<1 line>

**雷雲内における電荷分布** <boldface, 12pt>

<1 lines>

第一著者1, 第二著者2, 第三著者3, and 第四著者2

<1 line>

**Charge distribution in thunderstorm clouds** <boldface, 12pt>

<1 lines>

First Author1, Second Author2, Third Author3, and Forth Author2

<1 line>

1 第一大学; First University, 1-2-3 XXX, YYY City, Tokyo zzz-zzz, Japan <9pt>

E-mail: xyz@xyz.xyz.ac.jp <option>

2 第二大学; Second University, 1-1-1 XXX, YYY City, Osaka zzz-zzz, Japan

3 第三大学; Third Research Institute, 3-2 XXX, YYY City, Hokkaido zzz-zzzz, Japan.

<1 line>

(Received xxxx, 2018; revised xxxx; accepted xxxx)

<2 lines>

**Abstract**. <Must be written in English> Charge distribution in thunderstorm clouds has been studied by the simultaneous electric field measurements ------------------------ . This paper describes ------------------------ . Charge distribution in thunderstorm clouds has been studied by the simultaneous electric field measurements ------------------------ . This paper describes ------------------------ . Charge distribution in thunderstorm clouds has been studied by the simultaneous electric field measurements ------------------------ . This paper describes ------------------------ . <hereafter single space, 11pt>

<1 line>

**Keywords:** keyword 1, keyword 2, keyword 3, keyword 4

<1 line>

**1. はじめに**

日本大気電気学会は，1968年に東京において開催された第4回国際大気電気学会を契機に，翌1969年に設立された「大気電気研究会」を前身とする。その後，会員数の増加，研究発表の充実に伴い，1983年に「日本大気電気学会」として組織され、現在に至っている。 ------------------------------------------------------------------------------------------------------------------------------------------------------------.

発足当初の本学会では，大気中の主要な電気現象である雷放電について，物理過程と工学的側面が議論の中心であった。近年では，イオンエアロゾル，大気電気，雷放電，地球電磁場，地震等，地球や宇宙の電気が関係する諸現象全般を取り扱う学問として広義に位置づけ，活動している。--------------------------------------------------------------------------------------------------------.



Figure 1. Model of charge distribution in thunderstorm clouds. <Must be written in English>

<1 line>

**2. 観測手法とデータ解析**

**2.1. 観測手法**

本章では，本研究で行った観測手法について述べる。 -----------------------------------------------------------------------------------------. -----------------------------------------------------------------------------------------.

-------------------------------の結果をFig. 1に示す。 -----------------------------------------------------------------------------------------.

**2.2. データ解析**

-----------------------------------------------------------------------------------------.------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

<1 line>

**3. 検討**

-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

Table 1. Observation data.　 <Must be written in English>

|  |  |
| --- | --- |
| Data 1 | 123 |
| Data 2 | 456 |
| Data 3 | 789 |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |
| -------------------------------------- | -------------------------------------- |

…………………. (1)

ここで と はそれぞれ aaa と bbb 定数である (Tanaka 1985; Yamada and Yamakawa 2016) 。

---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.



Figure 2. Estimated charge quantities and their positions in clouds.

<1 line>

**4. 結論**

-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

<1 line>

**謝辞.** 本研究はJSPS科研費 JPxxxxxxxx, JPyyyyyyyy, JPzzzzzzzzの助成を受けたものです。.

<2 lines>

**References**

<1 line>

Sato A., B Sato, C. Sato and D Sato (2012), Regional difference in tropical cyclone distributions, *J. Applied Meteorology*, xx, pp. yyy-zzz

Suzuki A., B. Suzuki, C. Suzuki and D. Suzuki (2010), A new model of charge generation in winter thunderclouds. *xx th International Kaminari Congress (IKC)*, IAC-yy. zzzz, Osaka, Japan

Tanaka A. (1985), Lightning physics. *in Cloud physics*, ed. by T. Okuda, Iwanami, Tokyo, pp. 256-280

Yamada A. and B. Yamakawa (2016) Global frequency and distribution of lightning, *J. Geophysical Research*, xxx, yy, 4005, doi:10.1029/2015JDzzzzzz

< in alphabetical order of the first author’s name without numbering.>