

## 1. Earthquake swarms a sign of impending volcano

### Introduction

A state of emergency has been declared in Iceland, after a swarm of 800 earthquakes rocked the island country's southwestern Reykjanes peninsula in under 14 hours on November 10. Earthquake swarms are earthquake sequences without a discernible main-shock.

Around 1,400 earthquakes were measured in the previous 24 hours, and over 24,000 have been recorded in the peninsula since late October. The most powerful of these quakes had a magnitude of 5.2, and hit about 40 km from Reykjavík, Iceland's capital.

### Just what is happening in Iceland?

Iceland is located on the Mid-Atlantic Ridge, technically the longest mountain range in the world, but on the floor of the Atlantic Ocean. The ridge separates the Eurasian and North American tectonic plates — making it a hotbed of seismic activity.

### How can earthquake swarms be portents for volcanic activity?

Deep under the Earth's surface, intense heat melts rocks to form magma, a thick flowing substance lighter than solid rock. This drives it upwards and most of it gets trapped in magma chambers deep underground. Over time, this viscous liquid cools and solidifies once again. However, a tiny fraction erupts through vents and fissures on the surface, causing volcanic eruptions.

Now, the movement of magma close to Earth's surface exerts force on the surrounding rock, which often causes earthquake swarms. Now, the underground movement of magma does not necessarily lead to an eruption. But closer it gets to the surface, more likely an eruption is, and more frequent symptomatic earthquake swarms get.

After the ongoing spell of seismic activity began, Scientists said that it was "the response of the crust to the stress changes induced by continued magmatic inflow at depth beneath the Fagradalsfjall volcanic system."

### When and where is an eruption likely to take place?

Fagradalsfjall lies about 40 km to the southwest of Reykjavík and is the "world's newest baby volcano." It had been dormant for eight centuries before erupting in 2021, 2022 and 2023. While it is impossible to pinpoint the exact location of an eruption, it is likely to be around this area.

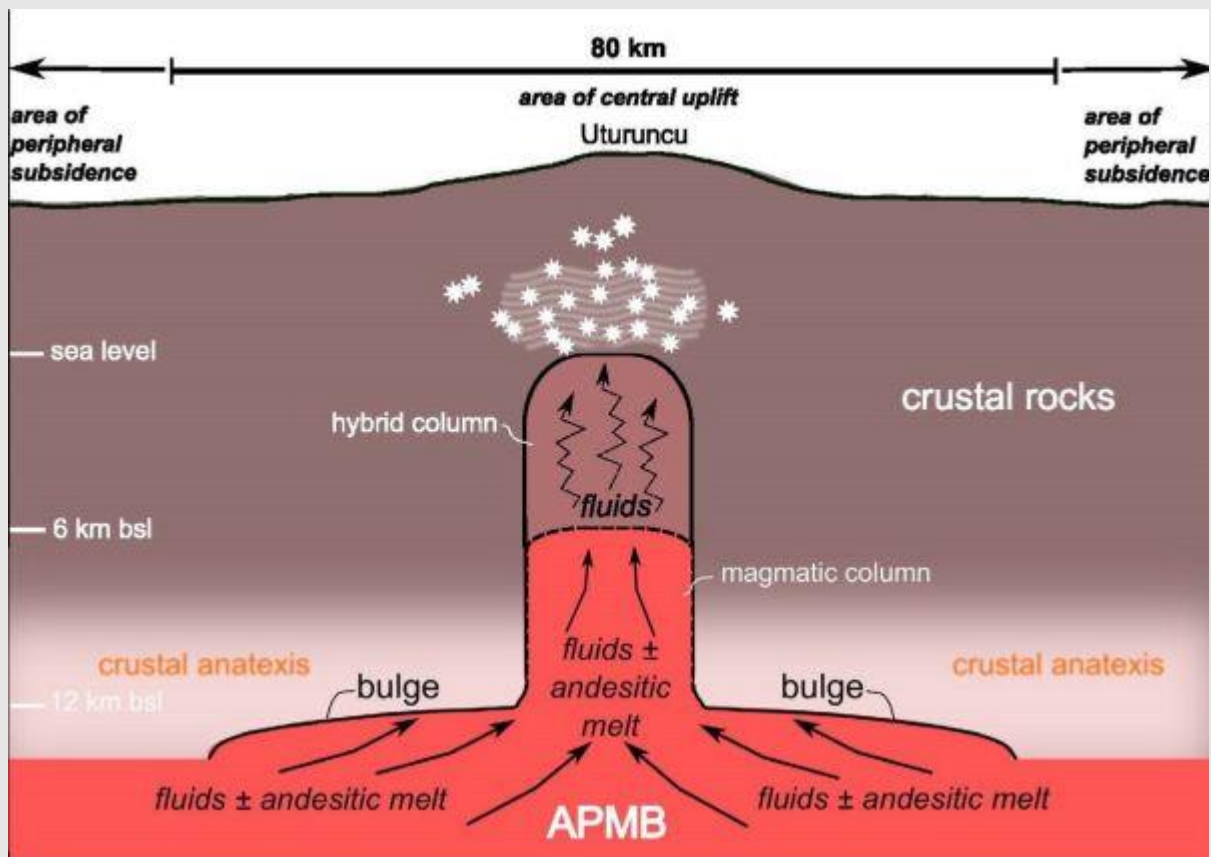


Figure 1 Movement of magma underground shows up as deformation on surface. This is often accompanied by earthquake swarms. This figure shows the extent of the deformation and subsidence on the surface surrounding the Uturuncu volcano in Bolivia.

