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A MODEL EXPLAINING SOME OF THE CATASTROPHIC EFFECTS OF A WAVE OF ICE BODIES PASSING THROUGH THE SOLAR SYSTEM TO BRING WATER TO EARTH AT THE TIME OF NOAH'S FLOOD.

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ABSTRACT

The Principle of Uniformitarianism which has pervaded most of geology and cosmology for a few hundred years does not hold as an overall principle. Indeed there have been periods of uniformitarian activity, but there have been periods of short term catastrophism throughout the Universe and the Solar System, particularly around the short time before recorded history began. That time was when a global flood rearranged the earth's surface and destroyed air breathing life forms, except those who came through the flood according to all the stories handed down in the records from every people group on earth.

If the Principle of Uniformitarianism is set aside and a catastrophe which caused a global flood on Earth is extended to include the Solar System, then a model can be developed which can explain many observable aspects of the Solar System, including water, water ice, craters, comets, icy satellites of the major planets, and the asteroids. Outside the catastrophic model much of the Solar System and its history will remain a mystery.

The model proposes that a wave of ice bodies entered the Solar System around 2300 years before Jesus Christ and impacted, in order, Saturn, Mars, Earth, Venus and Mercury, then some unknown body or bodies which are now asteroids, then Jupiter, Uranus and Neptune. Many have continued into space but many continue to return as comets.

The method used to determine quantitative aspects of the model was to calculate the acceleration caused by the Sun and draw vector diagrams which gave velocities, direction and time to the ice bodies so their paths could be followed through the Solar System.

INTRODUCTION

From the details given concerning the time of the flood, in the 600th year, on the 17th day of the 2nd month of Noah's life it began to rain. There have been many people throughout history who have attempted to use the Bible to provide a chronological history of the earth.

Using the information from the Bible, a trajectory of a wave of ice bodies can be followed through the Solar System and deliver water for this flood.

The method was to use graphical representations of vectors, starting at Neptune's orbit, and proceeding in towards the inner Solar System.

Using Newton's Law that a body will continue on a straight line path unless acted upon by an external force, successive velocity components were added which were derived from the average acceleration over a set distance by the gravitational effect of the Sun.

This enabled a number of specific trajectories, which were found to be hyperbolic, to be plotted through the Solar System intercepting with Earth. By postulating that the bodies will round the Sun and proceed back out of the Solar System with a minimum effect on their trajectory by loss of mass as they approached the Sun, their trajectory was followed out of the Solar System.

Using the vector diagrams the various velocities and directions were ascertained when the ice bodies passed through the orbits of the various planets.

Using the time restraints as to when the flood occurred the positions of the planets can be found, and allowing for their movement over the time the ice bodies moved through their orbits, a picture was built up for each planet in the path of the ice body wave.

The position of Saturn was found to be in the direct path of the ice body wave on its way into the centre of the Solar System. It was at this time that many ice bodies were captured by Saturn and have become icy satellites.

At this position in the vicinity of Saturn due to its gravitational effect many ice bodies were dispersed and many bodies collided as they approached Saturn from different sides of the planet. The collisions caused fragmentation and the eventual formation of its ring system. The fact that Saturn's ring system is more conspicuous than the ring systems of the other outer planets supports the idea that the collisions would be more numerous because the ice body wave was still more intact at this time rather than later on when the ice bodies were on their way out of the Solar System and were more dispersed and reduced in concentration.

After intersecting with Saturn's orbit the ice body wave continued past Jupiter's orbit. Jupiter was on the opposite side of the Solar System at this time.

The planet Mars was the next to be impacted. The result of these impacts resulted in the craters we observe today, and water ice remaining down to the present day.

The concentration of ice bodies as they approached Earth was similar to when they impacted Mars. The impact craters on the Moon are similar to those on Mars and we can assume that the proportional numbers were the same for impacting Earth. However, the number of craters so far found on earth only number 170.

This indicates that there were different conditions existing on Earth. Namely that water was already present and as impacts occurred into that water previous impacts became obliterated.

Comparing relevant numbers of impacts on Mars and Earth's Moon the number of ice bodies encountering Earth was such that water was added to the Earth's oceans, eventually covering the Earth.

The retreating ice body wave moving out of the Solar System continued on to Jupiter, which was directly in its path and many impacted Jupiter and its natural satellites, and many were captured and went into orbit and are observed today as icy satellites. Many were responsible for rings, which have subsequently become rarer in intensity.

The ice bodies then encountered the planet Uranus, where many impacted with it and others captured as icy satellites and a ring system formed. The same occurred at planet Neptune's orbit where many impacted and others captured as icy satellites and formed a ring system.

From the calculation and the plotting of the trajectories of the ice bodies through the Solar System it can be shown that a very complex wave formed which had virtually every individual ice body moving with different velocities and different individual paths, which as the wave rounded the Sun splayed out covering an increasingly larger area with increasing dispersion. By this time the population of ice bodies was still massive and many remaining have elliptical orbits and are now the comets which periodically pass through the Solar System losing part of their mass and diminishing in size as they follow their paths around the Sun.

One of the most controversial issues over the last three hundred years is related to whether catastrophic events caused many of the features we observe throughout the Solar System or whether uniformitarian processes over an immense time period can explain these features.

This paper explores a catastrophic model to explain features throughout the Solar System including craters, water ice, icy satellites and planetary rings and provides the basis on which other aspects can be built and details refined.

The model starts with a swarm of ice bodies, present day comets, entering the Solar System with a velocity of 10 km/sec at Neptune's orbit, with their destination, to bring water to Earth at the time of Noah's flood as recorded in Genesis. This velocity has been settled on after much trial and error calculations etc. (There are a number of factors which need to come together for this model.) APPENDIX A.

To explain many of the features it is necessary to examine the idea of an initial swarm of ice bodies entering the Solar System and proceeding through it in the form of a wave. This has been done in the following steps so that it can be visualized.

The overall trajectory of the path of ice bodies is shown in Figure 1. As the initial swarm of ice bodies is a three dimensional mass, for simplicity sake in the figure only the path to Earth of a particular body is shown.

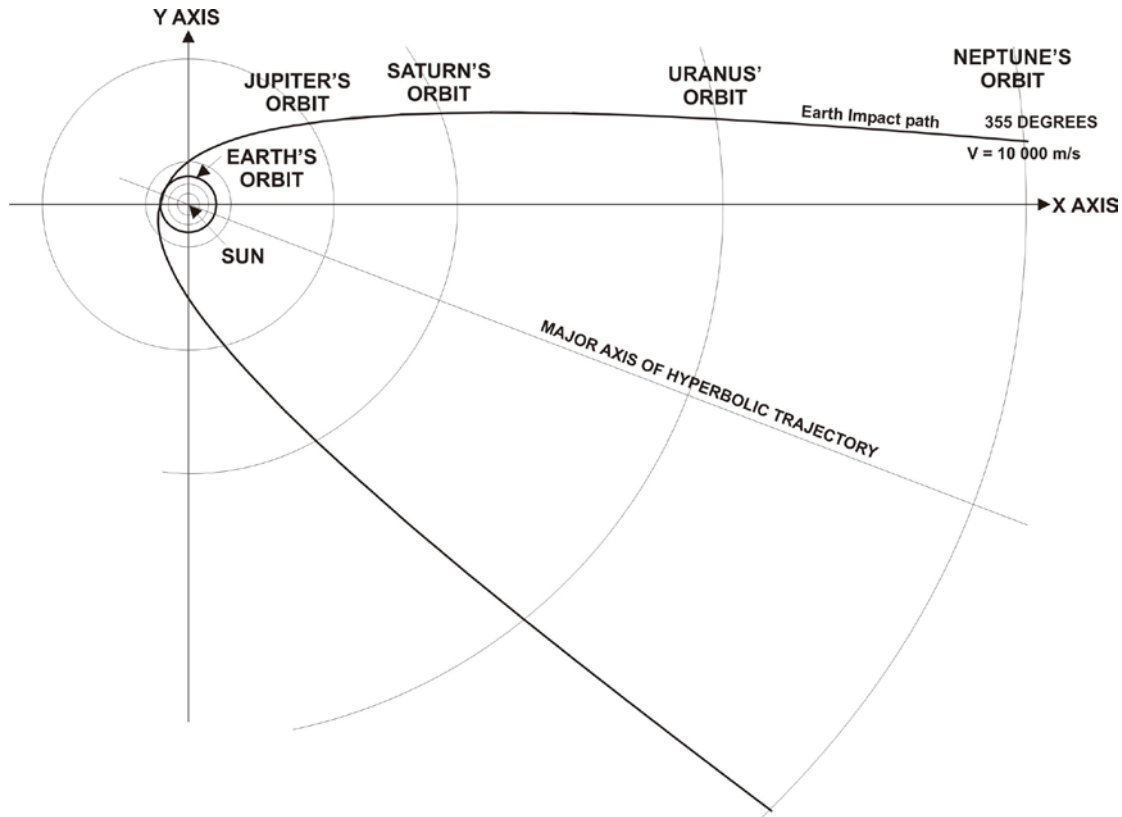


Figure 1. Against the background of the Solar System drawn to scale, the path of an ice body moving in a hyperbolic trajectory, passes through Neptune's orbit at a particular velocity and inclination to ultimately impact with Earth.

The only major influence on the velocity and direction of all the bodies will be the accelerating aspect of the Sun, so by using vector diagrams a plot of their trajectories can be made.

By initially choosing a time interval of 31,104,000 seconds which defines a 360 day period, (Cooper, 2009) the trajectory of these bodies is shown in Figure 2 which brings them from Neptune's orbit to Uranus' orbit. By continuing the procedure, but using shorter time intervals as the ice bodies get closer to the Sun, a plot of a part of the trajectory into the inner Solar System can be made.

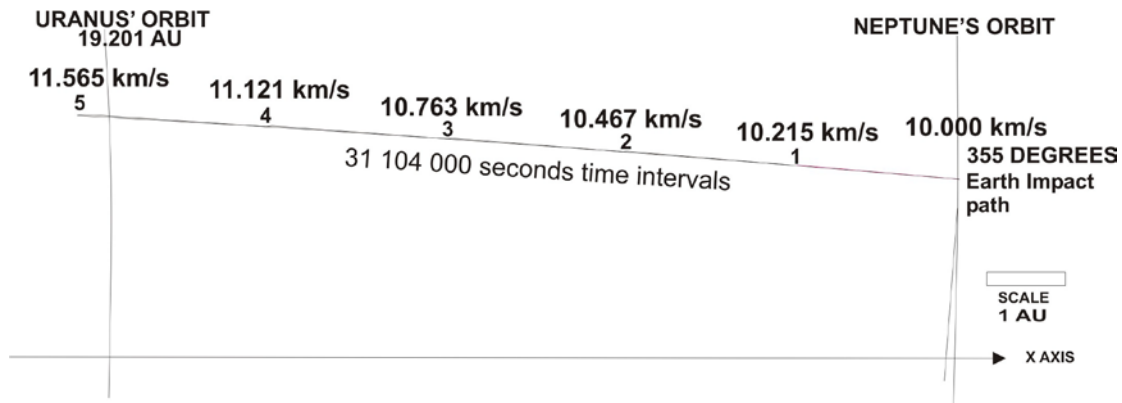


Figure 2. Enlarged view of Neptune to Uranus showing part of the trajectory over 5 intervals of 31 104,000 seconds (5 x 360 days) or 5 years. The increases in velocity due to the Sun are indicated.

From the procedure outlined in appendix B, an enlarged section from Uranus' orbit to Saturn's orbit is shown in Figure 3 with the corresponding velocities.

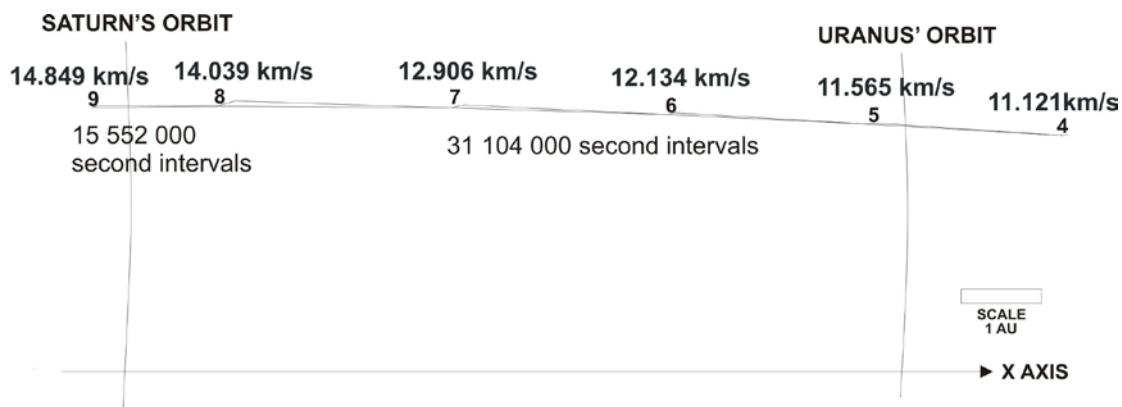


Figure 3. Enlarged view of Uranus to Saturn showing parts 5, 6, 7, 8, and 9 of the trajectory. NOTE after section 8 the calculation are done on a 15,552,000 second or 180 day interval.

Figure 4 shows the section of the trajectory with the calculated velocities and time lengths from Saturn's orbit to Jupiter's orbit.

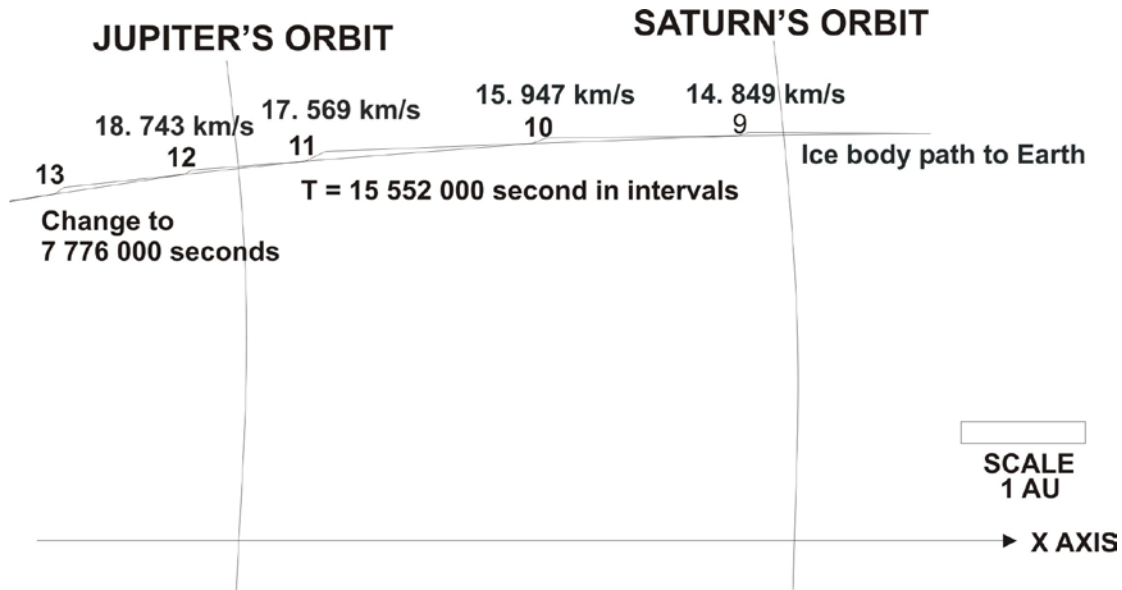


Figure 4. Enlarged view of Saturn to Jupiter showing parts 9, 10, 11, 12 and 13 of the trajectory. NOTE after section 12 the calculations are done on a 7,776,000 second or 90 day interval.

Figure 5 shows the section of the trajectory with the calculated velocities and time lengths from Jupiter's orbit to Mars' orbit. At position 13 the time segment is reduced to 2,592,000 seconds which is now 30 days.

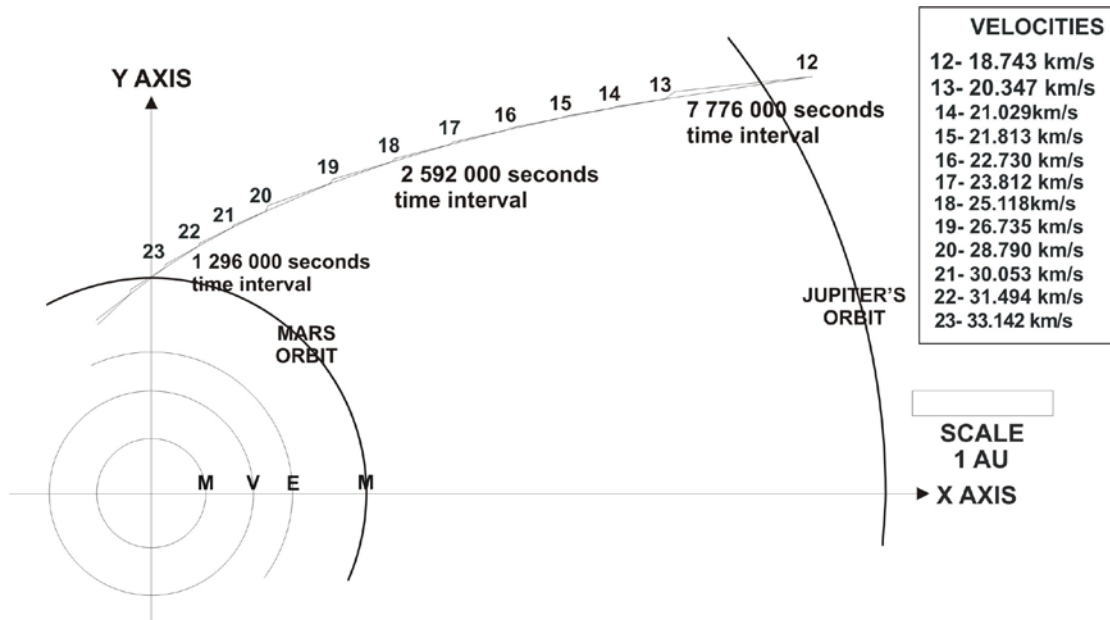


Figure 5. Enlarged view of Jupiter's orbit to Mars' orbit showing parts 12 through to 23 of the trajectory. NOTE after section 13 the calculation are done on a 2,592,000 second or 30 day interval and at position 20 the time interval is 1,296,000 seconds or 15 days.

