

## What has been the result of disagreement among scientists?

Science does not exist in a vacuum.

Scientists have strong beliefs about the world they live in and personal agendas. The people who manage the funding agencies, companies, political action groups, political parties and NGOs that pay for their research also have ideological and organizational agendas.

When talking about disagreements among scientists view, it is therefore important to distinguish between scientific contests between different theories, models and data sets, and the shouting matches among nonscientists who use science for their own purposes.

The key result of disagreements among scientists view has been more science.

Where climate-sceptics have challenged climate scientists' time frames, data and theories, the climate change scientists have re-tested the climate-sceptics' data and claims, re-tested and improved their own data and reworked their models and theories. Every time they return with improved results, the climate-sceptics do the same thing. To date, the ongoing research suggests that the climate change models are better and improving rapidly, but the continued contest demonstrates the living nature of the scientific process.

Outside of the scientific view world, however, ignorance of the facts and of science itself have created a free-for-all. Fringe environmental groups, right-wing internet blogs, politicians of all stripes have spread falsehoods far and wide or distorted the truth to serve their own ends. Beware three particular versions of “science” abuse:

- At the start of “My cause is so critically important that a little exaggeration/a few lies are no sin”: This is the most common version indulged in equally by left and right. Environmentalists feel that “life on earth” or whatever is worth any price; the hard right believes that the “climate myth” is simply another internationalist plot to impose government control on free people – whose freedom must be protected at all costs. In both cases, attention to the truth takes a back seat.
- “The sky is falling” – “Oh, give me a break”: Here the divide is between the doomsayers (“Climate Change Impacts Could Collapse Civilization by 2040” report) and the perpetually disengaged (“Americans don’t worry much about climate”). The doomsayers will find any excuse to believe the worst; the “whatevers” see no reason for concern about anything. To put these contending positions in context and observe the misuse of science in action, remember, first,

the 1970s and the gloom that surrounded the impending exhaustion of world oil resources that led to a policy of “pump America dry first” and then, second, the “oh, give me a break” reaction to the efforts that ultimately led to the 1970 Clean Air and Water Act.

- “They only believe in/deny climate change because they are [dumb, insane, evil, deluded, godless, terrorists...]”: This is such a common type of “argument” that it must be mentioned, although it is so illogical an “explanation” that it is hard to consider. Most people learned in primary school that such ad homonym attacks do not constitute compelling refutations, but such assertions form such an essential part of what passes for global “public discourse” today that it bears repeating that any such contention only bears tossing out.

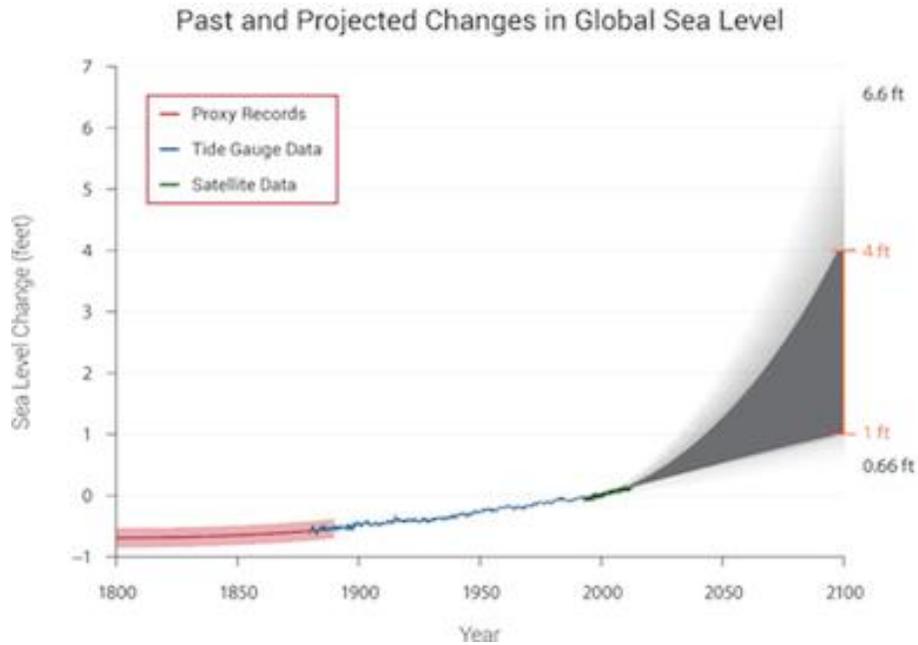
## **Climate change impact**

Because the global climate is a connected system climate change impacts are felt everywhere.

