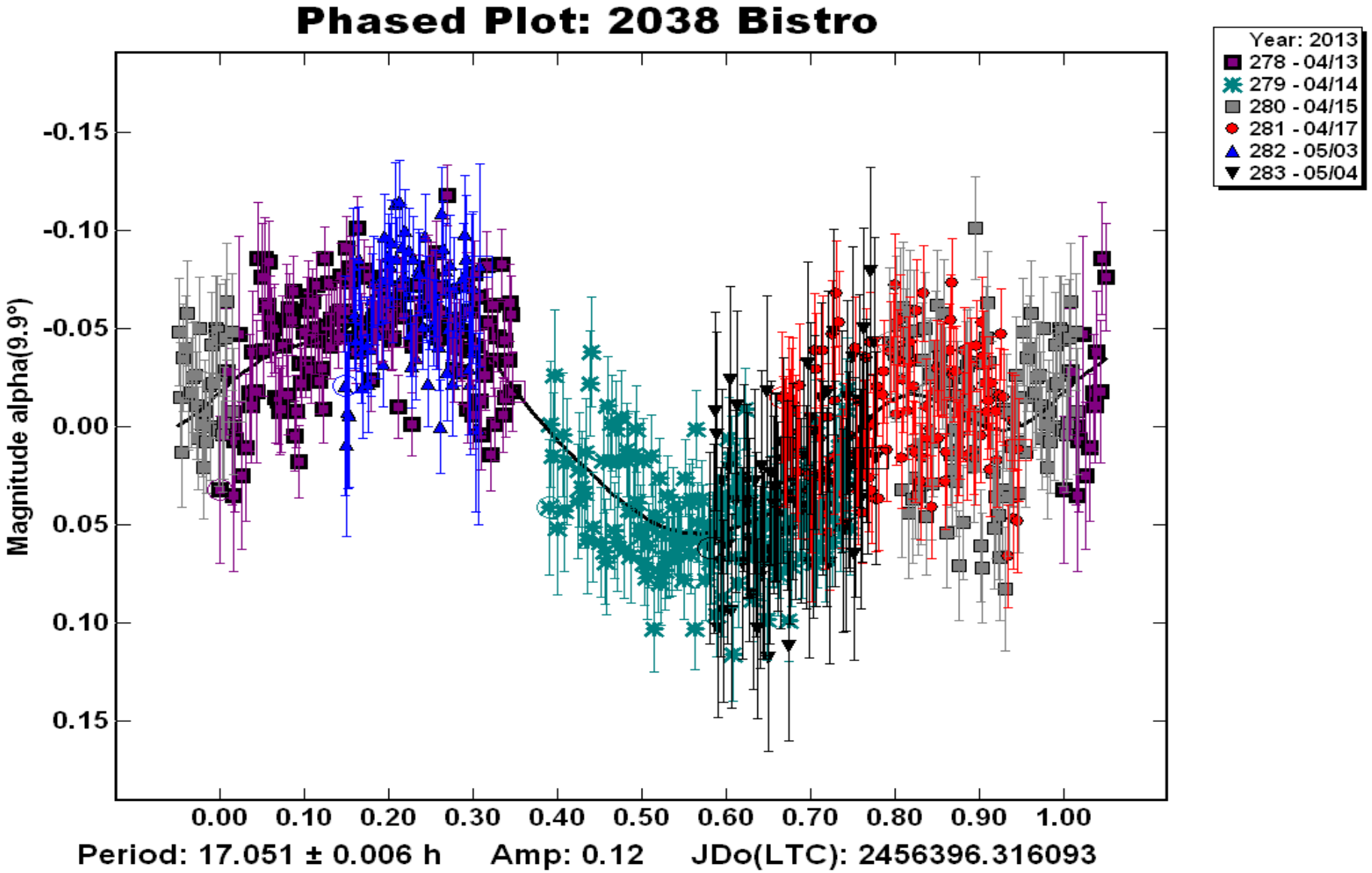

Phased Plot: 2038 Bistro
Year: 2013
278 - 04/13
279 - 04/14
280 - 04/15
281 - 04/17
282 - 05/03
283 - 05/04
Magnitude alpha(9.9°)
-0.15
-0.10
-0.05
0.00
0.05
0.10
0.15
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
Period: 17.051 ± 0.006 h
Amp: 0.12
JDo(LTC): 2456396.316093

Summary

Assumptions

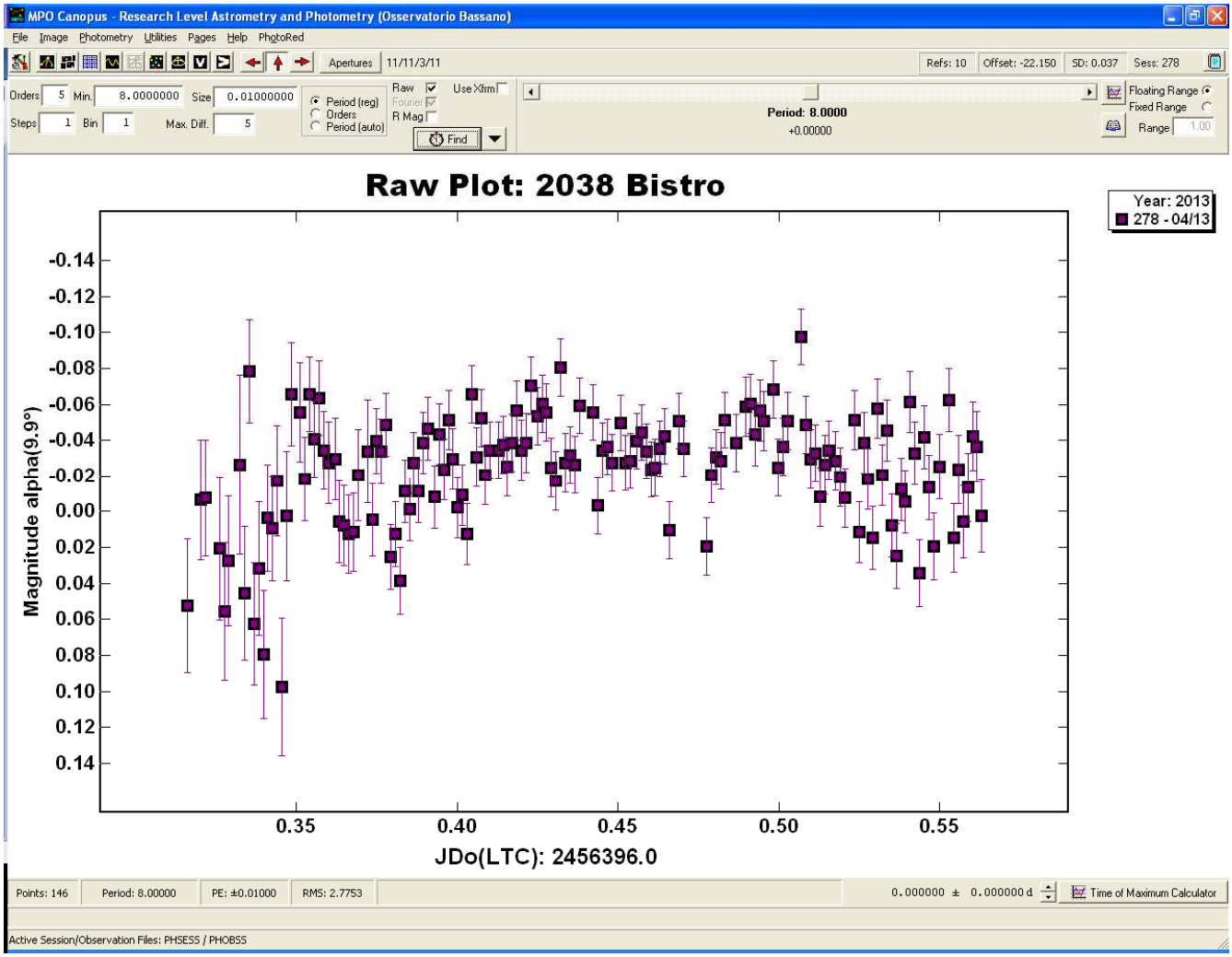
Discovered 24/09/1973 at Berne observatory by Paul Wild
Semi-major axis: 2.435UA
Orbital eccentricity: 0.0895
Orbital inclination: 14.793°
Diameter: 12.6 Km