Figure 6 shows the section of the trajectory with the calculated velocities and time lengths from Mars' orbit to planet Earth. From position 23 through to position 26 the time segment is reduced to 1,296,000 seconds which is now 15 days and from 26 it was reduced to 3.7 day intervals for the latter detailed Figure 15.

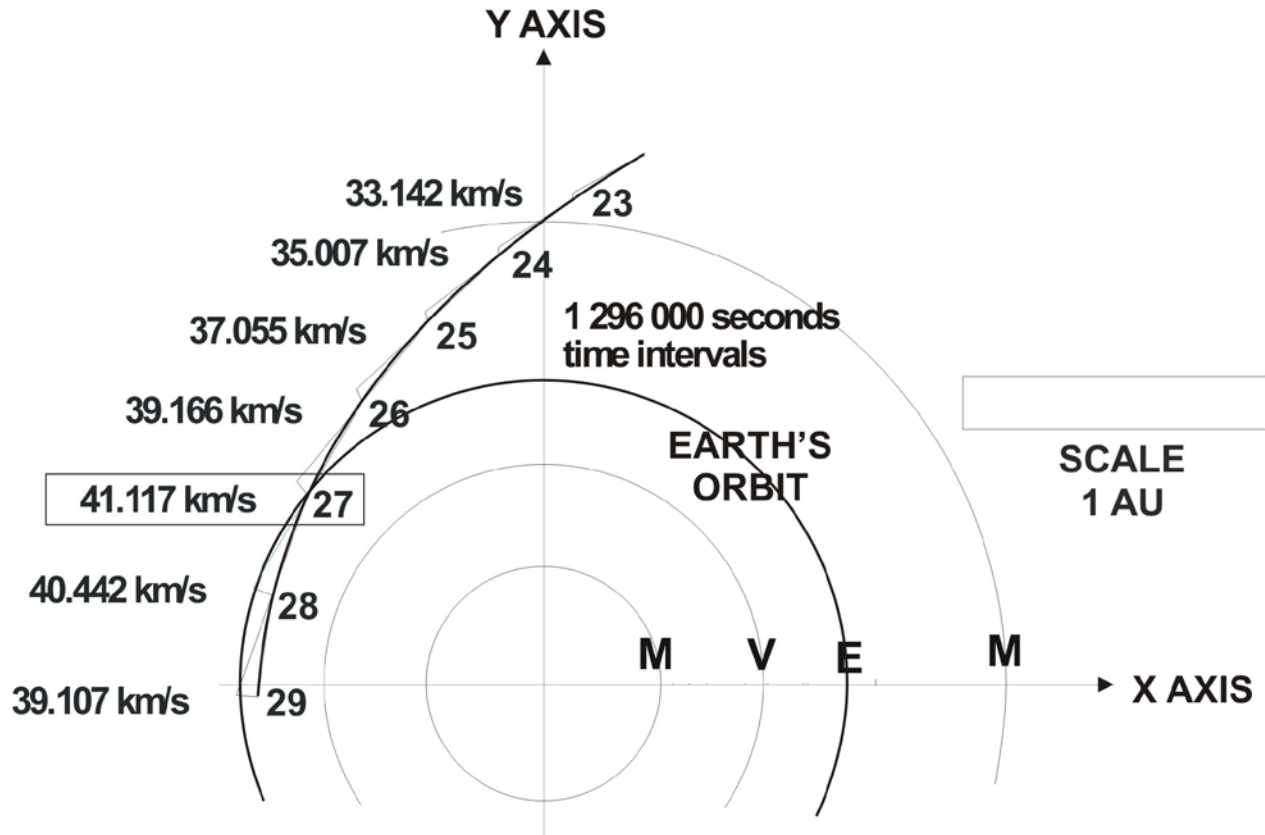


Figure 6. Enlarged view of Mars' orbit to Earth's orbit showing parts 23 through to 29 of the trajectory. NOTE: after section 23 the calculations are done on a 1,296,000 second or 15 day interval.

Around position 27 the ice bodies intercept with Earth's orbit and reach their ultimate destination.

So far the picture has been simplified. In actual fact the swarm of ice bodies is a three dimensional wave with inner and outer, and upper and lower boundaries. The outer ice bodies will have a lower velocity because of their further distances from the Sun and the inner bodies will have higher velocities due to their shorter distances from the Sun.

Figure 7 shows a two dimensional view of the area the ice body wave has traced out projected onto the ecliptic plane. This view gives the inner and outer boundaries of the wave.

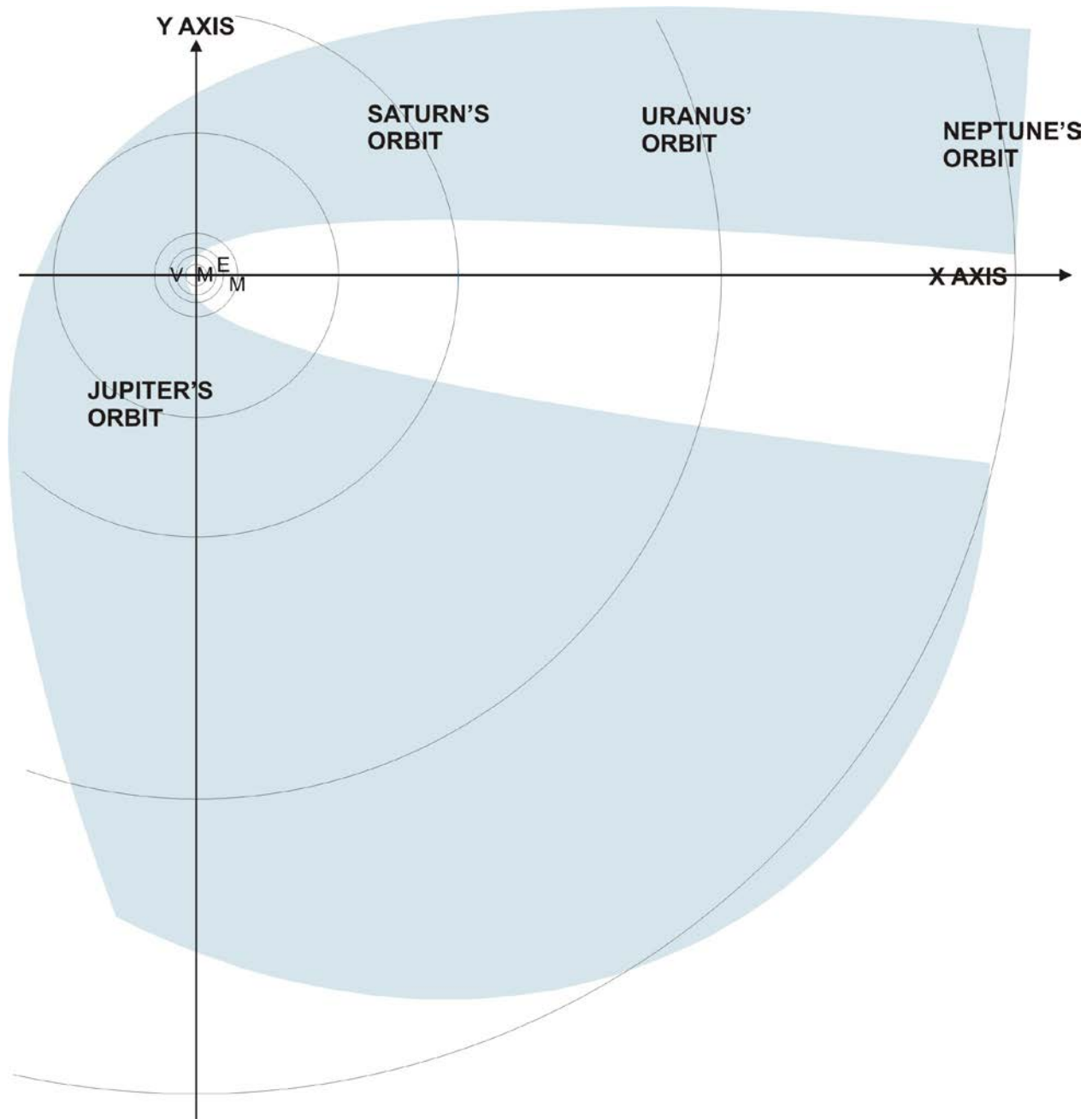


Figure 7. View of the column/wave projected onto the ecliptic plane. The Earth impacting region of the wave has taken around 22 years to move from coming into Neptune's orbit to moving back out again.

One of the features of the swarm is that each individual ice body will have its own velocity because of its position relative to the Sun. Another feature has to do with the gravitational effect on relatively close ice bodies as they pass close to the planetary bodies, particularly the major planets. This will result in collisions and rubbing together and because of the nature and structure of the ice even 'sticking' together, appendix C, to form a larger agglomeration of bodies.

Figure 8 shows the ever changing wave front as it passes through the Solar System. From the centre inward the velocity increased more rapidly. From the centre outward the wave will tilt around until it rounds the Sun from where it will sweep into an increasingly tilted arc.

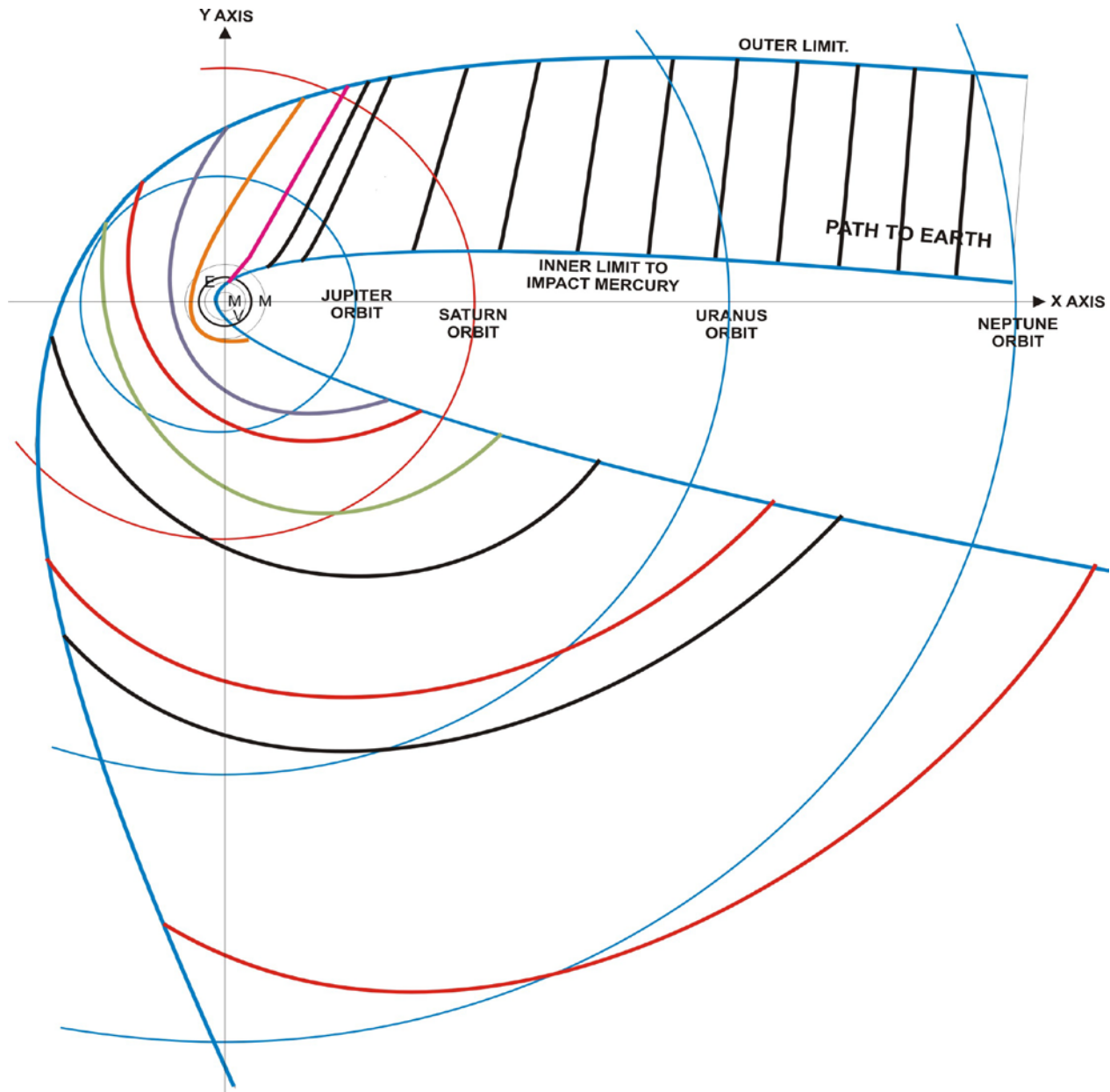


Figure 8. Ice body wave front as it moves into the solar system in reasonably straight lines and then sweeps around after it approaches and rounds the Sun.

The width of the wave is governed by the length of time it interacts with Planet Earth, keeping in mind that the primary function was to deliver water over a 40 day period. I have estimated that the wave length would be around 0.7 AU at Earth.

The next aspect to note is that the column/wave is a three dimensional shape moving in time. This is depicted in Figure 9.

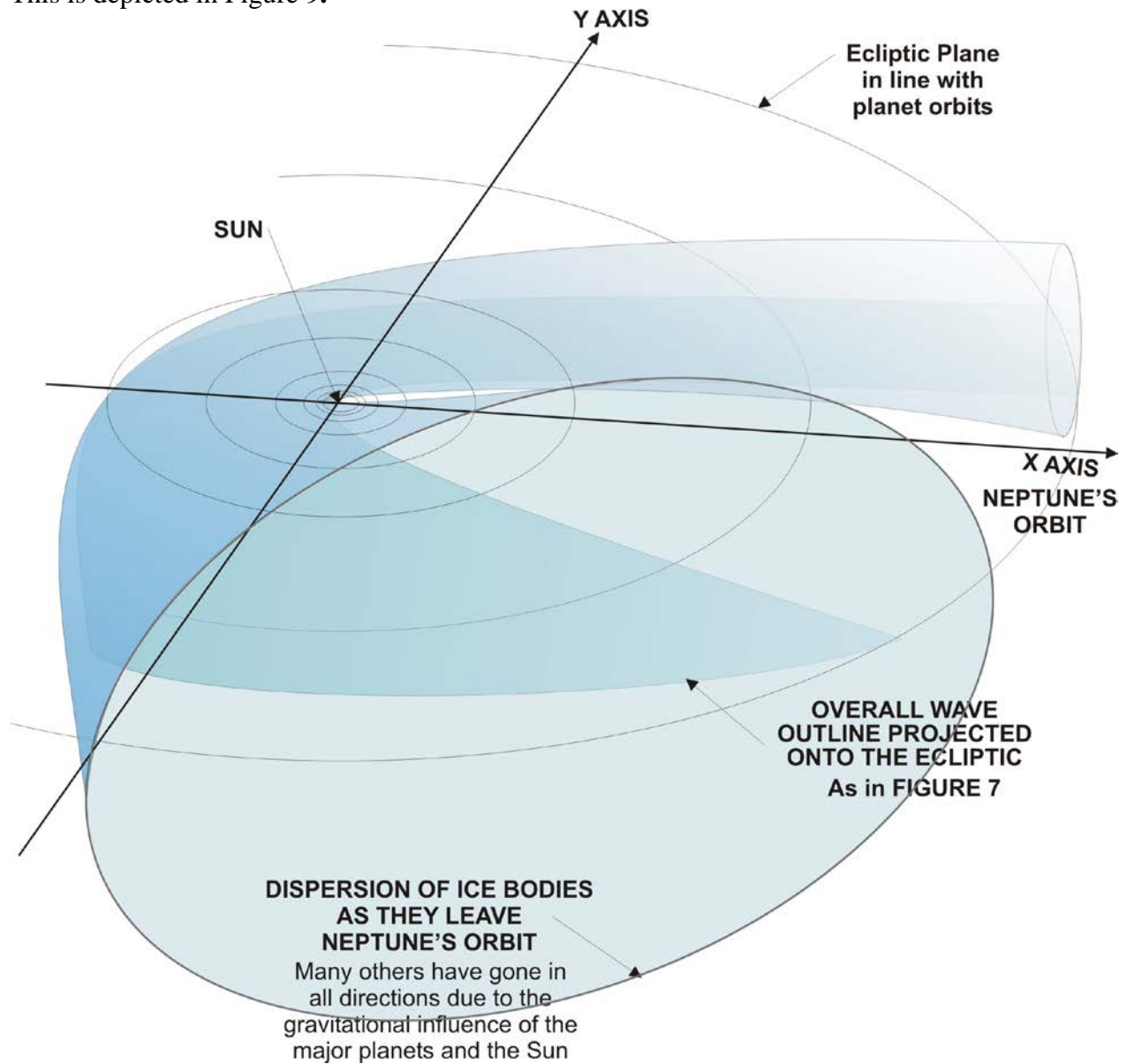


Figure 9. A three dimensional depiction of the ice body column it traces out as it moves through the Solar System.

