

Re: Global dimming masking greenhouse effect

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From: habshi (*habshi_at_anony.net*)

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Note it said the physical processes which cause fossilization. If you are not interested in my threads just put an ignore sign on them . Sometimes the subject does veer off the topic a bit , but I am trying to keep down the number of threads so as not to cause annoyance.

Another item of interest in the book is that the body is composed of ten quadrillion microscopic cells but we carry 100 quadrillion bugs on it !! ie we are more bacteria than human .ie 100,000,000,000,000,000 !

There are copepods in the ocean which are so numerous that they turn the ocean black for miles but only a single fossil except one in an ancient fish stomach has ever been found ! These bugs should be able to use the oxygen and get rid of excess co2 BUT the ocean lacks iron and so we need to add , maybe through slow diffusing bags.

Last time somebody tried it , the ocean became like a thick soup . We could multiply the fish take many fold by adding iron regularly to our oceans and use the greenhouse effect to our good.

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Search for life signal on Titan

Titan: An atmosphere not unlike Earth's billions of years ago

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Scientists will comb data sent back from Titan by the Huygens probe for the chemical signature of life in a bid to identify the moon's source of methane.

Methane is constantly destroyed by UV light so there must be a source within Titan to replenish the atmosphere.

Life is a possible – though some think unlikely – source of this hydrocarbon along with geological processes.

The surface is too cold for biology, but microbes could survive in an ocean within Titan, a senior scientist says.

Methane can also be released from a trapped form called clathrate and produced by a geological process called "serpentinisation". Neither of these involve biology.

Dominated by nitrogen, methane and other organic (carbon-based) molecules, Titan is thought to resemble a deep-frozen version of Earth 4.6 billion years ago.

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Liquid methane rains down on Titan into river channels carved between hills of water ice. Reservoirs of this hydrocarbon probably lie on or just below the surface.

But UV light would destroy all the methane on Titan within 10 million years if it were not being constantly renewed.

We have liquid water, organics not so far away; we have everything on Titan to make life

Francois Raulin, University of Paris

"We cannot say there is absolutely no chance for life," Dr Francois Raulin, one of three interdisciplinary scientists on the Huygens mission told the BBC News website.

"There is no chance for life on the surface because it is too cold and there is no liquid water.

"However, models of Titan's interior show there should be an ocean about 100km deep at around 300km below the surface."

If the models are correct, this ocean would be composed mostly of liquid water with about 15% ammonia at a temperature of about -80°C , said Dr Raulin.

"We have liquid water, organics not so far away; we have everything on Titan to make life," he explained.

Work in progress

If methane-producing microbes had colonised this habitable zone, scientists might detect its chemical signature by looking at the relationship of two forms (or isotopes) of the element carbon – $\text{C}12$ and $\text{C}13$.

Living cells preferentially incorporate $\text{C}12$. So compounds produced by living things should be depleted of "heavier" isotopes such as $\text{C}13$; they are said to have a high $\text{C}12/\text{C}13$ ratio.

Some process is renewing Titan's supply of methane

Scientists should be able to measure this ratio in data sent back by the Gas Chromatograph Mass Spectrometer (GCMS) instrument on Huygens.

"The GCMS can directly detect the $\text{C}12/\text{C}13$ carbon ratio. We haven't done that yet, but we're working on it," said Sushil Atreya, a professor of planetary science at the University of Michigan, US, and a GCMS team member.

"It's one factor we can take into account to figure out how methane is getting replenished."

However, Professor Atreya favours the geological process of serpentinisation as a more likely source of the Saturnian moon's methane.

In serpentinisation, geothermal activity generates methane through the oxidation of metals such as iron, chromium and magnesium which could be contained in crustal rocks below Titan's surface.

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Another possibility is that methane molecules are trapped in a water-ice matrix called clathrate (or methane hydrate).

Dr Raulin also considers these geological processes as viable sources of methane on Titan.

On 14 January, the spacecraft plunged through the moon's atmosphere, sending scientific data – including stunning images – back to ground controllers.

It landed on Titan at around 1138 GMT at a leisurely speed of around 5m/s and transmitted a signal until at least 1555 GMT.