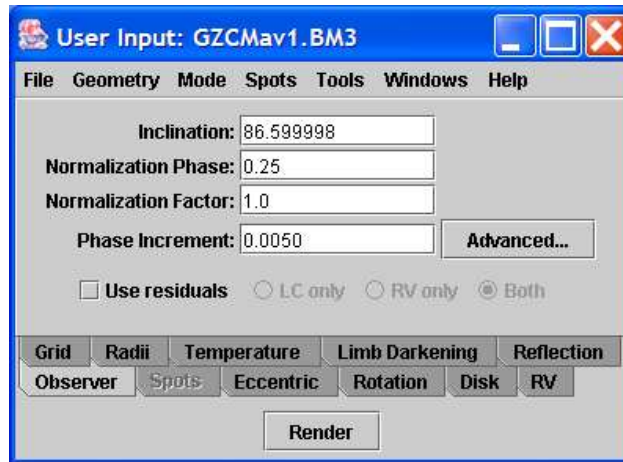




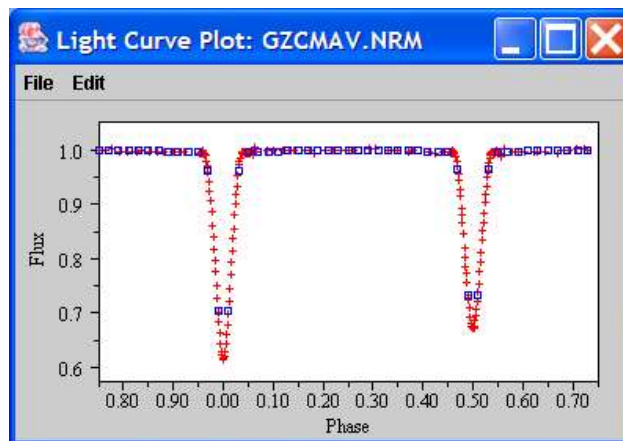
Phase Increment



Observer pane in the **User Input** window

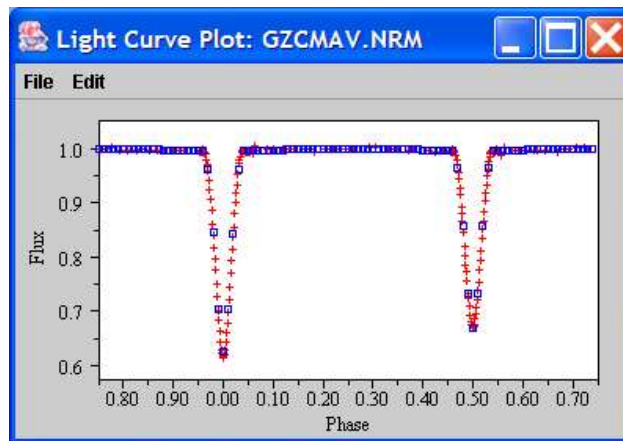
The **Phase Increment** establishes the phase interval at which the orbit is calculated in the program. Therefore, a **Phase Increment** of 0.01 will produce an orbit with flux points equally spaced at 0.01 intervals in phase, *i.e.*, creating 100 points in the light curve. A **Phase Increment** of 0.005 will produce 200 flux points and a value of 0.25 will produce 4 flux points. The orbit begins at the **Normalization Phase** and increments by the value of the **Phase Increment** from that point. To produce smooth *PostScript* graphics of the synthetic light curve one should use a **Phase Increment** of at least 0.005.

As an example let's create synthetic curves of the detached system GZ CMa in the *V*-bandpass with different phase increments. First setting the phase increment to 0.02 (which will create 50 synthetic flux points):



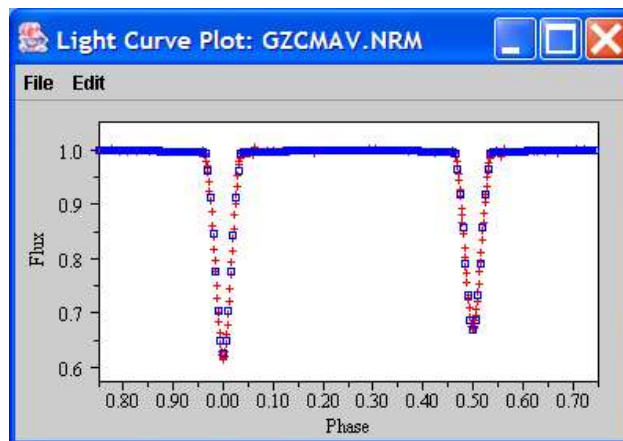
GZ CMa *V* light curve and synthetic curve with phase increment set at 0.02 (50 points)