This minor planet is reported on Minor Planet Bulletin n. 40-2 with period = 7.88 hours, amplitude = 0.24 Mag. and quality code 1

Initial data

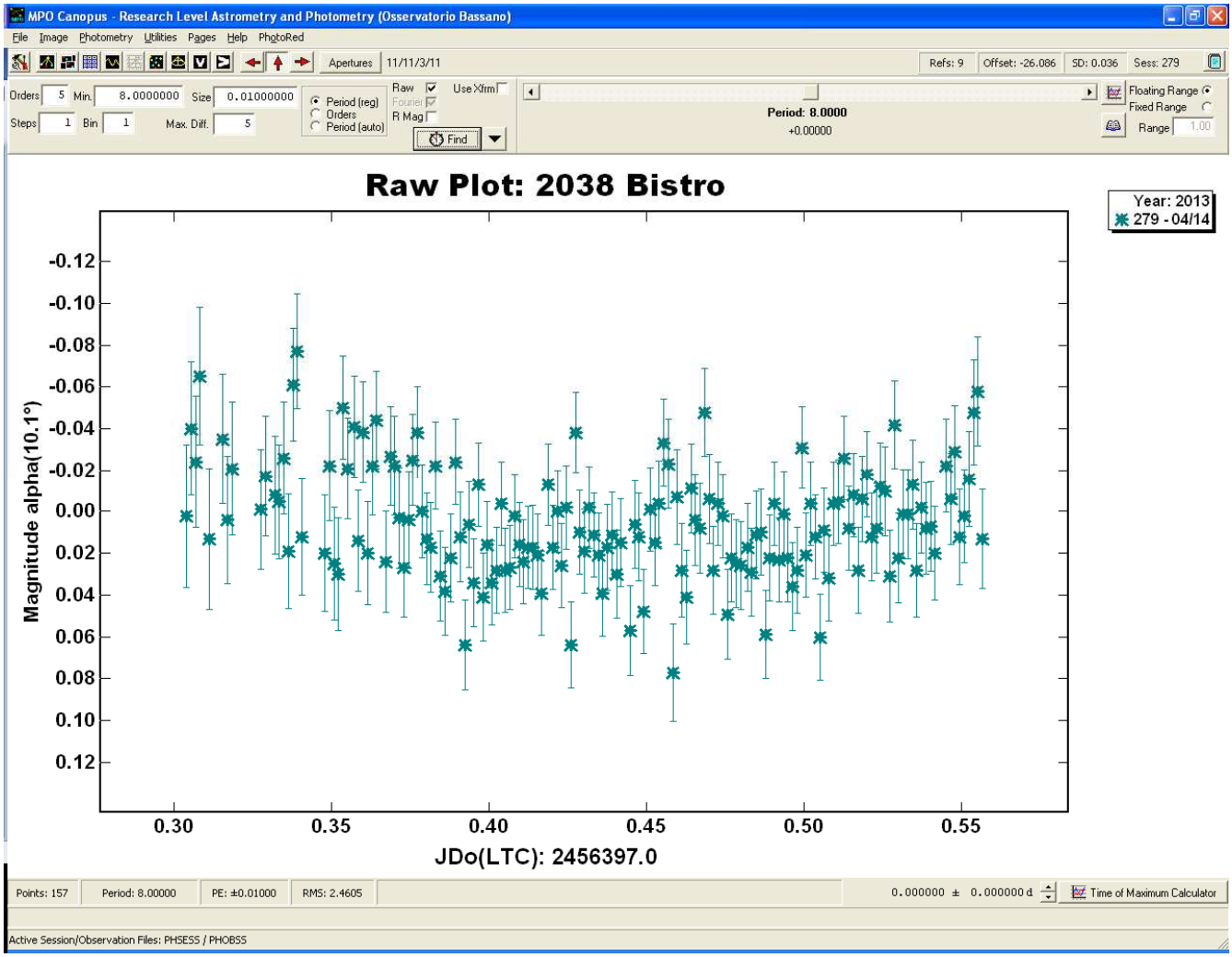
Analysis was done with measurement taken between 13/04/2013 and 04/05/2013.
Observations cover 21 days span.
These sessions was included

