

LIGHTNING RELATED DAMAGES IN AKWA IBOM STATE OF NIGERIA

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ABSTRACT

The survey of lightning related damages in Akwa Ibom State of Nigeria has been carried out for a period of nine years. This was done by interviewing the affected persons in different towns and villages and also the personnel of the affected Institutions in the state. The study reveals that an average of 150 cases of lightning destruction were observed yearly between 1992 and 2000. This destruction involved human life, buildings, agricultural products, electrical and telecommunication installations. This high rate of destruction suggests the seriousness with which effort should be geared towards minimizing it.

Key words: Lightning and Damages.

INTRODUCTION

Lightning is an atmospheric discharges caused by the occurrence of very high potential differences existing sometimes between cloud and the earth or between clouds. It has been observed that lightning is one of the sources of natural disaster. It is considered to be the second most frequent killer in the United states when considered among other natural disaster killers (Ronald et.al, 1998). The study (Ronald et.al, 1998) reveals that about one hundred people are estimated killed yearly by lightning in the U.S.A. and very high rate of losses are also reported on many sectors of economy. This shows the index of global awareness of the danger posed by lightning and the need to try to estimate the extent of damage done by lightning in Akwa Ibom State of Nigeria.

It is commonly observed that lightning has been one of the sources of severe natural disaster in the Niger Delta region of Nigeria. In Akwa Ibom state, lightning has caused a lot of damages to both lives and various sectors of economy. The devastating effect of lightning is well observed in buildings, electrical and telecommunication installations, plants and animal lives.

Lightning strikes the ground in virtually every location of the state every year. It occurs almost every day in the rainy season (between the months of early March and late September). Oladiran et.al(1988) reported an average of 2174600 cloud to ground lightning flashes per year in the western part of the country. This rate could be more in the Niger

Delta region of the country. Lightning is

therefore the most dangerous, frequently encountered weather hazard that most people experience each year. Since lightning strikes the ground in such a large number, and is so widely spread, it is not possible to warn every person on every lightning flash, but some general protective measures could minimize the hazard.

The extent of lightning related damages has been under estimated for so long in the country. Attentions are only drawn when the very severe ones occur which make people respond to the spur of the moment. It then becomes significance to create a generalized awareness on this aspect of gradual source of drainage on national economy and manpower.

This study therefore aims at investigating lightning related damages in Akwa Ibom State, Nigeria and to determine possible losses involved. It is also geared towards bringing the need of similar survey (annually) nation wide to the fore. This work however, will add to the global data on lightning related damages.

METHOD OF DATA COLLECTION

An effort was made to collect the relevant record of lightning damages from the local meteorological station in the state but the information was not available. However, records showing the occurrence of the cumulus clouds that could give birth to destructive lightning within the area were available in meteorological Department

between 1993 to 1998. The data used for this work were mainly from in-si-tu reports. The researcher went to all the thirty-three local government areas in the state to interview a total of nine hundred and ninety (990) persons in the randomly selected towns and villages who were directly affected by lightning. It was amazing that 125 persons interviewed could give the incident of lightning damages with exact date as far back to the year 1992. Some information on this were also obtained from news paper reports (Pioneer, 1994 and 1995). It might not be considered that the records presented here is exact situation of lightning damages in the state because some incidences might have skipped the reporters. However, the information obtained is enough to raise the awareness of destructive effect of lightning in the state, and the need to monitor its effects more closely in order to take some measures to prevent further losses.

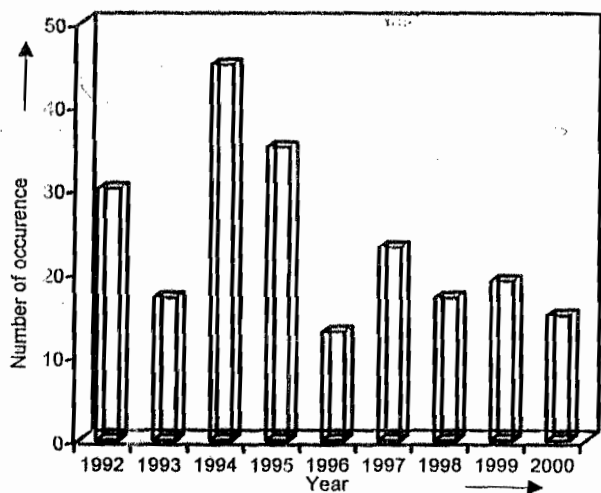


Fig.1: Lightning destruction on human lives.

