

## Re: P10 Acceleration: Light Speed Doesn't Extrapolate

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Craig Markwardt <craigmnet@REMOVEcow.physics.wisc.edu> wrote in message news:<onoeli9ga4.fsf@cow.physics.wisc.edu>...

Sansbury <r9ns@bestweb.net writes

The questions Marquardt you have avoided answering directly are  
1)Are the heights, somehow(?) associated with various pixels in the image of Venus, with radar frequencies received from whatever scatterers between the earth source and Venus when the received frequencies are expected according to the conventional model, are these various heights significantly different from each other?

2)How do you know the frequencies received that are larger than the background noise at this range of frequency, were reflections sent two light time distances to Venus earlier and not a second earlier etc..(Obviously some of the noise is going to be many standard deviations from the mean noise and that may be a statistically significant 'feature' but of what?) Feel free to quote Carpenter and Pettingill at length (and not so short as to give a false impression of what they said or the adequacy of their reasons)

3)How do you explain the following that shows the difference between Doppler counts, the down converted frequencies, have differences that correlate with the the differences between the positively shifted frequencies due to the earthsite motions as given by the ephemeris a minute earlier so as to adjust the CT to GMT time difference?

We can change the craft trajectory starting at any point in time assuming tentatively that the craft is at the same distance,  $R^*$ , from the earth and  $R$  from the sun,  $R(21:27) = 2684810625$ , but at a possibly different angle to the craft-earthsite line etc so that the predicted frequencies match the observed frequencies according to the nearly instantaneous model transmitter earthsite motions.

And if our initial assumption of  $R$  needs to be adjusted to produce

the proper motions of the craft toward the earth (less than the constant motion of the craft away from the earth) so as to produce a match between the radar and predicted frequencies, then we can do so later as shown below.

To see this, we note first that the observed Doppler count frequency subtracted from 1MHz, a so called bias, decreases minute by minute starting at 21:27 (row 14) by 12Hz per minute but that if we do not do this subtraction, the observed Doppler count frequency increases minute by minute by, initially, 12Hz. increasing to 16Hz/minute, 78 minutes later which correlates with the successive increases, 1m/s to = .6m/s increase in the earth motion toward the craft minute by minute. How to make the correlation perfect?

Note,  $(1+.33(10^{-8}))T = T+7.66\text{Hz}$  corresponds to 1m/s when the transmitter frequency is at is here  $T=2.291944138\text{GHz}$ . If the direction to the craft was the same as the direction of the 1m/s velocity of the earth, then an uplink and same downlink velocity total

of 2m/s would produce a shift of twice  $7.66=15.32\text{ Hz}$  in the radar

The observed increase in frequency of 12Hz from 21:27 to 21:28 is associated with a velocity difference of  $12/7.66=1.5666\text{ m/s}$ . This could be caused by a motion of the earth toward the craft of half this

on the uplink, .7833m/s and .7833 m/s again on the downlink during the same minute according to the nearly instantaneous model.

But we must allow for the increase of the total uplink and downlink

velocity caused by the slowing down of the craft due to the gravitational effect of the sun,  $(a = kM/R^2, (a)(t_2-t_1)/2 = .1\text{m/s}$  for the assumed R. That is, .1m/s must be subtracted from the uplink and from the downlink to find out how much of the actual difference in velocity must be projected onto the earthsite-craft line. Thus .6833 m/s is the difference we require and the actual ephemeris difference is 1m/s so we have to multiply .6833 times the ephemeris velocity value for 21:27 and the value for 10:28. This means projecting the earthsite velocity line through an angle,  $\arccos(.6833)=46.91\text{deg}$  thus

determining the new craft position.

(If the craft was at only .46R of the assumed distance from the sun, the velocity to the earth due to this implied acceleration would

be 2 times .2285m/s=.457m/s. so  $.7833-.2285=.5548$  is the the difference we require and so we have to multiply .5548 times the ephemeris value of 1m/s. This means projecting the earthsite velocity lines through and angle  $\arccos(.5548)=56.30\text{deg}$ )

An hour and 15 minutes later, from 22:43 to 22:44 the earthsite velocity increases 30.09135 to 30.09194 or .59m/s or 4.52Hz to which we must add 3.48Hz to get half of 16Hz radar difference observed. If the craft acceleration and so velocity to the earth was increased to 3.498Hz or

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.457m/s by reducing the assumed distance R to .46R and the craft–earthsite angle to the earthsite velocity was reduced to zero then we would have a perfect match.

Of course we should look at later received radar frequencies to see

if the pattern of increasing frequency and differences stops and a pattern of

decreasing frequency and differences begins.

Also we now have to increase the initial angle as was shown above to be 57.55deg and over the 78 minutes from 21:27 to 22:45, the angle decreases continuously by .738 degrees per minute.

Thus the instantaneous model leads to a more accurate trajectory than the conventional model without the need for an anomalous acceleration—  
at least for this 78 minutes.