Sessions 278 taken 13/04/2013



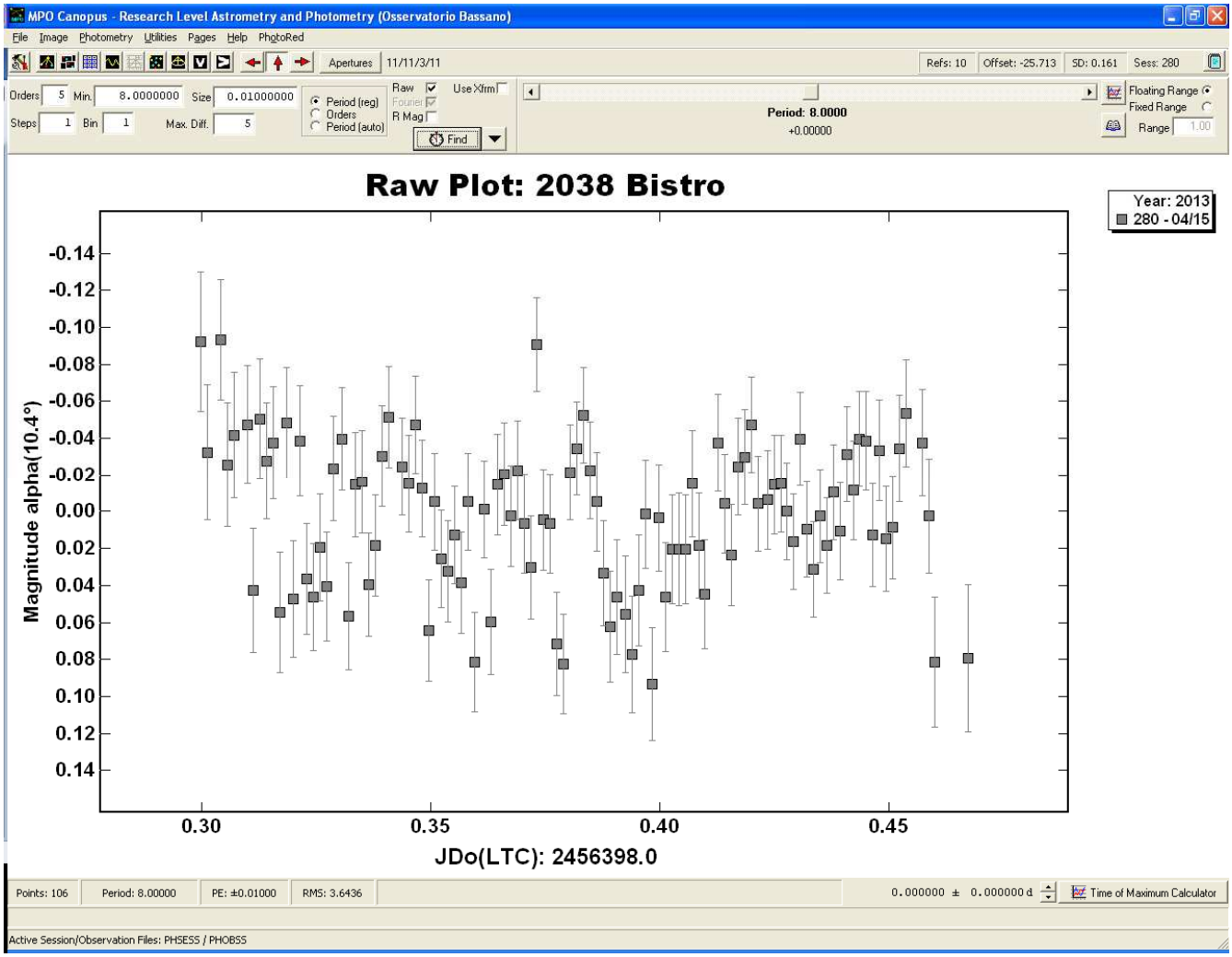
146 points in 5:00 hours

Session 279 taken 14/04/2013



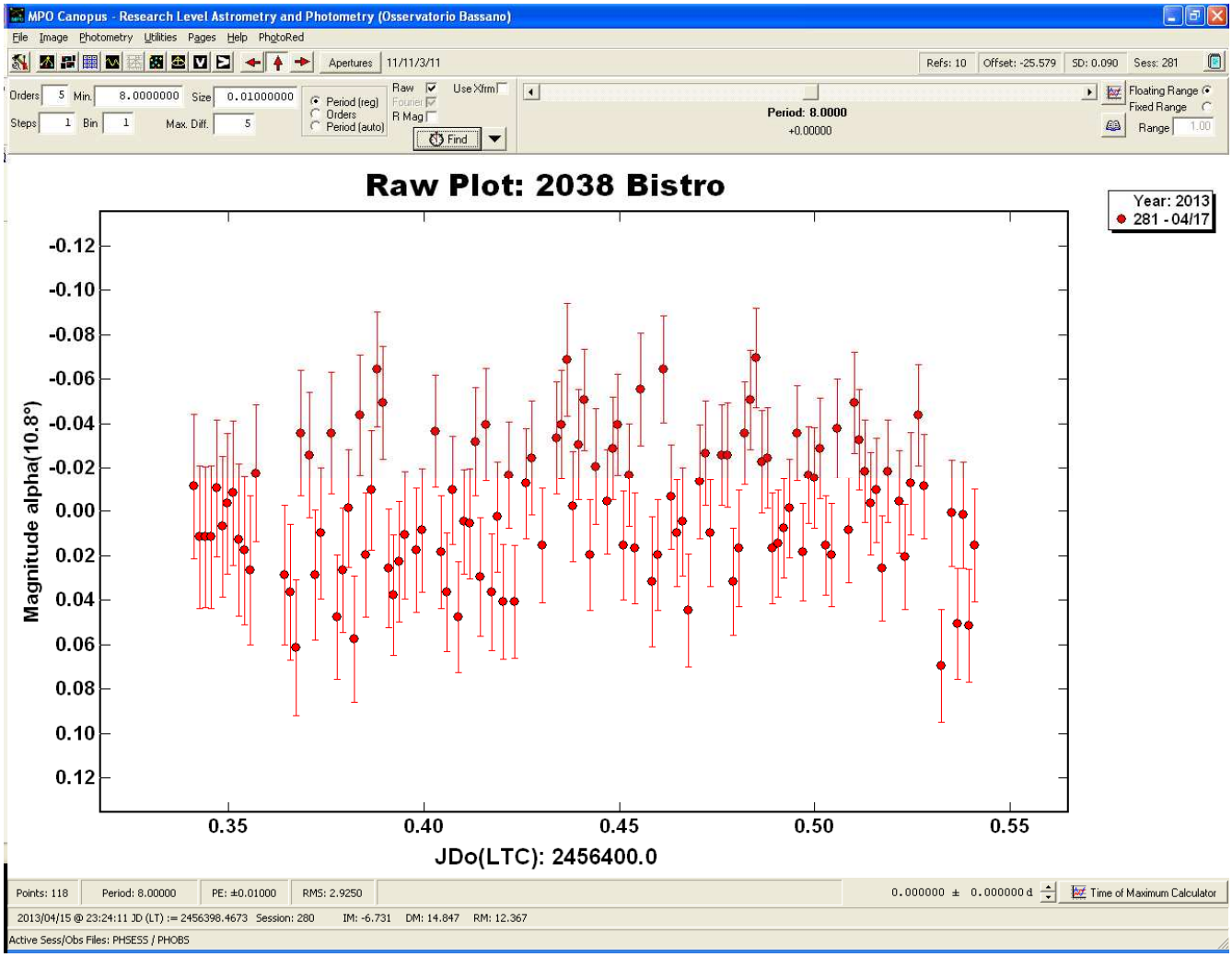
157 points in 5:00 hours

Sessions 280 taken 15/04/2013



