THE ATMOSPHERE AND SOLAR LIGHTNING INTERACTION

Metin Saltık ,Adem Onat, Mustafa Denktaş

Abstract: *In this study, the atmospheric electric charge changes were examined using an FET sensor. As is known, there are many resources that affect the global atmospheric cycle. The source is the sun in the most important of these resources. This study examined the effects of the sun on global atmospheric circuit.*
KEYWORDS: *2.LIGHTNING,ATMOSPHERE,FET,GLOBAL ELECTRIC CIRCUIT, AMPLIFIER, SENSOR,*

1. Introduction

Earth's atmosphere is electric structure. There are two important factors that influence the Earth's atmosphere. These can be listed as follows.

a.Effects of lightning.

b.The effect of the sun.

Lightning effects, show the impact of the storm, especially at certain times. Lightning effects are the largest electrical currents affect the atmosphere. Lightning strikes, are very brief electrical current. In a short time, alter the power structure of the atmosphere. Seconds later revert to this duration. In other words, the immediate effects of lightning. and the effects disappear soon.

The effects of the sun, another effect is long-lasting. This effect continues as long as the sun. But the load changes in the atmosphere, especially at dusk and dawn when the sun reaches its maximum. This result is related to the formation of the charge layer in the atmosphere. Such as F and D layer formation. D and E of the night as the extinction layer. F layer is just to stay overnight. There are other electrical phenomena affecting the Earth's atmosphere, but here it is effective, either.

3.experimental work

To examine the electrical interactions in the atmosphere, we have developed an FET sensor. FETs as is known, are sensitive electrical circuit element that can detect load changes. The block diagram of the circuitry used in the experimental study are shown below. This circuit consists of five chapters. This section can be listed as follows.

1. sensor,
2. filter,
3. amplifier,
4. a/d
5. pc

The sensor consists of FET transistors. The amplifier is an amplifier consisting of several floors. Filter, band-pass and high-low is an electronic circuit. A / D is a circuit that converts analog signals to digital.

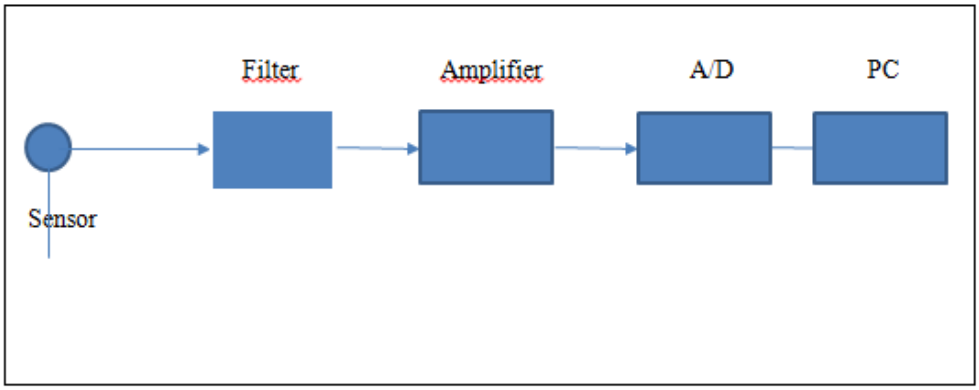

Figure1. *Block diagram of the measurement system used in the experiment.*

The circuit block diagram shown above, 24-hour recordings are taken. These records are stored on the computer. We use my computer as a software for the seismic program. Because vibration is to record seismic program is able to record the results of the vibration load. Change the experimental setup is also capable of recording electrical load. 24-hour electricity load change records are shown below. Some of them are some effects of the sun lightning strokes. There appear to be major changes in the electrical charge of the lightning impulse. Sun effect is also weaker and longer. And that sun exposure usually consists of sunset and sunrise. This change also relates sunspots. These changes are seen in the charts in detail.

