

## Development of Optical and Electromagnetic Lightning Observation Systems in Southeast Asia

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Recent satellite-based optical measurements have clarified global distributions of lightning activity and have found Central Africa, North and South America, and Southeast Asia as the most lightning active regions. Although lightning activity in Southeast Asia is significantly high, there is no lightning detection network system specialized for this region.

In this study, we develop an optical and electromagnetic observation network system aiming for continuous monitoring of lightning activity in Southeast Asia. We use a set of orthogonal loop antennas and a dipole antenna for the measurements of VLF lightning sferics. By installing these instruments at Tainan observatory in Taiwan, Phimai observatory in Thailand, and Pontianak observatory in Indonesia, we expect to estimate time and location of lightning discharges occurring in Southeast Asia. On the other hand, we install a low-light-level camera at MIA observatory in Padang, Indonesia for the measurements of lightning flashes that occur within 150 km from the observatory.

In this presentation, we will report the scientific goals, instrumentation, and current status in detail.