



## **Infrasonic study of lightning in Madagascar using I33mg data**

Andriniaina Tahina Rakotoarisoa (1), Fanomezana Randrianarinosy (1), Jean Bernardo Andrianaivoarisoa (1), Andry Harifidy Ramanantsoa (1), Gérard Rambolamanana (1), and Alexis Le Pichon (2)

(1) Institute and Observatory of Geophysics in Antananarivo PO Box 3843 101-ANTANANARIVO, (2) CEA/DAM/DIF, DASE, Arpajon, France (alexis.le-pichon@cea.fr)

Data collected by I33MG station, and stored in the National Data Centre at the Institute and Observatory of Geophysics in Antananarivo allowed us to study infrasound generated by lightning during the rainy season, from November to April, in Madagascar. WinPMCC based on Progressive Multi-Channel Correlation (PMCC) is used to detect and to get the wave parameters. The tau-p method (Garcès, 1998) is used to simulate the wave propagation through the layers of the atmosphere. The propagation depends only on the temperature and the wind shear of the atmosphere. HWM/MSIS has been run to get the temperature and wind speed profiles.

Sources are located in six zones: North, North-West, West, South-West, North-East and in the central part of Madagascar. Most of the events come from the North-Western part of the Island.

Due to the wind pattern during this season, stratospheric phase (Is) is only observed with events from an azimuth between  $0^{\circ}$  and  $180^{\circ}$ . Thermospheric phase (It) is present for all azimuths and direct phase (Iw/Direct) just near the station.