

# Planetary Science Conference

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*AROMAS: A semi-automatic workflow  
to study hundreds of lava flows on planetary surfaces*

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The Tharsis region on Mars is characterized by extensive basaltic lava flows. These flows are predominantly associated with the three major volcanic centers, the Tharsis Montes shield volcanoes. Understanding the effusive rates at these edifices is essential for understanding their evolutionary history. However, the overwhelming number of individual flows makes inferring their relative chronology non-trivial. Additionally, the frequent overlap of newer flows over older ones makes it challenging to estimate the total volume of erupted material. In this study, we introduce a semi-automatic workflow, AROMAS, designed to reconstruct the stratigraphic sequence and quantify the volume of numerous individual lava flows. We applied this method to a set of recent-looking lava flows in the southwestern region of Arsia Mons. By integrating impact crater retention ages, we estimated effusive rates that are consistent with previous findings within the caldera of the edifice for the same period.