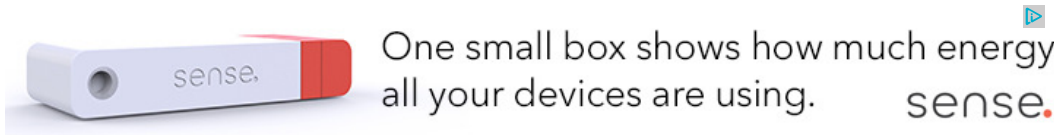


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[Exodus](#) (Score:5, Insightful)

by [Z00L00K \(682162 \)](#) [Alter Relationship](#)

[Exodus from Earth](#). We need space ships to spread out in the galaxy!

--

If builders built buildings the way programmers wrote programs, then the first woodpecker would destroy civilization.

[Re:](#) (Score:4, Interesting)

by [0123456 \(636235 \)](#) [Alter Relationship](#)

Exactly. Life extension will be required to colonize the galaxy, if we're forced to use slow, sub-light spacecraft that require decades to centuries to reach the next star.

[Re:](#) (Score:1, Funny)

by Anonymous Coward

If you don't mind dying from the radiation damage before we get out of the solar system... wait, that does help with the overpopulation problem....

[Re:](#) (Score:2)

by [0123456 \(636235 \)](#) [Alter Relationship](#)

If you don't mind dying from the radiation damage before we get out of the solar system... wait, that does help with the overpopulation problem....

Most radiation can be stopped with shielding--which won't be a big deal on a spacecraft big enough for humans to live in for decades or centuries--and humans with lifespans measured in centuries would require much better genetic repair mechanisms than we do.

And I'm sure I read an article recently about researchers increasing the radiation tolerance of cells by a factor of 1,000 or more by boosting the repair mechanisms.

[Re:](#) (Score:1)

by Anonymous Coward

Are you sure that is a big problem? The measurements from the rovers showed that radiation isn't large enough that you have to care much about it for a round trip mission to Mars. As we leave the solar system radiation should decrease the further out we go.

What we then have to deal with it radiation levels on the habitats. Unless we find suitable planets with magnetic fields the radiation problem is to build cities with enough shielding. [Underground cities aren't a new concept.](#)

The whole radiation issue with

[Re:](#) (Score:5, Informative)

by [Jane Q. Public \(1010737 \)](#) [Friend of a Friend](#)[Foe of a Friend](#)

As we leave the solar system radiation should decrease the further out we go.

Just no.

You are confusing Solar radiation with cosmic radiation... and they are largely very different things.

The "solar wind" is largely photons and other, relatively low-energy charged particles from the sun. (Note the word "relatively".) Which is GOOD for us here on Earth. Because cosmic radiation has a much larger component of HIGH energy particles. The solar wind interacts with Earth's magnetic fields in such a way as to shield it from the cosmic high-energy particles.

But it's the cosmic high-

Re: (Score:5, Informative)

by [khayman80 \(824400 \)](#)

... high sunspot activity generally means fewer clouds, which in turn means it gets hotter. When "solar storm" activity is low, more cosmic rays leak in, forming more clouds, cooling the weather.

When more cosmic rays leaked in, the climate didn't change. Richard Alley mentioned (at 42:00 in his [2009 AGU talk](#)) that beryllium proxy data reveal a spike in cosmic ray intensity during the "[Laschamp anomaly](#)" ~40,000 years ago, but the corresponding oxygen isotope proxy for temperature [didn't change unusually](#) during

Re: (Score:2)

by [Jane Q. Public \(1010737 \)](#) [Friend of a Friend](#) [Foe of a Friend](#)

When more cosmic rays leaked in, the climate didn't change.

I concede that nucleation via cosmic rays is at this time theoretical, but heck... so is warming via CO2.

But that's all irrelevant. The **point** I was making was that cosmic rays and solar irradiance have (on average) a very different makeup of components.

>

Re:Exodus (Score:1)

by [khayman80 \(824400 \)](#) on 2015-05-30 18:35 ([#49806867](#)) [Homepage](#) [Journal](#)

I concede that nucleation via cosmic rays is at this time theoretical, but heck... so is warming via CO2.

I've already [told you](#) that the NAS calls it a "settled fact" but you still seem unable to retract [your claims](#) about [warming via CO2](#). Were you lying when [you insisted](#) you DO have a reply to that physics problem?

