

ENVIRONMENTAL CHANGE OF TODAY

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For the last decades we are observing increase of average global temperature and global climate changes which influence processes in the nature.

When we are confronted with technological disasters, for example, the tanker "Erica" wreckage at 1999, or tanker "Prestige" wreckage at 2002, we are sure that human factor is responsible. What about natural disasters?

January 18, 2007, hurricane Kyrill was responsible for lot of casualties. The question is, are the technology progress and human activity responsible for such natural disasters?

For the last decades we have a list of big hurricanes, floods and other natural disasters:

Disaster	Name	Deceased	Losses, million US\$
USA, Florida (1992)	Hurricane Andrew	60	26 500
USA, Florida (1993)	Flood	50	21 000
China (1996)	Flood	3000	24 000
China (1998)	Flood	4100	30 700
Europe (2002)	Flood	40	16 500
USA (2004)	Hurricane Ivan	120	23 000
USA (2004)	Hurricane Charley	40	18 000
USA (2005)	Hurricane Katrina	1300	125 000
Mexico, USA (2005)	Hurricane Wilma	40	20 000
USA (2005)	Hurricane Rita	10	16 000
Europe (2007)	Hurricane Kyrill	42	25 000

While the number of storms in the Atlantic has increased since 1995, there is no obvious global trend; the annual global number of tropical cyclones remains about 87 ± 10 . However, there is some evidence that the intensity of hurricanes is increasing. Records of hurricane activity worldwide show an upswing of both the maximum wind speed in and the duration of hurricanes. The energy released by the average hurricane (again considering all hurricanes worldwide) seems to have increased by around 70% (!) in the past 30 years or so, corresponding to about a 15% increase in the maximum wind speed and a 60% increase in storm lifetime.

Atlantic storms are becoming more destructive financially, since five of the ten most expensive storms in United States history have occurred since 1990. The U.S. National Oceanic and Atmospheric Administration Geophysical Fluid Dynamics Laboratory performed a simulation to determine if there is a statistical trend in the frequency or strength of cyclones. The simulation concluded "the strongest hurricanes in the present climate may be upstaged by even more intense hurricanes over the next century as the earth's climate is warmed by increasing levels of greenhouse gases in the atmosphere."

In February 2007, the United Nations Intergovernmental Panel on Climate Change released its fourth assessment report on climate change. The report noted many observed changes in the climate including atmospheric composition, global average temperatures, ocean conditions, and other climate changes. The report concluded the observed increase in hurricane intensity is larger than climate models predict. Additionally, the report considered it likely that hurricane intensity will continue to increase through the 21st century, and declared it more likely than not that there have been some human contribution to the increases in hurricane intensity.

Starting with industrial revolution, about 200 years ago, the fossil fuel combustion increased leading to increased amount of emission. About 28 millions tons of carbon dioxide is released every year. Most of this quantity is absorbed by Ocean and vegetation. However, measurements show a 35% increase of carbon dioxide content in the Earth atmosphere during the last decade. Thirty years ago the carbon dioxide concentration was 320 ppm, now it is 380 ppm. Forecasts show that critical concentration of 480 ppm can be reached in fifty years, during the lifetime of two generations. Emission of methane, nitrogen oxides, and fluorinated hydrocarbons are making additional input increasing greenhouse effect, rising temperature and influencing Global climate changes. This is not a normal process and can create more dangerous consequences.

Due to joint efforts of governmental authorities and public organizations, the industrial emission had decreased during the last decades. In the same time emission from transport has no signs of declining because of growing quantity of cars, airplanes, and ships employed.

Scientists and engineers are making substantial contribution to reduce greenhouse effect inventing and introducing new technologies and innovations. Considerable investigations are undertaken to introduce heating systems using renewable resources, wind, solar energy, wood, and waste.

Everybody can make his own input for the improvement of situation:

better heat isolation of house,

sparingly using energy,

implementing energy effective household appliances, and

employing environmentally friendly cars, fuel and driving habits.

Energy efficiency must be improved during next decades to ensure sustainable future and diminish impact of natural disasters.

Sources:

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