Index

Source : www.thehindu.com Date : 2023-02-07

THE WORLD’S DEADLIEST EARTHQUAKES SINCE 2000

Relevant for: Environment | Topic: Disaster and disaster management

February 07, 2023 09:34 am | Updated 09:39 am IST

A magnitude 7.8 earthquake shook Turkey and Syria on Monday, killing more than 3,400 people in the two countries. The death toll is expected to rise as rescuers search through the frigid night. Here is a list of some of the world’s deadliest earthquakes since 2000:

January 26, 2001: A magnitude 7.7 quake strikes Gujarat in India, killing 20,000 people.

March 25, 2002: About 1,000 people are killed in a magnitude 6.1 quake in northern Afghanistan.

May 21, 2003: More than 2,200 people are killed in a magnitude 6.8 earthquake in Algeria.

December 26, 2003: A magnitude 6.6 earthquake hits southeastern Iran, resulting in 50,000 deaths.

December 26, 2004: A magnitude 9.1 quake in Indonesia triggers an Indian Ocean tsunami, killing 230,000 people in a dozen countries.

March 28, 2005: A magnitude 8.6 quake in northern Sumatra in Indonesia kills about 1,300 people.

May 26, 2006: More than 5,700 people die when a magnitude 6.3 quake hits the island of Java, Indonesia.

August 15, 2007: A magnitude 8.0 earthquake near the coast of central Peru kills more than 500 people.

May 12, 2008: A magnitude 7.9 quake strikes eastern Sichuan in China, resulting in over 87,500 deaths.

April 6, 2009: A magnitude 6.3 quake kills more than 300 people in and around L’Aquila, Italy.

September 30, 2009: More than 1,100 people die when a magnitude 7.5 quake hits southern Sumatra, Indonesia.

January 12, 2010: In Haiti, a staggering 316,000 people are killed by a magnitude 7.0 quake, according to government estimates.

February 27, 2010: A magnitude 8.8 quake shakes Chile, generating a tsunami and killing 524 people.

March 11, 2011: A magnitude 9.0 quake off the northeast coast of Japan triggers a tsunami, killing more than 20,000 people.

September 24, 2013: A magnitude 7.7 quake strikes southwest Pakistan, killing more than 800 people.

August 3, 2014: A magnitude 6.2 earthquake near Wenping, China, kills more than 700 people.

April 25, 2015: In Nepal, more than 8,800 people are killed by a magnitude 7.8 earthquake.

August 24, 2016: A magnitude 6.2 earthquake in central Italy kills more than 300 people.

September 28, 2018: A magnitude 7.5 earthquake hits Indonesia, killing more than 4,300 people.

August 14, 2021: In Haiti, a magnitude 7.2 earthquake kills more than 2,200 people.

June 22, 2022: In Afghanistan, more than 1,100 people die in magnitude 6.1 earthquake.

earthquake

END

Source : www.pib.gov.in Date : 2023-02-10

GEOLOGICAL SURVEY OF INDIA FINDS LITHIUM AND GOLD DEPOSITS

Relevant for: Geography | Topic: Distribution of key Natural Resources - Mineral & Oil Resources of India

Geological Survey of India has for the first time established Lithium inferred resources (G3) of 5.9 million tonnes in Salal-Haimana area of Reasi District of Jammu & Kashmir (UT). This report along with 15 other resource bearing geological reports (G2 & G3 stage) and 35 Geological memorandums were handed over to respective state governments during the 62nd Central Geological Programming Board (CGPB) meeting held on 09th February 2023. Out of these 51 mineral blocks, 5 blocks pertains to gold and other blocks pertains to commodities lke potash, molybdenum, base metals etc. spread across 11 states of Jammu & Kashmir (UT), Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Tamil Nadu and Telangana.. The blocks were prepared based on the work carried out by GSI from field seasons 2018-19 to till date.

Apart from these, 17 reports of Coal and Lignite with a total resource of 7897 million tones were also handed over to Ministry of Coal. Seven Publications on different themes and intervention areas in which GSI operates was also released during the meeting.

The proposed Annual Programme for ensuing Field Season 2023-24 was presented and discussed during the meeting. During the ensuing year 2023-24, GSI is taking up 966 programmes comprising 318 mineral exploration projects including 12 marine mineral investigation projects. Major thrust has been given on the exploration of strategic - critical and fertilizer minerals. A total of 115 projects on strategic & critical minerals including 16 projects on fertilizer minerals have been formulated. In addition, 55 programmes on geoinformatics, 140 programmes on fundamental and multidisciplinary geosciences and 155 programs for training and institutional capacity building have also been taken up.