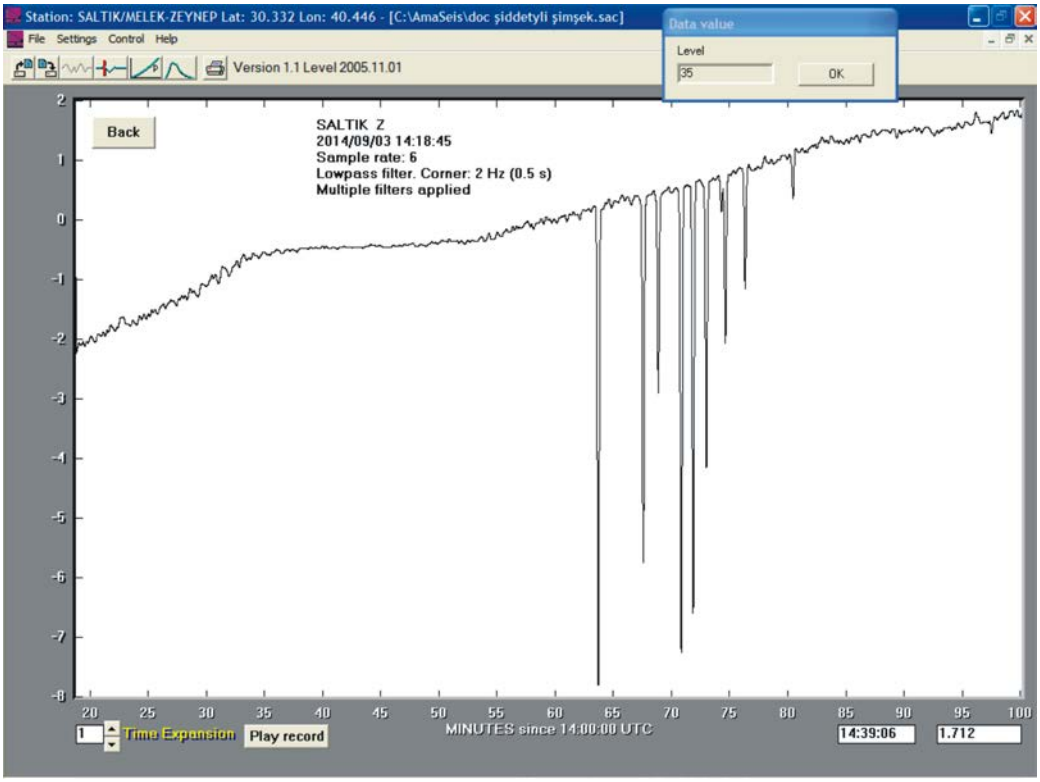

Figure 2. *Changes in the electric field (Heavy rain and lightning two-hour recording)*

