

## Phase II of J & K Assembly Elections concludes

### POLITY & GOVERNANCE



**Calm crowd: People queue up to cast their votes at a polling booth in Srinagar in the second phase of Assembly election on Wednesday.**

The second phase of the Assembly election in Jammu & Kashmir held across the 26 constituencies registered a turnout of more than 57.03 % until 11.50 p.m. There were 3,502 polling stations and no polling booth had a voting percentage in single digit.

### VOTER TURNOUT (%)

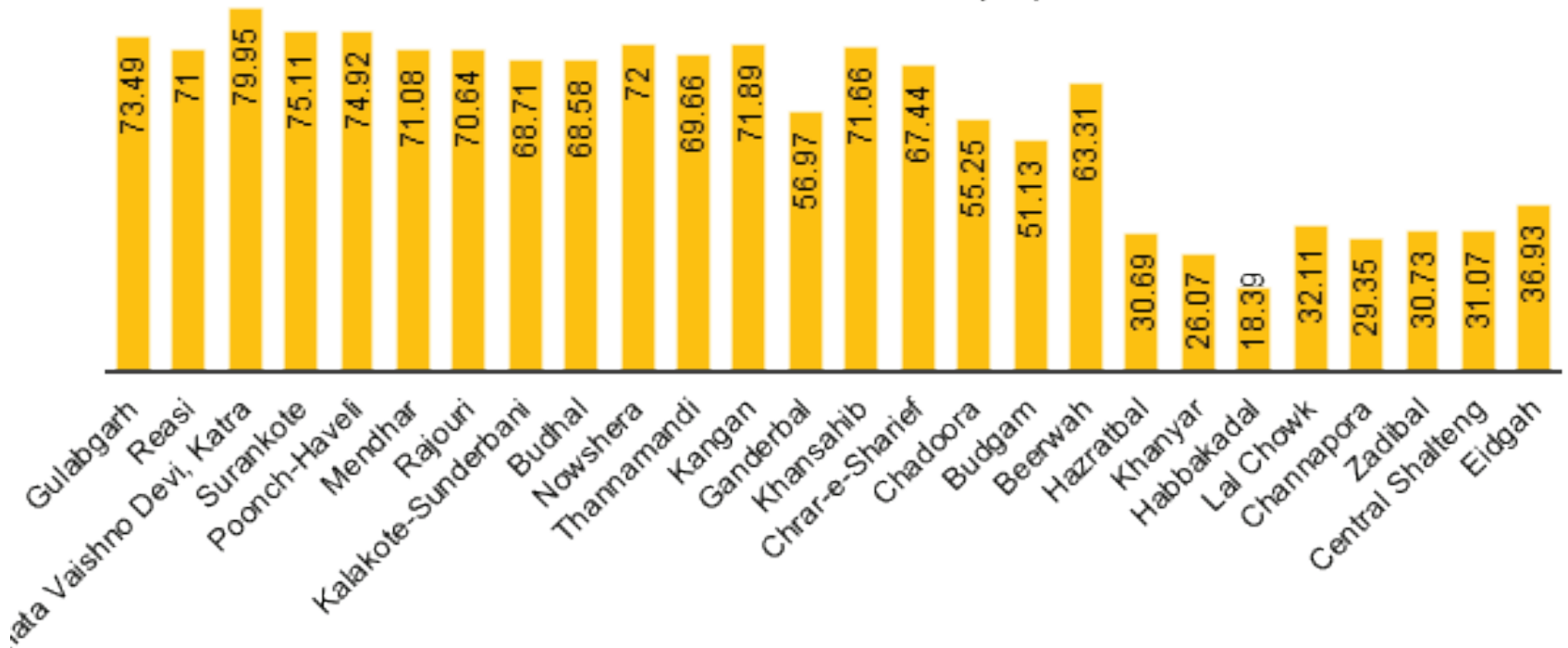


FIGURE: Column chart representation of the voter turnout in the Jammu & Kashmir Assembly Elections Phase II.

## China test-fires ICBM into the Pacific

INTERNATIONAL RELATIONS



China test-launched an Intercontinental Ballistic Missile (ICBM) on Wednesday, firing it into the Pacific Ocean in its first such exercise in decades. Beijing first test-fired an ICBM into the South Pacific in the 1980s. The launch sparked protests from other countries in the region, including Japan, Australia and New Zealand. Under President Xi Jinping, China has begun a massive military modernisation drive, including upgradation of its nuclear weapons to not only deter foes but also be able to counter-attack. Beijing boosted defence spending by 7.2 %, as China increasingly squares off with the U.S.

and its regional partners from the South China Sea to Taiwan. China held more than 500 operational nuclear warheads as of May 2023 and is likely to have more than 1,000 by 2030.