The Central Geological Programming Board (CGPB) is an important platform of the Geological Survey of India (GSI), Ministry of Mines wherein the Annual Field Season Program (FSP) of GSI is placed for discussion for synergy and to avoid duplication of work. The members of CGPB and other stakeholders like State Governments, Central/ State Government Mineral Exploration Agencies, PSUs and Private Entrepreneurs place their requests for collaborative work with GSI. Based on the priorities set by the Government of India and the importance and urgency of proposals presented by the members and stakeholders, the Annual Programme of GSI is given a final shape.

During his address to the gathering, Shri Vivek Bharadwaj, Secretary, Ministry of Mines and Chairman CGPB, congratulated GSI in realizing the commitment made by Central Government for auction of 500 blocks by submitting 287 geological memorandum and 195 G2&G3 reports to the state government since 2015. However, he asserted that GSI should carry forward this momentum and continue the field programmes with the same vigor.

Inauguration of the 62nd CGPB Meeting by traditional Lamp Lighting by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman CGPB, Dr. S. Raju, DG, GSI; Shri Sanjay Lohiya, Addl. Secretary, IAS, Ministry of Mines and Shri Janardan Prasad, Addl. Director General, GSI.

Inauguration of an exhibition on the Activities of GSI by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman, CGPB at A.P. Shinde Hall. Pusa.


Release of GSI Publications by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman CGPB, Dr. S. Raju, DG, GSI; Shri Sanjay Lohiya, Addl. Secretary, IAS, Ministry of Mines and Shri Janardan Prasad, Addl. Director General, GSI.


Handing over of GSI mineral exploration reports to respective State Governments by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman CGPB

Address to the august gathering by Shri Vivek Bharadwaj, Secretary, Ministry of Mines and Chairman CGPB

Shri Sanjay Lohiya, Addl. Secretary, IAS, Ministry of Mines and addressing the gathering.

Shri Janardan Prasad, Addl. Director General, GSI proposing the Vote of Thanks

About Geological Survey of India

The Geological Survey of India (GSI) was set up in 1851 primarily to find coal deposits for the Railways. Over the years, GSI has not only grown into a repository of geo-science information required in various fields in the country but has also attained the status of a geo-scientific organisation of international repute. Its main functions relate to creating and updating of national geoscientific information and mineral resource assessment. These objectives are achieved through ground surveys, air-borne and marine surveys, mineral prospecting and investigations, multi-disciplinary geoscientific, geo-technical, geo-environmental and natural hazards studies, glaciology, seismo-tectonic study and carrying out fundamental research.

GSI's chief role includes providing objective, impartial and up-to-date geological expertise and geoscientific information of all kinds, with a focus on policy making decisions, commercial and socio- economic needs. GSI also emphasises on systematic documentation of all geological processes, both surface and subsurface, of India and its offshore areas. The organisation carries out this work through geological, geophysical, & geochemical surveys using the latest and most cost-effective techniques and methodologies.

GSI's core competence in survey and mapping is continuously enhanced through accretion, management, coordination and utilization of spatial databases (including those acquired through remote sensing). It functions as a 'Repository' for the purpose and uses the latest computer-based technologies for dissemination of geoscientific information and spatial data, through cooperation and collaboration with other stakeholders in the Geo-informatics sector.

GSI, headquartered in Kolkata, has six regional offices located in Lucknow, Jaipur, Nagpur, Hyderabad, Shillong and Kolkata and state unit offices in almost all states of the country. GSI is an attached office to the Ministry of Mine

***

AKN/RKP

Geological Survey of India has for the first time established Lithium inferred resources (G3) of 5.9 million tonnes in Salal-Haimana area of Reasi District of Jammu & Kashmir (UT). This report along with 15 other resource bearing geological reports (G2 & G3 stage) and 35

Geological memorandums were handed over to respective state governments during the 62nd Central Geological Programming Board (CGPB) meeting held on 09th February 2023. Out of these 51 mineral blocks, 5 blocks pertains to gold and other blocks pertains to commodities lke potash, molybdenum, base metals etc. spread across 11 states of Jammu & Kashmir (UT), Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Tamil Nadu and Telangana.. The blocks were prepared based on the work carried out by GSI from field seasons 2018-19 to till date.