Among the most important climate change impacts are:

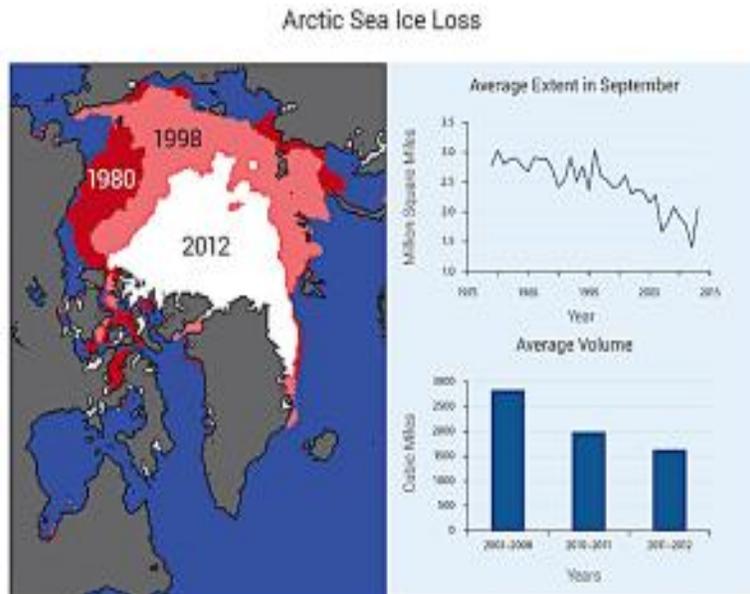
### **Rising Sea Levels**

Climate change impacts rising sea levels. Average sea level around the world rose about 8 inches (20 cm) in the past 100 years; climate scientists expect it to rise more and more rapidly in the next 100 years as part of climate change impacts. Coastal cities such as New York are already seeing an increased number of flooding events and by 2050 many such cities may require seawalls to survive. Estimates vary, but conservatively sea levels are expected to rise 1 to 4 feet (30 to 100 cm), enough to flood many small Pacific island states (Vanatu), famous beach resorts (Hilton Head) and coastal cities (Bangkok, Boston). If the Greenland ice cap and/or the Antarctic ice shelf collapses, sea levels could rise by as much as 20 ft (6 m), inundating, for example, large parts of Florida, the Gulf Coast, New Orleans and Houston.



## Melting Ice

Projections suggest climate change impacts within the next 100 years, if not sooner, the world's glaciers will have disappeared, as will the Polar ice cap, and the huge Antarctic ice shelf, Greenland may be green again, and snow will have become a rare phenomenon at what are now the world's most popular ski resorts.



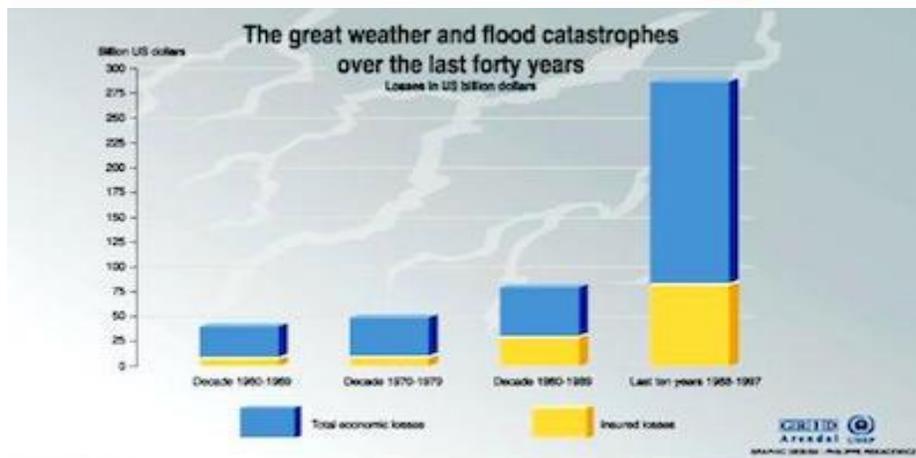
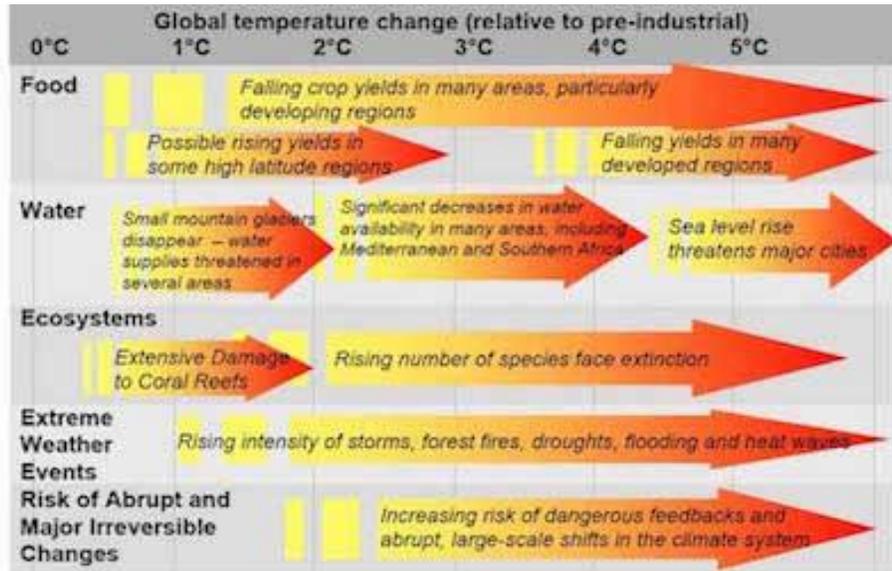
To view an interactive map of changing polar ice coverage, 1979 to 2015

