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PREDICTOR DISCOVERY ALGORITHM (PDA)

This article covers "Daily Current Affairs" and the topic details "Predictor Discovery algorithm (PDA)". The topic "Predictor Discovery algorithm (PDA)" has relevance in the Science and Technology section for the UPSC CSE exam.

Relevance of Predictor Discovery algorithm (PDA)

For Prelims:

Details of the newly developed technology that uses Artificial Intelligence in Weather Prediction

For Mains:

GS 3: Environment

What is the significance of the Predictor Discovery algorithm (PDA)?

What is the significance of Artificial intelligence in Weather Prediction?

Way Forward

Why in the news?

A newly devised algorithm powered by Artificial Intelligence can help increase the predictability of the Indian Summer Monsoons (ISMR) 18 months ahead of the season.

What is the Predictor Discovery algorithm (PDA)?

The Predictor Discovery algorithm (PDA) is an algorithm made using a single ocean-related variable that could facilitate a skillful forecast of the Indian Summer Monsoons (ISMR) in time for making effective agricultural and other economic plans for the country.

How the new system is an improved version of the existing weather prediction models?

- **Less time lead of 1 month compared to other time-taking models:** While researchers have well established the scientific basis for ISMR predictability and made significant advances over the past century in understanding the variability and predictability of ISMR, the skillful prediction of ISMR even one month in advance has remained a major challenge.
 - a. Neither the potential (theoretically possible) skill (correlation between the predicted and observed ISMR) nor the actual skill of ISMR forecast are available at longer lead times—6, 12, 18, and 24- months ahead of the season.
- **Larger area coverage:** Traditionally, researchers select a predictor of ISMR based on the maximum correlation of an atmospheric or oceanic variable with ISMR over a region of the globe. Such a technique restricts in the realization of the true potential predictability of ISMR as it accounts for one predictor over a particular region at a time.
- PDA can work at any lead month over the entire tropical belt.

What is the significance of Artificial intelligence in Weather Prediction?

Artificial intelligence (AI) has emerged as a powerful tool in weather prediction:

1. Potential to **improve forecast accuracy and lead times.**
2. **Process large amounts of complex data** from various sources, such as satellite imagery, weather balloons, and atmospheric sensors
3. **Learn and identify patterns** and make predictions based on historical data.
4. Real-time data can be analyzed to make accurate and timely predictions.
 - a. For example, AI can be used to identify and track severe weather events, such as hurricanes and tornadoes, and to provide more accurate information on their path, intensity, and potential impact.

Way forward

Overall, the use of AI in weather prediction holds great promise for improving the accuracy and lead times of weather forecasts, ultimately helping to better prepare communities for severe weather events and mitigate their potential impact.

Sources:

<https://pib.gov.in/PressReleaseDetail.aspx?PRID=1919993>

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