Planet Positions

Now that the complexity of the wave of ice bodies has been established we need to correlate the position of impact with Earth in history. Referring back to Figure 6 we observe the point of intersection between Earth and the wave corresponds to point 26/7. By adding up the time intervals from Neptune's orbit to point 26/7 at Earth we get the total time for the particular path to reach Earth. Once the position of Earth in its orbit is fixed, using a period in history estimated by a number of people at around 2300 - 2350 years before Jesus Christ. Appendix D.

From my own research, appendix E, I have chosen 2303 B.C. And using a web based Orrery (Walker, 2012) the positions of the other planets can be found. (Wall Chart of World History, 1988), (Reese, 1977), (Young, 1972). From these positions, and knowing the time for the ice bodies to traverse the distances between their orbits the approximate position when the front of the wave of ice bodies intercepts with each planet. I have chosen this time because relating the initial velocity of the ice bodies and the time for them to move across the orbits of the planets and assuming that the craters on the planets or their satellites were caused by the same event the most favourable year was 2303 B.C.

Figure 10 shows, on the ecliptic plane, the correlating of the ice body wave and the major planet positions.

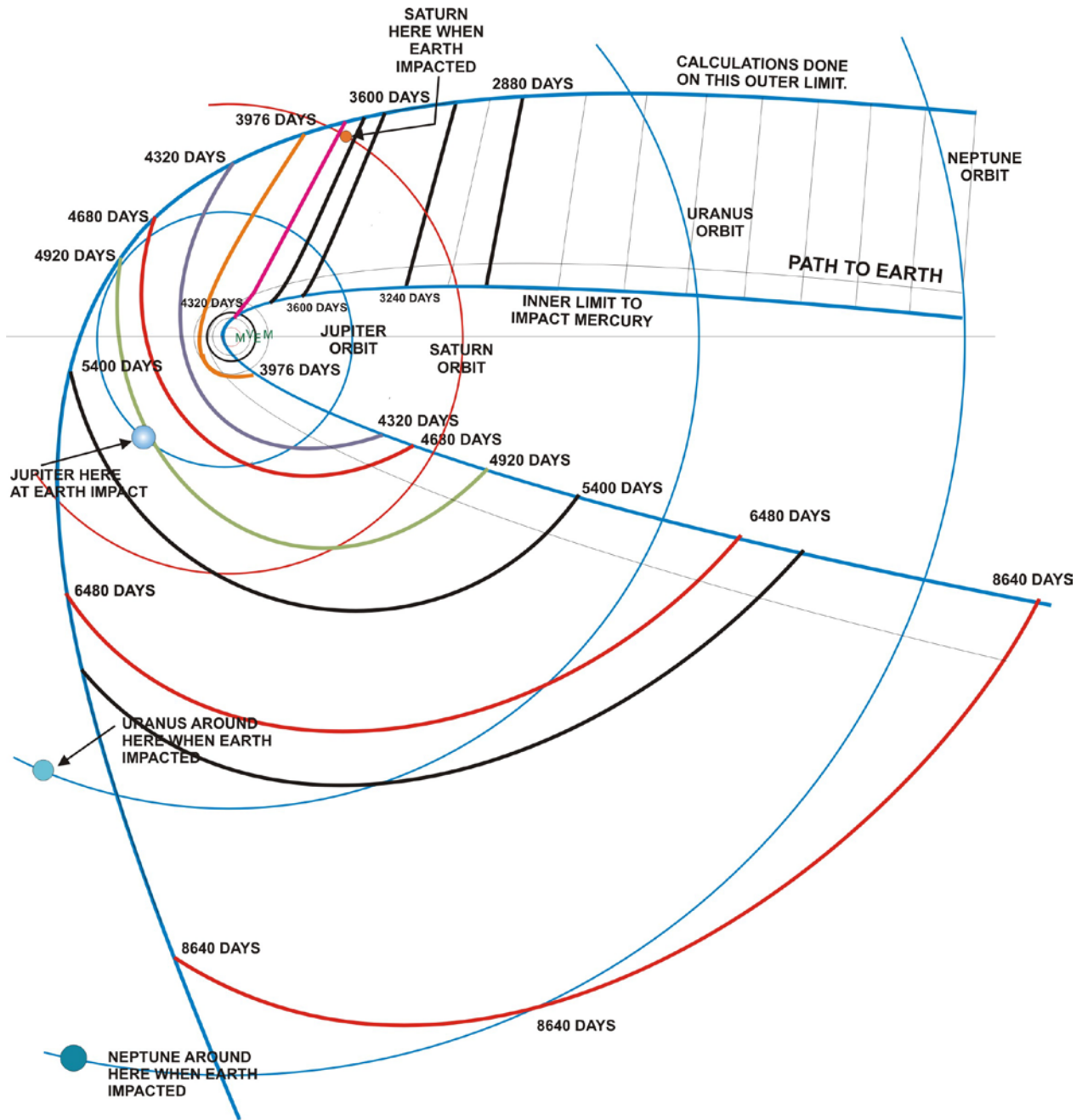


Figure 10. Ice body wave and planet positions when Earth is impacted projected onto the ecliptic plane.

Effects of impacts with the ice body wave

The first effect will be impact craters. The model explains that the majority of impact craters throughout the Solar System will have been caused by ice bodies and not rock type bodies or asteroids. Much work has been done since the 1950's when impacts were first realized to have had an effect on the surface structure of terrestrial bodies including Earth. (Melosh, 1989)

Appendix F gives the background to the nature and structure of the ice bodies and the craters they form. Depending on their nature and structure impacts onto terrestrial bodies will have a shape and structure peculiar to those bodies as opposed to impacts by rock bodies.

From the information about water ice we find that there is a range of differences in atomic structure and hence properties. If the ice body is reasonably soft in comparison to the impacted body, the ice body will absorb much of the energy as it initially deforms and the amount of heat generated will not have the effect of vaporizing as much of the impacted surface. The structure of ices can produce very hard ice or relatively soft. For this model the ice bodies will be assumed to have the structure of ICE XI, and a density of 500 kg/cubic metre. This implies a hardness of 1.5 on the Moh's scale and is comparatively soft. This is the same type of ice derived naturally and forms a snow like structure and allows snow to be made into snow balls.

The observation that comets begin to lose material around Jupiter's orbit on their way into the Solar System due to the effect of the Solar Wind gives an indication of their possible composition and structure. Much more research is being done in the whole area of ice body formed craters.

Craters

The foundation for developing this model rests on their being impact craters throughout the solar system and the possibility of three types of bodies which can form craters: ice bodies, ice bodies with mineral material included in their composition and structure, or rock/metallic bodies. The premise for this paper is that the majority of craters were formed by impacts with ice bodies with mineral content.

Specific Details as Ice Body Wave impacts the Planets

An overall view of the planet orbits and the wave of ice bodies through the Solar System are shown in Figure 10.

SATURN

Figure 11 shows the column as it approaches Saturn at one yearly intervals. As Saturn moves in its orbit at around 9690 metres per second and the ice body wave is moving at 14,946 m/s, the wave catches up with Saturn, which is ultimately engulfed by it.

As further research is done it could be feasible to correlate the number of captured ice bodies as satellites with the amount of time Saturn was engulfed in the wave, which my calculations puts at around 120 days, and determine a possible concentration of ice bodies per area, working out the gravitational area.

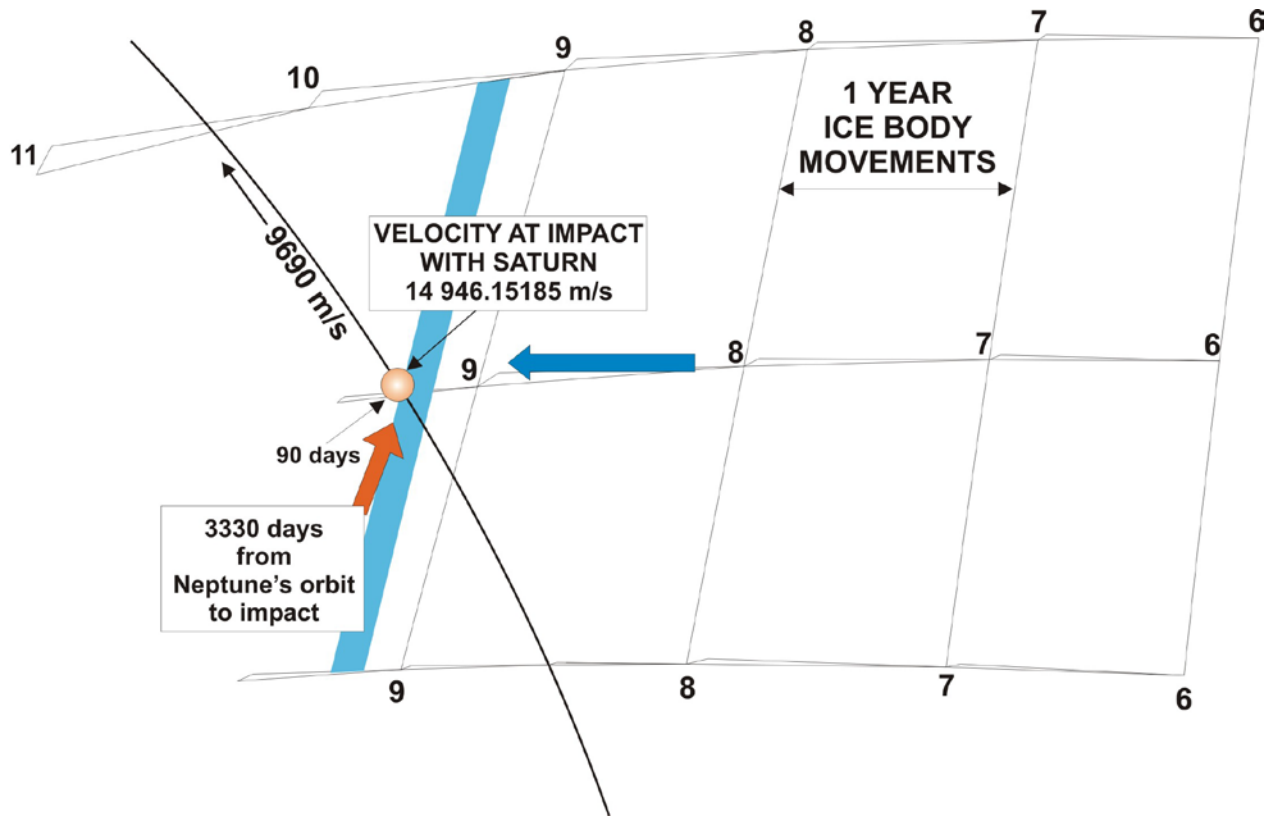


Figure 11. The interaction of the Column and Saturn. The blue stripe shows the wave as it approaches and makes contact. The interaction will enable the first ice bodies captured by Saturn to move into retrograde orbits.

Figure 12 shows an enlarged view of the ice body wave as it moves at around 14.9 km/s and Saturn moves at 9.69 km/s over a 120 day period.

As well as capturing icy satellites the 120 day duration in the ice body wave will enable quite a few bodies to collide and form the particles which form the rings. This extensive length of time will enable a more concentrated ring system compared to the other ring systems of the major planets.

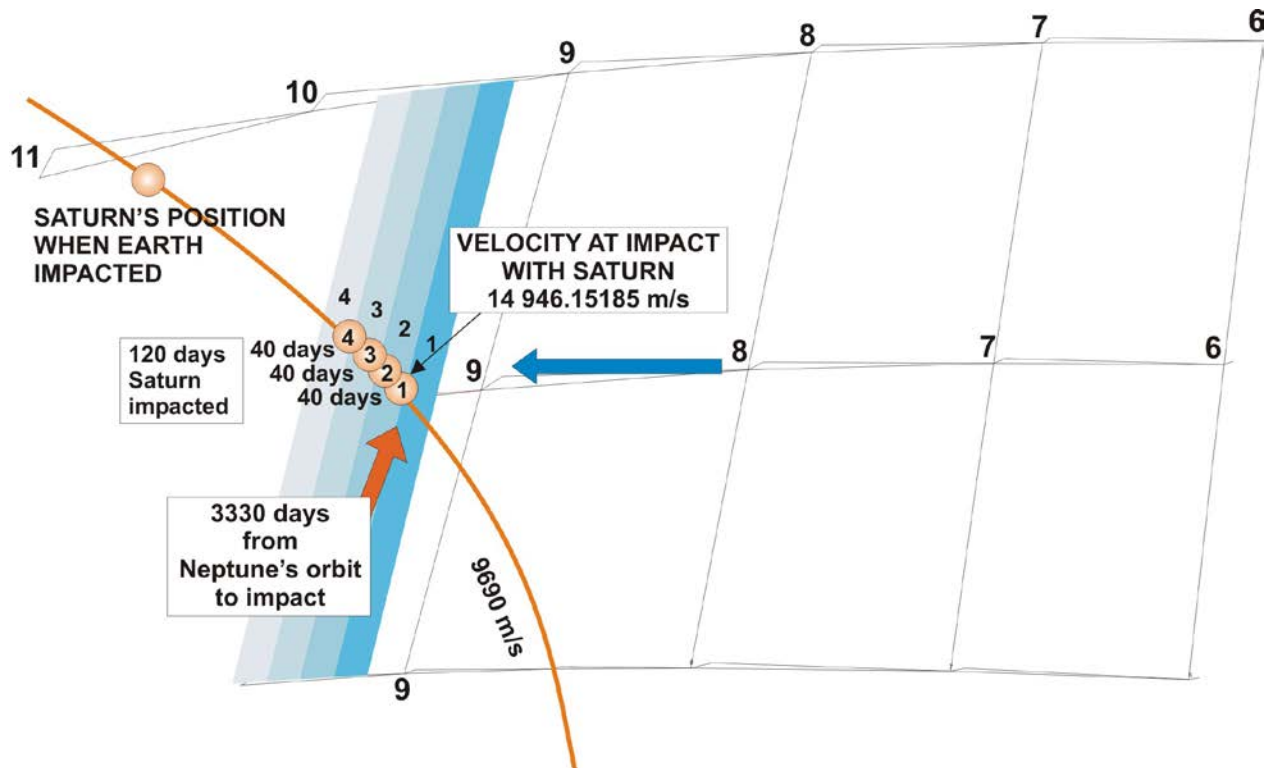


Figure 12. Saturn is moving in front of the leading edge of the wave. The wave catches up with Saturn and initial contact will enable ice bodies to be captured and move in retrograde orbits.

Another aspect which will be prevalent because of the time Saturn was engulfed in the wave and its gravitational effect, is that many bodies will be deflected into a wide range of orbits: many still moving in towards the Sun and many moving in all direction in the solar system.

What we are postulating here is that at least one of the ice bodies was so deflected by Saturn that as it left the orbit of Saturn it again became influenced by the gravitational effect of the Sun and completed its passage into the inner Solar System. From Figure 13 its position is now coming into the inner Solar System on the other side of the Sun so that ultimately it will go into a retrograde orbit and become Halley's Comet.

Further research should be able to trace the origin of some of the comets with elliptical orbits back to this time of interaction with Saturn given the time restraints suggested in this paper.