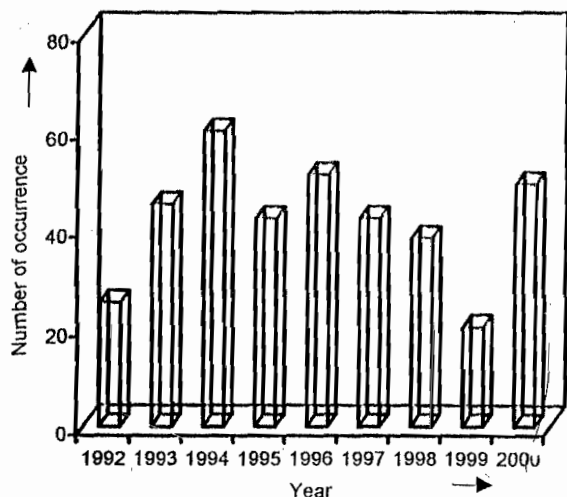


Fig.2: Lightning damages on agricultural products

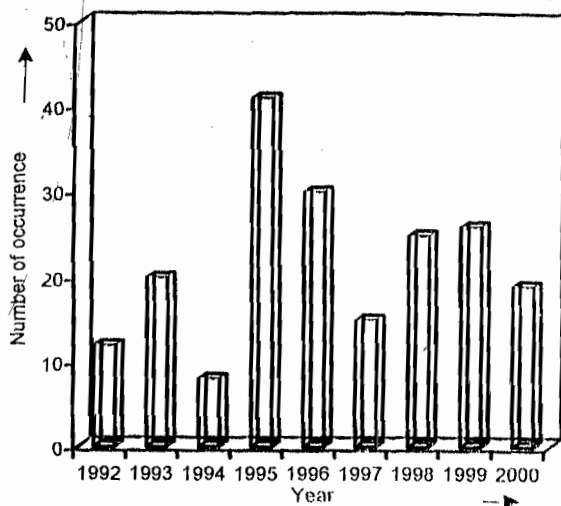


Fig.3: Lightning damages on habitation

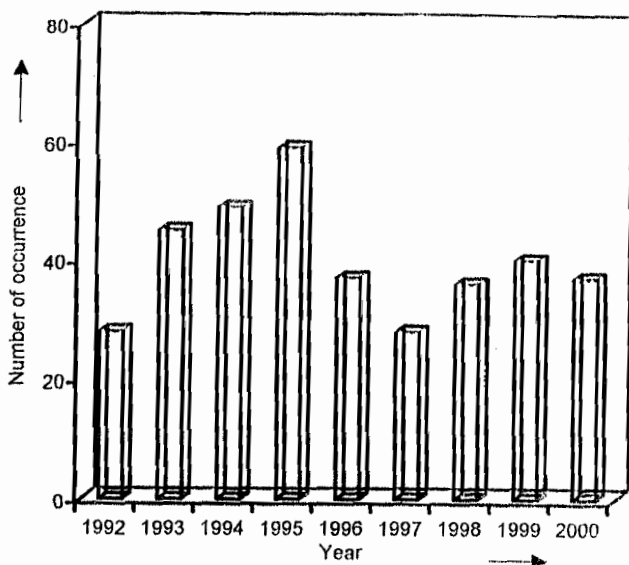


Fig.4: Lightning damages on electrical installations.

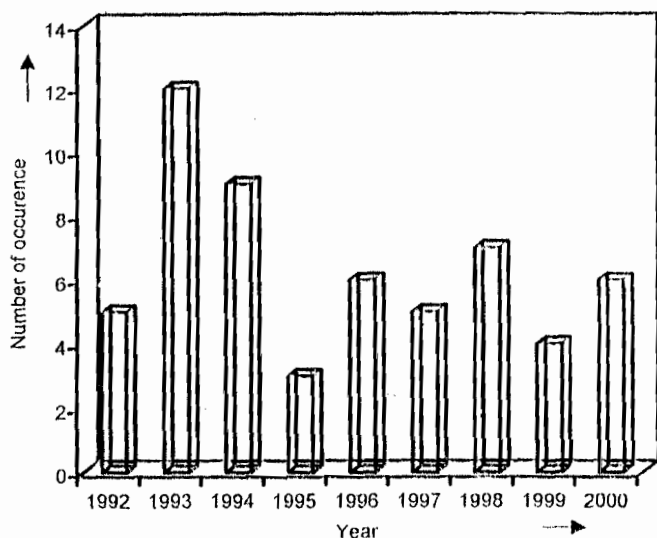


Fig.5: Lightning damages on telecommunication installations.

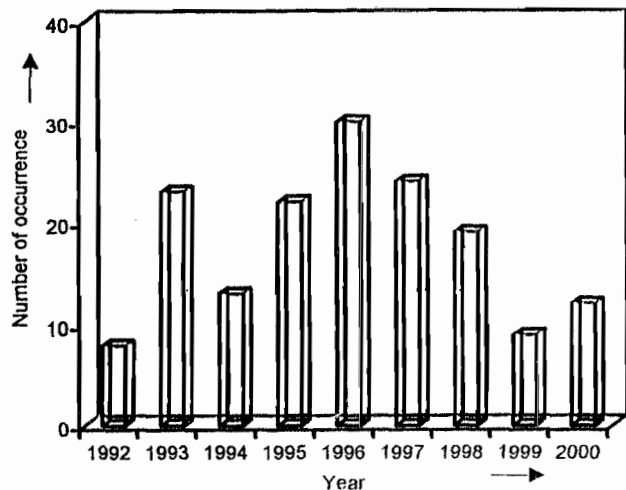


Fig.6: Lightning damages on transportation

1.3 DATA PRESENTATION

The data presented in figures 1 to 6 show the trend of lightning destruction and damages in Akwa Ibom State from 1992 to 2000. It is classified into six strategic sectors for easy analysis. The sectors include: destruction or damages on human, habitation, electrical installation, telecommunication installation and transportation.