## Government mulls over sending Jaishankar for SCO meet in Pakistan

INTERNATIONAL RELATIONS

**External Affairs Minister S. Jaishankar at the Shanghai Cooperation Organisation Foreign Ministers' Meeting in Goa in May 2023.**

India considers sending External Affairs Minister S. Jaishankar to Pakistan next month to attend the Shanghai Cooperation Organisation (SCO) Heads of Government meeting. India participated in the event, separating the failure of bilateral ties from the “value” of the SCO grouping that comprises 10 Eurasian countries, including Russia and China. Neither India nor Pakistan sends its Prime Minister to the Heads of Government event, deputing a Minister or the Vice-President instead.

### No bilateral talks

During the SCO meeting in Goa, Mr. Bhutto and Mr. Jaishankar exchanged greetings but did not hold a bilateral meeting, and the visit ended with both holding acrimonious press conferences criticising each other.



*“Doing nothing is very hard to do. You never know when you’re finished.”—Leslie Nielsen*

# ‘Input on infiltration by 900 Kuki militants could not be substantiated on the ground’

## INTERNAL SECURITY

**Search operations being conducted by security forces in the vulnerable districts of Manipur.**

Manipur Security Adviser Kuldiep Singh and Director-General of Police (DGP) Rajiv Singh issued a joint statement that the input regarding the infiltration of 900 trained Kuki militants from Myanmar to carry out attacks on Meitei people on September 28 “could not be substantiated on ground”. The inputs were first shared by Chief Minister N. Biren Singh’s office with the Security Adviser, the DGP, and the Chief Secretary on September 16.

In view of the recent reactions from different communities regarding input of infiltration of 900 trained Kuki militants from Myanmar to carry out attacks on Meiteis on September 28, it is clarified that the input was verified from different quarters, but it could not be substantiated on ground. There is no basis currently to believe in any such input. However, security forces deployed on the ground are placed on a high alert to protect lives and properties of citizens. All communities are assured of their safety. They are advised not to believe in any rumours or unverified information,” the joint statement said.

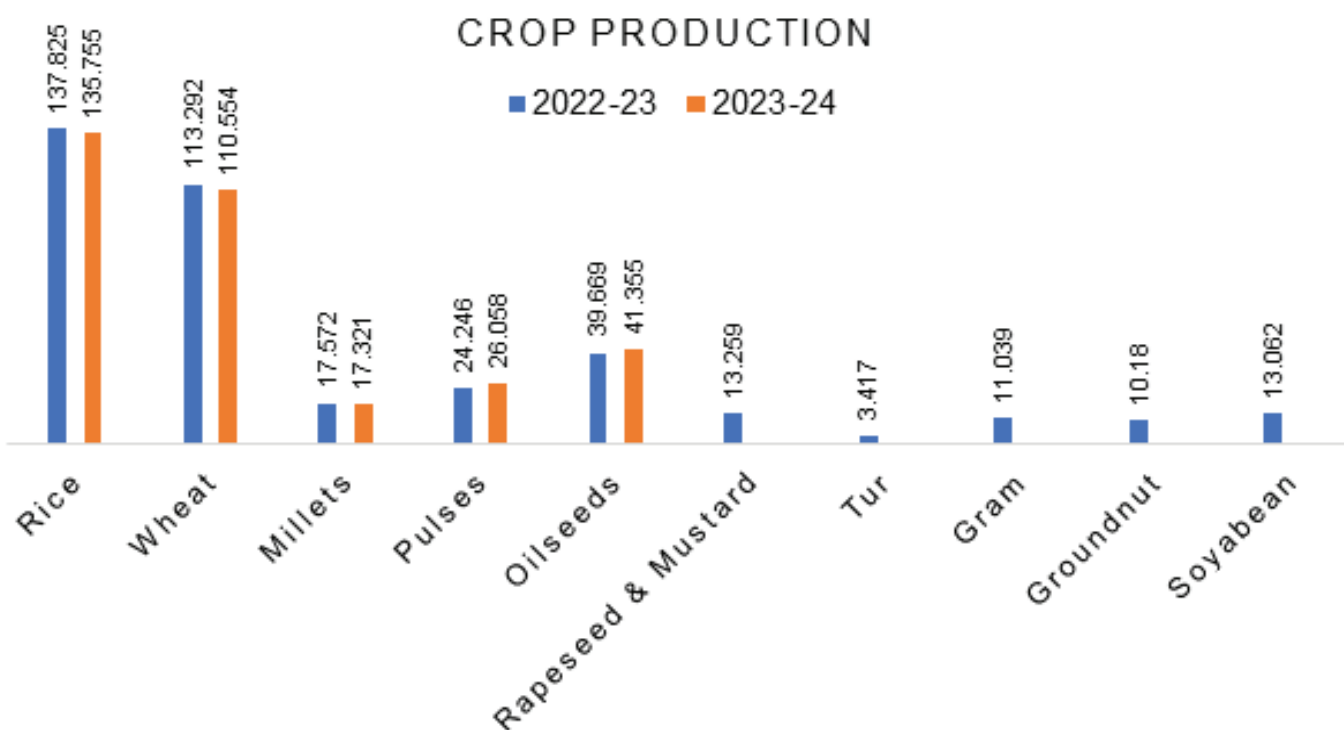
The Kuki-Zo people in Manipur share ethnic ties with the Chin tribe in Myanmar. India and Myanmar share a 1,643 km border along the States of Arunachal Pradesh (520 km), Nagaland (215 km), Manipur (398 km), and Mizoram (510 km).