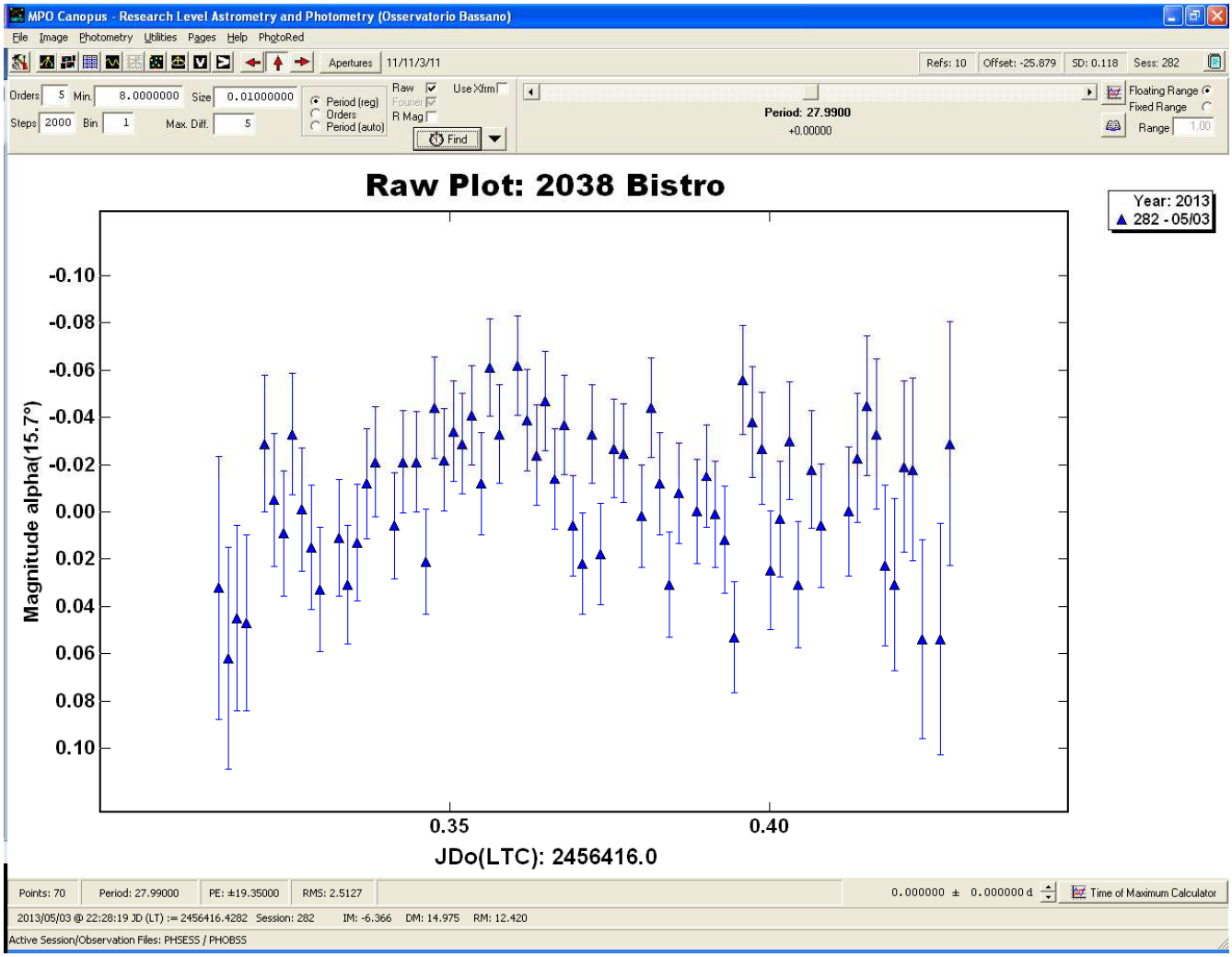
106 points in 4:00 hours

Sessions 281 taken 17/04/2013



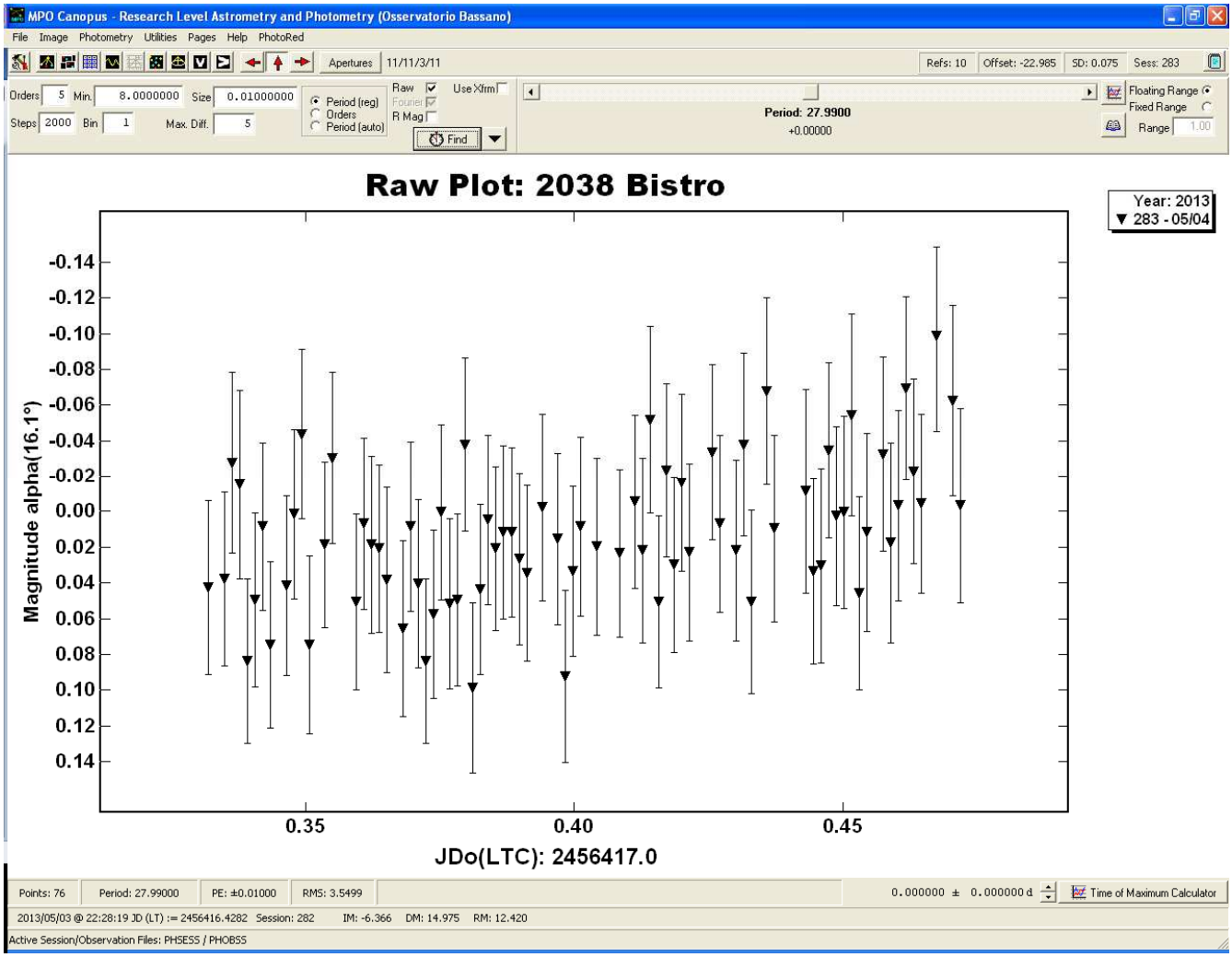
118 points in 4:50 hours

Sessions 282 taken 03/05/2013



