

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOKSABHA
UNSTARRED QUESTION NO. 2992
TO BE ANSWERED ON FRIDAY, 6th AUGUST, 2021**

LIGHTNING STRIKES

**2992. SHRI SUDHEER GUPTA:
SHRI RAVI KISHAN:
SHRI BHAGWANT MANN:
SHRI PRATAPRAO JADHAV:
SHRI RAVINDRA KUSHWAHA:
SHRI SANJAY SADASHIVRAO MANDLIK:
ADV. ADOOR PRAKASH:
SHRI BRIJENDRA SINGH:
SHRI GNANATHIRAVIAM S.:
SHRI SHRIRANG APPA BARNE:
SHRI CHANDRA SEKHAR SAHU:
SHRI VIJAYAKUMAR (ALIAS) VIJAY VASANTH:
SHRI BIDYUT BARAN MAHATO:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether cases of lightning strikes have increased in various parts of the country and if so, the details thereof and the areas identified as most prone to lightning, State/UT-wise;
- (b) whether the Government has any mechanism to monitor lightning strikes in the country;
- (c) if so, the details thereof and the number of such strikes reported in various parts of the country during each of the last three years, State/UT-wise
- (d) the number of persons lost their lives and details of property damaged due to the lightning during the above period and the financial assistance provided thereof, State/UT-wise;
- (e) whether the Government also proposes to include lightning strikes as natural calamity, if so, the details thereof and if not, the reasons therefor; and
- (f) the details of outcome of the study regarding possible correlation between increase in lightning strikes and climate change?

**ANSWER
THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)**

- (a) Yes Sir. As per recent studies, lightning activity have shown increasing trend over India in past two decades. North-East, East and parts of peninsular India have registered a sharp increase of lightning over the past 2 decades. The increase is minimal over Central India and moderate over rest of the country.

- (b) Yes. Indian Institute of Tropical Meteorology (IITM), Pune, an autonomous research and development institution under the Ministry of Earth Sciences (MoES), has established a lightning location network strategically installed at 83 places in the country to detect and locate lightning strikes with utmost accuracy. Central processor of this network located at IITM, receives and processes the signal received from the network and identifies the location of lightning strikes with less than 500 m accuracy. The output from this network is shared with India Meteorological Department (IMD) and various State Government and is used for nowcasting purposes.

From National Weather Forecasting Centre, these forecasts and warnings are given in meteorological sub-divisional scale where as State Meteorological Centres issue the same in district level. In addition to that, thunderstorms and associated disastrous weather phenomena are covered by nowcast (forecast for next 3 hours issued every 3 hours) in the location/district level by State Meteorological Centres. At present this facility is extended to all the districts and for about 1084 stations across the country.

Along with the forecasts and warning for thunderstorms, guidelines for the public for necessary precautions while getting exposed to thunderstorm are also being included now a days. These guidelines had been finalized in collaboration with National Disaster Management Authority (NDMA).

In 2020, Damini Lightning apps was developed by IITM-Pune and MoES. The App is monitoring all lightning activity which are happening in specifically for all India and alert the person if lightning is happening near the person by GPS notification under 20KM and 40KM radius. Details description of instruction, precautions is provided in apps while in lightning prone area. **Do and Don't** for in specific situation is strictly followed when lightning happen nearby for safety purpose. It also provides the lightning warning at the location valid for next 40 minutes.

- (c) Like any other natural hazard, lightning also exhibit inter annular variability. As compared to 2019, there is a 25% increase in lightning strikes in 2020. However, in 2021, data till June shows 10% decrease in lightning strikes compared to corresponding period of 2020. Details of Cloud-to Ground strikes reported in 2019,2020 and 2021 (till June) is given in Annexure-I.
- (d) As per the Annual Lightning Report prepared by Climate Resilient Observing Systems Promotion Council (CROPC) in collaboration with IMD, State-wise details of deaths due to lightning during (01 April 2020 to 31 March 2021) is shown in **Fig.-1**. For related details, the full report available on the following link :

<https://reliefweb.int/sites/reliefweb.int/files/resources/Annual%20Lightning%20Report%202020-2021%20%28Executive%20Summary%29.pdf>

- (e) Lightning is a disastrous weather phenomena associated with thunderstorm. IMD issues forecast and warnings for thunderstorms and associated weather phenomena five days in advance with regular updates, as and when the situation arises.
- (f) Associated with the global warming, increase in various extreme weather conditions including lightning events have been observed in the country in line with increase in such events observed over various other parts of the globe.

