

Hi,

Firstly I would like to complement you on the extraordinary site and project you have embarked on.

I found the site absolutely fascinating and beautifully designed. I notice from the citations and articles you have online that you have been researching the subject in quite some depth. I really enjoyed the two articles you scanned from the Journal for the History of Astronomy. The detailed report of -567 is very well done (just uses too much ink on my printer for the black area of the pictures :))

I have been planning for quite some time on checking through all the astronomical diaries from the Neo Babylonian period. I see now that my work is cut out for me!

I would like to share some comments on your analysis of diary -567.

I notice that you use The Sky program for the analysis, it was in my shortlist of programs when I was looking to purchase a star charting program.

As I am sure you are aware, the accuracy of the planets and solar positions are calculated by most program using VSOP 87. My impression is that The Sky uses that as well, and it gives satisfactory accuracy for the main planets and sun. I am not sure though if The Sky uses the latest Delta-T numbers from Stephenson (1997), these have lowered by around 650 seconds from the values used previously. More significantly, the Lunar theory which is used in most current programs is based on ELP-82, developed in 1985, since then the value of the tidal secular acceleration of the moon has been measured more accurately to around -26 this affects the figures of ELP82 quite significantly for periods as far back as -567. I believe that The Sky is using the old formula and this has affected the measurements of the lag time between sunset and moonset etc. quite significantly.

I used the latest JPL ephemeris, DE406 to calculate the figures (I use the same DE406 Ephemeris with a freeware sky charting program Cartes du Ciel, replacing the DLL's that calculate the planetary and Lunar positions in order to be able to draw the sky charts accurately when checking the diaries) and following are my results:

All figures for Babylon : 44 25' 12", 32 33'

1) Report 05 - May 6th 568 sunrise to moonset 4(16 minutes)

Sunrise 6 May 568 BC at 05:14:01.8

Moon Set 6 May 568 BC at 05:29:26.1

Duration 15.405 minutes.

2) Report 11 - June 17 568 moonrise to sunrise 23(92 minutes)

Moon Rise 17 Jun 568 BC at 03:15:25.2

Sunrise 17 Jun 568 BC at 04:47:46

Duration 92.359 minutes

3) Report 12 - June 20 568 sunset to moonset 20(80 minutes)
Sunset 20 Jun 568 BC at 17:05:49
Moon Set 20 Jun 568 BC at 20:37:17

Duration 91.456 minutes

4) Report 17 - July 5 568 sunrise to moonset 7 30'(30 minutes)
Sunrise 5 Jul 568 BC at 04:50:28
Moon Set 5 Jul 568 BC at 05:23:53.5

Duration 33.423 minutes

5) Report 19 - Feb 12 567 sunset to moonset 14 30' (58)
Sunset 12 Feb 567 BC at 17:44:00
Moon Set 12 Feb 567 BC at 18:52:47.7

Duration 68.769

6) Report 23 - March 14 567 sunset to moonset 25(100 minutes)
Sunset 14 Mar 567 BC at 18:06:05
Moon Set 14 Mar 567 BC at 19:49:44.6

Duration 103.647 minutes

7) Report 25 - March 26 sunrise to moonset 1 30'(6 minutes)
Sunrise 26 Mar 567 BC at 06:07:51
Moon Set 26 Mar 567 BC at 06:10:27

Duration 2.572 minutes.

So out of 7 sightings the latest DE 406 figures are close on 5 out of 7 sightings.

I think the most significant difference is on the last report, because otherwise its not easy to explain the error, They either saw the gods together after sunrise or they didn't, its not just a time measurement error, with these new figures the sun and the moon where together for a couple of minutes.

Are you planning at some stage to have all the diaries analyzed in the same format online?

My results with Cartes comparing the sky charts are close to your results, although I haven't figured out yet how to measure accurately the distance between objects in the program in order to have exact figures.

I wish you best of luck with your site and will be looking impatiently for new material on it :)

Best Regards,

Joseph