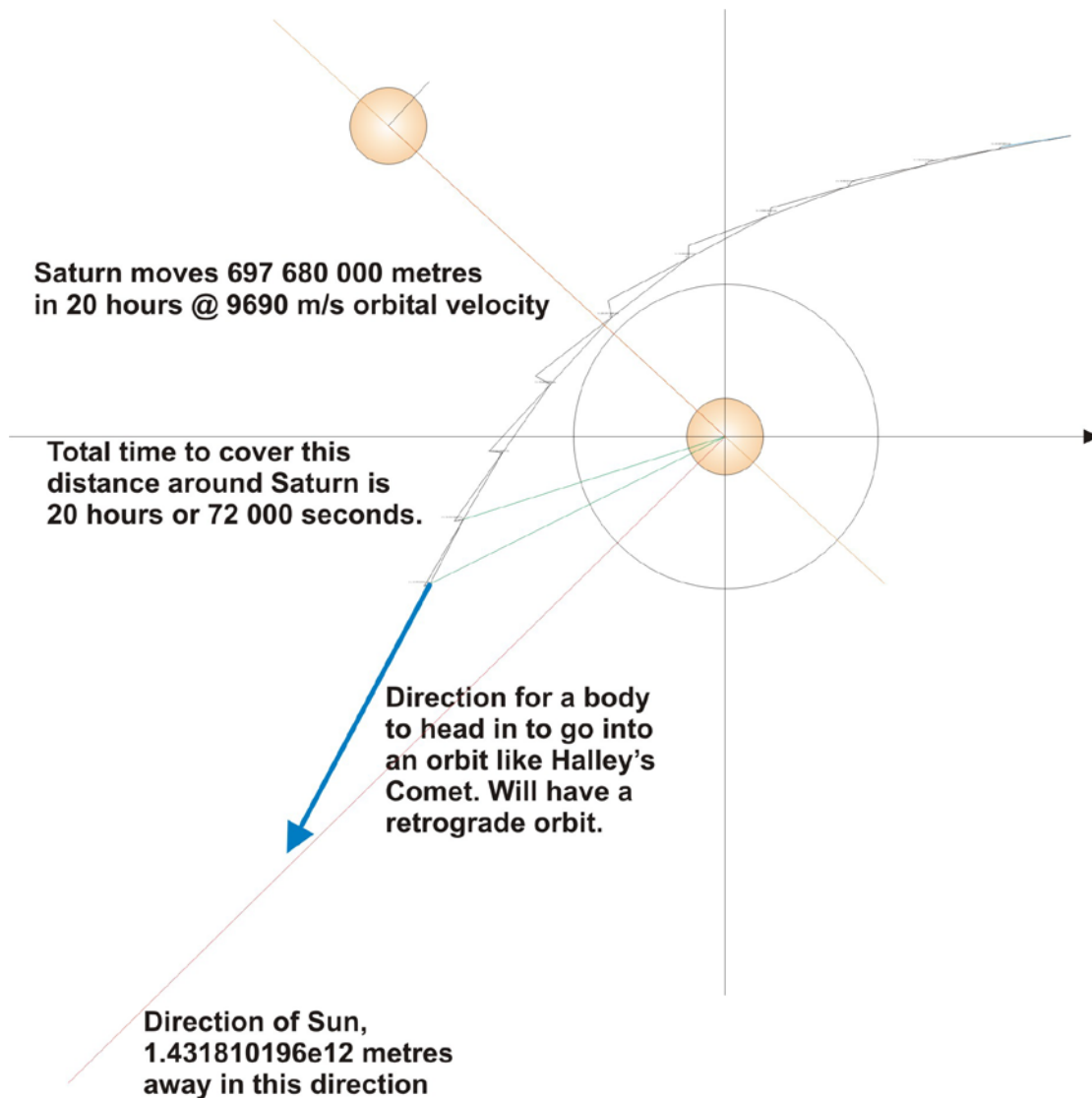


Figure 13. Deflection of an ice body by Saturn which could ultimately go into orbit around the Sun similar to Halley's Comet.

Details at Mars

Figure 14 shows the position of the planet as the wave moves through Mars' orbit. The wave front where the higher velocity bodies are, has moved through Mars' orbit and Mars is still far enough back to miss being impacted until it catches up with the wave and enters it from the rear. We can work on a 40 day length of bodies which will impact with Mars. This corresponds to a length of 0.7 AU.

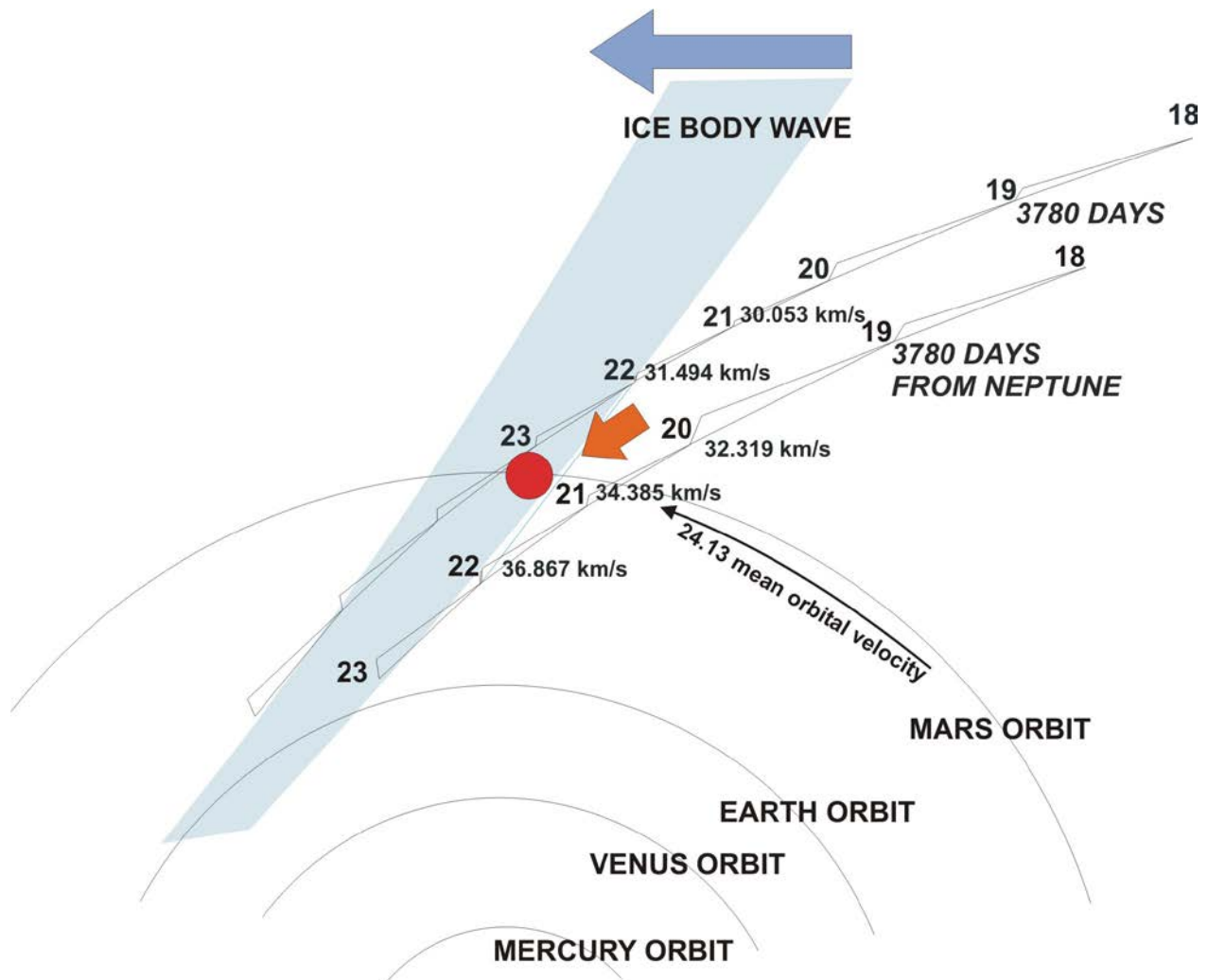


Figure 14. Ice body wave interacting with Mars.

Details at Earth

Figure 15 shows the details at Earth. The area of the ice body wave has taken 3918 days to travel from the orbit of Neptune to impact Earth and the Earth will continue in this section of the wave for 40 days. The vertex of the hyperbolic path will be around 3938 days from Neptune's orbit. To have a minimum velocity with Earth at the time of Noah's flood, the Earth was in a position moving in the same direction as the ice bodies. The composite velocity for impacts at 90 degrees is around 11 km/s. That is the velocity of ice bodies 41 km/s minus the earth's velocity 30 km/s.

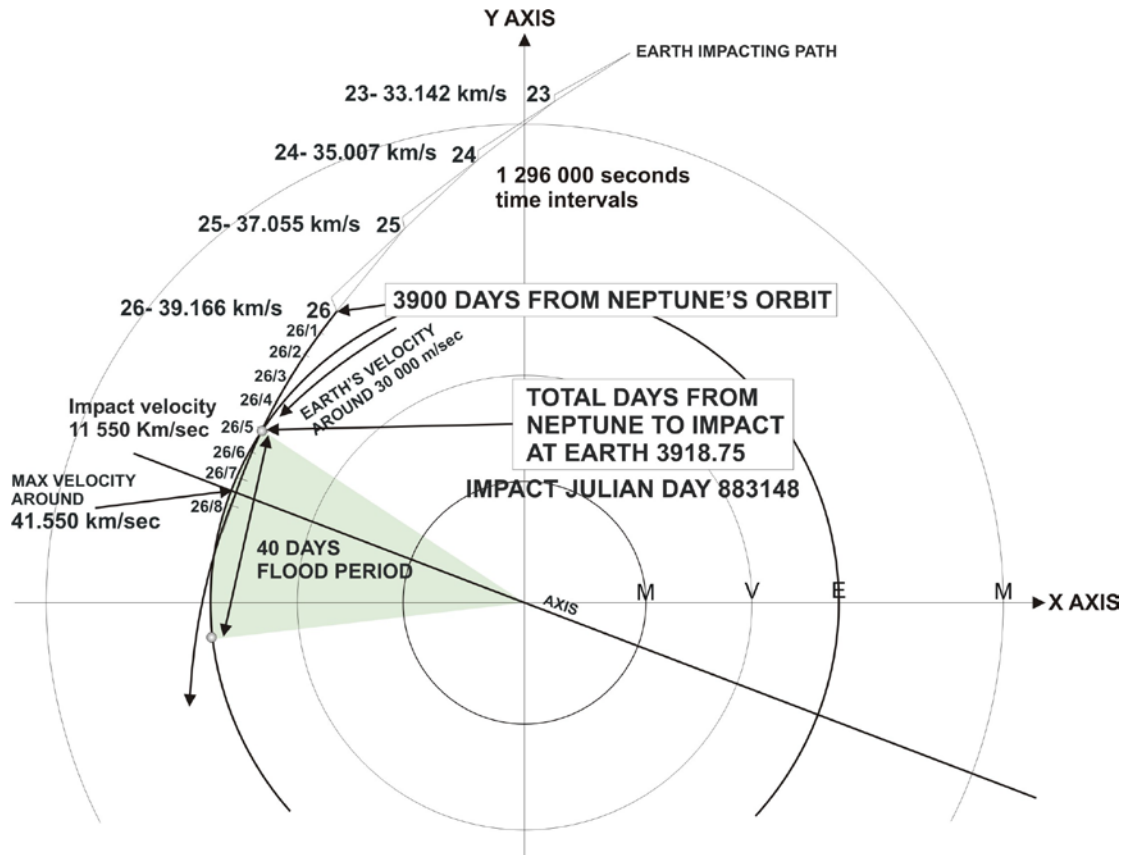


Figure 15. Shows the area of the ice body wave as it approaches and intercepts with Earth's orbit. The time intervals used in the calculations have been reduced and the 40 day period is shown as being swept out as the green triangle. The axis of the hyperbolic path is indicated and the left over ice bodies will now continue their path out of the solar system.

Details at Venus

Figure 16 shows Venus' orbit and the trajectory of ice bodies which directly impact Venus. The surface conditions on Venus with a temperature of around 460 Celsius and the effect of bombarding ice bodies with a velocity of 46 km/s will affect the shape of the craters formed. This is the subject of ongoing research which will provide information on the effects under these planetary conditions as compared to relatively low velocity impacts onto cold planetary bodies.

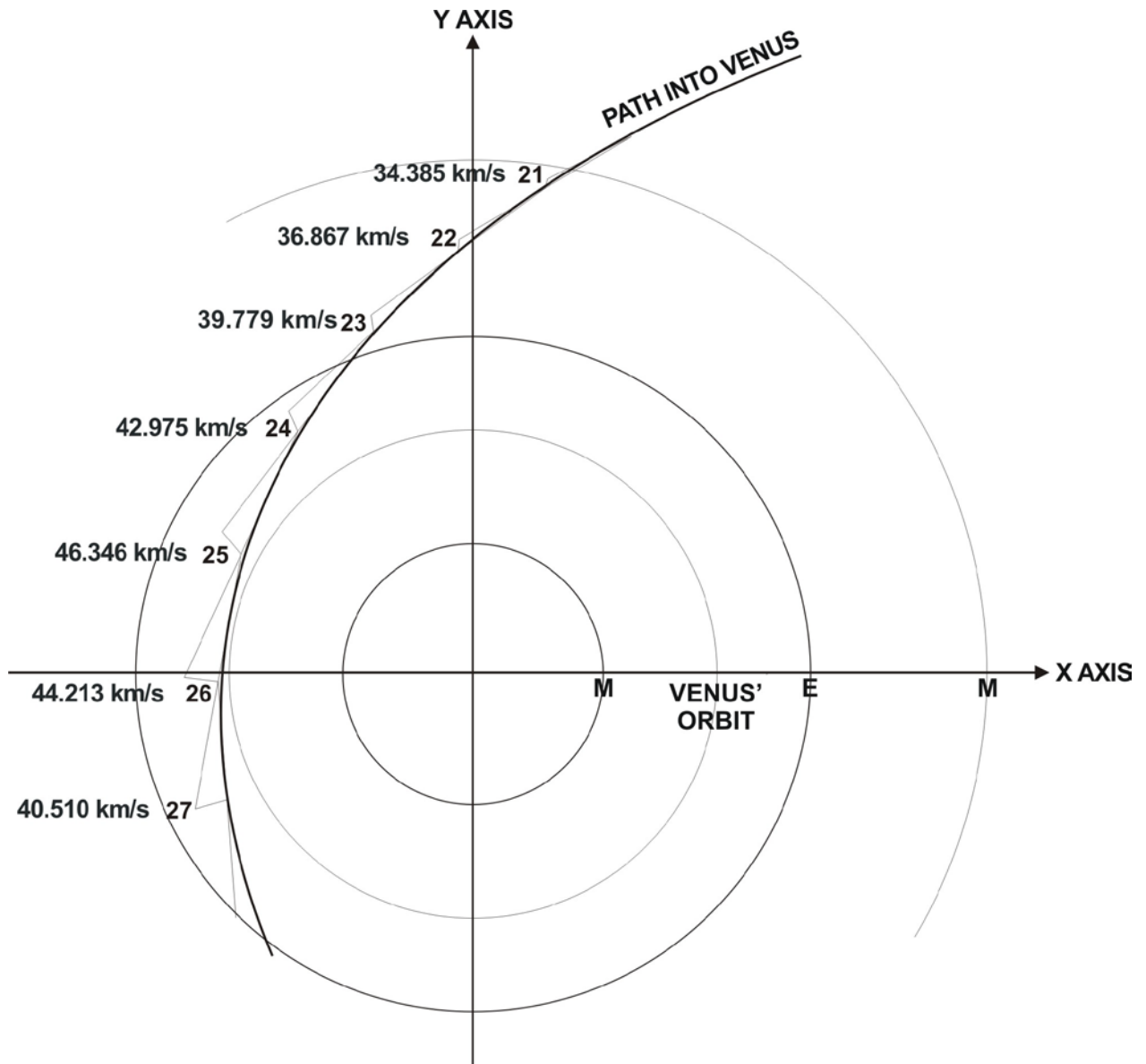


Figure 16. Impact with Venus.

Details at Mercury

Figure 17 shows the impact at Mercury.

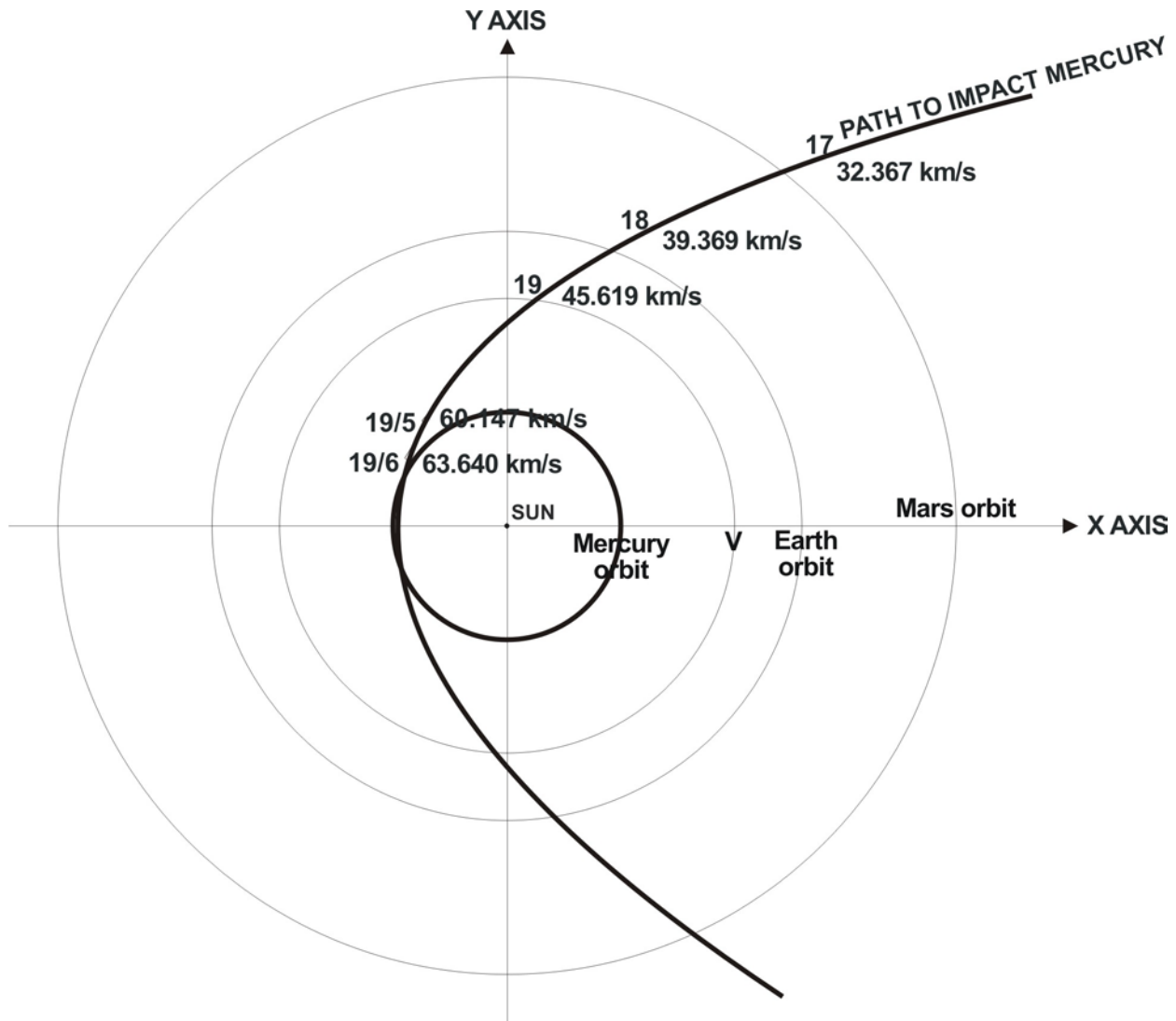


Figure 17. Impact with Mercury.

