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## UFO UpDates Mailing List

### Re: Zeta Notso Ridiculous

From: [wlmss@peg.apc.org](mailto:wlmss@peg.apc.org) [Lawrie Williams]  
Date: Wed, 10 Sep 1997 04:13:47 +1000  
Fwd Date: Tue, 09 Sep 1997 16:50:23 -0400  
Subject: Re: Zeta Notso Ridiculous

> To: UFO UpDates - Toronto <[updates@globalserve.net](mailto:updates@globalserve.net)>  
> From: Mark Cashman <[mcashman@ix.netcom.com](mailto:mcashman@ix.netcom.com)>  
> Subject: re: UFO UpDate: Re: Zeta Notso Ridiculous  
> Date: Mon, 8 Sep 1997 12:40:27 -0700

>> From: UFO UpDates - Toronto <[updates@globalserve.net](mailto:updates@globalserve.net)>, on 9/7/97 10:05 AM:  
>> Date: Sun, 7 Sep 1997 03:05:32 -0500  
>> To: UFO UpDates - Toronto <[updates@globalserve.net](mailto:updates@globalserve.net)>  
>> From: John Velez <[jvif@spacelab.net](mailto:JVIF@spacelab.net)>  
>> Subject: Re: UFO UpDate: Zeta Notso Ridiculous [was: UFO Beliefs -  
>> Question for Stan Friedman]

lw> > >No reason why that system should be any different, although  
> >>it is believed planets are less likely in a twin star system though  
> >>I see no reason why worlds could not orbit the common centre of  
> >>gravity of \*both\* stars.

jv>> It's something called 'tidal forces.' A planet caught between two stars  
>> would be torn apart repeatedly by the gravitational forces of the two  
>> primaries. There may be some 'rare' instances where a planetary body  
>> has achieved a stable orbit around two (or as some computer models show)  
>> even three primaries. But it is doubtful, the conditions required are very  
>> complicated. The primaries would have to be of the right size, star class,  
>> and distance from each other in order for the right conditions to exist.

mc> However, I think it is clear that planetary accretion is unlikely  
> to occur in the first place within such areas. The "Roche Limit" is  
> a boundary beyond which a planet (I believe made of water?) would  
> be torn apart by tides. Objects such as Saturn's rings, which to  
> many represent an area similar to the early stages of the solar  
> neighborhood, never accrete planetoids beyond a certain size due to  
> such tidal effects.

Perhaps you were being tongue in cheek. : ) Tidal forces of course  
refers to the differential tug of the gravity of a larger nearby  
body on either sides of the lesser body. As such, a solid body  
would be torn apart, although one made of sulphur or water or  
tar might not be. It would just be warmed instead, and that  
could be beneficial.

I have not done the math but intuitively it seems to me that a twin  
star system could exist where the primaries are beyond one another's  
roche limit and the combined gravity and warmth of these stars could  
support a large family of planets orbiting both - again well beyond  
the roche limit.

> So it would be possible to consider that planets in a multiple star system  
> would only form in areas where the tidal forces were such as to allow  
> accretion to occur, and thus would guarantee that the orbits of the resulting  
> bodies would never pass through areas with higher than Roche Limit tidal  
> forces.

I feel we all make a lot of assumptions about where life can and cannot exist. The experience on this one little globe suggests that it can and does occur in all sorts of unlikely places. In our own solar system we have to consider as major contenders:

underground on Venus (only recently creamed by a comet)  
next to the ice cap of Mars (an obvious place)  
within Europa (a big blob of water)  
on Titan (under its industrial smog)

while Jupiter, Saturn and Triton are likely to provide surprises too.

These are possible sources of a UFO culture within our own solar system. And there may be myriads more contenders in the Oort cloud.....

Recent Hubble images show planet-sized gobbets of matter being scattered from giant stars. Perhaps there are a lot more life friendly habitats wandering out there in the darkness than formerly considered. Remember that 90% of the mass of the galaxy is as yet not accounted for.

And while the roche limit might mean planets might be torn apart, planets near to the roche limit would enjoy warming and therefore zones of space near to brown dwarves might also be added to the list of places where life might occur.

> However, to the best of my knowledge, simulations even of our solar  
> system (single sun) forming planets remain primitive, and no doubt  
> the multiple star case would be even more difficult. At any rate, I  
> think that my best guess is that planets will never form at all in  
> situations where there are no contiguous orbits free of Roche Limit  
> level tides. The question then becomes whether there are such orbits  
> in multiple star systems. I would imagine that that might be a  
> simpler computation than a complete simulation, since it just  
> involves determining whether an orbit can fall into the area not  
> intersected by any of the stars' Roche Limit spheres.

Getting back to Saturn, here we have a possible habitat within the ring system itself. So the Roche limit, far from precluding life, might actually foster life which has developed technology.

Lawrie Williams\_\_\_\_\_

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