

Climatic prediction

Could this be an El Niño?

Washington

SOMETHING is happening in the equatorial Pacific Ocean from the dateline to the west coast of South America. Some believe that the climatic upheaval known as El Niño is in progress, others believe one is ending, some call the events an ENSO episode (El Niño/Southern Oscillation); others claim that all that is happening is that a travelling wave of water is moving through the Pacific from west to east. But there is agreement on one point: something is happening.

The events of interest relate to a warming of the sea-surface temperatures in a band from the dateline eastward, a rise in the water temperature measured from piers along the Peruvian coast, and slackening of easterly sea-surface winds. Whether these events should be termed an El Niño depends on definition. Originally, says George Philander of the National Oceanic and Atmospheric Administration (NOAA), an El Niño referred to warm current flows along the coasts of Ecuador and Peru in January, February and March, and the resulting impact on local weather. But James O'Brien of Florida State University in Tallahassee says no two events have been the same, making the 'classic' definition of little value. The second name, ENSO, more generally refers to events from the mid-Pacific to the South American coast, taking into account the irregular oscillation in pressure between the east and west Pacific.

The National Meteorological Center's Climate Analysis Center (CAC) issued an advisory note on 10 November stating that the warming of sea-surface temperatures in the equatorial Pacific "resembles the warmings associated with ENSO episodes". But the centre was unclear whether El Niño conditions would result. CAC's Don Rodenhouse says the next circular will probably appear next week based on November data, and is likely to confirm that Pacific warming is spreading.

The National Weather Service, CAC's parent agency, is cautious about using the term El Niño. Last March it announced that conditions that could lead to an El Niño were developing. Eugene Rasmusson, now retired from CAC but responsible for the March bulletin, says the warming trend failed to materialize. Many people, mindful of the economic disasters blamed on erratic weather from the 1982-83 episode, mistook the possibility of the event for the event itself, provoking some hysterical behaviour. Now the Weather Service will move very cautiously before making any firm statements about El Niño.

But the government's caution does not extend to the academic community. There

is "absolutely no question in my mind that there is a modest El Niño under way", says O'Brien, who is chairman of the ENSO alert group that advises CAC on its Pacific forecasting.

Several members of the group had developed models as early as January predicting the ocean temperatures now observed. But O'Brien says none of them felt that this year's episode would match the 1982-83 episode in scale. From his own model, O'Brien predicts that sea-surface temperatures along the Peruvian coast may soon begin to decline.

Francisco Chavez of Duke University says his data show that decline is taking place based on pier temperatures from Paita, 5° south of the Equator. But Chavez data also show that pier temperatures for the start of November were well above normal.

Tim Barnett of the Scripps Institution of Oceanography has made a statistical model that predicts the behaviour of sea-surface temperature in the equatorial Pacific. Barnett's observations of temperatures in the region show about 1.2 °C above normal. His model predicts that the current warming trend will continue for another month or more.

Mark Cane, Stephen Zebiak and Sean Dalan of Lamont-Doherty Observatory in Palisades, New York, developed a deterministic model based on a coupled ocean-atmosphere system (see *Nature* 321, 827; 1986). Cane says that if the model is correct, the current warming will have already peaked. His analysis of the latest data from the region supports that view, although the temperature could rise again. Barnett says the exciting thing will be to see how well the models behave in predicting events and to understand why they work as well as they do.

Predicting an El Niño is not necessarily of value in itself. "The term El Niño is useful like the term winter is useful", says NOAA's Philander. The significance of El Niño episodes for global weather is still not well understood. Moreover, Philander is not convinced that the rise in coastal temperature is due to an ENSO episode—a travelling wave, known as a Julian-Madden wave, may be bringing the warm water from the west, rather than a perturbation of the southern oscillation. One measure of the southern oscillation, the pressure difference between the island of Tahiti and the city of Darwin in Australia, has failed to show the difference normally associated with ENSO episodes.

But Rasmusson believes a weak-to-moderate ENSO episode is indeed under way, and the Tahiti-minus-Darwin pressure index is just one of the factors still not clearly understood.

Joseph Palca

Biotechnology patents

Don't say just what you mean

Rehovot

AN extremely inventive patent covering biologically-engineered "human pink-spider toxinase" was recently presented for examination by Wieszmann Institute's Professor Hermona Soreq and Professor Avigdor Shaefferman of Israel's Biological Research Institute. But the toxinase and the cultured cells yielding a miracle cure for the dread spider bite were all the figments of the inventors' imagination, designed to illustrate the difficulty of patenting intellectual property.

The pink-spider toxinase patent, together with an equally inventive suit claiming patent infringement, was part of an unusual experiment carried out at an international conference on legal aspects of biotechnology held in Jerusalem. The invention was presented for examination by Mr Joel Tzur, the Israel Commissioner of Patents, and it was finally 'approved' after a mock appeal heard by the deputy president of the Tel Aviv District Court, Judge Ellyahu Winograd. Among those attending the Jerusalem meeting were scientists, jurists, patent attorneys, representatives of patent offices and industrialists. The so-called biolegal meeting was the brainchild of Tel Aviv District Court Judge Shoshana Berman. The importance of using precise legal terminology in patent applications became clear at the conference. For example, delegates concluded that it is not appropriate to describe a potentially patentable protein fragment as being of a specific length; instead, it should be described as being *essentially* of a specific length. That extra word makes it far less likely that the application can be successfully challenged. "I learned", Professor Soreq concludes, "that the exactitude demanded of scientists may be counterproductive when they are applying for a patent."

The Israel Patent Office has been issuing patents on genetically engineered microorganisms even before they were patentable in the United States. But Professor Haim Aviv claimed that Israeli authorities have been too liberal in granting broad patent protection to foreign biotechnology companies, which, he charges, are less interested in manufacturing their products than in stifling Israeli innovations.

Aviv, himself deeply involved in the business side of biotechnology, hopes that Israel will soon adopt the US principle of a grace period, so that local researchers, like their US counterparts, will have a full year to patent their findings after publication in a scientific journal.

Nechemia Meyers