The impact velocities of the ice bodies with Mercury are extremely high and a comparison of the crater structure with craters on Earth's Moon and Mars can reveal something of the nature and structure of the ice bodies. If the ice bodies in all cases were similar and the hardness of the impacted surfaces was similar so that the velocity of impact was the variable, and all the craters look similar, then the structure of the ice bodies must be easily deformed such as would be the case from loosely compacted ice.

Details at Jupiter

Figure 18. Impact with Jupiter. By the time the front of the ice body wave has reached the orbit of Jupiter it is in the position shown. It is moving through the wave almost lengthways. Further research will determine the length of time of interaction and the effect on Jupiter's natural satellites.

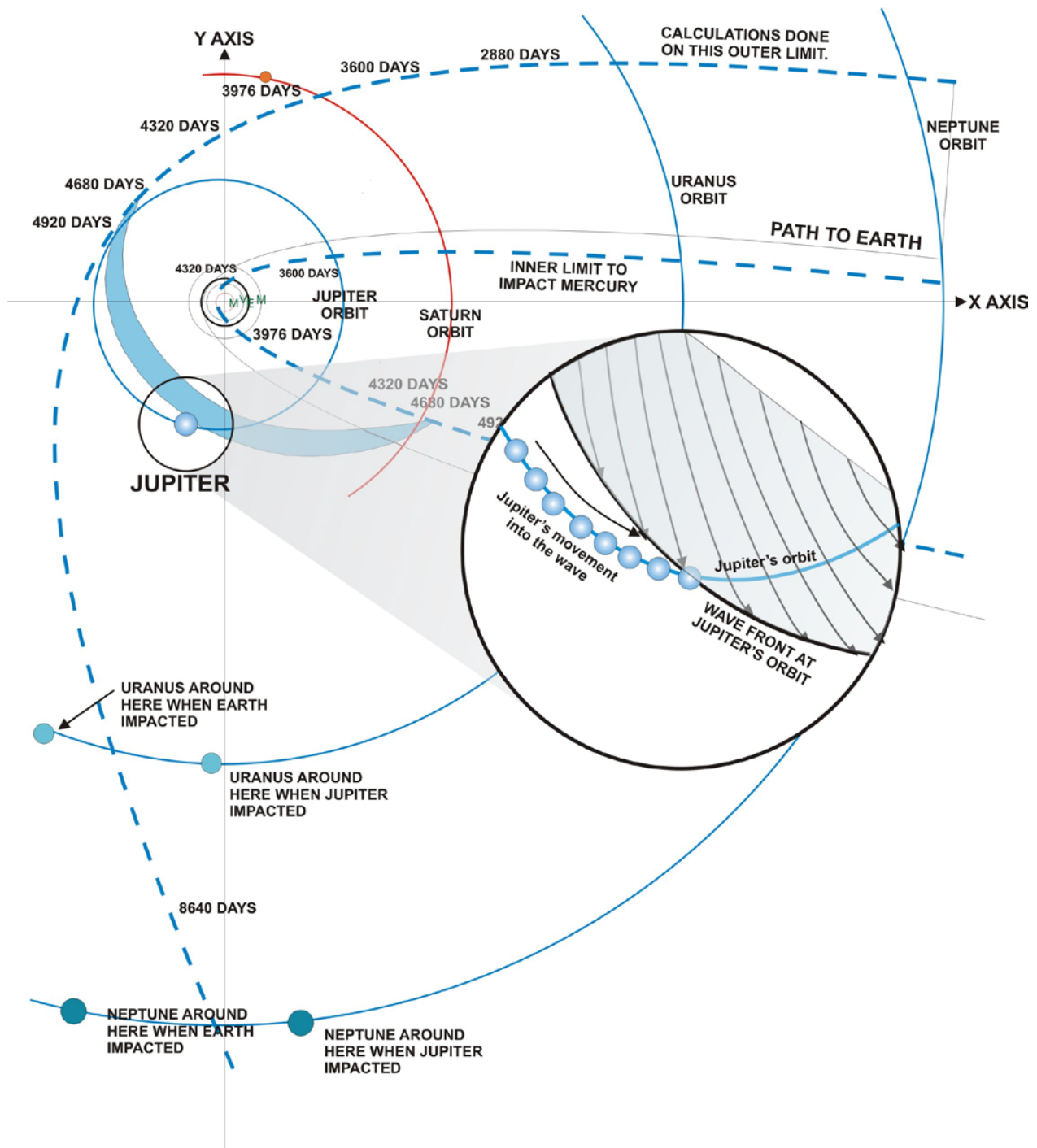


Figure 18. Shows wave front as it moves through the Solar System and an enlarged view of Jupiter's interaction with the wave.

Each of Jupiter's natural moons can be assessed individually with respect to crater size and form. Again the similarity with other craters is noticeable. At this stage of the ice body wave, the distances between the bodies have increased as they disperse. This is relevant to the capture of a number to become icy satellites. The same process which formed the ring system at Saturn will apply here at Jupiter. The rings were discovered on 4 March 1979 by the cameras of the Voyager

1 probe. The density of these rings appears to be about a ‘billion times less than those of Saturn’. (Audouze, *et al*, 1996) The dispersion of the ice bodies and the subsequent collisions combined with the gravitational effect of Jupiter will have produced a much weaker ring system.

Ice Body Encounter with Uranus.

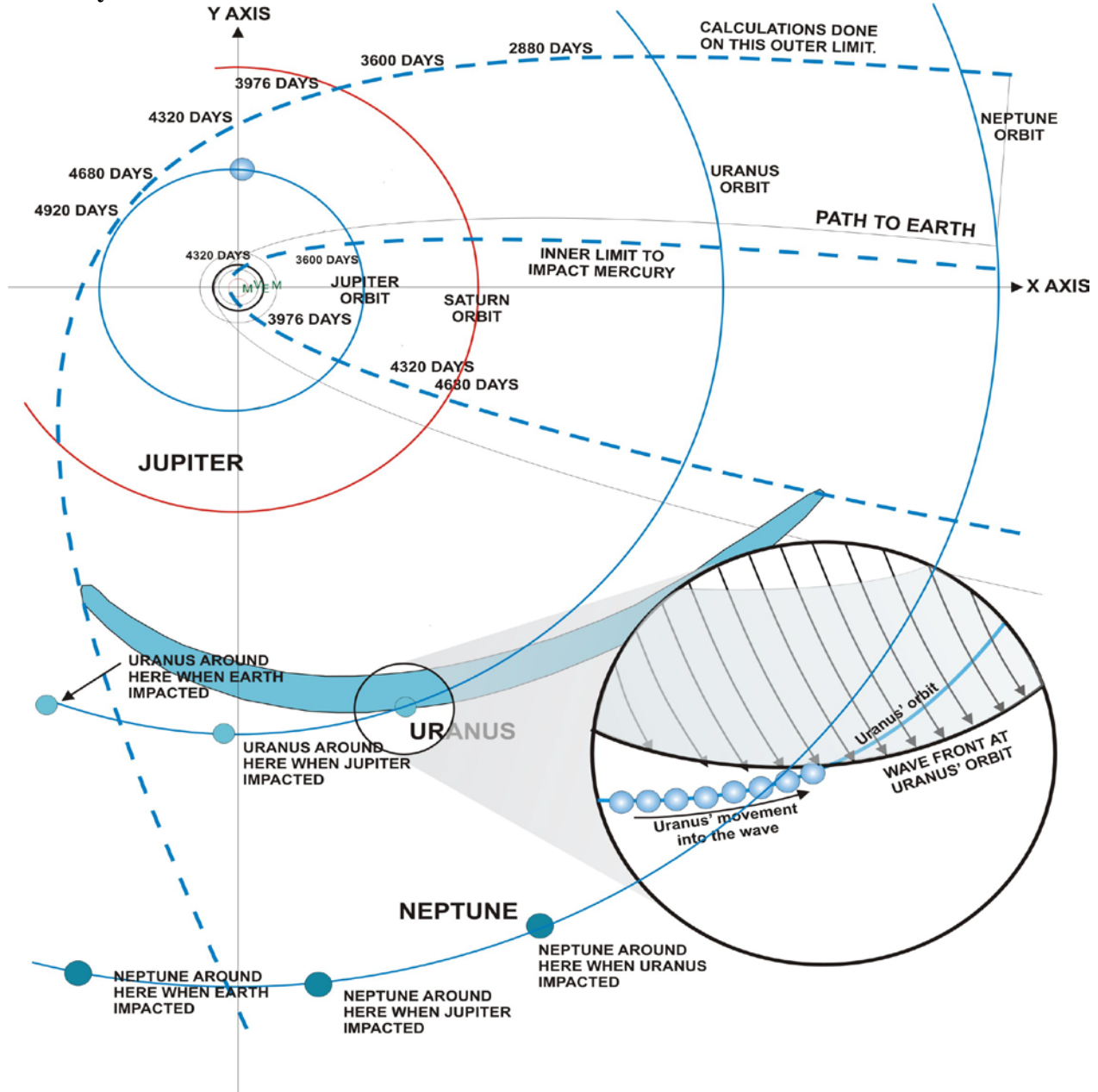


Figure 19. Position of Uranus when the ice body wave impacts. Again the wave intercepts Uranus from the inside and it moves into the wave. The first ice bodies which are in the right gravitational position will become icy satellites with retrograde orbits.

Figure 19 shows the interaction between Uranus and the retreating ice body wave. By this time the dispersion of the wave is increasing so the number of impacts will be considerably reduced.

This is evident in the surfaces of Uranus' natural satellites and the reduced number of captured icy satellites. Of the 27 satellites observed at the present time 4 are considered as natural, so 8 out of the remaining 23 have retrograde orbits. Also the ring system of Uranus is very faint which is to be expected compared to Saturn and even Jupiter.

Ice Body Encounter with Neptune

Figure 20 shows the interaction of Neptune with the ice body wave as it leaves the Solar System. Again the dispersion of the ice bodies will have increased. The planet is considered to have 1 natural satellite Triton, and of the 12 captured icy satellites 3 have retrograde orbits and hence would have been captured probably in the early stages of the encounter.

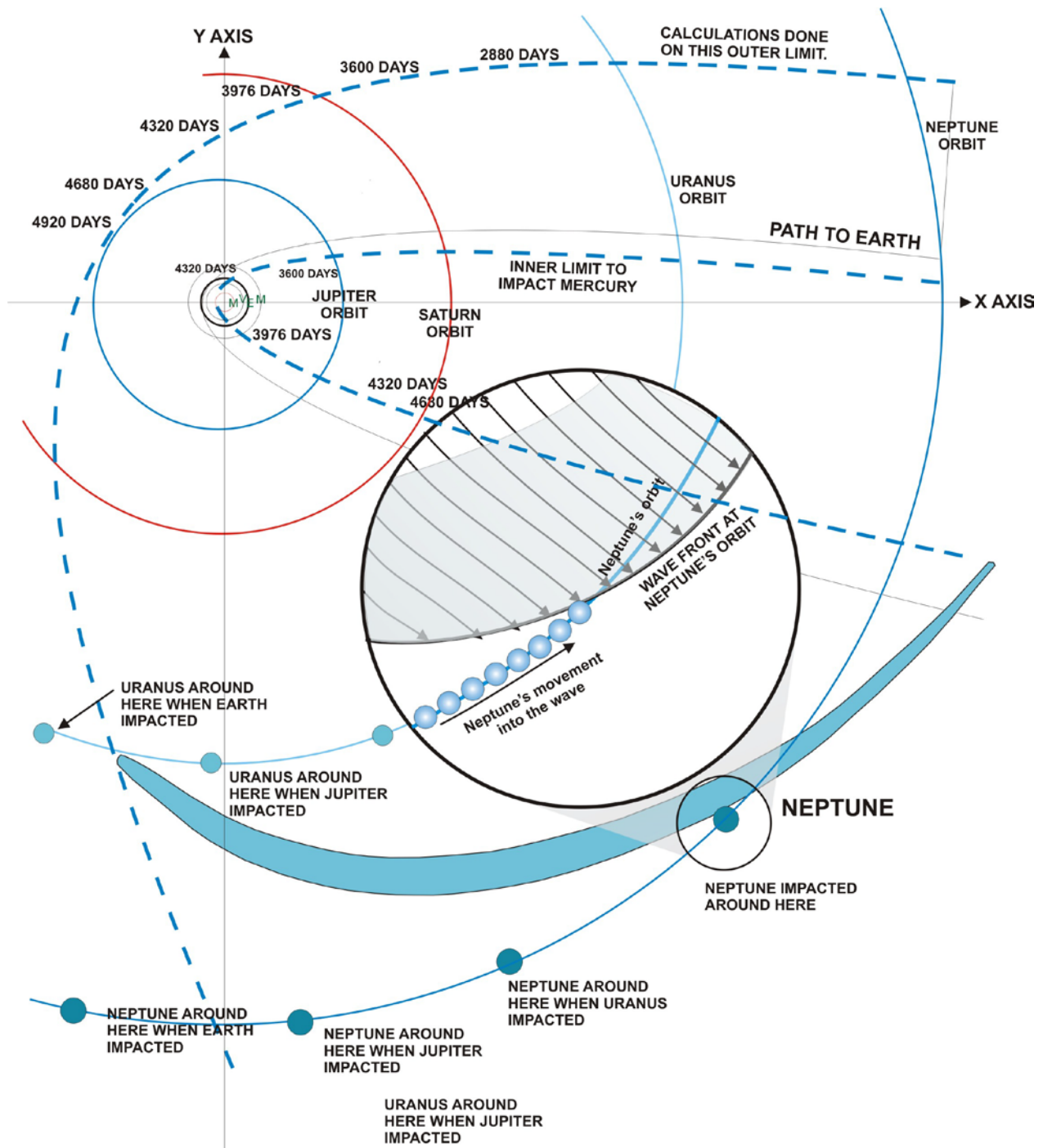


Figure 20. Neptune's interaction with the retreating ice body wave.

From the diagrams Jupiter, Uranus and Neptune move into the ice body wave. The first ice bodies captured will go into retrograde orbits. Figure 21 shows why this will occur for all three major planets. Ongoing research is focusing on correlating all factors involved to determine actual positions of ice bodies in the wave when they were captured and ultimately determining

the concentration of ice bodies in the wave and correlating this with the amount of water brought into the solar system.

