D.N 12/5/98

Leading scientists see power in sun theory

LONDON, Monday

Danish Meteorological Institute scientists say the rise in the earth's temperature is due to long-term changes in the sun's output and have nothing to do with greenhouse gases released by burning fossil fuels. They argue that climate is influenced by cosmic and solar rays impacting on the earth's magnetic field, writes NEIL WINTON

World governments are signing up to a treaty seeking to stop mankind destroying the climate, but some experts say the sun may dictate the world's weather and want to test the theory.

The European Union signed the Kyoto treaty on climate change in New York last month, bringing the total number of committed nations to 34.

Last December, the world's industrial nations agreed at a conference in Kyoto, Japan, to cut emissions of carbon dioxide (CO2) and other gases by an average 5.2 per cent from 1990 levels between 2008 and 2012.

The accord followed a controversial report by the United Nations' Intergovernmental Panel on Climate Change, which concluded that the burning of fossil fuels was behind the increase in global temperature of about half a degree Celsius since the late 19th century.

The evidence linking mankind with climate change has always been contested.

Even Dr Ben Santer, atmospheric scientist at the Lawrence Livermore National Laboratory in California, and lead writer of the IPCC report, pointed out that there was evidence pointing either way, with significant uncertainties.

But despite the inconclusive science, many political leaders have embraced the notion that human activity is causing global warming. Action is required to avert a climate catastrophe, they say.

Scientists Knud Lassen and Eigil Friis-Christensen of the Danish Meteorological Institute have published a theory suggesting the current rise in the earth's temperature owes everything to long-term changes in the sun's output and nothing to greenhouse gases released by burning fossil fuels.

Their studies showed that the earth's climate is influenced by cosmic and solar rays impacting on the earth's magnetic field.

Cosmic rays vary with the solar cycle and interact with the solar wind, which has a direct impact on the world's cloud formation and therefore on the climate.

They found that the world's cloud cover varies between 65 per cent to 68 per cent over the solar cycle.

The amount of cloud cover will have a direct influence on the amount of the sun's heat which is absorbed or reflected back into space.

The solar theory explained why more than 1,000 years ago Greenland was warm enough to attract Viking settlement.

And also during Roman times southern England supported a red wine industry. In neither case was there a suspicion of human influence on climate.

Mr Jasper Kirkby and Mr Frank Close of the European particle-physics centre, CERN in Geneva, have been impressed by the solar theory and want to set up an experiment to test it.

Convinced

"The more I read about this theory, the more convinced I am that they (the Danes) are on to something very important," Mr Kirkby told Reuters.

"A striking correlation has been observed between global cloud cover and the incident of cosmic rays...causing estimated changes in global temperatures that are comparable to all the warming attributed to greenhouse gases from the burning of fossil fuels since the Industrial Revolution," Mr Kirkby said.

"However, a direct link between cosmic rays and cloud formation has not yet been unambiguously established. "We, therefore, propose to experimentally measure cloud formation under controlled conditions at CERN," Mr Kirkby said.

Mr Kirkby also points to a major flaw in the argument that warming is directly linked to rising CO2 emissions.

He said that between 1945 and 1970, world temperatures dipped, while CO2 emissions rose steadily.

"This dip seems well matched to a decrease in the Sun's activity," Mr Kirkby said.

But many other reputable scientists have little time for these arguments which they say only serve to slow down urgently required action.

"We have enough evidence for governments to act," said Sir John Houghton, recently retired chairman of Britain's Royal Commission on Environmental Pollution.

Sir John is still co-chairman of the IPCC's scientific assessment working group.

"The greenhouse effect is real and more of the world will warm up. The potential for rainfall, sea level increases, floods and droughts are serious.

"If we carry on burning fossil fuels without curbs, temperatures will change faster over the next century than they have over the last 10,000 years," Sir John said.

Darren Goetze, of the Union of Concerned Scientists in Cambridge, Massachusetts, agreed that solar activity played a role in the past, but now it is human activity that is calling the shots.

"In the 20th century, it is quite clear that solar activity is not dominant. Warming is quite clearly ascribed to rising greenhouse gases. The rise since 1970 (after the unexplained dip) is even steeper than 1900 to 1945. And the 15 warmest years on record have all been since 1980," staff scientist Goetze said.

"For 10,000 years, we have seen rather extraordinary stability. Now we are starting to see extraordinary variability," the scientist said.

Dr Henrik Svensmark, another scientist from the Danish Meteorological Institute, said current warming was explained by solar activity currently being the highest in the last 600 years, coupled with a low cosmic ray count in the last eight years.

"There is no proof of man-made influence on the climate yet. The CERN experiment would be very welcome to establish the solar link," he said.

But fellow scientist Goetze called for clear policy measures now.

"We need to tighten the commitments of industrialised countries to keep up the process of decarbonising economies. Then we need to engage the developing economies to take the same kind of steps," Goetze said.

Developing

The Kyoto agreement failed to bring on board developing countries.

CERN's Kirkby said his planned experiment could be set up within one year, with results about one year later. It requires support from some European institutes.

"The experiment could resolve one of the important unknown effects that have so far prevented reliable calculations of global warming from greenhouse gases, an issue of profound economic and social importance to the world," said Mr Kirkby. (Reuters)