Apart from these, 17 reports of Coal and Lignite with a total resource of 7897 million tones were also handed over to Ministry of Coal. Seven Publications on different themes and intervention areas in which GSI operates was also released during the meeting.

The proposed Annual Programme for ensuing Field Season 2023-24 was presented and discussed during the meeting. During the ensuing year 2023-24, GSI is taking up 966 programmes comprising 318 mineral exploration projects including 12 marine mineral investigation projects. Major thrust has been given on the exploration of strategic - critical and fertilizer minerals. A total of 115 projects on strategic & critical minerals including 16 projects on fertilizer minerals have been formulated. In addition, 55 programmes on geoinformatics, 140 programmes on fundamental and multidisciplinary geosciences and 155 programs for training and institutional capacity building have also been taken up.

The Central Geological Programming Board (CGPB) is an important platform of the Geological Survey of India (GSI), Ministry of Mines wherein the Annual Field Season Program (FSP) of GSI is placed for discussion for synergy and to avoid duplication of work. The members of CGPB and other stakeholders like State Governments, Central/ State Government Mineral Exploration Agencies, PSUs and Private Entrepreneurs place their requests for collaborative work with GSI. Based on the priorities set by the Government of India and the importance and urgency of proposals presented by the members and stakeholders, the Annual Programme of GSI is given a final shape.

During his address to the gathering, Shri Vivek Bharadwaj, Secretary, Ministry of Mines and Chairman CGPB, congratulated GSI in realizing the commitment made by Central Government for auction of 500 blocks by submitting 287 geological memorandum and 195 G2&G3 reports to the state government since 2015. However, he asserted that GSI should carry forward this momentum and continue the field programmes with the same vigor.

Inauguration of the 62nd CGPB Meeting by traditional Lamp Lighting by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman CGPB, Dr. S. Raju, DG, GSI; Shri Sanjay Lohiya, Addl. Secretary, IAS, Ministry of Mines and Shri Janardan Prasad, Addl. Director General, GSI.

Inauguration of an exhibition on the Activities of GSI by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman, CGPB at A.P. Shinde Hall. Pusa.

Release of GSI Publications by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman CGPB, Dr. S. Raju, DG, GSI; Shri Sanjay Lohiya, Addl. Secretary, IAS, Ministry of Mines and Shri Janardan Prasad, Addl. Director General, GSI.

Handing over of GSI mineral exploration reports to respective State Governments by Shri Vivek Bharadwaj, IAS, Secretary, Ministry of Mines and Chairman CGPB

Address to the august gathering by Shri Vivek Bharadwaj, Secretary, Ministry of Mines and Chairman CGPB

Shri Sanjay Lohiya, Addl. Secretary, IAS, Ministry of Mines and addressing the gathering.

Shri Janardan Prasad, Addl. Director General, GSI proposing the Vote of Thanks

About Geological Survey of India

The Geological Survey of India (GSI) was set up in 1851 primarily to find coal deposits for the Railways. Over the years, GSI has not only grown into a repository of geo-science information required in various fields in the country but has also attained the status of a geo-scientific organisation of international repute. Its main functions relate to creating and updating of national geoscientific information and mineral resource assessment. These objectives are achieved through ground surveys, air-borne and marine surveys, mineral prospecting and investigations, multi-disciplinary geoscientific, geo-technical, geo-environmental and natural hazards studies, glaciology, seismo-tectonic study and carrying out fundamental research.

GSI's chief role includes providing objective, impartial and up-to-date geological expertise and geoscientific information of all kinds, with a focus on policy making decisions, commercial and socio- economic needs. GSI also emphasises on systematic documentation of all geological processes, both surface and subsurface, of India and its offshore areas. The organisation carries out this work through geological, geophysical, & geochemical surveys using the latest and most cost-effective techniques and methodologies.

GSI's core competence in survey and mapping is continuously enhanced through accretion, management, coordination and utilization of spatial databases (including those acquired through remote sensing). It functions as a 'Repository' for the purpose and uses the latest computer-based technologies for dissemination of geoscientific information and spatial data, through cooperation and collaboration with other stakeholders in the Geo-informatics sector.

