Geophysical Research Abstracts, Vol. 7, 06026, 2005
SRef-ID: 1607-7962/gra/EGU05-A-06026

1998 TO 2004, PERIOD OF INTENSE VOLCANIC ACTIVITY AT PITON DE LA FOURNAISE VOLCANO, ISLE DE LA RÉUNION, INDIAN OCEAN

Th. Staudacher (1), Ph. Catherine **(1)**, J.L. Cheminée **(1)**, V. Ferrazzini **(1),** **Ph.** Kowalski**(1)**, N. Villeneuve **(2)**

1) Observatoire volcanologique du Piton de la Fournaise, Institut de Physique du Globe de Paris, France (staud@univ-reunion.fr) , 2) Centre de Recherche et d'Etudes en Géographie de l'Université de la Réunion, France (nicovil@univ-reunion.fr)

With 18 eruptions in seven years, Piton de la Fournaise volcano at the Isle de La Réunion, in the Indian ocean is, in regard of number of eruptions, probably the most active volcano in the world. Within the last century, about one eruption was observed per year. More active periods occurred in the mid-eighty and since 1998. After 6 years rest between 1992 and 1997, Piton de la Fournaise erupted in 1998 for 6 months and a half, which represents its longest known eruption of the last century, and had a simultaneous eruption during this period of 1 month length with a more primitive lava deriving from a deeper reservoir.

Since then a total of sixteen eruptions occurred, with 2 to 4 eruptions per year.

- Two of them were pure summit eruptions within Dolomieu crater (May to July and December 2003)
- Three eruptions in June and September 1999 started within Dolomieu crater and continued about ten days later on the east and south flank, respectively
- One eruption started within Dolomieu and continued immediately on the east flank
- Nine eruptions occurred on the Piton de la Fournaise north, east and south flank

- Two eruptions started about 4 to 5 km away from the summit within the north-east rift zone, close to the caldera wall
- Three lava flows cut the national road in the Grand Brûlé over up to 750 m width
- Two lava flows reached the sea

During the last seven years, seismic behaviour during eruptions of PdF changed significantly. While in the first days of the 1998 eruption (Piton Kapor) twelve seismic events announced a second, independent eruption (Piton Hudson), we observe since 2000 more and more seismic events, mostly at the final stage of eruptions. Simultaneously, eruptions often end after a few days of increasing eruptive activity and stopping than in a very short time, ranging between 30 minutes to less than 1 minute.

In November 2003 seismicity started during the final days of the eruption. It continued over three week with up to 6000 seismic events per day and stopped finally after the formation of a 200 m wide pit crater on the south-western part of Dolomieu.

Such behaviour may indicate that in these cases the magma supply was merely cut off in relation with seismic events and mass movements beneath Dolomieu crater. In addition, this increase of eruptive activity remobilized since the November 2000 eruption frequently olivine xenocrysts forming oceanites.

Lava flow mapping and determination of erupted volumes allows us to show a significant increase of lava production of Piton de la Fournaise in the last 75 years, with a mean production rate today of about 20 x 10^6 m^3/year. Simultaneously we observe an increase of the annual duration of activity during the last century.