The I33S station includes four sub-elements, three located in a triangle with a basis of 1.5 km, the fourth at the center of the triangle. From 2001 to 2009, I33S infrasonic station located at Im erintsiatosika-Madagascar has been collecting data. This station is among the 60 infrasonic stations of the CTBT/IMS in the world. PM CC is the data processing method. Data processing can lead to 2 classes of signals as High Frequency (up to 0.5Hz) and Low Frequency (lower than 0.5Hz) and recognise natural and man-made events. Generally, natural events produce low frequency infrasound such as ocean tides, cyclone and volcano eruption occurred far away the station. Man-made events produce high frequency infrasound such as explosion, aircraft with helices and explosion. But, lightning, occurred during summer season, is natural event which produces high frequency infrasound.

**Ocean tides**

Since September 2001, the I33MG station record signal emitted by ocean tide, called microbaroms, every day. Periodic variation is observed in the detection of microbaroms: from November to March, the observed azimuth is between 100 and 170° and from April until October, the observed azimuth is between 170 to 240°.

Sources of these microbaroms are divided into five groups of azimuth: the group 210°, groups 150°, groups 90°, groups 270° and groups 330°.

**Volcano monitoring**

One of Karthala’s volcano eruptions was occurred between 17th to 19th April 2005. Coherent infrasound waves were detected by I33MG during about 4 hours between 15:00 and 19:30 UT. Azimuth calculated was 331.6° ± 0.5 with frequency of 2Hz.

Ray tracing gives the altitude of reflection levels. Energy is refracted from the thermosphere between 160 km and 110 km. Energy reaches I33MG in 3000s to 4500s after several hops between the earth’s surface and stratopause and/or thermosphere.

**Cyclones Ernest on 2005 and Gamède on 2007 are analyzed. Ernest occurred on shallow sea and Gamède on deep ocean. Cyclone on the deep ocean generates more infrasound signals than cyclone on shallow sea.**

**Explosion**

On July, 17th 2008 at 04 h UT, a boiler with a pressure of 12 bar has been exploded in a box factory. It was located near the international airport Ivato. The explosion occurred at North East and about 30 km from I33S station.

Data processing gives an azimuth 38.1°, speed 0.334 km/s, with frequency of 2.6 Hz and an amplitude of 1.251 Pa.

**Lightning monitoring**

Lightning is the another infrasonic source recorded by the I33S station. These sources are recently observed during rain season (September to March).

Different sources are divided into four groups of azimuth: group of 0°, group of 240°, group of 270° and group of 330°.