# Centre estimates record production of food grains in 2023-24

## AGRICULTURE AND RELATED MATTERS

The Union Agriculture Ministry has estimated a record production of food grains for this financial year. But the production of pulses, oil seeds, and sugar cane is likely to be lower than in the last fiscal, shows the fourth and final estimates of production of major agricultural crops for 2023-24 released here on Wednesday.



**FIGURE :** Column chart representation of the food grains production. Sources: Union Agriculture Ministry.

The Centre estimated a record food grains production of 3,322.98 lakh tonnes (LT), which is higher by 26.11 LT than the last financial year's 3,296.87 LT. Sugarcane production is set to decrease to 4,531.58 LT from 4,905.33 LT and cotton output will be 325.22 lakh bales (1 bale equals 170 kg) from 336.6 lakh bales in 2022-23. An increase in the production of rice, wheat, and millet resulted in an overall increase in food grain production.

### Moisture stress

The Centre said during 2023-24, there were drought-like conditions in southern States and Maharashtra, and prolonged dry spells during August especially in Rajasthan. The moisture stress from the drought also affected the rabi season. This mainly affected production of pulses, coarse cereals, soya bean and cotton.

## China's warning shots with minerals that run the world

### INTERNATIONAL RELATIONS

In August 2023, China announced its decision to restrict the export of antimony, a critical mineral used in strategic sectors like defence for manufacturing military equipment, including missiles, infrared sensors, flares, ammunition, and nuclear weapons. The restriction, justified by China's Commerce Ministry on the grounds of "national security," was set to take effect on September 15, 2023. This action was part of a broader series of countermeasures initiated by China starting in August 2023.

### Moves and countermoves

China holds a dominant position in the global supply chain of critical minerals, controlling 60 % of rare earth and critical minerals production, and 80 % of processing. This near-monopoly extends across mining, extraction, refining, and processing, making China a leader in the sector. Consequently, any decision China makes regarding critical minerals has significant global security implications. Countries like the European Union, India, Japan, and the United States are particularly vulnerable due to their dependence on these minerals for strategic sectors.

China's use of critical minerals as a geopolitical tool first gained attention in 2010 after it halted rare earth exports to Japan following a maritime incident. This highlighted global dependence on China for strategic minerals. In 2023, China imposed export restrictions on gallium, germanium, and graphite—key materials for solar cells, semiconductors, and electric vehicle batteries—in response to U.S. export controls on advanced technology. These actions, triggered by U.S. and Dutch restrictions on semiconductor equipment, demonstrate China's willingness to weaponise the critical mineral supply chain to counter Western measures. China also restricted rare earth processing technologies, further obstructing U.S. efforts to create alternative supply chains.

