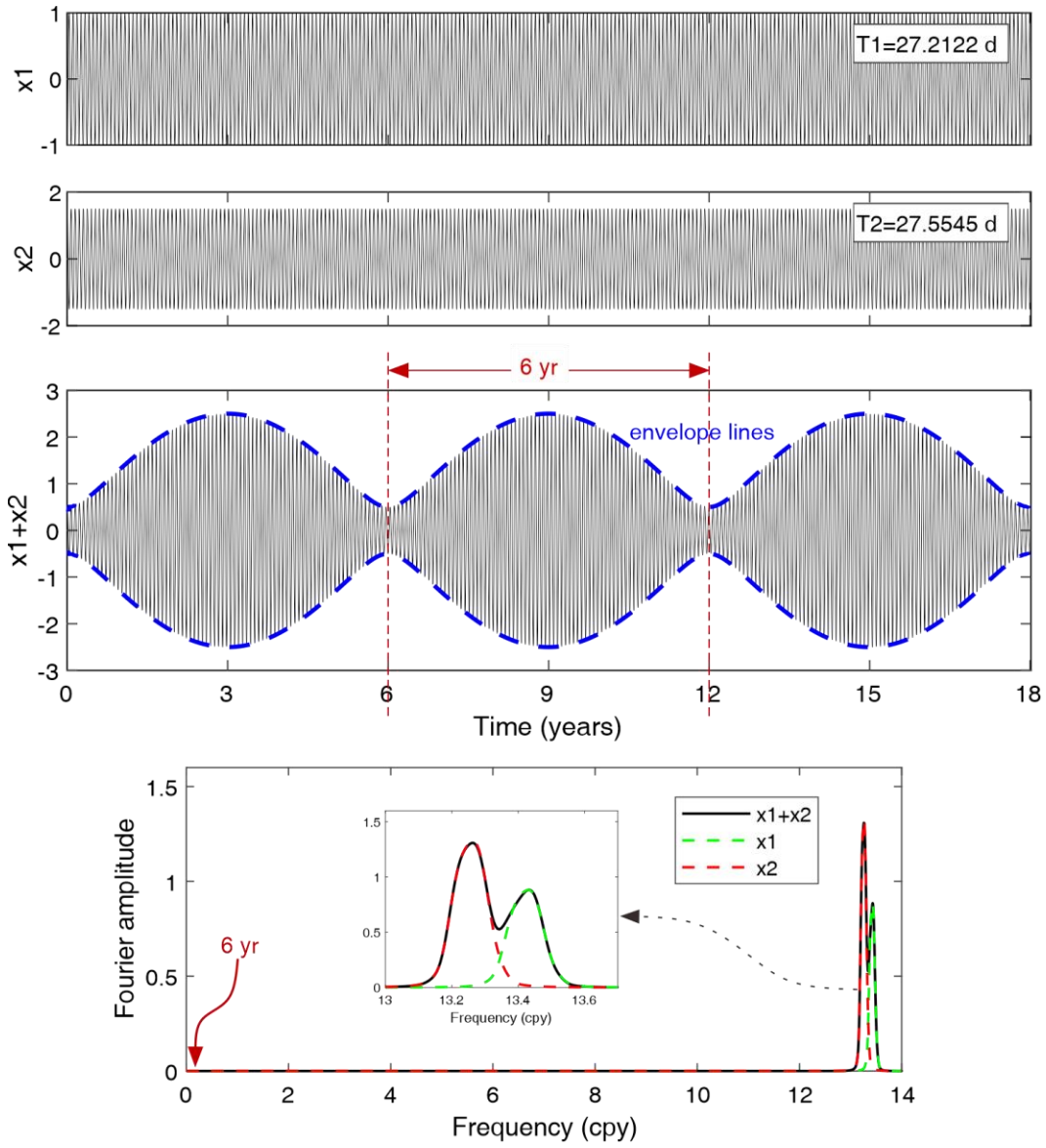

Figure 1. Synthesis test for the beating period 6yr by superimposing two cosine oscillations with the periods of 27.2122d (lunar nodal month) and 27.5545d (Mm tide), respectively. The data interval is one day, and the data length is 18 years.