GSI, headquartered in Kolkata, has six regional offices located in Lucknow, Jaipur, Nagpur, Hyderabad, Shillong and Kolkata and state unit offices in almost all states of the country. GSI is an attached office to the Ministry of Mine

***

AKN/RKP

END

Source : www.thehindu.com Date : 2023-02-14

EXPLAINED

Relevant for: Geography | Topic: Important Geophysical phenomena - Earthquakes, Tsunamis & Volcanoes

February 12, 2023 01:36 am | Updated February 13, 2023 05:47 pm IST

Utter devastation: The search for surivors in a collapsed building after the earthquake in Kahramanmaras, Turkey on February 11, 2023. | Photo Credit: Reuters

The story so far: Two large earthquakes, one of magnitude 7.8 and closely followed by a magnitude 7.5, hit south-eastern Turkey, claiming at least 17,000 lives and counting, wreaking considerable damage in Turkey as well as Syria. Nearly 200 aftershocks have followed with earthquakes of magnitude 6 being reported in the region three days after the first tremblor.

The earth's crust is made up of roughly 15 massive segmented chunky slabs called tectonic plates which are constantly in motion. The land on which buildings are built rests on these plates. The plates continually collide, push and grate against each other and the meeting points of these plates are made up of a series of 'faults.'

The pent-up energy from the nestling plates, along faultlines, is often released when an imbalance in pressure causes rocks on either side of the fault to re-adjust. One set of rocks rising up relative to the other is a 'normal' fault, and one sliding down relative to the other is a 'reverse' fault. When they grate or move past one another, it's a 'strike-slip.' The energy released travels as waves that cause the ground to shake.

Turkey and Syria lie at the confluence of three plates — the Arabian Plate, the Anatolian Plate and the Eurasian Plate, making the region an extremely seismically active zone. The Arabian Plate is inching north into Europe, causing the Anatolian Plate (which Turkey sits on) to be pushed out west. The bulk of Turkey sits on the Anatolian Plate between two major faults: the North Anatolian Fault and the East Anatolian Fault.

Geologists say that the earthquakes were from a 'strike-slip' which is typical of the earthquakes in the region.

As this region hosts many fault systems, there are many earthquakes being recorded in the region. Only those that result in a release of energy above a certain threshold are captured by seismological instruments. At magnitude 7.8, the February 6 event is much bigger than the ones the area has experienced before. The fault system runs along nearly 190 km which is why the impact of the earthquakes was so far-ranging.

The second earthquake, of 7.5 magnitude, occurred further to the north on a different but adjacent fault system called the Sürgü Fault. The magnitudes of these earthquakes suggest that

there will be several aftershocks that can be registered in a wide radius and reports of shakes from as far away as Cairo (950 km) and Istanbul (815 km) away have been reported.

Also Read | Three ancient cities damaged in Turkey-Syria quake

The Indian Plate, colliding into the Eurasian plate and tilting upwards, created the Himalayas. The most common type of earthquake in the Himalayan region is due to reverse faults because of the compressive forces between the two plates, says Suvrat Kher, a Pune-based geologist. “However, whether it’s strike-slip or a thrust, the waves generated can be as powerful.” Scientists have longed warned of a massive, overdue earthquake in the Garhwal-Kumaon range here because of what is known about the pattern of quakes in the region.

Based on the amount of ‘slip’ (or movement) that is observed in an earthquake and measurements of the amount of ‘strain’ that accumulates every year, scientists can deduce the latent pressure that’s building up along a fault has been released. “We don’t have very accurate records that date back, say a thousand years, on 7+ magnitude earthquakes. The records of the last 300 or so years suggest that those that have occurred haven’t released all the pent-up energy and that’s why we think a major one — maybe even an 8 magnitude one — is overdue. However predicting the day it will occur is beyond our ken now,” said V.K. Gahlaut, seismologist and professor at the National Geophysical Research Institute (NGRI), Hyderabad.

In the Turkey-Syria earthquakes, energy from nearly 300 years of accumulated strain was released, he added.

It is only broadly true that the magnitude of earthquakes corresponds to death and devastation. Chile, a country with a long history of devastating earthquakes (over 9), is considered to be a model for earthquake preparedness.

Despite experiencing earthquakes with magnitudes over 8 in 2014 and 2015 casualties are extremely minimal due to years of strictly enforcing building codes. This despite being a much poorer country than Japan, also known for its experience in earthquake-proofing structures.