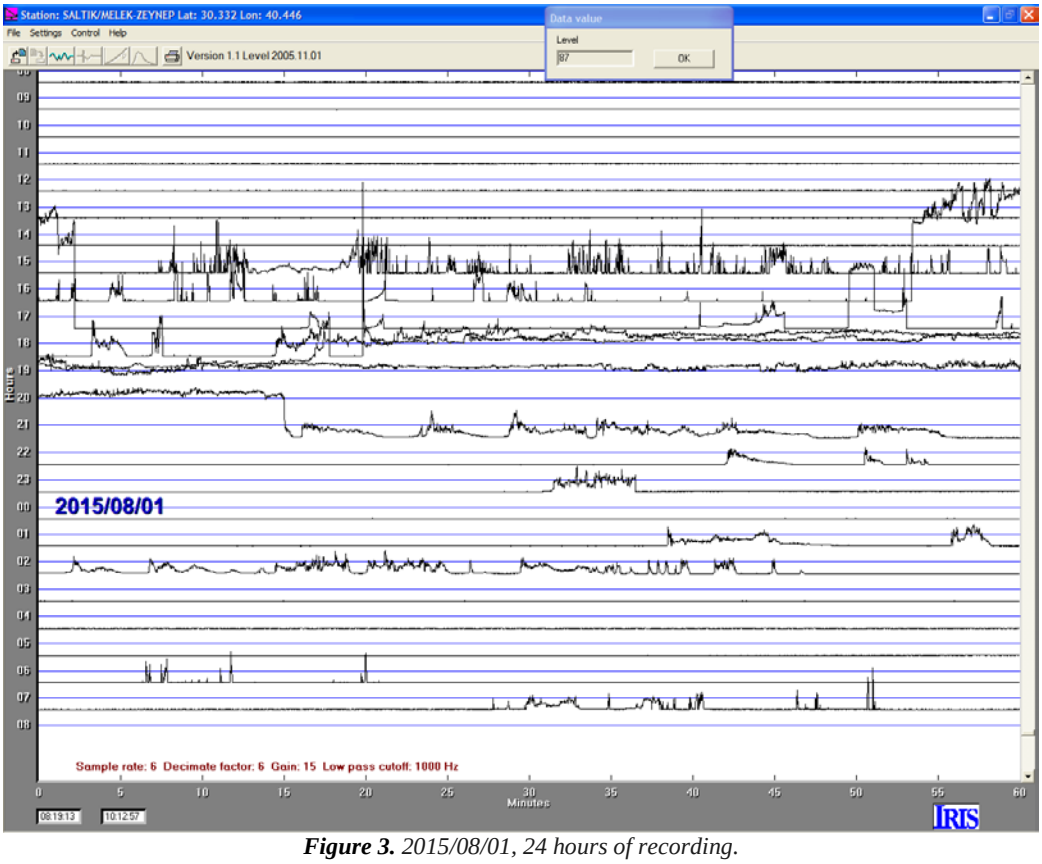

Figure 3. *2015/08/01, 24 hours of recording.*

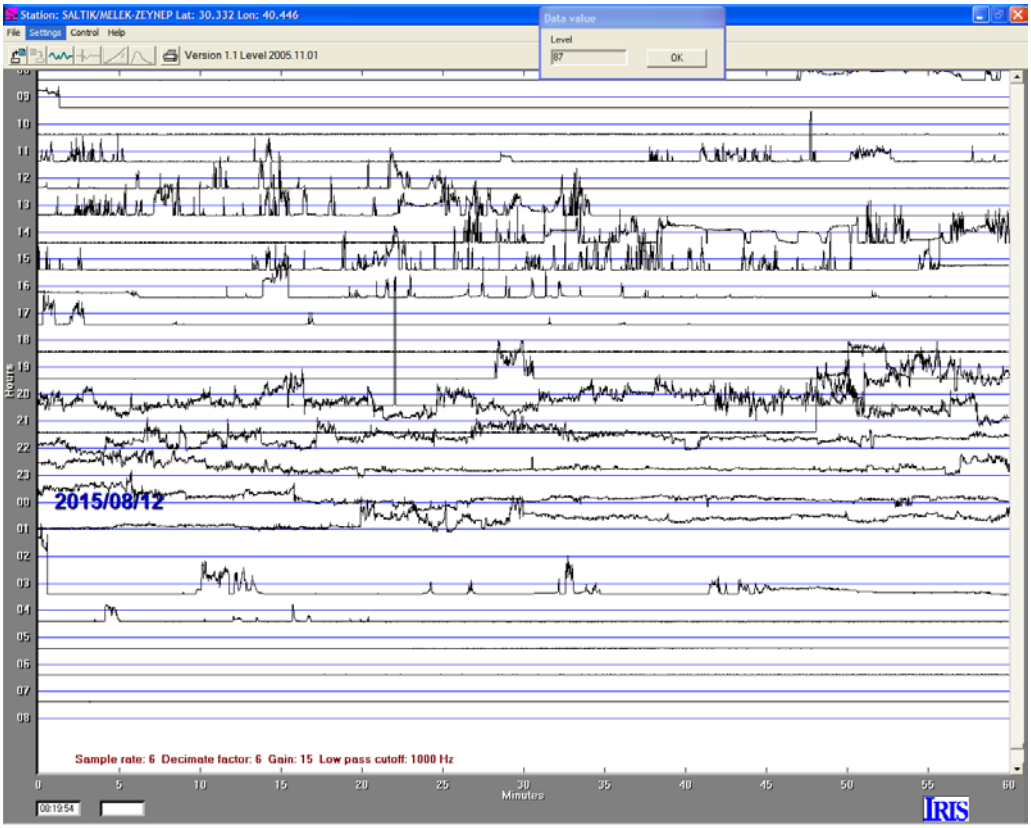

Figure 4. *2015/08/12, 24 hours of recording.*

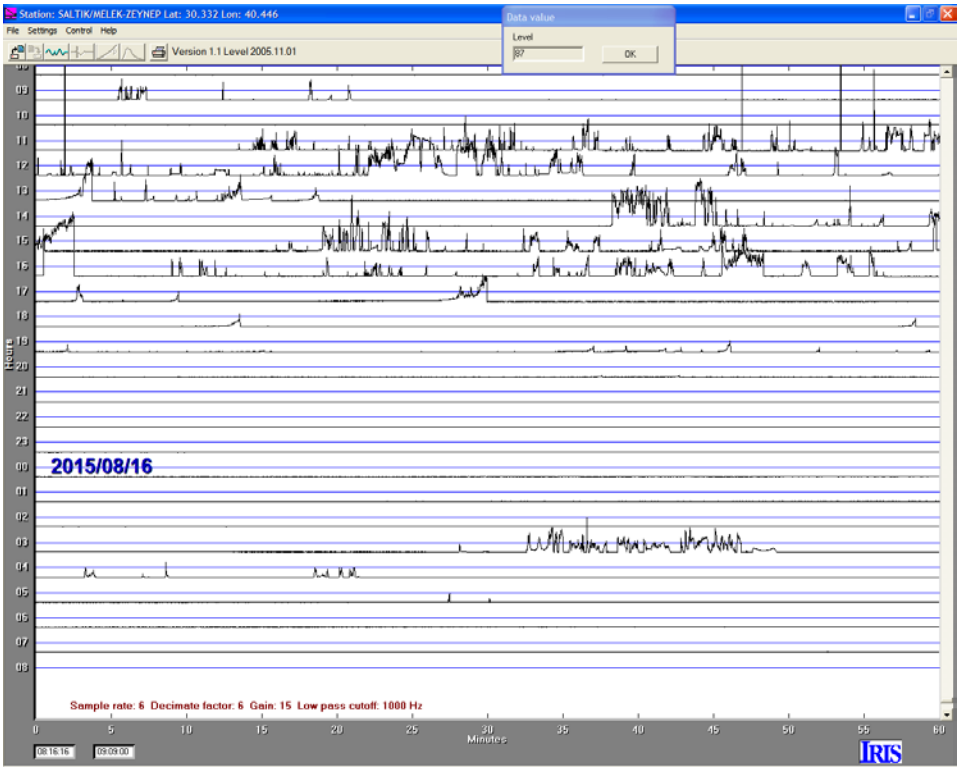

Figure 5. *2015/08/16, 24 hours of recording.*

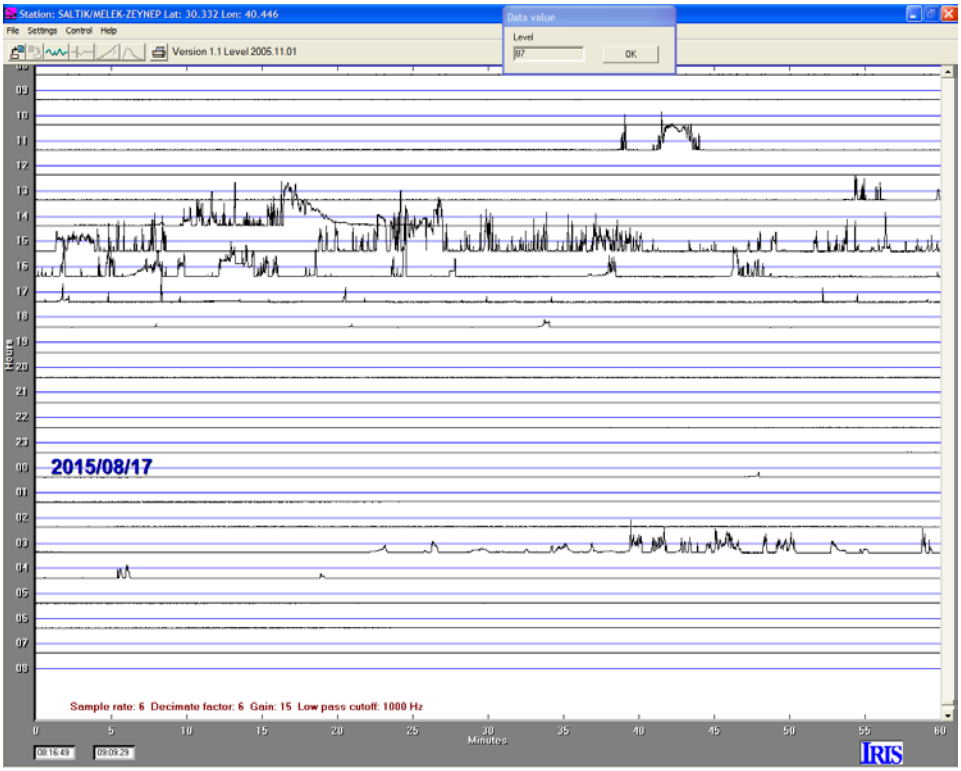

Figure 6. *2015/08/16, 24 hours of recording.*

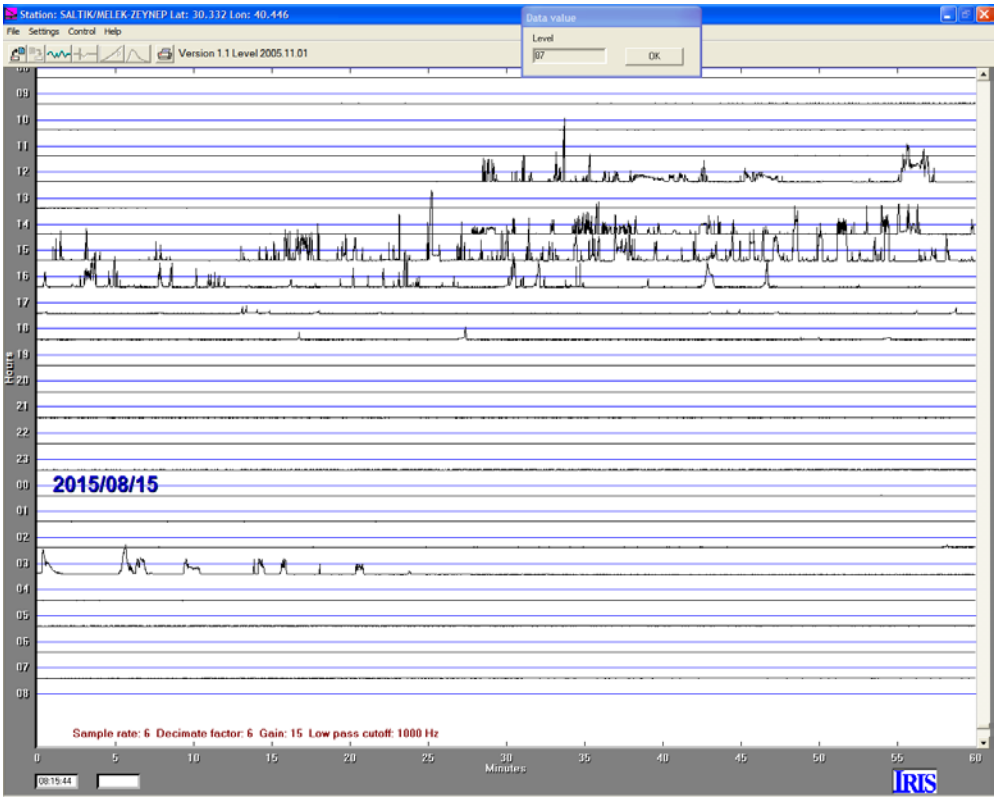

Figure 7. *2015/08/16, 24 hours of recording.*

4. Result

It has reached significant results from experimental observations and data. These results give the same results with studies on global atmospheric cycle. 24-hour observation records of the results of all the factors affecting the structure of atmospheric electricity can be seen. These results are spread over a large area. For example, the effects of atmospheric electrical effects, all meteor to the effects of lightning shifts are recorded. In fact, 24-hour ionizing effect of the falling meteors were observed