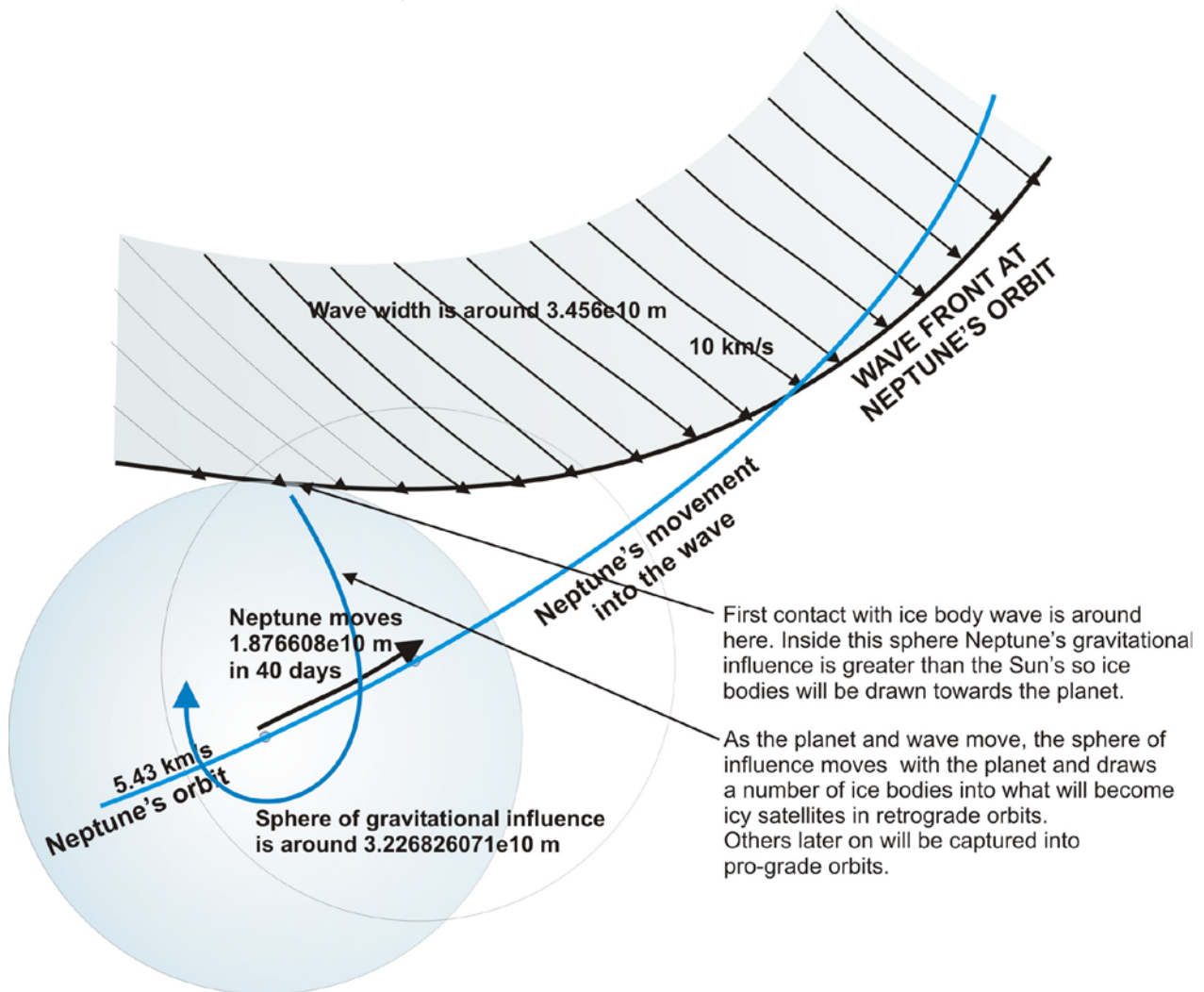


Figure 21. Shows how the relationship between Neptune and the ice body wave can cause the capture of some of the icy satellites into retrograde orbits.

CONCLUSION

A swarm of ice bodies entered the Solar System at Neptune's orbit and proceeded under the gravitational influence of the Sun into the inner Solar System to ultimately deliver water to Earth at the time of the Biblical Noah's flood. The swarm which developed into a wave through the Solar System impacted every terrestrial body, resulting in the majority of craters we observe today. A number of these ice bodies were captured to become the presently observed icy satellites. Many others in close orbits from different directions around the major planets collided forming rings. Many were deflected from their early interaction with Saturn and later by the other major planets to leave the solar system forever and many went into elliptical orbits which enable them to return periodically as comets. This was a catastrophic event lasting a relatively short time.

A model based on Biblical history can be developed which can explain many aspects of the Solar System. The model can be further refined so that more precise quantitative aspects can be

developed. These further aspects include calculations relating to many icy satellites, refined analysis of individual craters, the distribution of water ice throughout the Solar System and analysis of cometary bodies, particularly their composition and structure as related to crater formation. An aspect which has not been considered is the formation of asteroids. This will require much more contemplation and calculations within this model and will be a part of the ongoing research. Further development of the model includes equating the quantities of water delivered to the terrestrial bodies, including Earth as impact concentrations relating to cratering should be able to provide a relationship.

APPENDIX A

The reasoning behind choosing 10 km/s as the velocity at Neptune's orbit is based on a number of factors. Observation throughout the Solar System indicates that every terrestrial body and the terrestrial type satellites of the gaseous planets have been impacted by bodies which have left Craters.

For this paper it is considered that one single event was responsible for the impacts causing the majority of the craters. This event occurred over a short period of time. The model would have the time span for bodies to come into the Solar System and round the Sun and then proceed back out, such that the position of each planet had to successively be in the path of the ice body swarm and they all had to be in particular positions with respect to Earth.

For all the planets to be impacted and be in a particular arrangement means that if their velocity is too high some planets will miss being impacted and hence will not show an abundance of craters. If their velocity was too low again the same thing will occur. Some planets will be missed and they will have no craters. By trial and error and co-ordinating all the relevant factors a velocity of around 10 km/s will provide acceptable parameters so that all will be impacted and exhibit craters. This will also allow the low composite velocity when the ice bodies impact with Earth, because both ice bodies and the Earth are travelling in the same direction.

APPENDIX B

METHOD FOR FINDING THE VELOCITY, SUN'S ACCELERATION, PATH AND TIME FOR ICE BODIES TRAVERSING THE SOLAR SYSTEM

Task: to find each section of the trajectory of ice bodies through the Solar System

We will use the example at the beginning as the ice bodies enter at Neptune's orbit.

1. It was decided that the initial velocity of bodies entering the Solar system be taken as **10 000 metres per second.**

The reason for this is that eventually icy satellites would be captured by Neptune as left over ice bodies exited the Solar System and their velocity is around 10 000 m/s.

2. It was decided to use an initial time span of 1 earth year. A pre-flood year of 360 days was used. **This equals 31 104 000 seconds.**

3. After many trial and error attempts **a trajectory of 355 degrees** was selected.

4. Using this information to find distance in the equation $v = \frac{d}{t}$

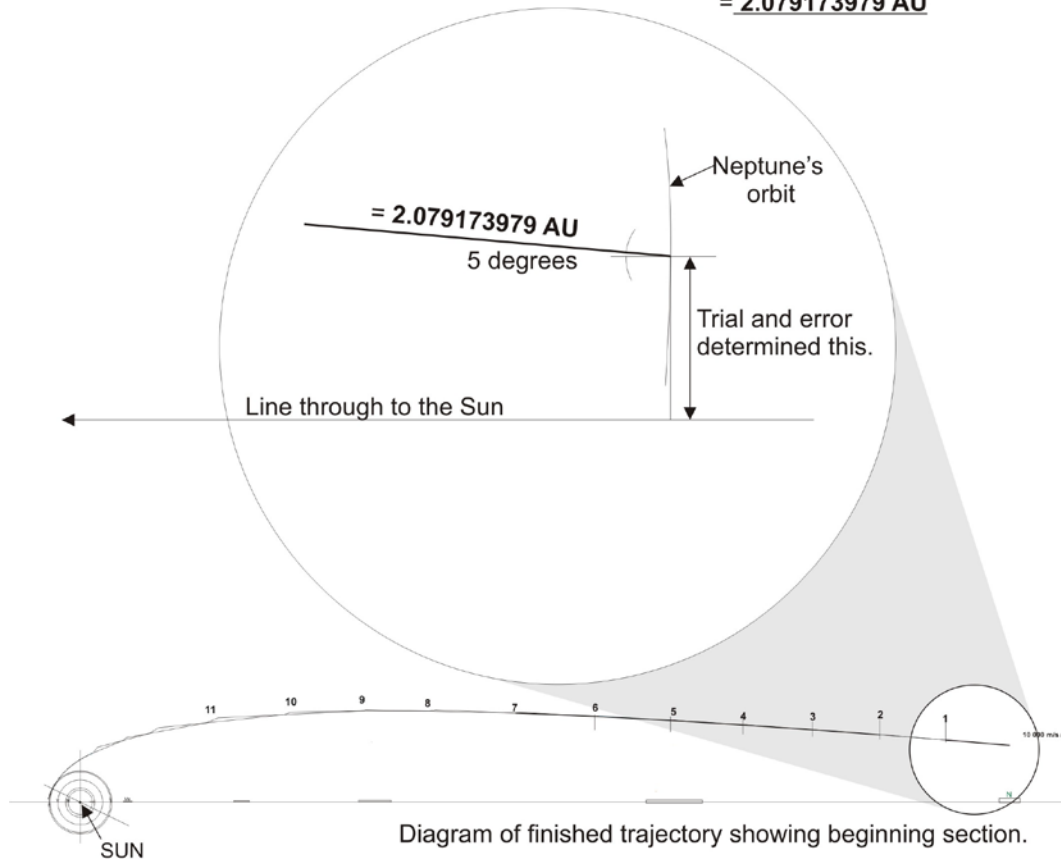
$$\begin{aligned} d &= vt \\ &= 10\,000 \times 31\,104\,000 \\ &= 311\,040\,000\,000 \text{ m} \end{aligned}$$

v = velocity in metres/second
d = distance in metres
t = time in seconds

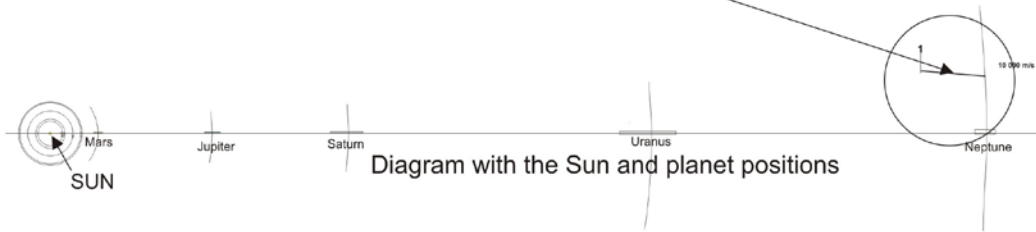
5. Because of the restrictions of the computer program when drawing the Solar System to scale, a 40m X 40m page was used. We have used Astronomical Units in metres.

1AU = 149 597 870 700 m. So all the the units have to be converted into Au's and visa versa.

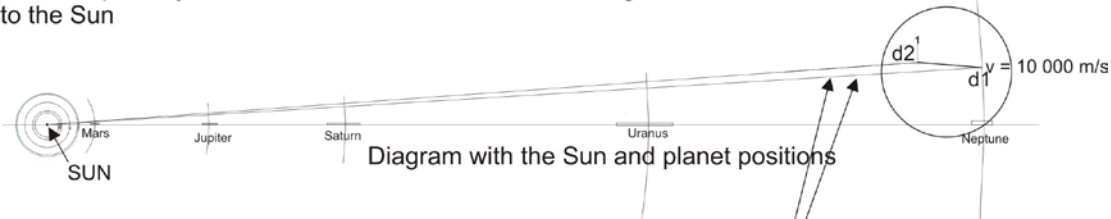
$$\begin{aligned} \text{Hence the first distance is } &= \frac{3.1104e11}{149\,597\,870\,700} \\ &= \mathbf{2.079173979 \text{ AU}} \end{aligned}$$



6. Using this information a line was drawn to scale on a diagram where the Sun and the planet orbits were placed at the appropriate scale distance.



7. The distance of each extremity d_1 and d_2 of the line was then measured on the drawing and multiplied by the scale factor of **149 597 870 700** to give the actual distances in metres to the Sun



$$d_1 \text{ to Sun} = 29.202486 \text{ AU} \times 149\,597\,870\,700 = \mathbf{4.368629725e12 \text{ m}}$$

$$d_2 \text{ to Sun} = 31.183204 \text{ AU} \times 149\,597\,870\,700 = \mathbf{4.66494092e12 \text{ m}}$$

8. The Sun's acceleration was now found for each end of the lines d_1 and d_2 and averaged by using the formula:

$$S \text{ acc} = \frac{G M (\text{Sun})}{d^2} \quad \text{Where } G \text{ is the gravitational constant } \mathbf{6.673 \times 10^{-11} \text{ m}^3 \cdot \text{Kg}^{-1} \cdot \text{s}^{-2}}$$

Sun's mass = $\mathbf{1.98892e30 \text{ Kg}}$
 $\mathbf{GM = 13.2746e19}$

$$S \text{ acc at } d_1 = \frac{13.2746e19}{4.368629725e12^2} = \frac{13.2746e19}{1.908492567e25} = \mathbf{6.955541892e-6 \text{ m/s}^2}$$

$$S \text{ acc at } d_2 = \frac{13.2746e19}{4.66494092e12^2} = \frac{13.2746e19}{2.176167379e25} = \mathbf{6.099990345e-6 \text{ m/s}^2}$$

$$\text{Sun's average acceleration} = \frac{6.955541892e-6 + 6.099990345e-6}{2} = \mathbf{1.305553224e-5 \text{ divided by } 2}$$

$$\mathbf{\text{Sun's average acceleration} = 6.527766118e-6 \text{ m/s}^2}$$

9. My 'MECHANICAL ENGINEERING SCIENCE' by J. Hannah and M. J. Hillier, Pitman Paperbacks, 1970 metric edition, page 134, in the Chapter on Motion; Velocity and Acceleration, section 7.5 Summary of Equations for Constant Acceleration says:

"Note that these equations are not valid if the acceleration is not constant. The first equation only may be used, however, for a varying acceleration if f is replaced by the average acceleration f_{av} ."

This is referring to the equation: $\mathbf{v = u + f t}$
 where f is acceleration, and hence used here as the average acceleration.

$$\text{Therefore } \mathbf{v = u + f t} \quad \text{For the position, } u = 0$$

$$f_{av} = 6.527766118e-6$$

$$t = 31\,104\,000$$

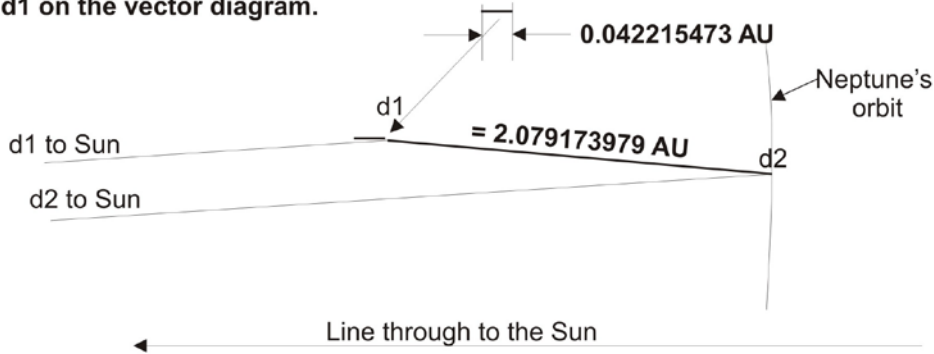
$$\text{That is } \mathbf{v = 6.527766118e-6 \times 31\,104\,000} = \mathbf{203.0396373 \text{ m/s}}$$

This is the velocity added to the ice body by the Sun's gravitational attraction at the average position between d_1 and d_2 .

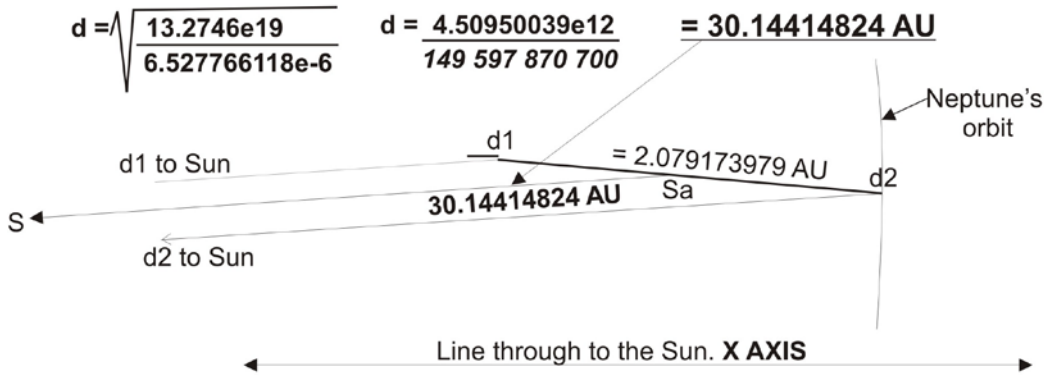
10. From this velocity a distance can be calculated using: $v = \frac{d}{t}$
 That is: $d = vt$
 $= 203.0396373 \times 31\,104\,000$
 $= \underline{6.315344880e9 \text{ m}}$

11.a. This distance has to be divided by 149 597 870 700 to give the Sun's velocity vector.
 That is $\frac{6.3153448801e9}{149\,597\,870\,700}$
 $= \underline{0.042215473 \text{ AU}}$

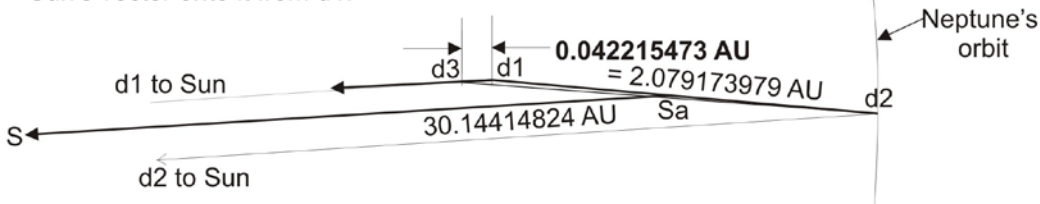
11.b. This distance 0.042215473 AU was drawn a the line transferred to the point d1 on the vector diagram.



12. This has now to be given direction on the scale vector diagram. This is done by drawing a new line using the Sun's average acceleration from the Sun to the initial vector.



