

Is the solar wind only strictly composed of plasma?

As far as I know the solar wind consists of charged particles, which make up a plasma.

Will there be a Voyager 3 in our lifetime?

I take it that by Voyager 3 you mean a mission similar to Voyagers 1 and 2, which essentially sampled the outer solar system. In a sense, the New Horizons mission to Pluto and the Kuiper Belt is essentially a Voyager 3. It is on its way to a part of the solar system that we've never "visited" before. It passed Jupiter last year and apparently took some data. Otherwise, we are still receiving data about the outermost reaches of the solar system from the first two Voyagers, and now we have a lot more specific mission goals (such as putting people on Mars, looking for water on Europa, etc).

How often is the drake equation used and is it accurate?

I wouldn't say it really gets used all that often, as it's just a way to make a crude estimate about the number of intelligent civilizations. We can't really talk about its accuracy, since we don't really know what the values of any of the terms are. Otherwise it seems to cover all the bases in terms of collecting and pulling together all the factors one would need to think about in order to make such an estimate.

Does the number of habitable zones change periodically?

The number of habitable zones changes when we find more stars with planets. For a given (extra)solar system, you would probably have one habitable zone based on how we currently define it. However, the zone could widen or shrink, or even change its distance from the central star if local conditions change (as would happen if the star wasn't very stable or was at the end of its life and was turning into something like a red giant).

Can planets go through evolution?

Once planets form there can certainly be processes that cause the planets to evolve. Processes like volcanism and the loss of material (such as atmosphere) can cause the planet to change over time. The Earth and Mars are completely different now than they were when they first formed.

Is SETI only in US or is it worldwide?

People all over the world participate in SETI projects, as we'll discuss today.

What sounds exist in space (other than constant hum of vibrations)?

In general we say that there is no sound in space. But really wherever you have material (what we call a "medium"), you can have sound waves. The speed of sound is not the same everywhere; it depends on things like temperature and density, so the sounds that

are present in gas clouds and the atmospheres of other planets might be outside of our ability to detect with our ears.

Has the golden mean been found in space?

The golden mean is related to geometry. Thus, I would imagine that any shape by which you can get such a mathematical relationship, regardless of where it is on Earth or in the universe, would show the golden mean. For example, a nautilus shell is supposed to show the golden mean in its shape (a logarithmic spiral), and this kind of spiral is seen in galaxy shapes. There's a nice picture of this at:
<http://mathworld.wolfram.com/GoldenRectangle.html>