- (i) Human destruction: This includes both cases of the dead, serious burns and injuries.
- (ii) Agricultural destruction: This includes burning of farm land, uncultivated plots, plants and animals.
- (iii) Habitation destruction: This includes private and public houses – residential and non-residential.
- (iv) Electrical Installation destruction: This includes destruction of National Electric Power Authority (NEPA) installation, private generators and house hold appliances.
- (v) Telecommunication installation destruction: This includes damages on masks and other telecommunication installations.
- (vi) Transportation: This includes damages on land and sea vehicles.

Figure 7 shows the total estimated lightning related damages and destruction in all the sectors mentioned above for a period of nine years (1992 to 2000) in Akwa Ibom State of Nigeria.

DISCUSSION

IMPACT OF LIGHTNING ON PEOPLE

This study has summarized and estimated number of lightning deaths in Akwa Ibom State of Nigeria for a period of nine years (1992 to 2000). The actual number of people killed or seriously wounded within the period exceeded 300. In actual fact more deaths occurred than shown here because accurate records were not kept. A closer look at the figures presented shows a decrease in death rate as we move from 1992 to 2000. This reduction trend might have been as a result of better sheltering condition and perhaps a kind of enlightenment awareness. It is hereby suggested that serious awareness campaign should be carried out on how to avoid being struck by lighting in case one is in open field during the flash. Lightning arrestors should be installed in vehicles and houses to protect people from lightning hazards. It is also obvious that lightning, more than could be ignored, has killed many people. Many have also been maimed for life. This has constituted a big loss to the state and the Nation. The nation-wide survey of this could result in a startling findings. This gives a clear indicator of a need for urgent remedial measures to minimize the losses.

IMPACT OF LIGHTNING ON OBJECT

The figures presented in this study on the lightning damages on telecommunication, building, transportation (land and sea),

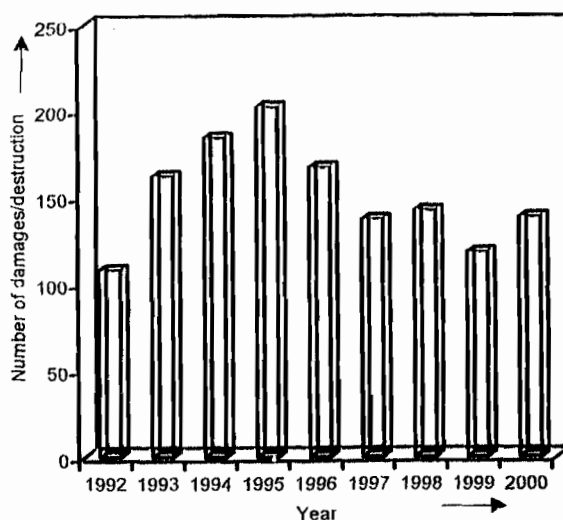


Fig.7: Total estimated number of lightning related damages/ destruction for a period of nine years in Akwa Ibom State, Nigeria.

agriculture and electrical installation reveal that quite a huge amount of money has been lost to lightning effect in the state. A similar study in United states of America revealed that about 307000 claims a year were paid for lightning damages to homes and small businesses amounting to us \$332 million a year (Holle and Lopez, 1998). Nigeria being in tropical region might have incurred more losses annually if accurate record were kept.

In a developing country, continuous negligence of such losses could add to perpetual underdevelopment. Installation of lightning protector on houses, masks and farm land is strongly recommended.

SOME SAFTY ACTIVITIES DURING LIGHTNING

- (i) Never take shelter under trees during lightning activity.
- (ii) When in the open place with lightning nearby, crouch on your knees with your head down. Never lie flat on the ground.
- (iii) During lightning, it is safer to go inside a substantial building with plumbing and wiring, but never make contact with the utilities.
- (iv) It is equally protective to go inside a vehicle with a solid metal top.
- (v) Never constitute the highest object or be connected to the tallest object in the areas such as trees, poles and antennas.
- (vi) In the forest the better action to take is to go into a thick grove of small trees surrounded by tall trees, but away from individual trees.
- (vii) Ette, 1993 suggested that the following activities/objects should be avoided as much as possible during lightning: swimming pools, lakes,

beaches, metallic fences, rails, metallic structures, golf courses, horse backs, bicycle, motorcycle, open tractor, assemblies of people in open air, and all isolated trees in open field.

CONCLUSION

A general survey of the lightning related damages in Akwa Ibom State of Nigeria has been presented. The results show that the number of cases is quite high to be neglected. Efforts should therefore be intensified towards remedial measures to minimize the losses.

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