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Niño



A pattern of increased weather variability began over a decade ago and has continued with the El Niño of 1997–1998. Since 1976, Pacific Ocean temperature anomalies and extreme weather events have become more frequent, more intense, and have persisted longer than at any time since 1877, when records were first kept. The National Climatic Data Center records—our nation’s main repository for meteorological data—indicate that extreme weather events have increased in this century in the continental United States; droughts have become longer and bursts of precipitation more “intense” (defined as more than two inches in a 24-hour period). Warmer temperatures tend to lower atmospheric pressure and pull in stronger winds, creating more extreme weather. Ocean surfaces have warmed, and the deep ocean may be the long-term repository of this century’s warming.

The recent rise in severe wind- and flood-related events worldwide has had extraordinary consequences for property insurers. Annual insured losses have risen dramatically—from \$1.6 billion annually in the 1980s to \$12 billion annually in the 1990s (only partly explained by the increased value of property “exposed” to weather). Federal relief bills, chiefly for flooding, amounted to \$13 billion from 1992 through 1997, compared with \$3.3 billion for the preceding five years. Will we have a difficult time insuring our future?

The economic impacts of diseases of humans, marine life, and food crops can also be severe and far-reaching. The 1991 cholera epidemic cost Peru over \$1 billion

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in seafood export losses and diminished tourist income. Public concern about plague in India in 1994 reduced airline and hotel industry revenue by \$2 billion to \$5 billion. Recently, cruise boats, quite understandably, have begun to avoid islands experiencing dengue fever. This trend could threaten a \$12 billion-a-year tourist industry in the Caribbean that employs more than half a million people. In 1997, California floods left fungi and root rot that threatened that state's \$22 billion citrus industry.

Extreme events—floods, storms, droughts, and uncontained fires—can be devastating for agriculture, for human settlements, and for human health. Both heat waves and winter storms bring an increase in cardiac deaths. Floods spread bacteria, viruses, and chemical contaminants; they foster the growth of fungi and contribute to insect breeding. Prolonged droughts, interrupted by heavy rains, favor population explosions of insects and rodents. The upsurge of rodents in the U.S. Southwest in early 1998 warrants increased vigilance for hantavirus pulmonary syndrome.

Large-scale changes in sea surface temperatures in the Pacific start the recurring climatic conditions known as El Niño or La Niña events, which have been accompanied in Latin America and Asia by outbreaks of malaria, dengue, and cholera. This year, in the Horn of Africa, intense rains and flooding precipitated a devastating “cluster” of diseases including Rift Valley fever, cholera, and malaria. Understanding the El Niño phenomenon may help us project and understand the health consequences of future climate changes and the social costs of continuing “business-as-usual.” ■

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