### How many active volcanos does Iceland currently have?

Iceland is home to some of the most active volcanoes in the world. Currently, it boasts of 33 active volcanoes which have erupted over 180 times in the past 1,000 years. According to United States Geological Service, active volcanos are those which have "erupted within the Holocene (the current geologic epoch, which began at the end of the most recent ice age about 11,650 years ago)," or which have "the potential to erupt again in the future."

One of Iceland's most famous volcanoes is Eyjafjallajökull. In 2010, this volcano erupted and caused a massive ash cloud to spread across Europe. The ash cloud disrupted air travel for weeks and caused billions of dollars in damage.

Relevance: GS Prelims & Mains Paper I; Geography

Source: The Indian Express

## 2. On bail, tracked by satellite: How GPS anklets work

### Introduction

Earlier this month, a prisoner in Jammu and Kashmir was released on bail after he was tagged with a Global Positioning System (GPS) tracking device to monitor his

movements. This is the first time in the country that a GPS tracker has been put to such use.

### **So, what is a GPS tracker, and how does it work?**

A GPS tracker is a small, wearable device like the GPS collars that have long been used to monitor the movements of animals. The device provides the exact location of the wearer at all times, and allows law enforcement and security agencies to monitor his/her movement in real time.

The device is tamper-proof, and any attempt at tampering with it sets off an alarm. It can also not be removed by the wearer or any unauthorised person without damaging it. The tracker can be put on the ankle or arm of a person. Thus, there are GPS anklets and GPS bracelets.

### **Where is such a device available, and how much does it cost?**

GPS devices are very common these days, and some people put them on pets. The movements of wild animals such as rogue elephants in Kerala or the cheetahs in Kuno are monitored using these devices. Many new automobiles are equipped with trackers to ensure they can be traced if stolen; owners can also have them installed separately. The quality and prices of the devices vary. It is possible to buy one online for around Rs 1,000.

### **What is the legal position on the use of this technology in this way?**

The use of the GPS anklet to a prisoner on bail is sanctioned by a court. Human rights activists have, however, pointed to the absence of specific legal provisions allowing this. According to them, it is also "important to ask whether the security establishment has developed any standards and ethics in electronic monitoring".

For instance, In the UK, electronic monitoring may be under the Terrorism Prevention and Investigation Measures Act, 2011.

Backers of the use of GPS trackers argue they can make it a little easier to get bail under the stringent laws such as UAPA, and give police the confidence to not oppose bail. Rights activists, however, say tracking a human being is a violation of their fundamental right to privacy.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Indian express

## **3. Xi-Biden to meet at APEC amid US-China tensions**

### **Introduction**

The Asia-Pacific Economic Cooperation (APEC) grouping is meeting in San Francisco in the United States for the Leaders' Week which began on November 11 and will conclude with the Economic Leaders' Retreat on November 17. US President Joe Biden and China's President Xi Jinping will have their on the sidelines of the APEC summit.

India is not a member; however, India's Union Minister for Commerce and Industry, Piyush Goyal, is attending the forum.

### **What is APEC and when was it founded?**

APEC is a regional economic forum that was established in 1989. Its stated aim was to "leverage the growing interdependence of the Asia-Pacific and create greater prosperity for the people of the region through regional economic integration". Notably, many East Asian countries had recorded increasing growth rates in the '80s and the decade preceding the formation of the forum.



The 21 members of APEC are termed "economies" (rather than countries or member states) because trade and economic issues are the focus of the grouping. Because of use of term economies, Taiwan and Hong Kong attend APEC meetings as distinct entities, even though China says they are parts of China and not independent entities. The APEC economies are Australia, Brunei, New Zealand, Papua New Guinea, Hong Kong (as part of China), the Philippines, Indonesia, Malaysia, Vietnam, Singapore, Thailand, Chinese Taipei (Taiwan), China, Japan, South Korea, Russia, Canada, the United States, Mexico, Peru, and Chile – as located geographically around the Pacific Ocean.

### **What role has it played over the years?**

The grouping has always championed free trade, the lowering of trade tariffs, and economic liberalisation. According to the US State Department, "During its first five years of operation, APEC established its core objectives. In the 1991 Seoul Declaration,

APEC member economies proclaimed the creation of a liberalized free trade area around the Pacific Rim as the principle objective of the organization.”

### **India’s Position**

India has expressed interest in joining APEC, and made a formal request in 1991 – the year in which the Union government ushered in economic reforms for liberalisation and globalisation. In 2016, then Union Minister for Commerce and Industry Nirmala Sitharaman told Parliament that the request to join was based on India’s geographical location, the potential size of the economy, and degree of trade interaction with the Asia-Pacific.

The response noted that APEC has had an informal moratorium on expanding membership for many years now. This is despite the fact that the US-India Joint Strategic Vision for the Asia-Pacific and Indian Ocean Region issued in 2015 states that “The United States welcomes India’s interest in joining the Asia Pacific Economic Cooperation forum, as the Indian economy is a dynamic part of the Asian economy.”

Relevance: GS Prelims & Mains Paper II; International Organisations

Source: The Indian express