

Whatever happened to acid rain?

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The two most important ways for a scientist to get in the news media is to claim a discovery which will bring a cure to dreaded diseases like cancer, Alzheimer's disease or multiple sclerosis or predict the end of the human species by an ecological disaster, major epidemic, comet impact or the like. You have to stick to certain rules if you want to make headlines or the evening television news. You have to keep the message simple and without the usual scientific nuances and caveats. And another important rule concerns the time lines. Do not promise your drug or vaccine earlier than after five to ten years. The journalist will have forgotten your promise by then and will not haunt you with difficult question in the likely event that you will not deliver. Putting your practical application later than 10 years will fail to impress journalists because all scientific work is considered to be of practical value in the long run.

In contrast, disasters should strike in thirty years. Claiming the extinction of mankind earlier without signs that the decay has already started will not be believed. And who cares about the fate of the human race when the readers of the newspaper or viewers of the television news have long been gone?

Our colleagues who made the headlines in the US media a few weeks ago about the disappearing sunlight have wisely followed the 30-year rule. They claim that the sunlight reaching the earth has declined 10 to 37% in the last fifty years and it will continue to drop by about 3% every decade. In thirty years from now the photosynthesis on earth will be reduced so substantially that world food production will sharply decline and large scale starvation will occur. Also major climatic disaster is to be expected because sunlight is important for the water evaporation from plants, important for the global water system.

As you may have guessed by now, air pollution is blamed for this dimming effect. Dust in the atmosphere is considered to reflect the sunlight back in space. It also promotes condensation of water leading to more and thicker clouds, which prevent the light of the sun to reach the surface of the earth.

You would expect that dimming sunlight would be a major researched topic. However scientific data in peer reviewed journals are hard to find. Only a handful of researchers is active in this field and they keep referring to each other. The main recent article is by G. Stanhill and S. Cohen in *Agricultural and Forest Meteorology 2001*, vol 107, pp 255-278. The title: *Global dimming: a review of the evidence for a widespread and significant reduction in global radiation with discussion of its probable causes and possible agricultural consequences*

This review is based on data collected from observations from different parts of the world. In nearly all cases the authors of the review are also the source of data sets from the rest of the planet. Also, the data collections shows too many biases to allow any far-reaching conclusions. In fact the paper raises more questions than it answers.

Moreover, others involved in collecting radiation data claim that in the area they cover sunlight has increased substantially during the last decade, like Frank Vignola from the University of Oregon. He claims that the scientist who predict disaster because of the lack of sunlight just don't have data from reliable instruments to find any longterm trend.

But they apparently do not need sophisticated instruments as a basis for their doom scenario. Beate Liepman from Columbia University said in an interview she saw the dimming effect from the windows of a plane flying from New York to Los Angeles.

This is not the first, nor the last time scientist predict a major environmental catastrophe based on limited data. In the seventies, scientists blamed the acidification of lakes in Northern Europe for the disappearance of waterlife. This observation was expanded by the claim of the German biologist B. Ulrich that the woods in Europe were dying because their roots were destroyed as a consequence of

aluminum leaching by deposited acid - by acid rain. His concept of acid rain and strong statements as: "We are on the brink of an ecological Hiroshima" led to public and political upheaval. I still remember the picture of the former Dutch prime minister leaving severely depressed some wood where he just was shown the spots of dead trees supposed to be victims of the acid rain. There were predictions that the majority of the woods were on the brink of disappearing however. However the opposite has happened and the woods in Europe are flourishing. The dead trees appeared the victim of drought and not pollution and acid rain is no longer on the political agenda. Acid rain was nothing more than an invention of environmental scientists looking for funding.