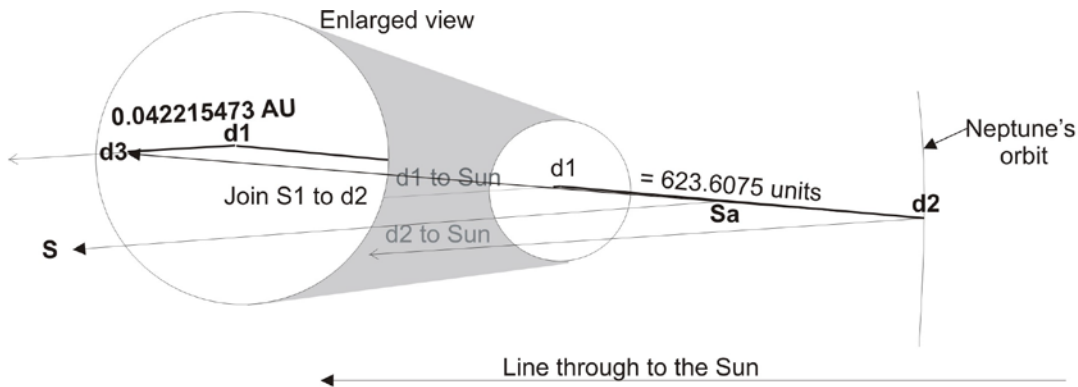
13. To get the direction draw a line parallel to S-Sa through d1 and transfer the Sun's vector onto it from d1.



14. Then join d2 to the end of the Sun's velocity vector d3, and this gives the resultant velocity vector. Measure this length which is in AU, multiply by 149 597 870 700 to give metres and divide by time.

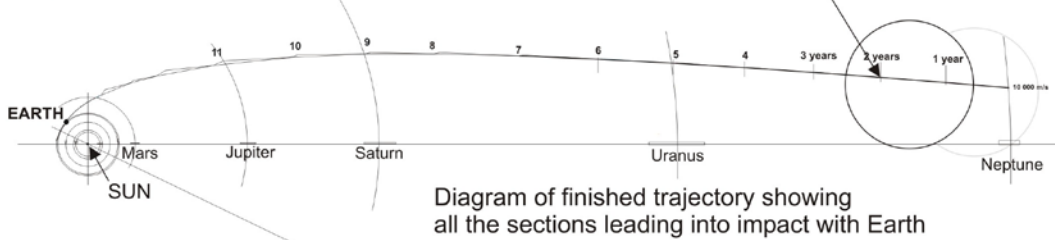
Resultant = 2.119380 AU = 3.170547352e11 m

Divided by time, 31 104 000 gives velocity = 10 193.37497 m/s



From this we can see that the Sun's acceleration has added to the initial velocity and the ice bodies are now **travelling at 10.193 km/s**

We now start the process over again using this new velocity and direction to get the velocity and direction at the end of another 31 104 000 seconds.



This process is continued until the lines reach Earth's orbit and start to come back. By reducing the time factor as we go closer to Earth's orbit we get better definition of the curved path followed by the ice bodies.

As we reproduce the first section we can draw the axis of the curve which we find is a conic section in the form of an **hyperbola**.

2013-4-2 NEW PATHS

VELOCITY = 10 000 m/s

POSITION 1-6. FROM NEPTUNE'S ORBIT.

TIME = 31 104 000 sec - 360 DAYS

X 149 597 870 700 and square

13.2746e19 divided by d² gives a

d₁ = 29.202486 AU

d₁² = 1.908492567e25 m²

a₁ = 6.955541892e-6 m/s/s

d₂ = 31.183204 AU

d₂² = 2.176167379e25 m²

a₂ = 6.099990345e-6 m/s/s

AVERAGE a = 6.527766118e-6 m/s/s

Sun's velocity component

v = at v = 6.527766118e-6 X 31 104 000 = 203.0396373 m/s

d = vt d = 203.0396373 X 31 104 000 = 6 315 344 880 m

Divided by 149 597 870 700 to give AU's
= 0.042215473

From this draw Sun's velocity vector.
Along Sun's direction from below.

From this also get average Sun's direction for average acceleration.

This will not give an exact value but will be close enough to get the general trend for the path because of varying Sun's acceleration

Distance from average acceleration is given by:

DIVIDE BY 149 597 870 700

$$d = \sqrt{\frac{13.2746e19}{6.527766118e-6}}$$
 d = 4.50950039e12 = 30.14414824 AU

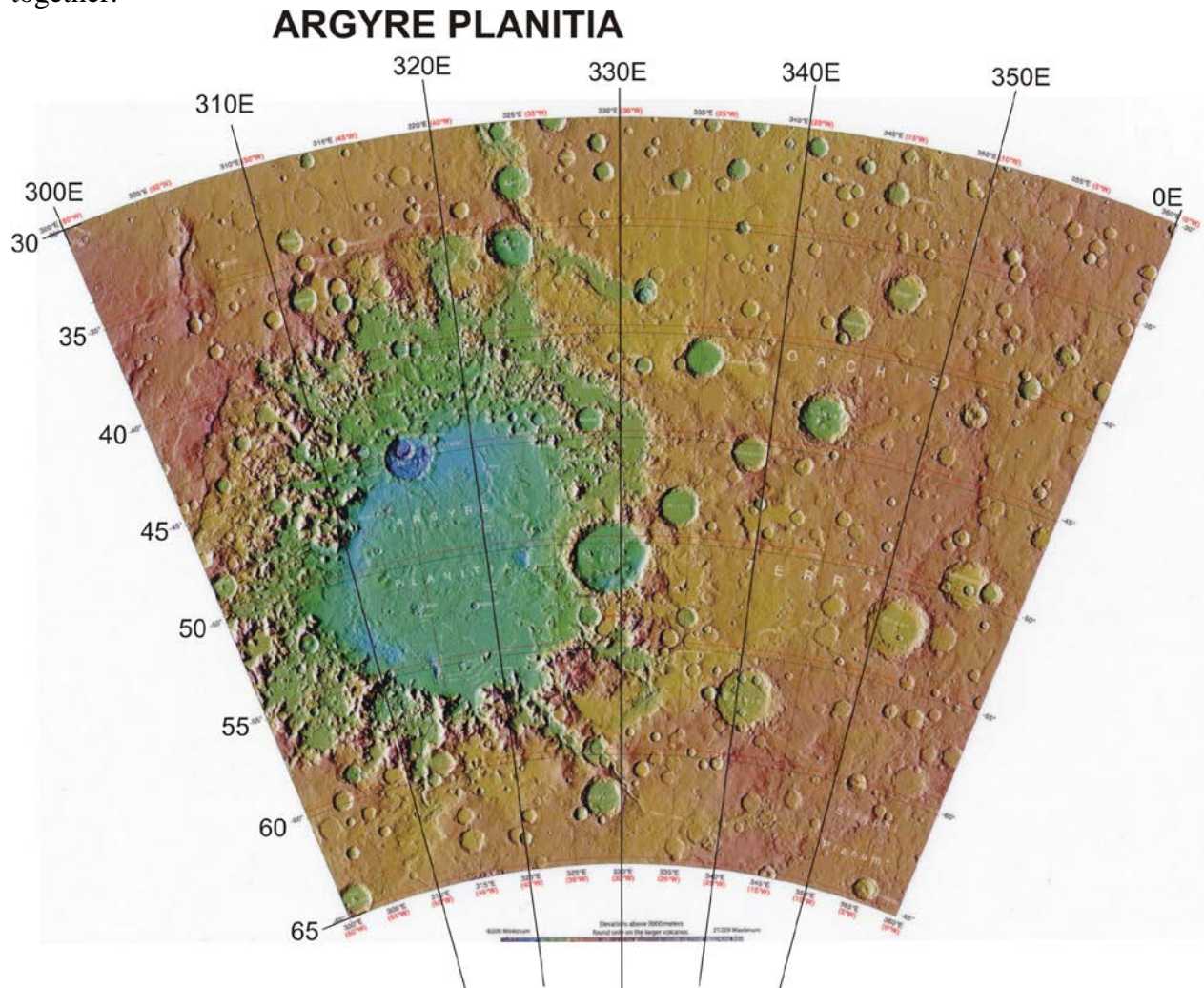
This allows us to get the direction of the Sun's velocity vector

Resultant = 2.119380 AU = 3.170547352e11 m

Divided by time, 31 104 000 gives velocity = 10 193.37497 m/s

APPENDIX C

The possible effect of a large number of ice bodies 'sticking together and impacting, in this case Argyre Planitia on Mars. I believe this to be a good example of the nature of the ice body structure in that individual bodies because of their movement and proximity in the wave will stick together.



APPENDIX D

FLOOD DATES. (Reese, 1977), (Wall Chart of World History, 1988), (Young, 1972).

The reference here is (Reese, 1977) The Wall chart of World History, 1st published 1890's. Publishers, Bracken Books, Bestseller publications Limited. 1988. **Deluge dates**, fold out page 4.

Ussher and English Bible, 2348 BC.

Hebrew Bible, 2288 BC.

Playfair, 2352 BC.

Clinton, 2482 BC.

Samaritan Pentateuch, 2998 BC.

Josephus, 3146 BC.

Dr hales, 3155 BC.

Septuagint, 3246 BC.

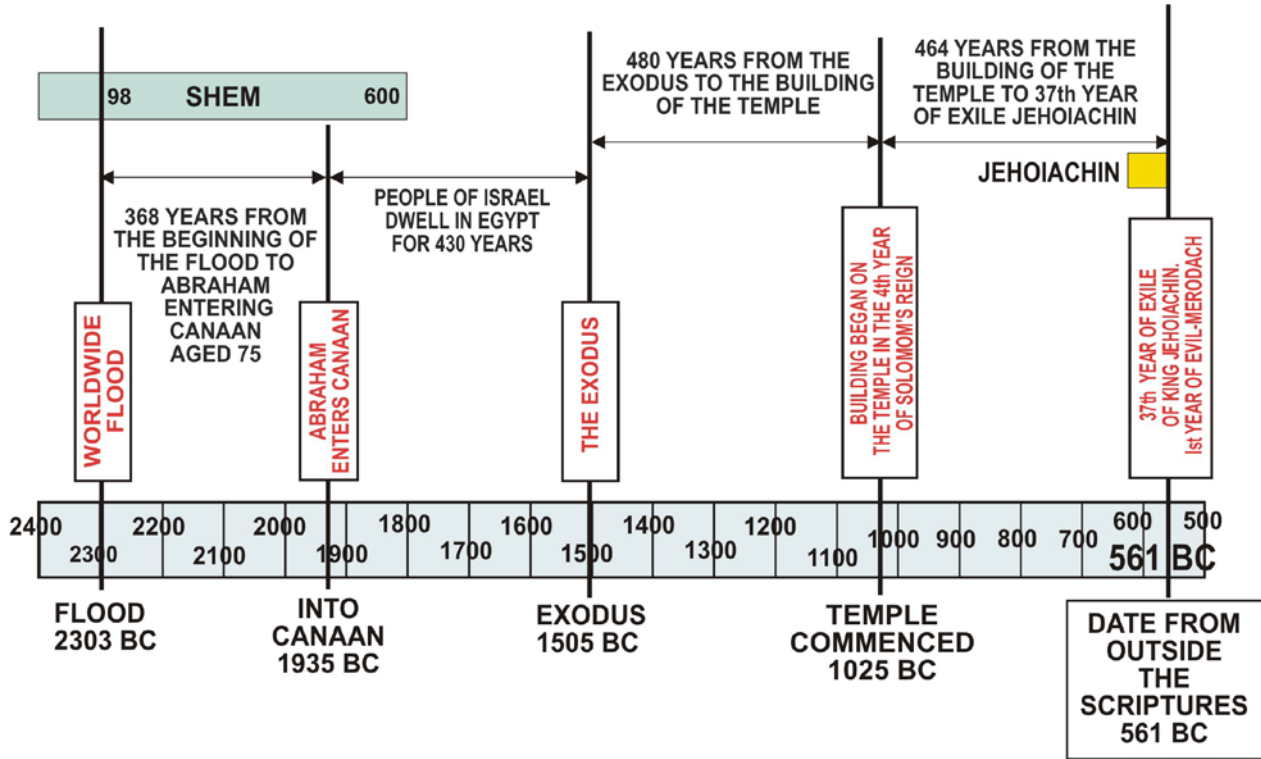
(Wall Chart of World History, 1988) Reese, Edward, (1977) p11, 2319 BC.

Young, Robert, Youngs Analytical Concordance to the Bible. Wm. B. Eerdmans Publishing Company. 1972 Edition., p698, 2348 BC.

Holt, T. Genealogy of Jesus Christ. 2303 BC.

APPENDIX E

The section from the Genealogy of Jesus Christ Chart by T. Holt.



APPENDIX F

CRATERS AND ICE BODIES

A CONCERN ABOUT THE PRESENT STATE OF IMPACT AND CRATER THEORY

After perusing a number of papers/books over the years discussing craters, I find that the approach taken does not seem to provide a satisfactory explanation of the craters observable throughout the solar system. There is a need to understand that there seems to be only three types of bodies which could be responsible, ice bodies, ice plus some mineral type material in some form, and solid, hard rock/metal bodies.

Much of the research seems to focus on all bodies as being in the rock hard category.

Considering that craters were not given credit for having massive influence on the surface features of planetary bodies including Earth until around the 1950's and that the craters on the Moon were believed to have been the remains of volcanoes, (Melosh, 1989) (H. J. Melosh, Impact Cratering, preface), we need to have an open mind to the possibilities, and particularly as people who have their knowledge of the history of the universe based on the Bible.

Within a Biblical framework, considering that the universe and the solar system were supernaturally created by the Creator God and declared very good, anything destructive, that could cause destruction of a planetary world would not have been included as part of the universe.

After the change in the whole creation brought about by human disobedience there would be decaying bodies throughout the universe that could cause destruction to other bodies if impacted.

With respect to the solar system region I would suggest that there were no asteroids or comets until up until the time of the flood of Noah's time.

The basis of this paper is that ice bodies with varying proportions of water and mineral type material, ranging from only water to almost all mineral material, were responsible for almost all the craters throughout the solar system until such time as the asteroids were formed by the destruction of a terrestrial type of body or bodies at the same time as the ice bodies brought water into the solar system.

The following gives some very brief thinking about the crater situation.

1. The impacting bodies are ice bodies which have been described.
2. The impacting velocity of the ice bodies is the same for all bodies into a particular region of a planet.
3. The material they are impacting into, by the time we observe the craters has been impacted a number of times and as well as initially creating small rock fragments as we see for example on the surface of Mars, the surface is saturated with water as the ice bodies have melted due to heat of impact.

4. Most of the surface is basically like mud, (Audouze, *et al*, 1996), (The Cambridge Atlas of Astronomy, page 149, referring to crater Arandas) suggests that the appearance of the surrounding surface is like mud flows or very viscous lava flows.

5. The overall duration of impacts was around 40 days.

The latter craters formed will have a range of central peaks ranging from none to quite large depending on the amount of mineral type material with the water. Some craters almost adjoining, that is impacts of ice bodies under the same conditions have produced craters with different peaks.

The following is an extract from some work I have done on craters formed by ice bodies.

An examination of the sizes, shapes and internal peaks and mounds of the craters on Mars would indicate a tremendous range in the features of the initial bodies which created these craters. Some craters have exceptionally large masses of material in them. The notable one, crater Henry is illustrated in Figure 1, and others in the vicinity indicate large proportions of centre material. There features would indicate that virtually all ice bodies contained different proportions of water to mineral material. Figure 2. The craters with no central peaks would have been caused by all water ice bodies, while craters like Henry would have a large amount of mineral material.

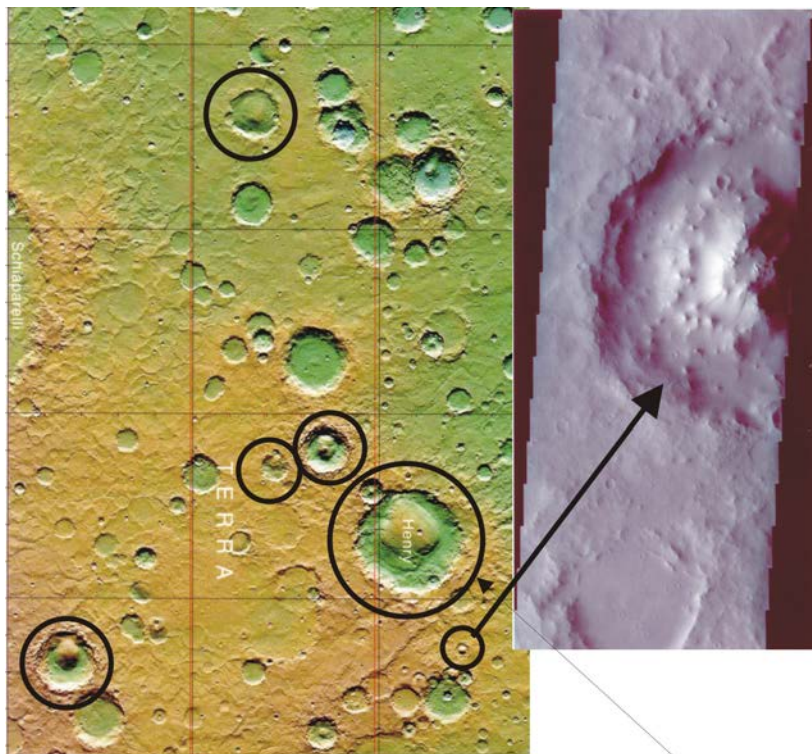


FIGURE 1. Craters in the vicinity of Henry.

