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## 研究报告称：全球变暖影响热带大气环流

2006-5-11

Human activities are altering the circulation of the tropical atmosphere and ocean through global warming, according to a new study released on Wednesday.

Because of the climate change, the Walker circulation, the major loop of winds that drives climate and ocean behavior across the tropical Pacific, is slowing down, causing the climate to drift towards a more El Nino-like state, the scientists said.

The study, appearing in the May 4 issue of the journal Nature, warned that this alteration could have important implications for the frequency and intensity of future El Nino events and biological productivity in tropical oceans.

The researchers tapped historical records dating back to the mid-19th century and computer model simulations to detect and attribute these climate changes. They identified a 3.5-percent weakening that has occurred since the mid-1800s in the Walker circulation.

According to the researchers, there are evidences that the Walker circulation may weaken another 10 percent by year 2100.

"There is an indication that the slowdown may be intensifying," said Gabriel Vecchi, lead author of the study at U.S. National Oceanic and Atmospheric Administration (NOAA).

"The trend since World War II is larger than that over the entire record, and the long-term trend is larger than what is expected from natural climate variability. This is why we employed a very long observational record -- to be able to accurately detect and attribute these changes."

According to the researchers, the weakening of the Walker circulation is closely linked with an increase in greenhouse gases, which were produced by burning fossil fuels.

The study sends mixed signals on the future of El Nino, the researchers said, noting that the climate is slowly moving towards a more El Nino-like state.

Moreover, this slowdown has modified the structure and circulation of the tropical Pacific Ocean, which is a source of nutrients to one of the most biologically productive regions of the world's oceans. This has implications to the well-being and proliferation of marine life in tropical oceans, the researchers said.

"The Walker circulation is fundamental to climate throughout the globe: its variations are closely linked to those of the El Nino/Southern Oscillation and monsoonal circulations over adjacent continents, and variations in its intensity and structure affect climate all over the globe," they wrote in the Nature paper.

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