### A hardening of foreign policy posture

China has shifted from using critical mineral exports to intimidate countries to weaponising them as a strategic tool in its foreign policy. This tactic mirrors classic statecraft strategies, like the U.S. oil embargo against Japan in 1940. China now leverages its control over the mineral supply chain to remind the West of its dependency and to disrupt the development of high-tech sectors such as defense. Dual-use minerals critical for projects like the Virginia-class submarine and F-35 fighter are key targets. As relations with the West worsen, China's coercive export controls will likely increase. Additionally, China aims to expand its exploration, production, and reserves of critical minerals over the next five years, according to Natural Resource Minister Wang Guanghua.

### India's vulnerability

India, like its Quad partners (Australia, Japan, and the U.S.), is vulnerable due to its strategic dependence on China for critical minerals like lithium, nickel, cobalt, and copper. In FY23, India spent around ₹ 34,000 crore on importing these minerals, a cost that is expected to rise with growing demand, increasing the country's vulnerability. This situation should prompt Indian policymakers to take urgent action, such as forming partnerships with like-minded nations and investing in alternative supply chains to reduce reliance on China.



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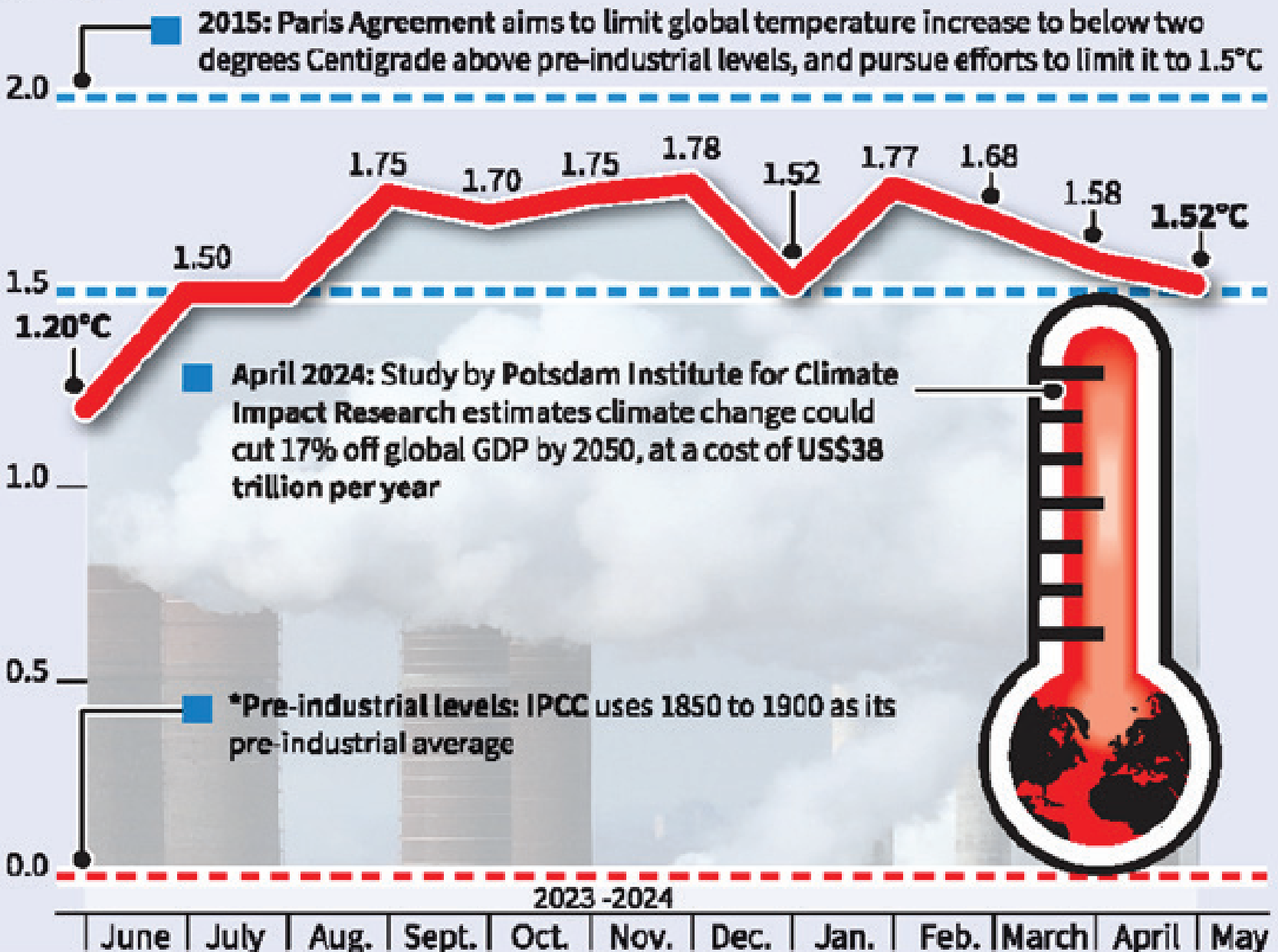
# How global warming affects forecasting