70 points in 3:45 hours

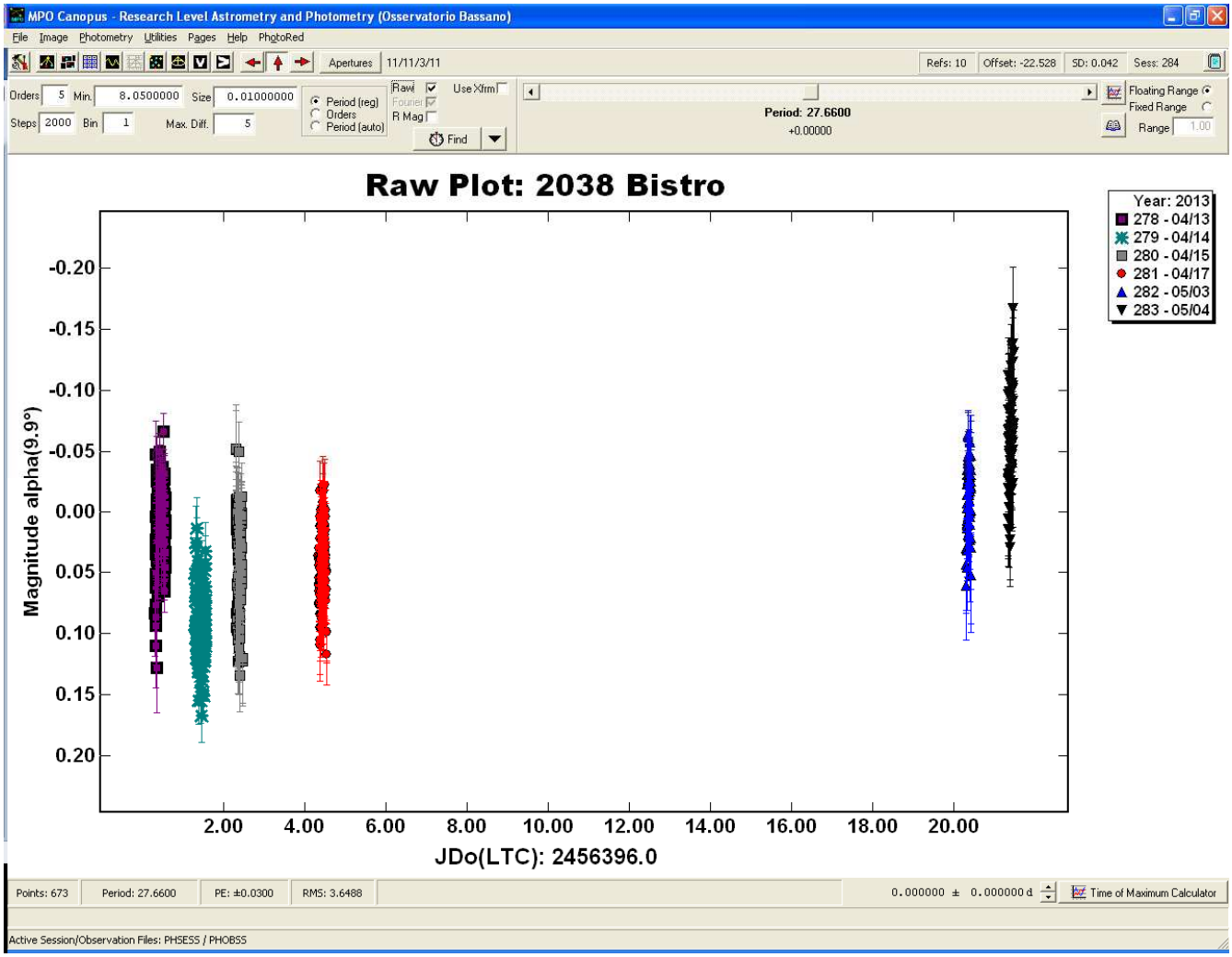
Session 283 04/05/2013



76 points in 3:20 hours

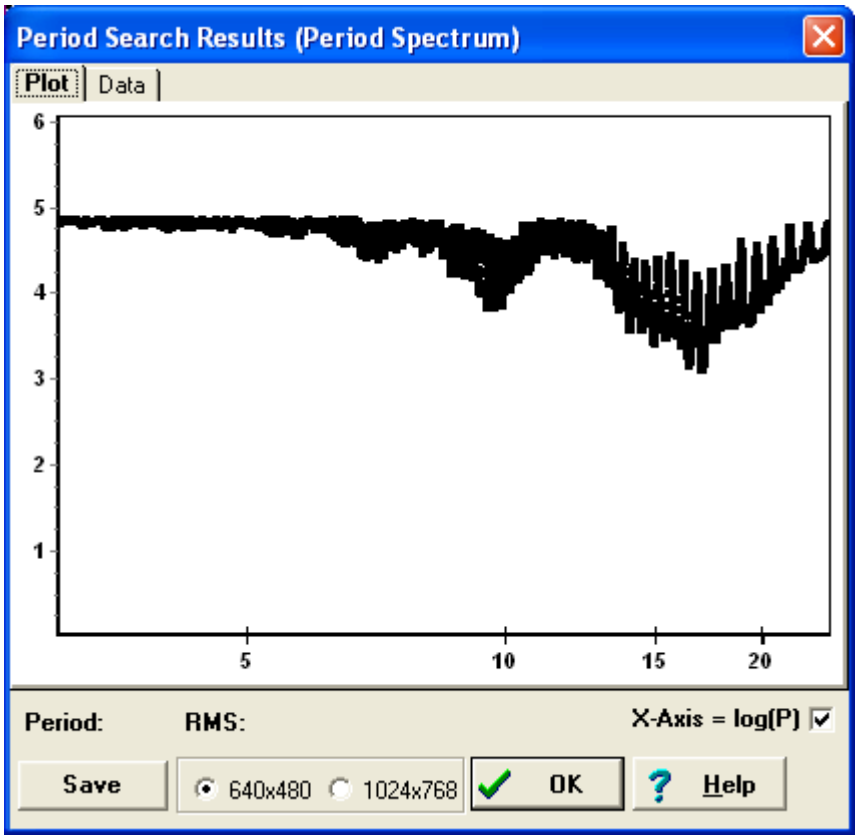
Analysis

A first check was done with all raw values.