in the records. In another interesting record, load changes in the atmosphere before the earthquake is. The observations and load changes from previous earthquakes were recorded in the records. This result is important in predicting earthquakes.

4.conclusion

As in any scientific work that is open to debate. As is known, there is no certainty in science. Science debate. The results of this study can be discussed. The most important topic of discussion in lightning strikes are. Because lightning strikes are always obtained in the laboratory. But we've naturally by lightning strikes recorded.

5. Reference

1. **Global Atmospheric** Electric **Circuit**. Colin Price. Department of Geophysics and Planetary Sciences. Tel Aviv University. Israel cprice@flash.tau.ac.il ...

2. Theoretical Problems of the **Global Atmospheric** Electric **Circuit**. Vladislav Mazur and; Lothar H. Ruhnke. H.W. Kasemir. Published Online: 15

3. Metin SALTIK, Doctoral Study,2015

4. May 2, 2008 - **global atmospheric** electric **circuit**, with the focus on its dc aspects, and its short and

5. This is the website for a three-year NERC-funded project to study the effect of solar variability on climate via the **global atmospheric** electric **circuit** (GEC).

6. Postdoctoral Scientist for Research on the **Global Atmospheric** Electric **Circuit**. As part of the project "Electrical Connections and Consequences Within the Earth.

7. Earth Planets Space, 58, 1193–1196, 2006. The contribution of sprites to the **global atmospheric** electric **circuit**. Martin Füllekrug1 and Michael J. Rycroft2.

8. Modelling the Earth's **Global Atmospheric** Electric. **Circuit** – Development, Challenges and Directions. Anna ODZIMEK, and Mark LESTER. Radio and Space

9. The terrestrial **atmospheric** electrical system covers a range of dimensional scales ... Figure 1. The **global atmospheric** electrical **circuit** (from Harrison, 1997). 3.