ECOLOGY & ENVIRONMENT

## Global warming

The global average temperature for the last year was the highest ever documented, at 1.63°C above pre-industrial levels, according to the EU's Copernicus Climate Change Service

Global average temperature above Intergovernmental Panel on Climate Change (IPCC) pre-industrial levels\* (°C)



Source: Copernicus, Potsdam Institute, Reuters

Picture: Getty Images

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With the record warming of 2023-2024, we are getting a clearer picture of what global warming does. The medley of extremes strewn across the planet has covered the gamut from deadly heatwaves to devastating cyclones and floods, from droughts to wildfires.

According to some estimates, the world has already crossed the 1.50 C warming threshold (that is, the earth's average surface temperature has increased by more than 1.50 C over the pre-industrial average). The caveat is that global temperatures are an estimate produced from a combination of data and climate models. As the 1.50 C limit is part of a demand by the Alliance of Small Island Developing States, scientists have built models to predict what environmental disturbances crossing this threshold could invite. However, and more importantly, it is not yet clear how long the warming has to remain above the threshold for the projected impacts to materialise.

The spectacular show that nature has put up during 2023-2024 is also a stark reminder that we are far from able to predict the weather and the climate with the requisite skills and spatial-temporal scales to manage disasters effectively. The loss of lives, property, and infrastructure continue to traumatise humanity, especially the poor, who remain very vulnerable to extreme events.

### **2024 versus our predictions**

Meteorologists predicted the 2023 El Niño as early as in the spring of that year, which is remarkable. But the level of warming during 2023-2024 has caught them, and the public, by surprise because it was much higher than expected from the addition of the so-called mini-global warming by the El Niño to the ongoing background warming. We speculate that water vapour thrown up by the underwater volcano Hunga Tonga–Hunga Ha'apai during 2022 and CO2 emitted by the wildfires exacerbated the warming.

The 2023 monsoon was deficit but it did not qualify as an El Niño drought, the reasons for which researchers are yet to diagnose. Predictions from nearly all major weather centres earlier promised a strong La Niña in late 2024. Now this seems less likely. Perhaps nature has another goody in waiting. Similarly, weather forecasts have called for the most intense hurricane season in decades but this has yet to step beyond the normal.

The monsoon season has evolved erratically and has once again left many parts of India dry while producing devastating floods and landslides in many others. Now 2024 is set to emerge as a monsoon-surplus year; yet it can hardly be called a typical La Niña monsoon.

The cyclone season in the North Indian Ocean has also been weaker than what one would expect from a La Niña year. While some weather centres were very gung-ho about an Indian Ocean Dipole (IOD) emerging in the Indian Ocean, it has played truant so far.

To be clear: this is not a litany of grievances against predictions. It is an expression of caution: that we will be remiss if we don't learn all the lessons from this extraordinary period of warming vis-à-vis their implications for the future of predictions and for the climate projections we keep producing.

### **Predictions may pose challenges**

A quote often attributed to physicist Niels Bohr is apt here: prediction is difficult, especially if it's about the future. Weather and climate predictions frequently remind us of this. We do learn our lessons and continue to improve the models and the observational networks we need to produce better predictions.

But what if predictions continue to become more difficult with global warming? Put another way, are all the misfires we have had this year just a coincidence or are they a portent of what is to come?

Many studies have reported the impacts of warming on hurricanes, monsoons, El Niños, La Niñas, the IOD, etc. But the bigger question is: if the world is already warmer than 1.50 C, are there any conclusions we can draw about how all these natural variabilities have responded thus far?

Unfortunately, the period of warming we have experienced of late hasn't been long enough for us to confidently say what changes we can already detect in the dominant climate modes. The models are amazing in their ability to reproduce all natural modes given just the energy coming from the Sun at the top of the atmosphere. But they are not perfect: model answers often disagree; even the same model can produce different answers depending on its configuration.

