

InSAR によるフルネーズ火山の 2007 年 4 月の噴火イベントによる地殻変動
Ground Deformation associated with the Apr. 2007 Eruption of Piton de la
Fournaise detected by PALSAR Interferometry

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Piton de la Fournaise, which is located at Reunion Island, France, is one of the most active volcanoes in the world. The 2007 eruptive event began with the small eruption at the 2km southeast from the summit on Mar. 30. On Apr. 2, large amount of lava effused from an eruptive vent which is located at 7km southeast from the summit. The eruption continued for about a month. On Apr. 5 ~ 10, summit crater collapsed, lowering its bottom by 330m. The total amount of erupted lava was $\sim 1.4 \times 10^8 \text{m}^3$, and the volume loss due to the crater collapse was $\sim 1.0 \times 10^8 \text{m}^3$.

We analyzed three pairs of PALSAR data and obtained deformation maps during Oct. 5, 2006 ~ Feb. 20, 2007 (Pair A), Feb. 20, 2007 ~ May 26, 2007 (Pair B), and Mar. 4, 2007 ~ Apr. 19, 2007 (Pair C). Pair A shows no significant deformation except $\sim 10.4 \text{cm}$ of line-of-sight distance decrease at southwestern edge of the summit crater and $\sim 10.7 \text{cm}$ of line-of-sight distance increase at small region on southern/eastern flank. On the other hand, both Pair B and Pair C shows significant yet complicated deformation pattern. The pattern consist of $76 \text{cm} \sim$ of line-of-sight distance increase at eastern flank, $30 \text{cm} \sim$ of line-of-sight distance decrease centering at the summit crater and $16 \text{cm} \sim$ of line-of-sight distance increase at northeast/southeast edge of the summit crater.

Since there are bands which show line-of-sight distance increase between eastern flank and eruptive vents also, we consider that the line-of-sight distance increase at eastern flank is caused by the deflation of the magma reservoir. Forward analysis using sill model, however, shows that the volume change of the magma reservoir is not comparable with the total amount of erupted lava. Thus we consider that the main source of the erupted lava was the one that was stored in the summit crater before the collapse.