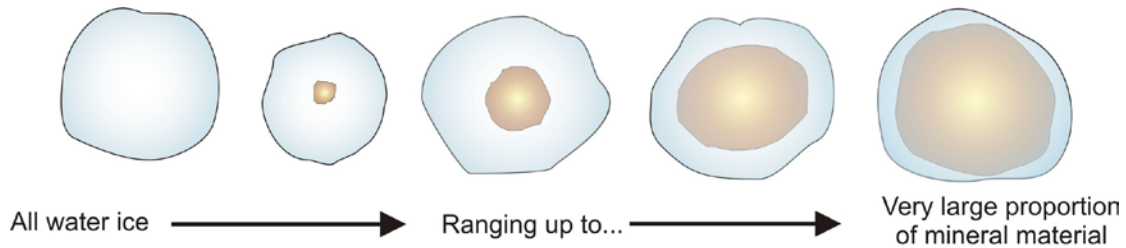


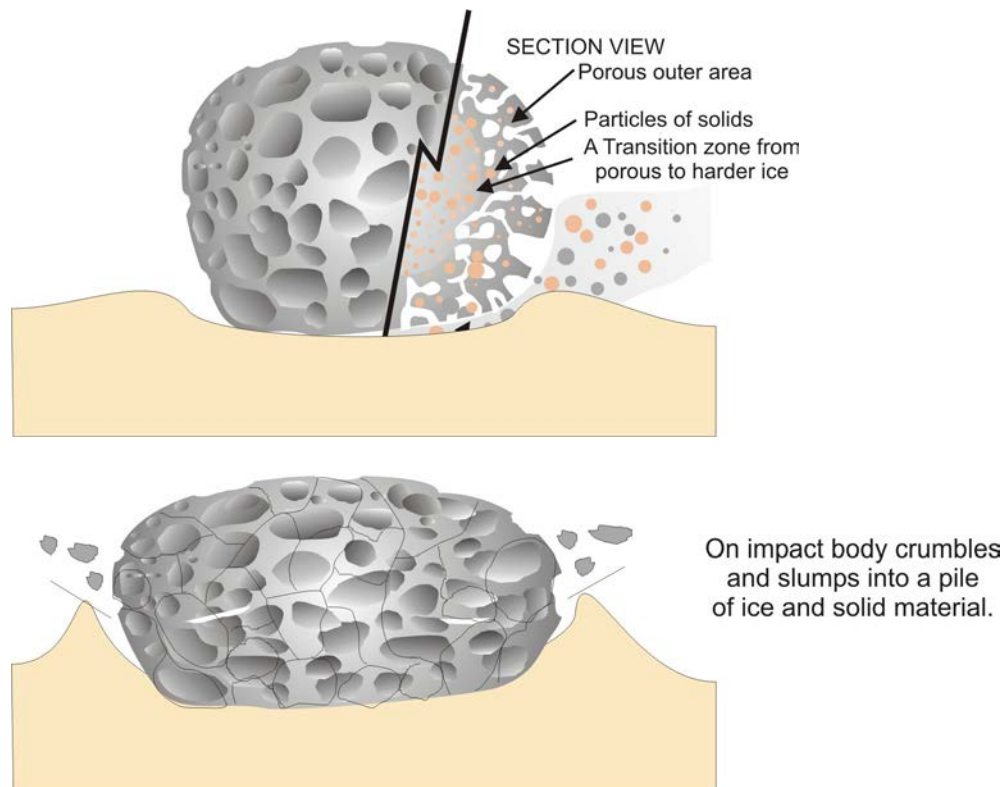
FIGURE 2. Variations in the proportion of mineral material to water in ice bodies.

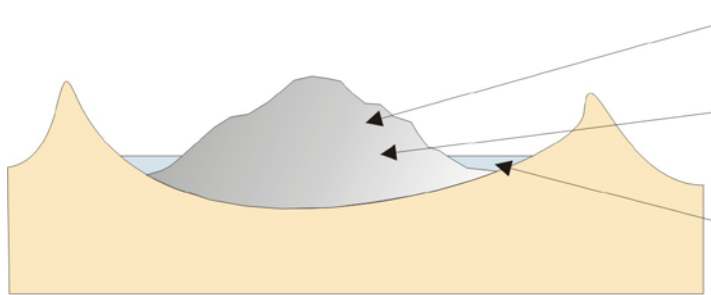
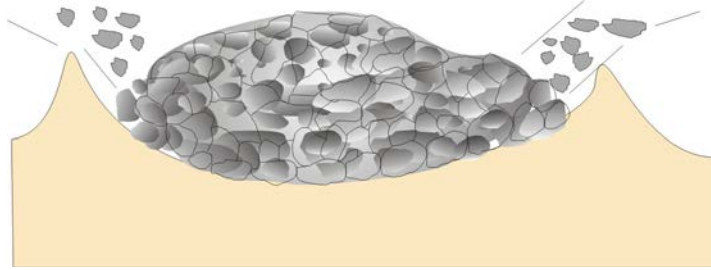
PROPOSED STRUCTURE OF IMPACTING ICE BODIES

For the crater structure we observe, the type of bodies responsible need to be of a reasonably soft and easily deformed nature.

My thoughts are that the bodies were possibly of a honey comb internal structure which would easily slump when impacting with a terrestrial surface. The heat generated on impact will facilitate melting, and melting as well as direct sublimation into vapour will continue until all the ice has melted and the mineral material settled to the floor of the crater.

This type of structure would also be influenced by conditions in space and cause out gassing etc, as the body rotated as well as being dependent on its distance from the Sun. Figure 3 illustrates the type of structure proposed.





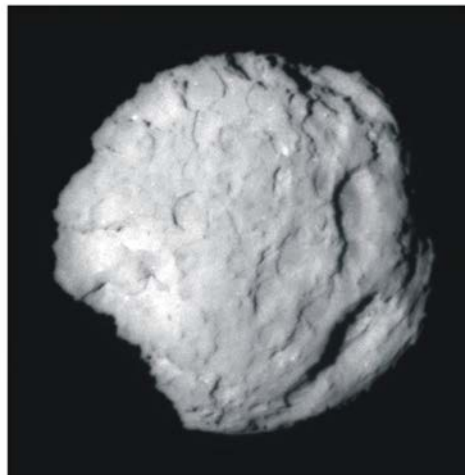
Ice melts/sublimes and mineral material settles on the floor of the crater

The resultant mound will contain stratified layers as differential settling occurs in the fluid.

The base around the mound will settle flat as the evaporating water washes down the internal crater walls as well as the finer sediment remaining from the ice body.

Figure 3. The structure of the ice body allows it to slump as it forms a crater. Some material will be ejected and as it slumps into the crater it begins to melt and sublime, and the mineral material settles to the floor of the crater. There appears to still be some unmelted ice in many craters which have their floor in perpetual darkness.

An example of the type of body described could be Comet Wilde
 Comet Wilde from 500 km by Stardust spacecraft



3.3 km X 4 km X 5.5 km.
 About same volume as
 a sphere 4 km diameter.

DETERMINING CRATER PROPORTIONS FROM ICE BODY IMPACTS

After considering the situation over a considerable time, I have settled on the shape of the craters formed over the 40 day period as being an oblate ellipsoid inverted dome with a ratio of diameter to depth of 8.5. This proportion was developed by counting the number of pixels across a couple of craters. Crater Euldoxus has around 9 pixels in its wall. Crater Newton which is around 3 times the size also has a count of around 9 pixels on its left wall. This would indicate a limit in this region for crater walls irrespective of their diameter. Figure 4.

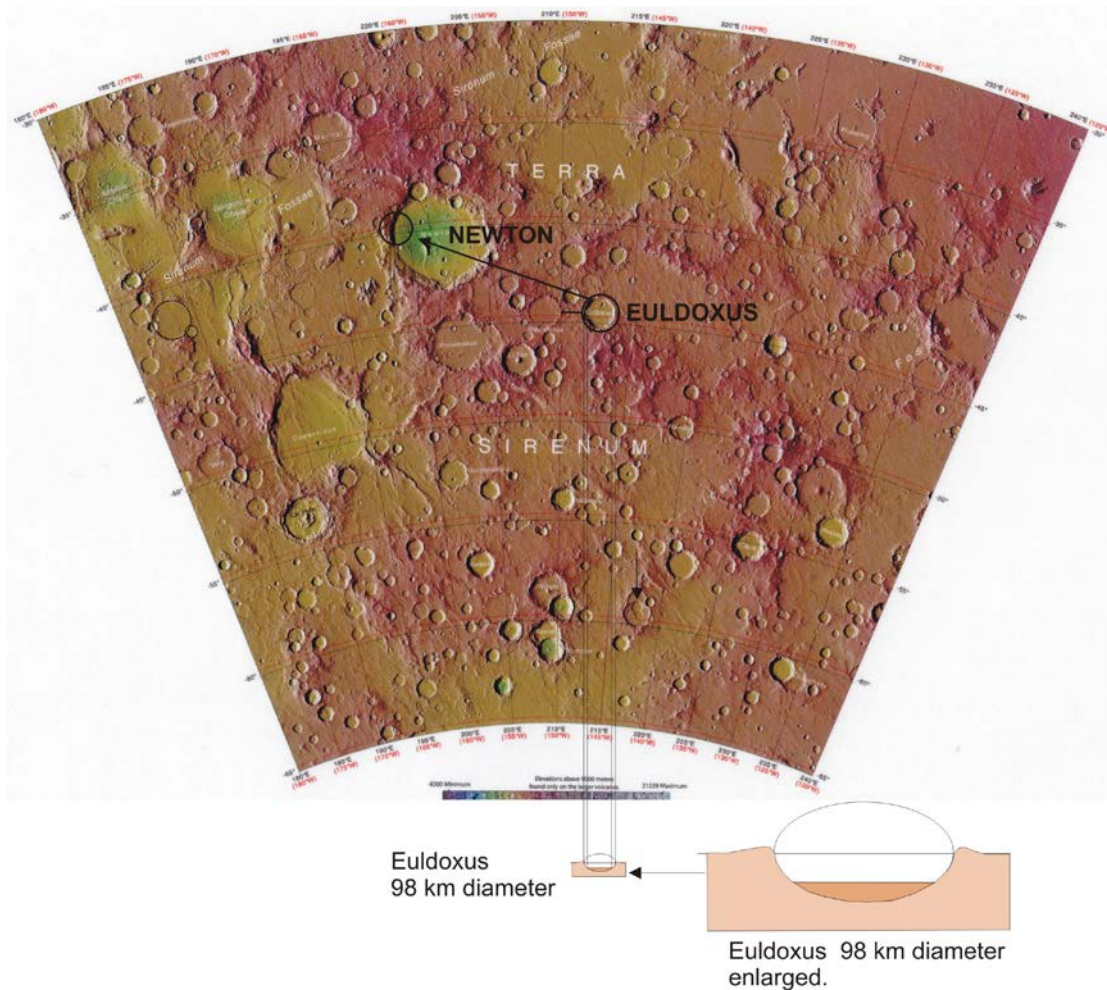
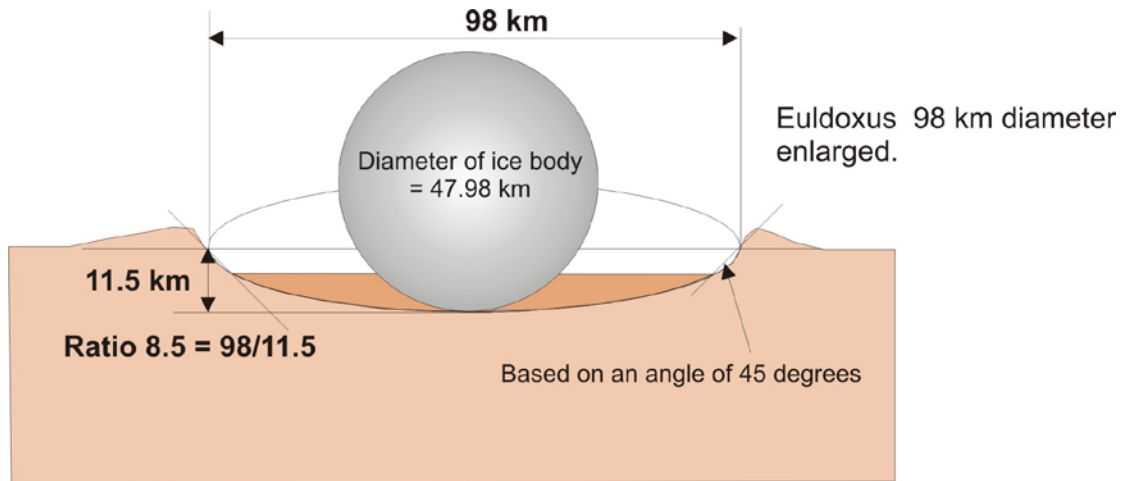


Figure 4. By using the craters Euldoxus and Newton, a ratio of crater diameter to depth can be determined for impacting ice bodies.



Scale diagram showing assumed
ice body size to produce crater Euldoxus.

The appearance of a range of last day craters shows that the ratio of diameter to depth of 8.5 cannot be maintained across the whole range of crater diameters. As the impacting body's mass and diameter is a consistent ratio, the resistance to deformation by impact is related to the consistency of the planet surface. This by the final stages of the impact period will have the consistency of mud. This mud layer will be over the whole planet and will have a depth depending on the degree of seepage into the planet surface.

As a preliminary study to ascertain the viability of the hypothesis, and assuming a straight line relationship between crater diameter and depth, a crater of 470 km diameter will have a depth of around 13.8 km.

A red line on the following graph Figure 5 is considered to give a better ratio at this time.

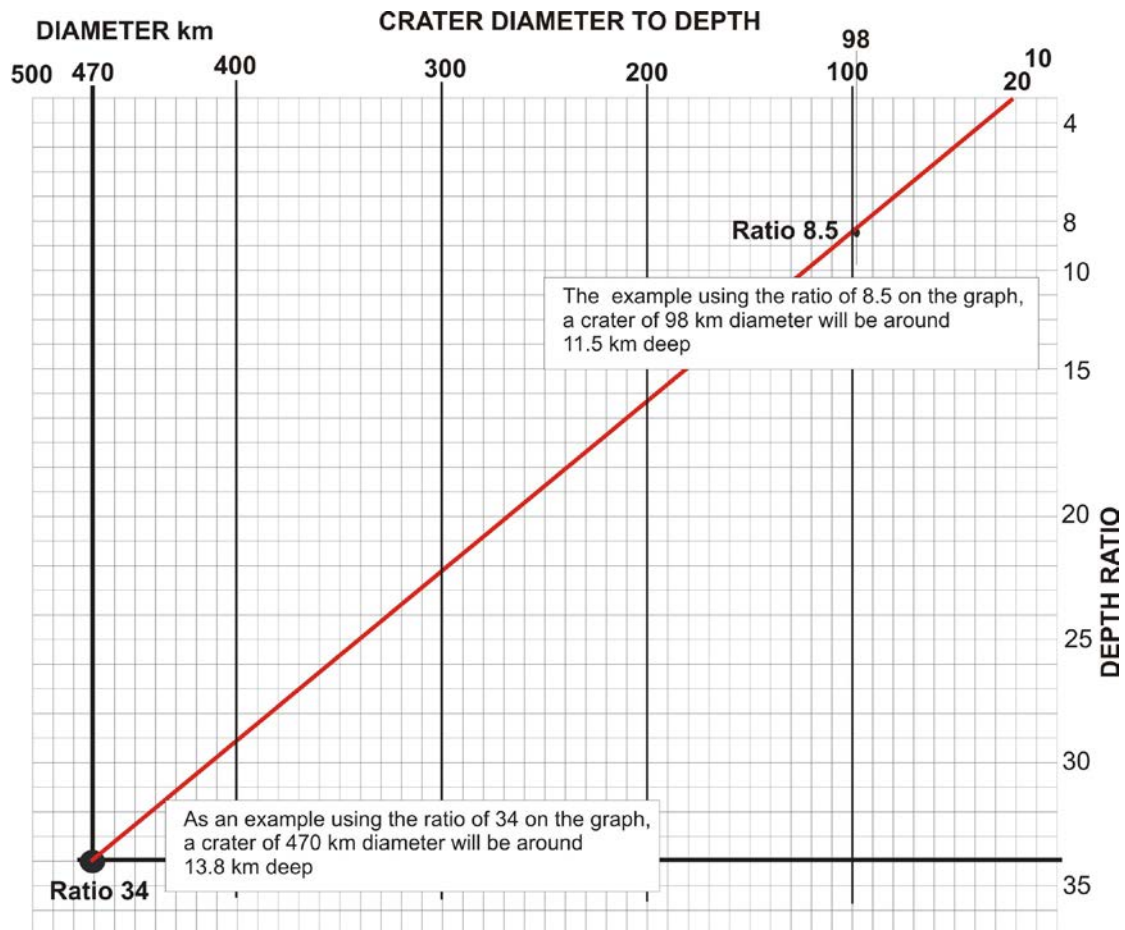


Figure 5. Developing a ratio of crater diameters to depths for impacts of ice bodies into mud.

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