For example, existing models cannot reproduce monsoon trends in the past half century and are considered unreliable for the future — they can only make skillful forecasts for the present. We have also not sorted out yet whether monsoon patterns are variable from decade to decade — patterns that we may currently be calling trends. We also don't know whether climate change can extend the timescale of natural decadal variability and make it a real trend. We need to address these critical questions to advance our understanding of processes and to make better predictions.

### **Predicting the future of predictions**

There is plenty of hope for the future of predictions, but as the adage goes, hope is not a strategy. We have our work cut out for us. We obviously need to continue to improve our models and build on the fact that models are already capable of amazing feats, with some deficiencies. We need to figure out if the predictability of natural modes such as hurricanes, El Niño, La Niña, IOD, etc. will decrease as the warming is relentless, if not accelerating. Well-trained and enthusiastic

scientists toil to improve models and data networks and bring the latest technologies, including artificial intelligence, machine learning, and sensor-fit drones, to bear on this pressing challenge.

We have plenty of reasons for optimism vis-à-vis reliable and actionable early warnings at the hyperlocal scale.

### Lessons from 2023

We currently make climate projections using the same or similar models that project future climate based on how the concentrations of specific emissions increase, how populations grow, and what mitigation policies we implement, among other factors. For the coming decade or two, projection uncertainties depend on the model uncertainties themselves plus natural variabilities in a warming world.

The uncertainties in projections beyond a couple of decades are related entirely to the imagined scenarios that drive model simulations.

The inability to capture the response of natural modes to warming will continue to haunt all projections. It will be necessary to translate improved weather and climate predictions to improve the models.

The best strategy to ensure projections are reliable may be to restrict ourselves to just a decade or two into the future. The ongoing geopolitical perturbations and their cascades into markets, economies, and societies underscore the difficulty of imagining the future beyond a decade or so as well.

Overall, it is critical that we assess the costs and benefits of the considerable human, financial, and computational resources for climate projections out to 2100.

## India gears up to combat Beijing's 'Made in China 2025' manufacturing plan

### INTERNATIONAL RELATIONS

***Enter the dragon: 'Made in China 2025' strategy is aimed at achieving 70 % self-sufficiency in hi-tech industries by 2025.***

India is bracing to meet the challenges posed by Beijing's 'Made in China 2025' strategy, a three-step plan to promote China as a high-tech manufacturing powerhouse by 2049. Under the Made in China 2025 strategy, the Chinese Government provides subsidies, including low-interest loans and tax breaks, to hi-tech companies such as electric vehicle manufacturers, chipmakers and new and renewable energy equipment producers.

India plans to check subsidised imports, imposing anti-dumping and anti-subsidy duties, as well as implementing quality control orders (QCO) to check imports of cheap items from China. India is also considering collaborating with other Western countries worried about Chinese hi-tech products capturing a lion's share of the global market to meet the challenge jointly with Western countries.

### Strategic vigilance

China was the top supplier of goods to India in 2023-24, accounting for imports valued at \$ 101 billion, while India exported goods worth \$ 16.65 billion. The 'Made in China 2025' strategy, introduced in 2015 is aimed at achieving 70 % self-sufficiency in hi-tech industries by 2025, competing with other manufacturing rivals by 2035, and transforming the country into a global manufacturing powerhouse by 2049.

China accounted for 56 % of India's cumulative solar PV cell imports, 66 % of solar PV module shipments in FY24, 68 % of solar PV cells and 59 % of solar PV module imports in April-May of FY25. In value terms, imports of solar PV cells and modules soared to a record \$ 6.21 billion in FY24.



## Australia, India push forward on CECA talks

### INTERNATIONAL RELATIONS

Minister Piyush Goyal, India's Commerce and Industry who co-chaired a meeting of the India-Australia Joint Ministerial Commission with Don Farrell, Australia's Trade and Tourism Minister reviewed the progress of negotiations for a comprehensive free trade agreement, 20 months after the implementation of the early harvest Economic Cooperation and Trade Agreement (ECTA).

The India-Australia Joint Ministerial Commission focused on strengthening trade ties to achieve the countries' shared goal of \$ 100 billion in bilateral trade by 2030. Since the early harvest deal, almost \$ 30 billion worth Australian exports have entered India either with zero or lower tariffs, with agriculture exports to India rising 60 % to \$ 1.6 billion. For Australian consumers, the deal has translated into "savings at checkouts worth around \$ 225 million.

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