Synthesis test 2:

$$x = x1 + x2 = 2 \times \cos(2 \times \pi \times \frac{1}{365.25} \times t) + 2 \times \cos(2 \times \pi \times \frac{1}{433} \times t + \pi)$$

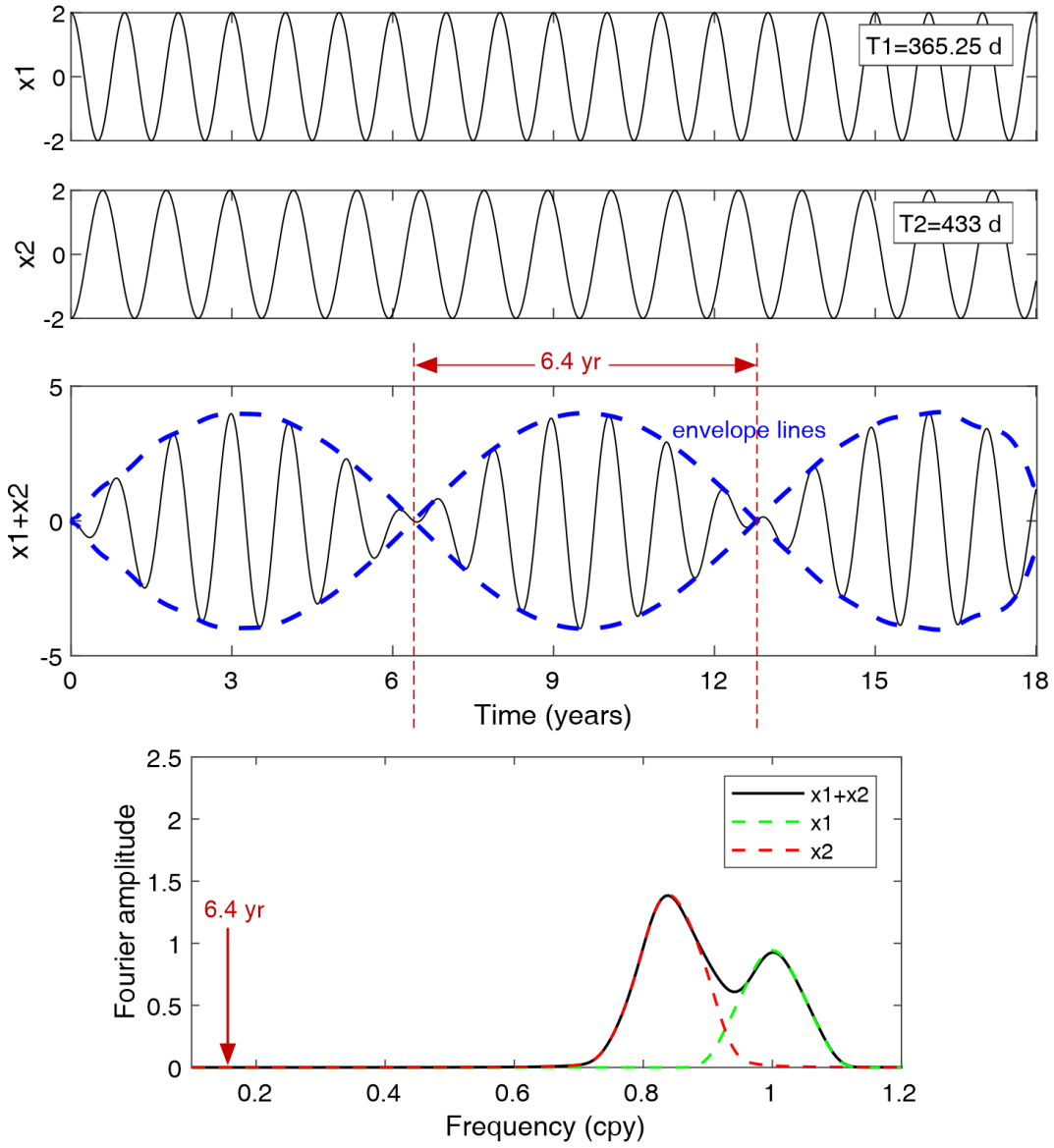

Figure 2. Synthesis test for the beating period 6.4yr by superimposing two cosine oscillations with the periods of 365.25d (annual wobble) and 433d (Chandler wobble), respectively. The data interval is one day, and the data length is 18 years.