

Volcanism in the Itasy Volcanic Field, Madagascar: a potential risk for Antananarivo?

C. Rasoazanamparany¹, K. Rakotondravelo², A. Rakotondrazafy², T. Raharimahefa³, D. Kuentz¹, and E. Widom^{1,*}

¹ Department of Geology & Environmental Earth Science, Miami University, Oxford OH 45056, USA

² Département de Géologie, Université d'Antananarivo, Ambohitsaina, Madagascar

³ Department of Geology, University of Regina, Regina, Canada

Keywords: monogenetic volcanism, maars, Itasy, Madagascar

Despite the evidence for recent volcanism in the central highland of Madagascar, relatively little is known about the ages and origin of the volcanism in the area or the likelihood of future eruptions. The Itasy volcanic field is located in close proximity to the capital Antananarivo and has a history of explosive eruptions [1] including at least one Holocene eruption at 8.5 ka [2]. In addition, the Itasy volcanic field is characterized by frequent seismicity, as well as active geothermal systems including geysers, hot springs and solfataras [3, 4] that make the area a popular tourist attraction for the local population. In order to gain a better understanding of the causes and the risks of potential future eruptions in these heavily populated areas, we conducted comprehensive field sampling and petrographic analyses, as well as mapping of the volcanic vents and lavas flows using ArcGIS software. Our new mapping shows that the Itasy volcanic field contains more than 150 volcanic vents including cinder cones and maars, as well as abundant faults, distributed over an area of 1128 km². These data suggest that the Itasy region has been, and likely remains, a highly active volcanic field. Constraining the magmatic and volcanic processes, as well as the eruptive recurrence interval, is important for understanding the cause and sources of volcanism and for volcanic risk assessment in the Itasy volcanic field. [1] Rufer et al. (2014), *Bulletin of Volcanology* 76, 817. [2] Vogel (1970), *Radiocarbon* 12, 444-471. [3] Bertil & Regnault (1998), *Tectonophysics* 294, 57-74. [4] De Wit (2003), *Annual Review of Earth and Planetary Sciences* 31, 213-248.