

# Metadata Report

## Project Name

Syracuse Lava Flow Experiment – Time series – Thickness, Velocity, and Surface Temperature Rasters

## Summary

This dataset comprises time-series raster data of an active experimental lava flow. At each time step (approximately 7 second intervals – see below), topography was collected with SfM, surface temperature was collected with FLIR infrared imagery, and surface velocity was calculated using PIVLab (video-based velocimetry) and georeferenced to coincide with the other rasters. The data here were used in Farrell (2019) [JGR:SE In Revision as of 11/12/19].

## Personnel

- J. Farrell
- Syracuse Lava Project PIs: J. Karson, R. Wysocki

## Site Information

- Site description: Experimental lava flow facility in Syracuse, NY. (<http://lavaproject.syr.edu/>)
- Site objective: Researching the rheology, morphology, and behavior of experimental basaltic lava flows.
- Site location: Syracuse University, Syracuse, NY.

## Survey Results

- Custom time-lapse photogrammetry (10-camera, CHDK trigger), FLIR t300 thermal infrared camera, DSLR video recording
- See Farrell (2019) for methodology



## Products

- Date of dataset collection: July 19, 2018
- Coordinate system of datasets: WGS 84 / UTM Zone 18N
  - \*Note: reference frame is arbitrary for experimental lava flows
- Spatial resolution: 1-2 cm across all rasters
- Data formats: TIFF
- Data processing methods: Photogrammetry processed using Agisoft Photoscan, clipping and resampling in QGIS; velocity analyzed using PIVLab; surface temperature rasters captured with FLIR t300.

## Misc Notes

File naming scheme:

Example:

t15h.tif → t15            h            .tif  
                  Time step        Variable        Extension

### **Time steps – seconds from start of experiment**

|     |      |
|-----|------|
| t4  | 12s  |
| t5  | 20s  |
| t6  | 27s  |
| t7  | 34s  |
| t8  | 41s  |
| t9  | 49s  |
| t10 | 56s  |
| t11 | 63s  |
| t12 | 73s  |
| t13 | 82s  |
| t14 | 96s  |
| t15 | 106s |

### **Variables – type of raster**

|   |  |
|---|--|
| h | thickness (topography above substrate) |
| T | surface temperature                    |
| v | velocity                               |

**UPDATE:** To comply with the framework of OpenTopography, these files have been re-georeferenced to the Syracuse Lava Facility. New files have \_modified appended to the file name.