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Re:Exodus (Score:2)

by [Jane Q. Public \(1010737 \)](#) [Friend of a Friend](#) [Foe of a Friend](#) on 2015-06-03 18:04 ([#49835451](#))

I've already told you that the NAS calls it a "settled fact"

So? They also claimed in the 70's that global cooling was an established fact. If you want to try to refute that, fine, I'll take up the time to dig up my copy of their statement.

... but you still seem unable to retract your claims about warming via CO2.

I have nothing to retract. You wouldn't allow me to finish my discussion without trying to walk all over me. You have misinterpreted my claims there...

they aren't the same as I made years ago. However, you have given me less than zero reason to want to continue to discuss that with you, here or anywhere.

As I have told you many times before, I will write it all up eventually. You're just going to have to wait. In the meantime, I suggest you cease misinterpreting my words to mean something I didn't actually say.

I am well aware that you don't seem to be able to imagine how I could mean anything different from what I stated years ago. But that's your problem, not mine. I am not responsible for your assumptions.

If you hadn't been such an asshole all this time, I would have explained it to you long ago.

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Re:Exodus (Score:1)

by [khayman80 \(824400 \)](#) on 2015-06-03 21:15 ([#49836471](#)) [Homepage](#) [Journal](#)

I've already [told you](#) that the NAS calls it a "settled fact"

So? They also claimed in the 70's that global cooling was an established fact. If you want to try to refute that, fine, I'll take up the time to dig up my copy of their statement. [\[Jane Q. Public, 2015-06-03\]](#)

[Go ahead.](#)

[Parent](#)[Share](#)[twitter](#) [facebook](#) [linkedin](#) **Re:Exodus (Score:2)**by [Jane Q. Public \(1010737 \)](#) [Friend of a Friend](#)[Foe of a Friend](#) on 2015-06-04 2:00 ([#49837301](#))

Once again, you dig up old shit as if I were saying it now. That's a really terrible habit, you know. Either you don't learn, or you think I don't.

But I'm glad you brought that up, as it illustrates the typical behavior of *Your Assholiness*. First, you totally ignored my comment back THEN about not having found the report, snidely remarking

Did you ever think it might be educational to actually **read** that NAS report...

... when in the last sentence you had just finished quoting, I told you I had looked but didn't find it or I would have referred to it directly. But you just ignore those little "fine points" that don't fit your narrative, eh?

I did find it since, but I didn't get it from your link.

Then, you cherry-picked a quote out of it:

Of the two forms of pollution, the carbon dioxide increase is probably the more influential at the present time in changing temperatures near the earth's surface (Mitchell, 1973a).

While completely ignoring the very next sentence:

"If both the CO₂ and particulate inputs to the atmosphere grow at equal rates in the future, the widely differing atmospheric residence times of the two pollutants means that the particulate effect will grow in importance relative to that of CO₂."

But to return to **the actual point I made**:

So? They also claimed in the 70's that global cooling was an established fact.

They had. In the context of the recent GLOBAL COOLING, it states:

While the natural variations of climate have been larger than those that may have been induced by human activities during the past century, the rapidity with which human impacts threaten to grow in the future, and increasingly to disturb the natural course of events, is a matter of concern.

Now, I know you are completely inept when it comes to context, but that statement is the overarching context of their later comments (given above) about CO₂ and aerosols. They clearly express **concern** that man's influence is increasing, and suggest that aerosols could very well overwhelm CO₂ if the current trends continued.

So don't try to give me crap about what I understand and what I don't. I'm not cherry-picking, YOU did. I just gave the LARGER context of the statement that you cherry-picked out of it.

As I have stated so many times in the past, this is exactly the kind of behavior I have come to expect from you, and why I do not engage you in debate. I may make mistakes, but at least I am honest. I have pointed out many times where you were clearly were not. And that was one of them.

[Parent](#)[Share](#)[twitter](#) [facebook](#) [linkedin](#) **Re:Exodus (Score:1)**by [khayman80 \(824400 \)](#) on 2015-06-07 2:40 ([#49860197](#)) [Homepage](#) [Journal](#)

... you cherry-picked a quote out of it:

Of the two forms of pollution, the carbon dioxide increase is probably the more influential at the present time in changing temperatures near the earth's surface (Mitchell, 1973a).

