Consequences of Toxic Alumina Aerosols Linked To Ocean Phytoplankton

NOTE: This article points out the delicate balance of oxygen producing phytoplankton at continued risk of being altered by the past two decades of aerosol geoengineering with millions of tons of alumina sprayed over the oceans of planet earth. The decline of planetary phytoplankton by exposure to alumina toxicity could accelerate the volume of CO2 at increasing rates above the current 404 PPM as oxygen production from life-sustaining phytoplankton declines.

Scientists Find Link Between Ocean Bacteria and Atmosphere

Researchers at the UCSD Center for Aerosol Impacts on Climate and the Environment recently found a direct correlation between marine bacteria's consumption of phytoplankton to properties of clouds. The discovery was made during research observing airborne marine particle contribution to cloud formation at the Scripps Institution of Oceanography and was published in American Chemical Society Central Science on May 18.

The findings confirmed an oceanic factor as a determinant to the properties of temperature-moderating clouds. Previous studies had reported that phytoplankton are chief drivers of the organic content in sea spray, yet similar studies were not able to produce consistent observations. In an interview with the UCSD Guardian, CAICE researcher Camille Sultana discussed the significance of being able to resolve the uncertainty around this topic.

"We discovered that enzymatic activity of bacteria influences if and how much organic matter will be in submicron sea-spray aerosols and that the amount of organic supermicron sea-spray aerosols follows a completely different temporal trend than submicron sea-spray aerosols," Sultana said. "This is really important because there is a lot of disagreement in the scientific community as to whether chlorophyll-a concentrations in the seawater can be used to predict the chemical composition of sea-spray aerosol."

The research conducted to lead to these conclusions utilized a 3,400-gallon, mechanically wave-generating, natural seawater environment derived from the Californian coast. Sultana expanded on how the team employed this equipment to determine microbial effects in the seawater.

"By illuminating the wave channel and adding some nutrients, our goal was to induce a phytoplankton bloom," Sultana said. "We didn't just have phytoplankton in there but all the microbes that are naturally in seawater, such as heterotrophic

bacteria and viruses, and we wanted to see if they also influenced the changing chemistry."

However, the research was not without its problems. Sultana explained that there were obstacles that occurred during their investigation into the ocean microbes.

"Many of our collaborators were not from San Diego and couldn't stay here indefinitely," Sultana said. "Therefore, it was very nerve wracking, as we really didn't know if it was going to work or not."

The research conclusions were that variations in specific microbes in bloom affected concentrations of less water-soluble molecules within seawater. Sultana clarified the significance of bacteria to concurrent and future applications due to the widespread use of chlorophyll-a.

"[Our results are] very important, as many global models right now use chlorophyll-a to calculate the amount of organic matter in sea-spray aerosols, and our results show that bacterial activity also must be taking into consideration to do this accurately," Sultana said. "Not only will our results influence how global models are parameterized but it could also affect what measurements field studies take in the future and how they design their experiments."

Source: http://chemtrailsplanet.net/2015/06/01/consequences-of-toxic-alumina-aerosols-linked-to-ocean-phytoplankton/

Source: http://ucsdguardian.org/2015/05/31/scientists-find-link-between-ocean-bacteria-and-atmosphere/