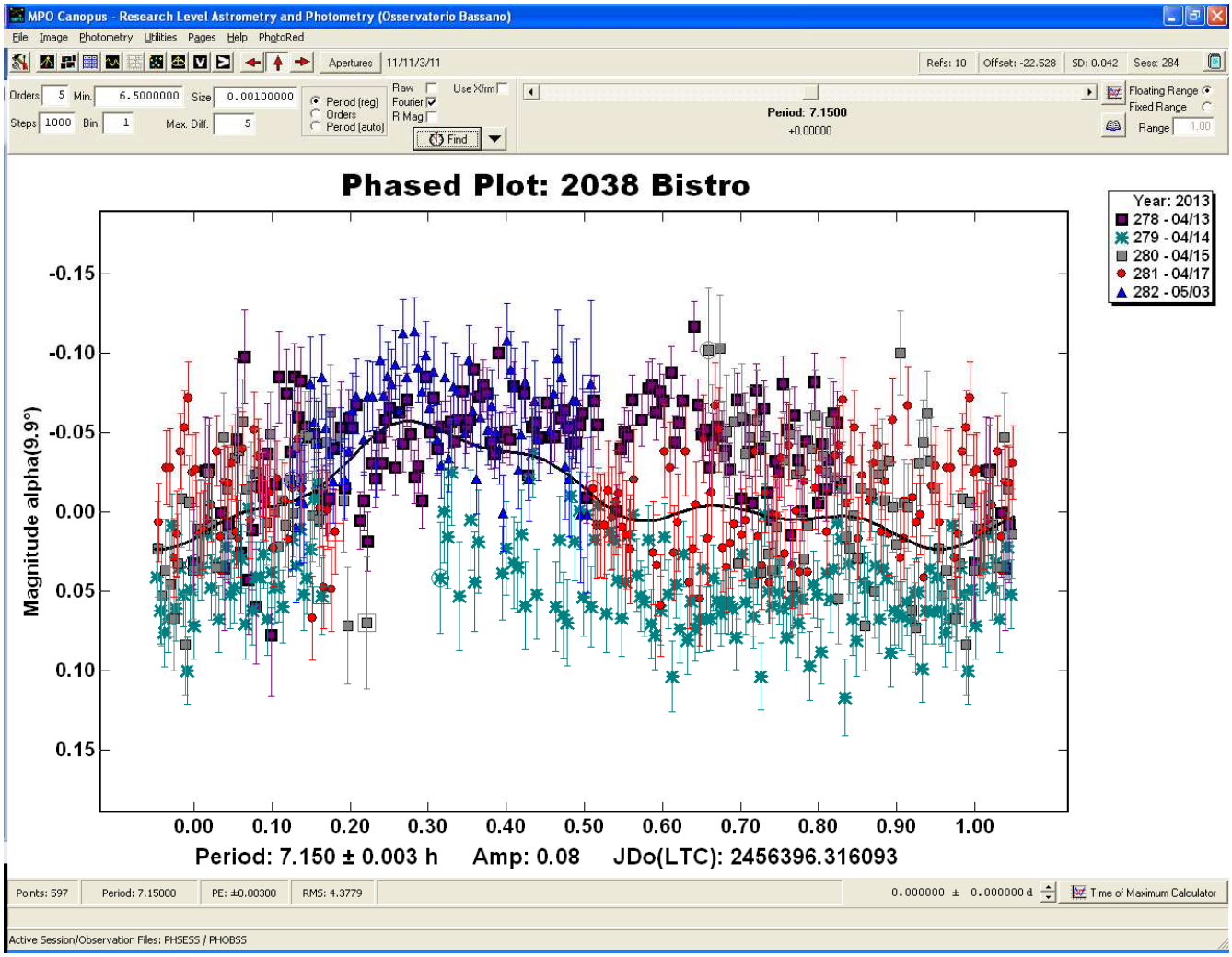
Sessions from 278 to 282 have a good catalog check. Delta compensation is left to 0
Session 283 was measured without the use of solar type stars. It appears a little bit upper the other. This is initially excluded from analysys.

From single night measurement is clear period should be more than 3 hours if monomodal and 6 hours if bimodal.
A first analysis was done in the range between 3 and 24 hours with step 0.01.
This is period spectrum.



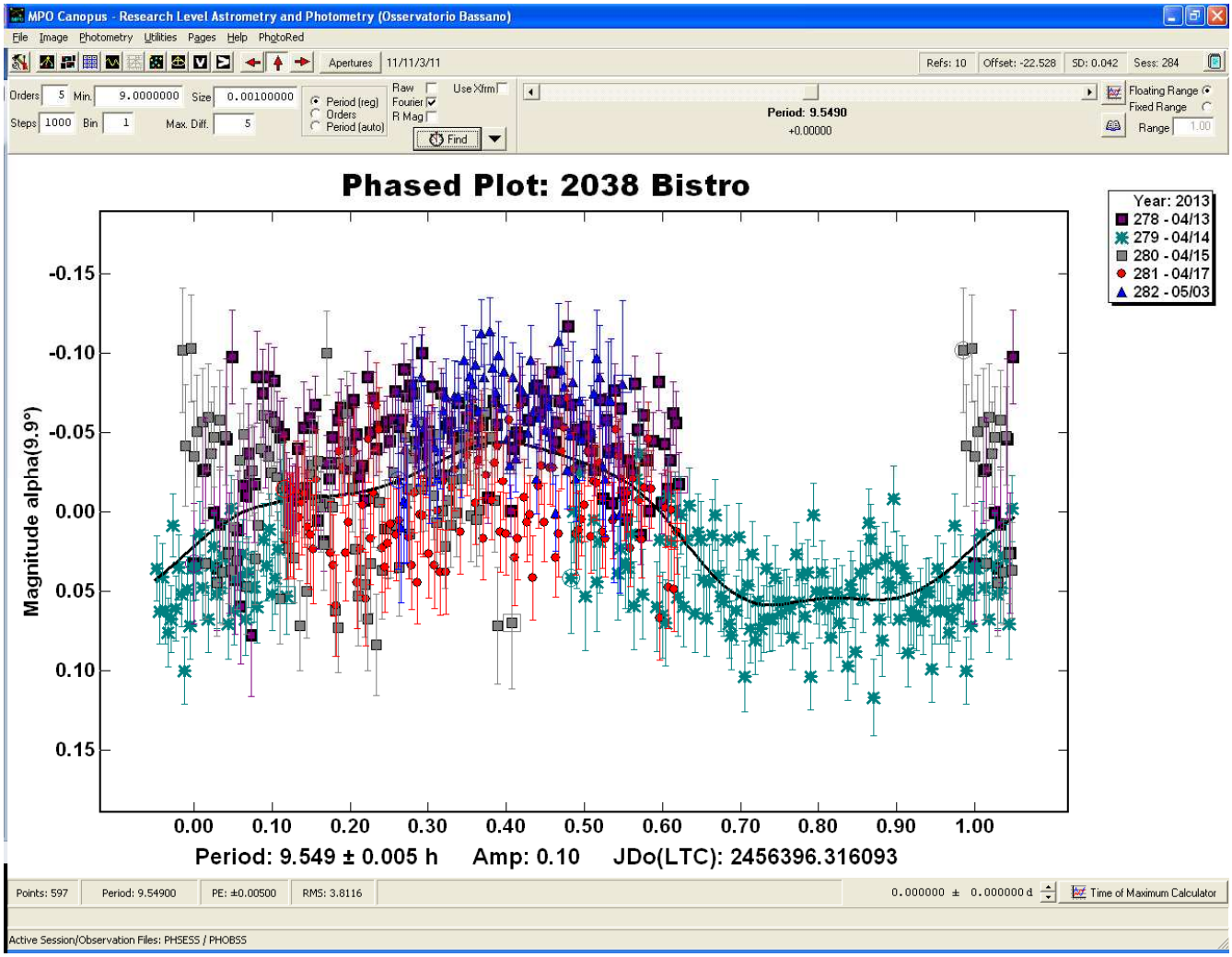
It show possible rotation time at: 7, 9.5, 17