## Torrential downpours and more powerful storms

While the specific conditions that produce rainfall will not change, climate change impacts the amount of water in the atmosphere and will increase producing violent downpours instead of steady showers when it does rain.

Hurricanes and typhoons will increase in power, and flooding will become more common.

Anyone in the United States who has tried to buy storm and flood insurance in the past few years knows that the insurance industry is completely convinced that climate change is raising sea levels and increasing the number of major storms and floods. (To understand the insurance industry’s thinking on the subject, consider the chart below compiled by Munich Re-Insurance.)



Source: Munich Re Group, 1999

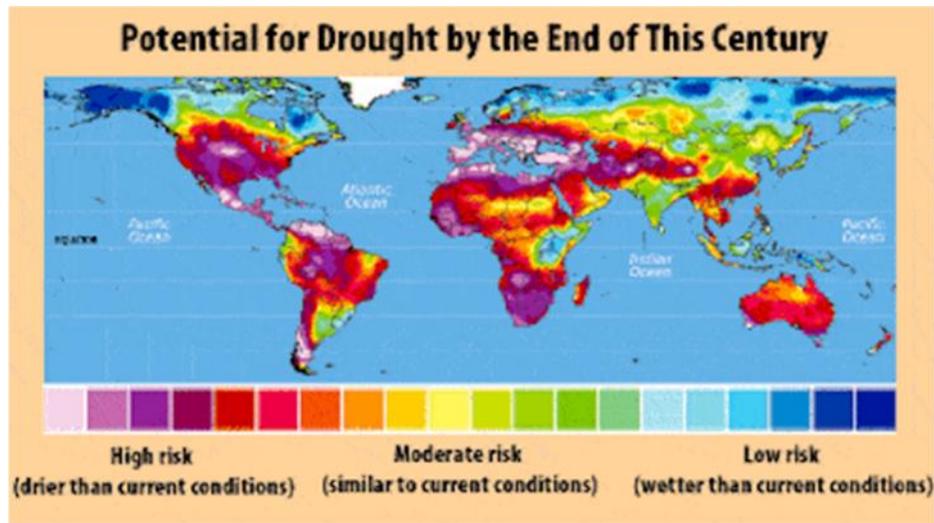
## Heat waves and droughts

Despite downpours in some places, droughts and prolonged heat waves will become common.

Rising temperatures are hardly surprising, although they do not mean that some parts of the world will not “enjoy” record cold temperatures and terrible winter storms. (Heating disturbs the entire global weather system and can shift cold upper air currents as well as hot dry ones. Single snowballs and snowstorms do not make climate change refutations.)

Increasingly, however, hot, dry places will get hotter and drier, and places that were once temperate and had regular rainfall will become much hotter and much drier.

The string of record high temperature years and the record number of global droughts of the past decade will become the norm, not the surprise that they have seemed.



## Changing ecosystems

As the world warms, entire ecosystems will move.

Already rising temperatures at the equator have pushed such staple crops as rice north into once cooler areas, many fish species have migrated long distances to stay in waters that are the proper temperature for them. In once colder waters, this may increase fishermen’s catches; in warmer waters, it may eliminate fishing; in many places, such as on the East Coast of the US, it will require fishermen to go further to reach fishing grounds.