Note the insufficient coverage within the eclipses (where most of the action is taking place). Decreasing the phase increment to 0.01 (100 points) results in the following:



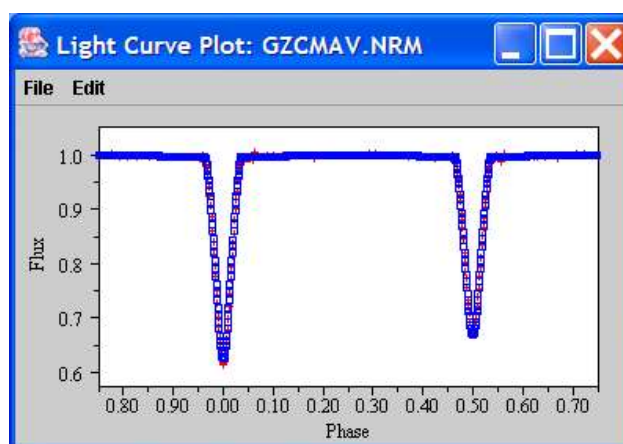
GZCMA V light curve and synthetic curve with phase increment set at 0.01 (100 points)

This is better eclipse coverage and more than sufficient in the out of eclipse regions. Decreasing the phase increment to 0.005 (200 points) yields the following:



GZCMA V light curve and synthetic curve with phase increment set at 0.005 (200 points)

Now the eclipse coverage is almost adequate and the out of eclipse coverage is much greater than needed. Finally let's decrease the phase increment to 0.001 (1000 points) which results in:



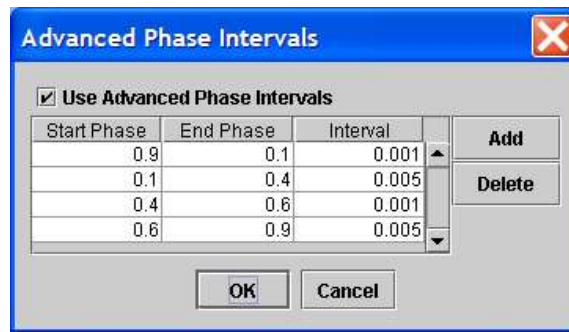
GZCMA V light curve and synthetic curve with phase increment set at 0.001 (1000 points)

Now the eclipse coverage is excellent and the out of eclipse coverage is ridiculous.

Advanced Phase Increments

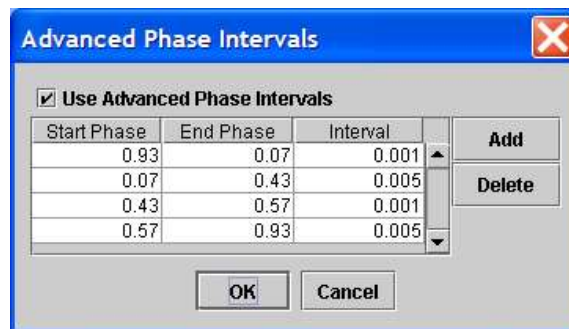
There is a way to avoid this dilemma of having too little coverage in the eclipses or having too much out of eclipse. The button labeled

Advanced next to the **Phase Increment** input box allows the user to set up different segments of the light curve to have different phase increments. Clicking on the **Advanced** button brings up the following dialog:



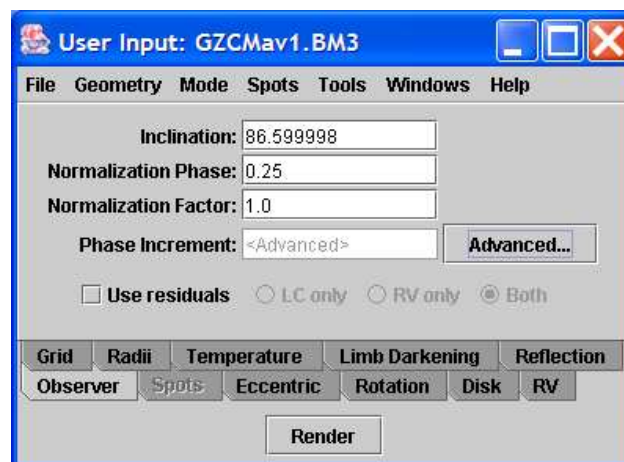
Advanced Phase Intervals dialog with the default values in place

The three-column table allows the user to set the starting and ending phase and the phase increment that the program is to use within that range. The default values are shown above but they can be changed to whatever the user deems best. Additional ranges can be added by clicking on the **Add** button and entering the desired values. A range can be deleted by clicking on the line that contains the values you wish to delete and then clicking on the **Delete** button. Let's change the default values to numbers that will give more efficient coverage to the light curve of GZ CMa, namely:



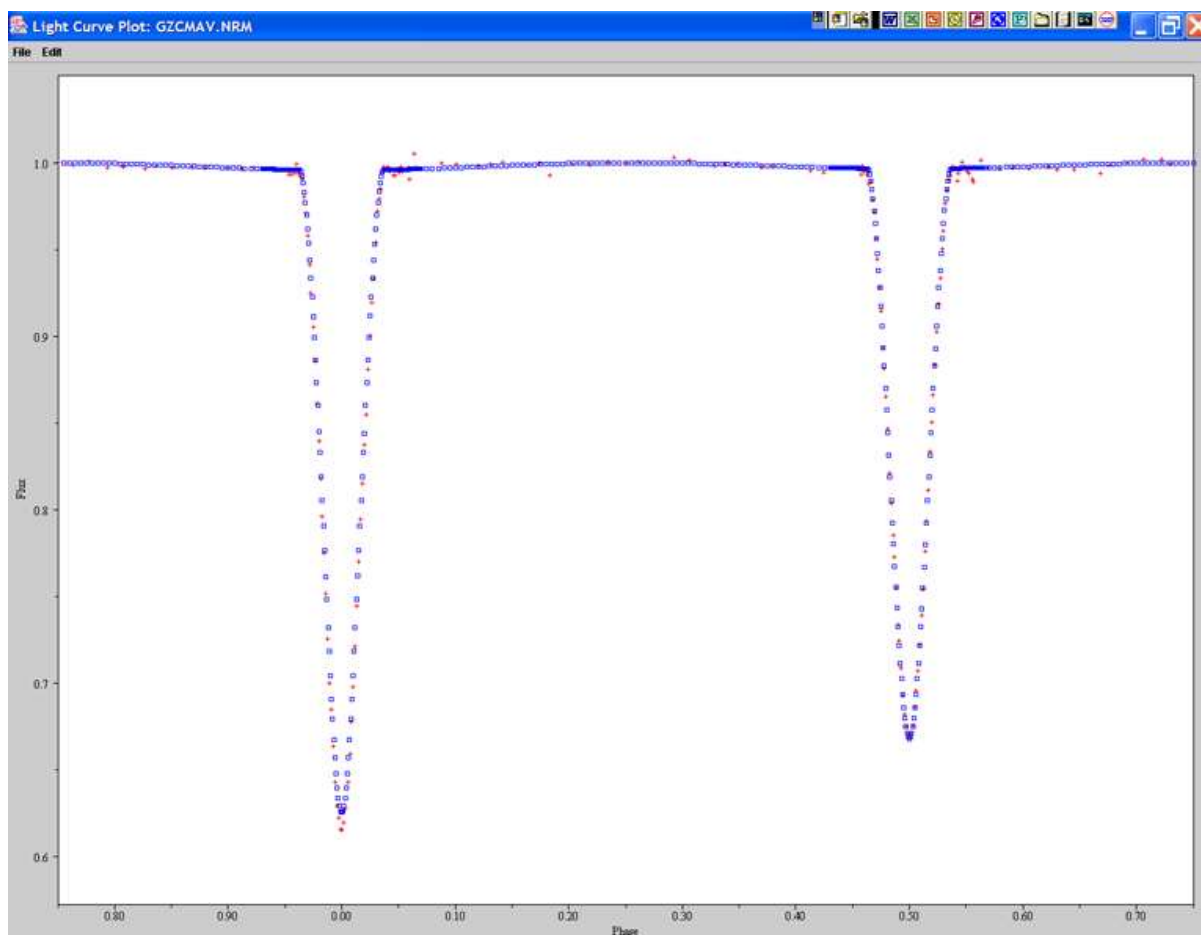
Advanced Phase Intervals dialog with the values changed to better suit GZ CMa

The **Observer** dialog changes to indicate that **Advanced** phase increments are now in place as indicated within the **Phase Increment** input box shown below:



Observer dialog showing that the **Advanced Phase Increments** are in effect

The resulting synthetic light curve is shown below in a larger scale so that the change in increments is clear:



GZ CMa V light curves showing increased phase increments for the out of eclipse portions

Note the larger density of synthetic points around the shoulders of the eclipses as opposed to the number midway in between the eclipses. This **Advanced Phase Increment** control can save time and also allow smoother drawing of PostScript curves within the eclipse regions for output graphics.

To turn off the **Advanced Phase Increments**, click on the **Advanced** button and uncheck the checkbox in the upper left hand corner of the **Advanced Phase Intervals** dialog.