An analysis in the range between 6.5 and 75 hours with step 0.001 shows this phase diagram.



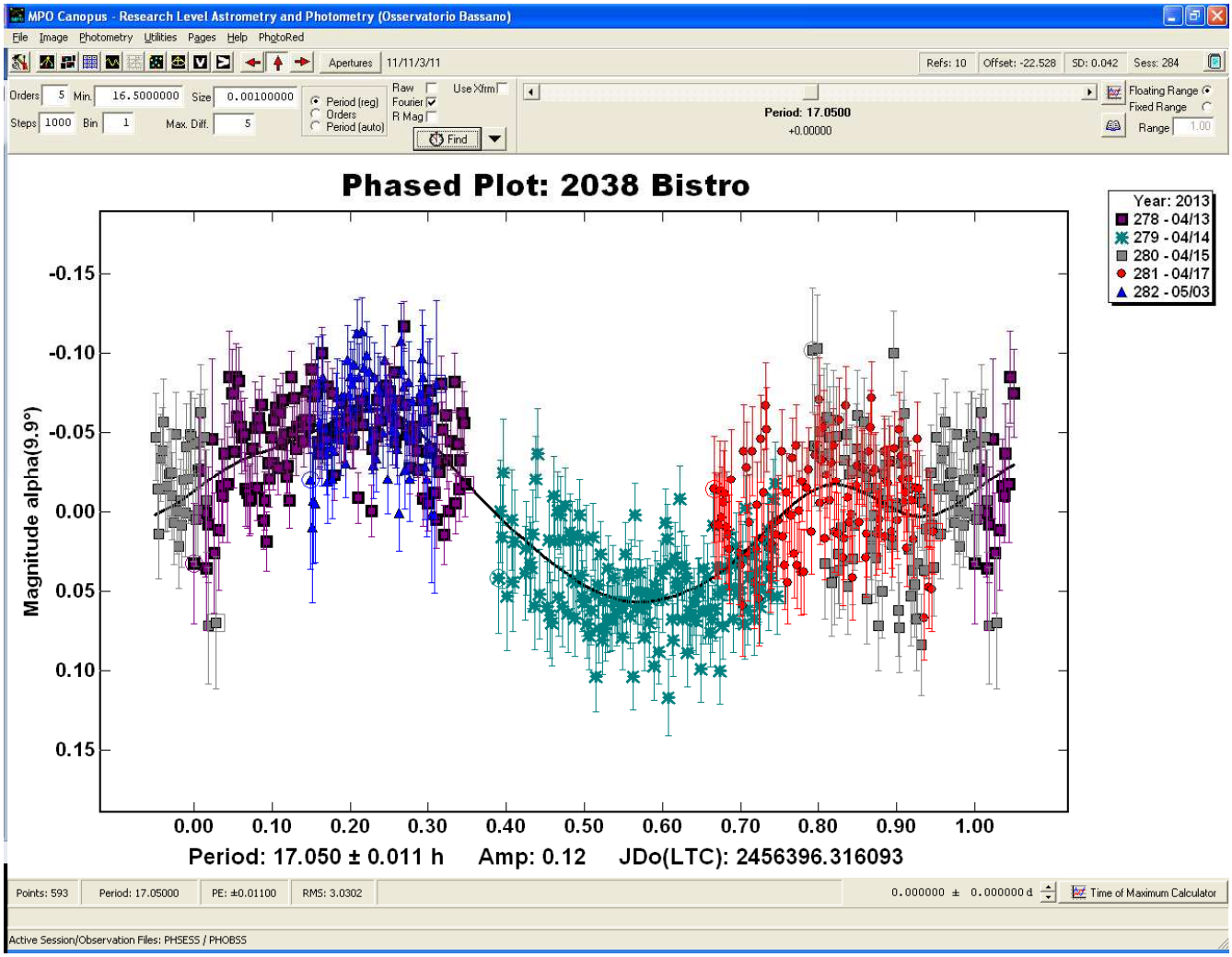
No correlation

An analysis in the range between 9.0 and 10.0 hours with step 0.001 shows this phase diagram.



No good correlation.

An analysis in the range between 16.5 and 17.5 hours with step 0.001 shows this phase diagram.



Good correlation.

The better correlation is at period 17.052.
Sessions overlapping is not so high and amplitude is very low so we decided to don't go to RMS minimum search playing around delta comp.
Now session 283 is introduced. Its delta comps is found trying different values util RMS decrease. At its end delta comp sessions is 0.140
With this phased plot.

