IOWN INTEGRAL

NTT R&D FORUM 2024

RESEARCH
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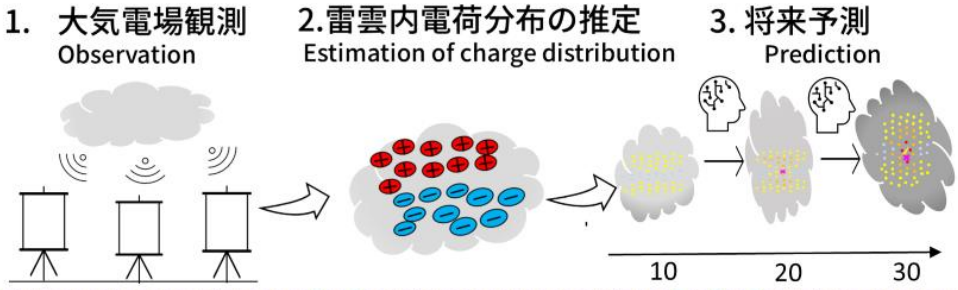
Prediction technology for lightning location and charge amount

Prevent damage from lightning strikes to towns and people

#Business Resilience

現状：建物や人への落雷被害
Current: Lightning strike damage to buildings and people

提案技術 Technology



活用 Application

発雷危険度マップLightning Hazard Mapドローン誘雷 Drone induced lightning

///Technical Issue

To accurately predict each lightning discharge, it is necessary to estimate the three-dimensional electrical characteristics within a lightning cloud.

///Research Goal

This technology enables to reduce damage from lightning strikes to towns and people by establishing technology to predict the location and energy of lightning strikes.

---Technology

- To estimate electric charge distribution in thunderclouds using proprietary algorithms with electric field data
- To predict future lightning strike locations and their charge amounts (i.e., lightning intensity) from the charge distribution data by applying machine learning

---Novelty

Prediction of 3-D charge distribution in thunderclouds with 100-meter resolution enables prediction of lightning intensity and the strike location with an accuracy of several hundred meters, which is difficult to achieve with conventional technologies in the market.

---Applicable Business

- Information and Communication Industry: This service can be utilized for a service that provides lightning intensity and high-precision lightning strike location data for weather forecasting
- Disaster Prevention Industry: Decision making to prevent lightning failures in critical infrastructure facilities based on lightning hazard maps.

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Related URL=NTT Technical review, “Proactive environmental adaptation technology to realize safe and secure social life even under extreme natural phenomena”／Youtube, "【NTT】Protects cities from lightning strikes with lightning-resistant drones(2022)",
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