While completely ignoring the very next sentence:

"If both the CO₂ and particulate inputs to the atmosphere grow at equal rates in the future, the widely differing atmospheric residence times of the two pollutants means that the particulate effect will grow in importance relative to that of CO₂."

If, Jane. If both the CO₂ and particulate inputs to the atmosphere grow at equal rates in the future. But that didn't happen after ~1975 in the [U.S.A.](#) or in [Europe](#).

... In the context of the recent GLOBAL COOLING, it states:

While the natural variations of climate have been larger than those that may have been induced by human activities during the past century, the rapidity with which human impacts threaten to grow in the future, and increasingly to disturb the natural course of events, is a matter of concern....

Now, I know you are completely inept when it comes to context, but that statement is the overarching context of their later comments (given above) about CO₂ and aerosols. ... [\[Jane Q. Public, 2015-06-04\]](#)

Even if I'm completely inept when it comes to context, it seems to me like those statements apply to both carbon dioxide and aerosols. And they were right about both. Globally, we just stopped emitting so much SO₂ after ~1975 but kept emitting CO₂ even faster.

... They clearly express **concern** that man's influence is increasing, and suggest that aerosols could very well overwhelm CO₂ if the current trends continued. So don't try to give me crap about what I understand and what I don't. I'm not cherry-picking, YOU did. I just gave the LARGER context of the statement that you cherry-picked out of it. [\[Jane Q. Public, 2015-06-04\]](#)

If the current emissions trends in 1975 had continued, the global dimming caused by aerosols could have overwhelmed warming by CO₂. That's a perfectly reasonable **if** statement. But since global aerosol emissions [declined after ~1975](#) (see fig 1), that **if** statement doesn't apply to our universe.

As I have stated so many times in the past, this is exactly the kind of behavior I have come to expect from you, and why I do not engage you in debate. I may make mistakes, but at least I am honest. I have pointed out many times where you were clearly were not. And that was one of them. [\[Jane Q. Public,](#)

[2015-06-04/](#)

Good grief, Jane. It's bizarre to be accused of not being honest because I didn't quote an **if** statement from a report that **doesn't apply to our universe** where aerosol emissions declined after ~1975.

I quoted the 1975 NAS statement that CO2 warming could be "about 0.5C between now and the end of the century" because it applies to our universe. The 2007 IPCC estimate of [radiative forcing up to 2005](#) shows that aerosol emissions roughly cancelled all other anthropogenic warming factors aside from CO2. This is evident because the CO2 forcing estimate of ~1.66 W/m² is within the error bars of the total anthropogenic forcing estimate. So the 1975 NAS statement that CO2 warming could be "about 0.5C between now and the end of the century" applies to our universe because global aerosol emissions declined after ~1975, leaving the total anthropogenic forcing in 2005 very close to the total CO2 forcing. And as [I pointed out](#), that NAS statement turned out to be quite accurate.

But to return to the **actual point Jane made**:

I've already [told you](#) that the NAS calls it a "settled fact" *[Dumb Scientist]*

So? They also claimed in the 70's that global cooling was an established fact. If you want to try to refute that, fine, I'll take up the time to dig up my copy of their statement. [\[Jane Q. Public, 2015-06-03\]](#)

Jane dismissed the NAS because Jane mistakenly thinks the NAS claimed in the 70's that global cooling was an established fact. But all they did was refer to perfectly valid evidence that SO2 emissions reflect sunlight, and reasonably say that **if** the current emissions trends in 1975 continued, the global dimming caused by aerosols could have overwhelmed warming by CO2.

Once again, those emissions trends didn't continue. So their **if** statement simply doesn't apply in our universe. The statement they made which **does** apply in our universe was quite accurate. Needless to say, this isn't a reason to dismiss the NAS. Quite the opposite...

Once again, you dig up old shit as if I were saying it now. That's a really terrible habit, you know. Either you don't learn, or you think I don't. ... [\[Jane Q. Public, 2015-06-04\]](#)

Jane [hasn't learned](#) about the irony of criticizing my "really terrible habit" after Jane repeatedly digs up reports from 40 years ago. Jane complains about my link to the last time I debunked his talking point just **6 months ago** while Jane digs up a NAS report from **40 years ago** as though it contradicts a [modern NAS report](#) (even though it doesn't).

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Man is an animal that makes bargains: no other animal does this-- no dog exchanges bones with another. -- Adam Smith

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