

# Climate models don't tell the full story

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(PhysOrg.com) -- Climate models that predict heavy rainfall don't give the whole picture, according to the results of a study by NWO (Netherlands Organisation for Scientific Research) scientist Martin Ziegler. He examined climate changes that have taken place over the past 800,000 years, and discovered that the melting icebergs in the North Atlantic and changes in the El Niño Southern Oscillation have a great influence on the intensity of monsoon rains. He received his doctorate from Utrecht University on 2 October.

Ziegler analysed sedimentary deposits from around the world in order to work out which factors affect the strength of monsoons. The sedimentary deposits give a picture of the weather patterns of the last 800,000 years. Many [climate models](#) are based on gradual changes, for example the concentration of greenhouse gases in the earth's atmosphere, or changes in the [solar radiation](#) that enters the atmosphere. According to Ziegler, this means that important factors may be overlooked.

## Wobbling axis

Ziegler demonstrated that it's not just the solar radiation that has a great influence, but also the melting of great expanses of ice as a consequence of the way that the earth wobbles on its axis. Changes in the El Niño Southern Oscillation, which is essentially a periodic temperature fluctuation in the water of the eastern Pacific, were shown to have a great influence on the intensity of the [monsoon](#). Many current climate models take into account the long-term effects of the periodic

fluctuations in the position of the earth's axis, but look only at the changes in the distribution of solar radiation that reaches earth over a one- year period.

The monsoon rains affect large areas of Asia and Africa each year. During some periods there is much more or less rain than usual, which can often lead to floods. The strength of the monsoon can therefore have serious consequences.

Provided by NWO (Netherlands Organisation for Scientific Research)

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