

CLIMATE CHANGE LIKELY LED TO FALL OF INDUS VALLEY CIVILISATION, SAYS STUDY

Relevant for: null | Topic: History upto Indus Valley Civilization

Indus Valley Civilisation tablets seen at The Institute of Mathematical Sciences, in Taramani, Chennai. File Photo. | Photo Credit: [M. Karunakaran](#)

Shifting monsoon patterns linked to climate change likely caused the rise and fall of the ancient Indus Valley Civilisation, according to a study by an Indian-origin scientist which analysed data from North India covering the past 5,700 years.

The analysis by Nishant Malik from Rochester Institute of Technology (RIT) in the U.S. used a new mathematical method to study ancient climate patterns in North India over time, providing insights about past climates using indirect observations.

The research, published in 'Chaos: An Interdisciplinary Journal of Nonlinear Science,' noted that by measuring the presence of particular chemical forms in stalagmite mineral deposits in caves in South Asia, scientists could develop a record of monsoon rainfall in the region for the past 5,700 years.

However, Mr. Malik said studying ancient climate time series with mathematical tools typically used to understand climate is a challenging task.

"Usually the data we get when analysing paleoclimate is a short time series with noise and uncertainty in it. As far as mathematics and climate is concerned, the tool we use very often in understanding climate and weather is dynamical systems," Mr. Malik said.

"But dynamical systems theory is harder to apply to paleoclimate data. This new method can find transitions in the most challenging time series, including paleoclimate, which are short, have some amount of uncertainty and have noise in them," he explained.

While there are several theories about why the Indus Valley Civilisation declined, including invasion by nomadic Indo-Aryans and earthquakes, climate change appears to be the most likely scenario, the study noted.

However, Mr. Malik said there was no mathematical proof until the new hybrid approach was applied.

According to his analysis, there was a major shift in monsoon patterns just before the dawn of this civilisation and that the pattern reversed course right before it declined, indicating it was in fact climate change that caused the fall.

The RIT scientist believes the new method will allow scientists to develop more automated methods of finding transitions in ancient climate data, leading to additional important historical discoveries.

You have reached your limit for free articles this month.

To get full access, please subscribe.

Already have an account ? [Sign in](#)

Start your 14 days free trial. [Sign Up](#)

Find mobile-friendly version of articles from the day's newspaper in one easy-to-read list.

Move smoothly between articles as our pages load instantly.

Enjoy reading as many articles as you wish without any limitations.

A one-stop-shop for seeing the latest updates, and managing your preferences.

A select list of articles that match your interests and tastes.

We brief you on the latest and most important developments, three times a day.

*Our Digital Subscription plans do not currently include the e-paper ,crossword, iPhone, iPad mobile applications and print. Our plans enhance your reading experience.

Dear reader,

We have been keeping you up-to-date with information on the developments in India and the world that have a bearing on our health and wellbeing, our lives and livelihoods, during these difficult times. To enable wide dissemination of news that is in public interest, we have increased the number of articles that can be read free, and extended free trial periods. However, we have a request for those who can afford to subscribe: please do. As we fight disinformation and misinformation, and keep apace with the happenings, we need to commit greater resources to news gathering operations. We promise to deliver quality journalism that stays away from vested interest and political propaganda.

Dear subscriber,

Thank you!

Your support for our journalism is invaluable. It's a support for truth and fairness in journalism. It has helped us keep apace with events and happenings.

The Hindu has always stood for journalism that is in the public interest. At this difficult time, it becomes even more important that we have access to information that has a bearing on our health and well-being, our lives, and livelihoods. As a subscriber, you are not only a beneficiary of our work but also its enabler.

We also reiterate here the promise that our team of reporters, copy editors, fact-checkers, designers, and photographers will deliver quality journalism that stays away from vested interest and political propaganda.

Suresh Nambath

Please enter a valid email address.

Subscribe to The Hindu now and get unlimited access.

Already have an account? [Sign In](#)

Start your 14 days free trial [Sign Up](#)

You can support quality journalism by turning off ad blocker or purchase a subscription for unlimited access to The Hindu.

[Sign up for a 30 day free trial.](#)

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com