

communication services are expected to fall dramatically, although near-zero prices may be unrealistic. This decline in prices will happen as competitive entry into national markets and oligopolistic competition in the international market take hold.

These developments may also produce major reductions in the revenues available for reinvestment in the national infrastructures of some developing countries. Social-policy and equity issues related to the extension and upgrading of the infrastructure will become pressing for policymakers trying to promote access to new information services.

GLOBAL WARMING

O.A. Polozhij, PhD student

What is the greenhouse effect, and is it affecting our climate?

The greenhouse effect is unquestionably real, and is essential for life on Earth. It is the result of heat absorption by certain gases in the atmosphere (called greenhouse gases because they trap heat) and re-radiation downward of a part of that heat. Water vapor is the most important greenhouse gas, followed by carbon dioxide and other trace gases.

Human activity has been increasing the concentration of greenhouse gases in the atmosphere (mostly carbon dioxide from combustion of coal, oil, and gas; plus a few other trace gases).

Global surface temperatures have increased about 0.6°C (plus or minus 0.2°C) since the late-19th century, and about one half degree F (0.2 to 0.3°C) over the past 25 years (the period with the most credible data). The warming has not been globally uniform. Some areas (including parts of the southeastern U.S.) have cooled.

El Ninos are not caused by global warming. Clear evidence exists from a variety of sources (including archaeological studies) that El Ninos have been present for hundreds, and some indicators suggest maybe millions, of years.

There has probably been only a small (1%) increase in global precipitation over land during the 20th century. Precipitation has

increased over land in high latitudes of the northern hemisphere, especially during the cold season, concomitant with temperature increases.

A rather abrupt change in the El Niño - Southern Oscillation behavior occurred around 1976/77 and the new regime has persisted.

On a global scale there is little evidence of sustained trends in climate variability or extremes. This perhaps reflects inadequate data and a dearth of analyses. However, on regional scales, there is clear evidence of changes in variability or extremes.

For the Northern Hemisphere summer temperature, recent decades appear to be the warmest since at least about 1000 AD, and the warming since the late 19th century is unprecedented over the last 1000 years.

Global mean sea level has been rising at an average rate of 1 to 2 mm/year over the past 100 years, which is significantly larger than the rate averaged over the last thousand years. Projected increase for the 21st century is about 0.5 meter, but estimates range widely.

Has the climate of the United States changed significantly during the century that is about to end? In what ways and by how much?

In their assessment they noted that the so-called "greenhouse" gases "have all been markedly increasing in amount since about the time of the industrial revolution, that began in earnest some 150 years ago.

Another factor in the climatic equation is precipitation and drought. Studies indicate that, "since about 1970 precipitation has tended to remain above the twentieth century mean, averaging about 5% higher than in the previous 70 years.

While during the 1930's there was a sharp rise in temperature, there was a modest cooling trend from the 1950's to the 1970 when the temperature began to rise again.

"Changes and variations of destructive storms are of particular interest because of their socio-economic and biophysical impact. Reliable records of the number and intensity of tropical hurricanes that reach the U.S. go back to at least 1900.

Another factor the climatologists have studied are changes in circulation over the past few decades. Since the winter of 1976-77, the sea-surface temperatures in the central and eastern equatorial Pacific have remained anomalously warm.

"Most readers will by now agree that it is difficult to draw a simple picture that summarizes the many parameters and multidimensional aspects of observed climate change and variability, no matter how complete the record.

"Global warming" has been introduced by the scientific community and the media as the term that encompasses all potential changes in climate that result from higher average global temperatures.

The Earth's climate is the result of extremely complex interactions among the atmosphere, the oceans, the land masses, and living organisms, which are all warmed daily by the sun's energy.

GREENER LOGISTIC SYSTEMS MANAGEMENT

Y.V.Chortok, PhD student

'Logistics' is the term used to describe the management of the entire materials supply chain, from cradle to grave. Logistics management is one of the important behind-the-scenes processes that will come under scrutiny as not just products, but companies' entire approaches are bought by the consumer.

Logistics managers are beginning to realize that the environment is becoming an issue of competitive advantage. The movement of goods impacts on everybody's life, and so is highly visible. Pressure is beginning to bear on the industry to 'clean up its act' and look on means of accomplishing this.

Logistics has important consequences for the environment. Vehicle emissions are a major source of pollution in the most European countries. Road traffic noise is experienced by 89% of the population and is cited as the worst form of noise disturbance by 16%.

The decisions made in one area can have environmental repercussions in another, but most logistics decisions will have some