Cloud-to Ground lightning strikes

STATE	2019	2020	2021 (upto June)
Andhra Pradesh	230296	194011	106058
Arunachal Pradesh	3871	5756	3334
Assam	65109	79378	54685
Bihar	148225	423024	150154
Chhatisgarh	343099	653967	262512
Goa	8497	1945	4611
Gujrat	201758	259674	18899
Haryana	29411	63957	23304
Himachal	18022	20621	15241
Jharkhand	321840	65904	256964
Karnataka	329460	586645	215322
Kerala	137458	181433	90901
Madhya Pradesh	539222	173607	285144
Maharashtra	402512	568754	213967
Manipur	8339	459208	6193
Meghalaya	52949	9941	41906
Mizoram	28615	64126	13884
Nagaland	5303	27000	2941
Odisha	564293	60403	276696
Punjab	30029	715035	27694
Rajasthan	182588	62854	80718
Sikkim	378	212327	2035
Tamilnadu	225194	2952	75135
Telangana	174816	214458	70266
Tripura	29415	147300	15557
Uttar Pradesh	244976	109739	117168
Uttarakhand	17991	345506	17129
West Bengal	363262	36574	305158
Chandigarh	95	568176	74
Dadar & N Haveli	550	3119	62
Daman & Diu	255	241	2
Delhi	1334	1393	767
Lakshadweep	845	100	1292
Puducherry	535	1694	352
Jammu & Kashmir & Ladakh	53939	6961	28721
Andaman & N	4679	2356	2230
Total	4769160	6330139	2787076

Figure-1

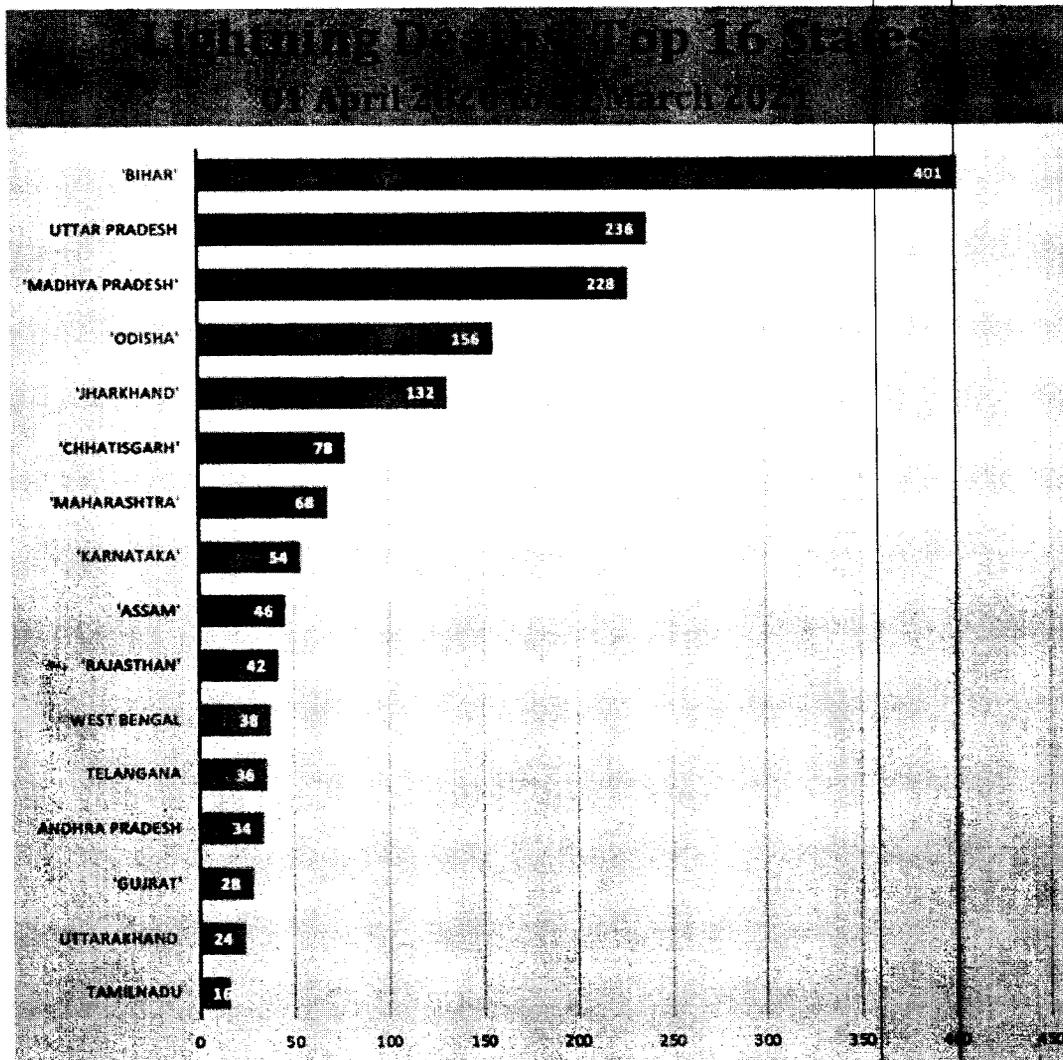


Fig.-1