The 9-magnitude earthquake that caused a tsunami and a radiation leak in the nuclear power plant in the country’s Fukushima prefecture in 2011, didn’t damage the stability of the structure, said Mr. Gahlaut. “Just as the energy released exponentially rises in a single step of the scale (Moment Magnitude), the cost of earthquake-proofing too rises exponentially. On the other hand, if structures are built on a fault line, then no amount of engineering can save them.”

A lack of enforcement of building codes in Turkey and the timing of the earthquake in the early morning are believed to be major factors for the death and devastation inflicted. “It’s a bit like India where we have lots of rules (on building codes) but there is limited enforcement. The 1993 Latur earthquake for instance was a little over 6 magnitude but caused enormous damage because building codes are not enforceable there,” said Mr. Kher.

Turkey / Syria / earthquake / The Hindu Explains / natural disasters / Environmental disasters / disaster management / disaster (general)

Comments have to be in English, and in full sentences. They cannot be abusive or personal. Please abide by our community guidelines for posting your comments.

We have migrated to a new commenting platform. If you are already a registered user of The Hindu and logged in, you may continue to engage with our articles. If you do not have an account please register and login to post comments. Users can access their older comments by logging into their accounts on Vuukle.

END

Source : www.thehindu.com Date : 2023-02-15

FOSSIL AND TIME: THE HINDU EDITORIAL ON THE DRAFT GEO-HERITAGE SITES AND GEO-RELICS (PRESERVATION AND MAINTENANCE) BILL, 2022

Relevant for: Geography | Topic: Changes in Flora & Fauna in general and the effects of such changes

February 15, 2023 12:10 am | Updated 10:52 am IST

Sporadically, but surely, palaeontologists report intriguing discoveries from India. In January, a team discovered 92 dinosaur nesting sites with 256 fossilised eggs of the titanosaurus — among the largest of its kind, from 100-66 million years ago, when ‘India’ was a continent and yet to merge into the Eurasian land mass. Similarly, the deserts of Kutch, Gujarat and the Deccan traps in Maharashtra bear witness to the forces that shaped the diverse geography, and tangentially history, of the most populous country. Unlike the quest to preserve cultural history and man-made artefacts from archaeology, there has been limited effort to preserve and communicate at large this natural ‘geo-history’ such as rock formations, sediment and fossils. For decades now, researchers have been warning that this neglect is leading to an erasure of this history from the public mind and a destruction as well as appropriation of this natural wealth. To that end, the draft Geo-heritage Sites and Geo-relics (Preservation and Maintenance) Bill, 2022, piloted by the Ministry of Mines, is seen as a step to give the process of such conservation firmer footing.

The Bill’s provisions give the Director General of the Geological Survey of India (GSI), a subordinate body of the Ministry of Mines, the power to declare sites as having ‘geo-heritage’ value, take possession of relics (fossils, rocks) that rest in private hands, prohibit construction 100 metres around such a site, penalise — with fines of up to 5 lakh and possibly imprisonment — vandalism, defacement, and violations of directives by the Director General of the GSI. This has rankled experts who work outside the GSI-fold in central and State universities, institutes of national importance and private organisations who fear that such absolute vesting of powers in the GSI alone may impede palaeontological research. They demand a more inclusive body, on the lines of a National Geoheritage Authority, that can, more democratically, decide on declaring sites as being of ‘geohistorical’ importance and how best to preserve artefacts and finds. The government, it is learnt, is still far from introducing the Bill in Parliament and deliberating on several aspects. While there are merits and demerits to either approach on governance, it is important to keep in mind that legislation, while acting as a ring fence, ought not to become a tool for suppressing independent investigation. Given the premium for land and India’s economic needs, there will be conflict over questions of preservation and livelihood, but any legislation must endeavour to balance these forces and enable consensus.

To read this editorial in Kannada, click here.

To read this editorial in Hindi, click here.

To read this editorial in Malayalam, click here.

COMMents

SHARE

archaeology / laws / Gujarat / Maharashtra / history

BACK TO TOP

Comments have to be in English, and in full sentences. They cannot be abusive or personal. Please abide by our community guidelines for posting your comments.

We have migrated to a new commenting platform. If you are already a registered user of The Hindu and logged in, you may continue to engage with our articles. If you do not have an account please register and login to post comments. Users can access their older comments by logging into their accounts on Vuukle.

END