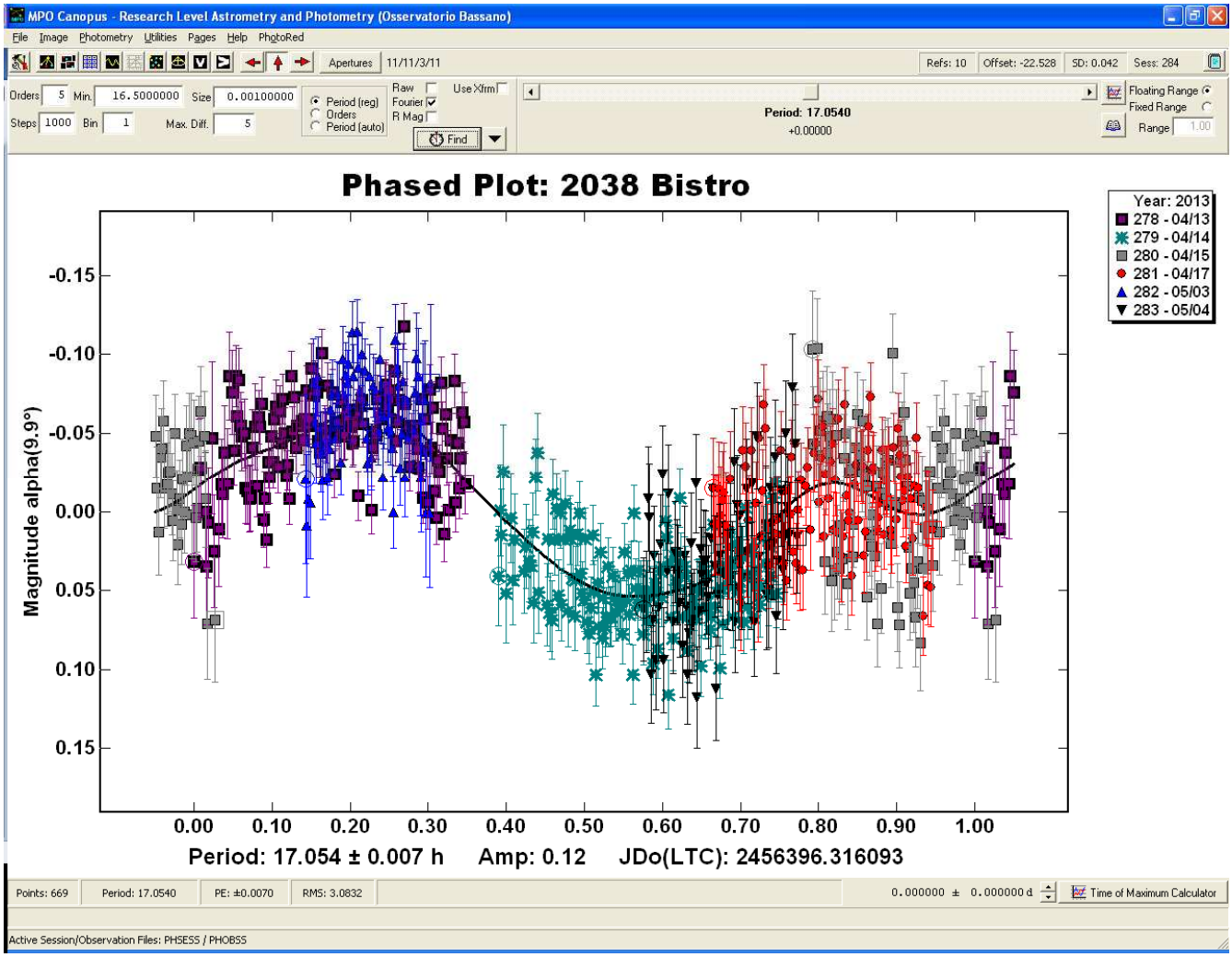
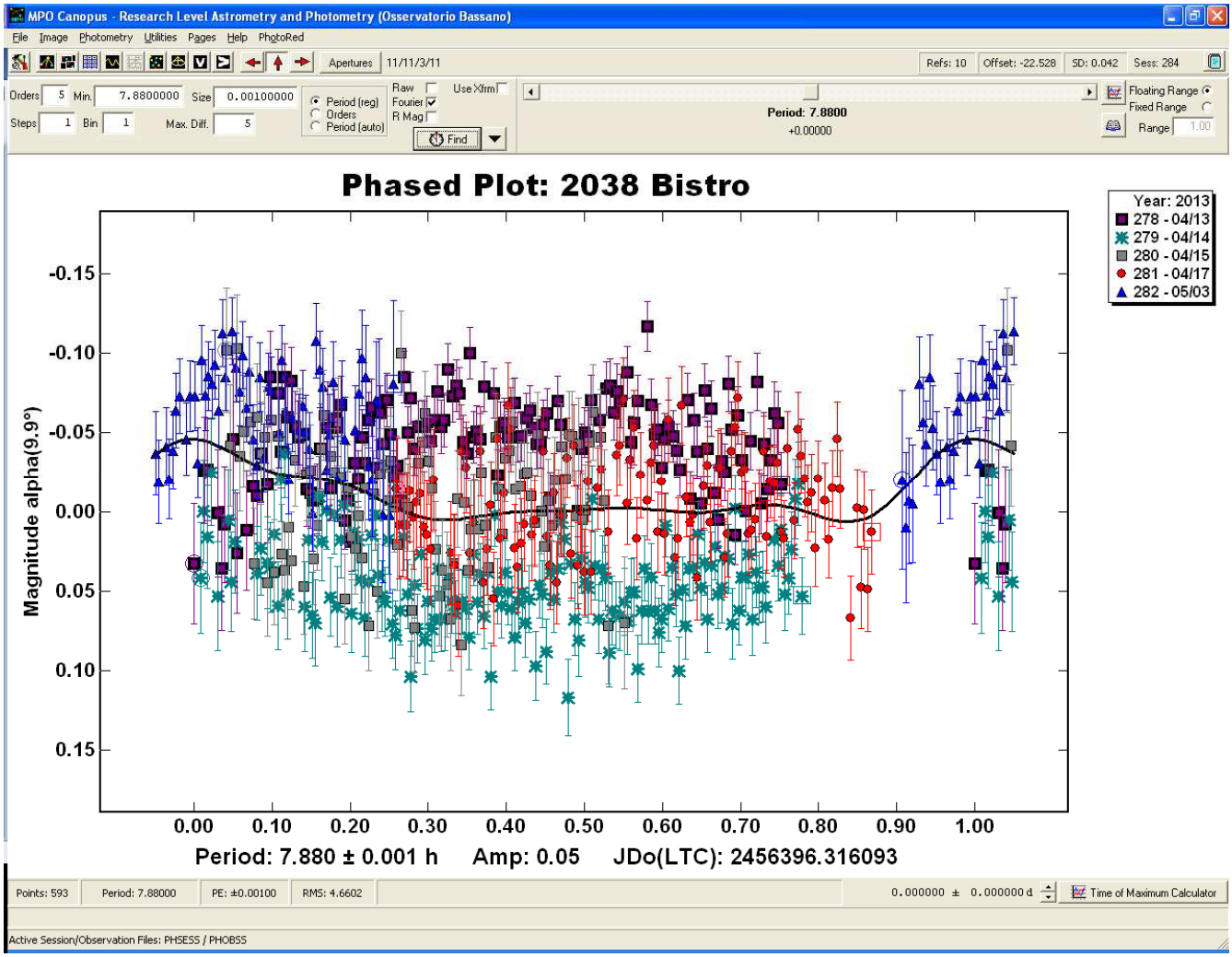


Diagram shows 17.054 hours period.

A test was done with the period stated in Minor Planet Bulleting 40-2



No correlation

Conclusion

2038 Bistro. It was selected from “Lightcurve Photometry opportunities: 2013 April-June ” *Minor Planet Bulletin 40*. With period = 7.88 hours, amplitude 0.24 Mag. and quality code 1. It was been observed for 6 nights covering 21 days span. It shows a very low amplitude comparable with the measurement noise. Fortunately all sessions have very low catalog check dispersion, it is very useful in low amplitude light curve. An analysis on reported period doesn’t show any correlation with it. A good correlation was be found on period P =17.071 hours with amplitude A = 0.12 ± 0.02 Mag. This is the result suggested to this research.