

Climate Change--- part 10

An Earth that continues to warm will affect us in a variety of ways, which will depend on where you live. The changes will be measured over years and decades, but we aren't sure how fast the climate will warm. Since the Earth has been on a general warming trend since around the year 1850, we expect that it will continue to warm. It is possible that the faster rate of warming observed in the 1980's and 1990's could accelerate even more. Or it may slow down, as it has in the past decade. Already two of the biggest concerns have been exceeded: The rapid decrease in arctic sea ice in the summer, and a faster than expected build-up of greenhouse gases in the atmosphere, caused by the burning of fossil fuels released into the atmosphere. The human influence as discussed before is the major question, but estimates range from 2 degrees, to as much as 13 degrees of additional warming by the end of this century. Most scientists think the lower amount of this warming is the more likely outcome that is about 2 to 5 degrees.

Many of the climate changes have already started, but in the decades to come: Arctic sea-ice will continue to shrink in the summer. This will allow more shipping and new routes, but also disrupt the coastlines with erosion, and alter human activities on the ice, as well as the animals such as polar bears and seals. The warming climate will be felt more strongly in the arctic regions than anywhere else on Earth.

It is expected that mountain glaciers will continue to shrink and even disappear. Glacier National Park may lose all of its glaciers within the next 30 years.

Sea-levels should continue to rise, but probably no more than a foot or so for the rest of this century. This would spare most major coastal cities, however some small islands with little elevation, can expect such erosion problems and land lost to the sea, that they would require re-location of their people. The worst case global warming scenarios have the Greenland ice cap melting, causing sea levels to rise 30 feet, which would be devastating to most coastal cities around

the world. This influx of cold water would disrupt the sea-surface currents such as the Gulfstream. Europe could turn colder in the midst of global warming. If the Antarctic ice cap ever melted, sea levels would rise 200 feet, a disaster for most of the world that is hard to even imagine, something though that is considered to be a very unlikely possibility in this century.

Animal species will expand to new areas, or retreat from old areas. Others will simply adapt, while others will not adapt and will decrease in numbers, some species threatened with extinction. We are already hearing concerns about polar bears and seals in the arctic, and changes in corals and fish populations in our oceans and rivers. Meanwhile, insects and rodents will expand their territories, as the much publicized pine beetle has been doing. The vegetation line will expand north into the arctic, as well as climb to higher mountain elevations.

In general, many persons living in the middle and high latitudes of the hemisphere may welcome a warming climate. In addition to a longer growing season and more rainfall, there comes the added comfort, as well as less energy needed for heating of homes and other buildings, and longer seasons for many outdoor activities. Rodent pests and insects will be more of a problem. On the other hand, the subtropics, which are already hot and dry, such as our southwest states, will become even hotter and drier, putting a strain on resources, such as water and air conditioning. For the poor subtropical areas of the world, this may be catastrophic in already fragile climates, such as parts of Africa and Asia. All of the subtropics can also expect more droughts and wildfires. On world-wide basis, expect more extreme weather events, more frequent and stronger storms, flash floods, and other severe storms including tornadoes and hurricanes.

Just as we continually adapt to year to year and day to day weather and climate changes, we will also try to adapt to long-term changes. We may move to a more appealing climate, or simply make changes to our lifestyle or livelihood. We don't know how much or fast the climate will keep warming, and especially how much, if any, of that warming is human-caused. The probable human factor such as greenhouse gases, will involve political, economic, and engineering solutions, which can't yet be determined or forecast.