**READ ME:**

**Fagradalsfjall (Iceland) 2021 Eruption Unoccupied Aircraft Systems (UAS) Data: Surveys**

File Structure of the Dataset:

The data for each survey are compressed into a single .zip file for that survey. The .zip file for each survey contains 3 files:

 1) A Digital Elevation Model (DEM) (.tif)

 2) A Orthomosaic (.tif)

 3) A processing report containing metadata on the survey and processing (.pdf)

Agisoft Metashape Pro v.1.8.1 was used for processing the UAS images into the final data products. The DEM and Orthomosaic are exported from Metashape in their highest resolution. The report is produced automatically by Metashape.

Each UAS survey uses the following naming structure for files:

year\_month\_day\_location\_<additional survey info>\_<file type>.

For example, the .zip file “2021\_04\_26\_All.zip” contains the data products for April 26, 2021, in the vicinity of the active vent. The “\_All” addition to the file name signifies the data was produced by including images from multiple UAS flights into one model for processing. Within the compressed file are the 3 data products:

 1) 2021\_04\_26\_All\_DEM.tif (the DEM)

 2) 2021\_04\_26\_All\_Ortho.tif (the Orthomosaic)

 3) 2021\_04\_26\_All\_Report.pdf (the processing report)

The .zip file “2021\_All\_Reports\_Metadata.zip” contains the processing reports for all surveys. This is included so that the user can download the reports to preview the spatial coverage of each survey and decide which survey files to download. As the “2021\_All\_Reports\_Metadata.zip” is a smaller file size (35 MB) compared to the data products themselves (1-5 GB per .zip file for each survey), this is a faster way to determine which data is needed compared to downloading all the data itself (almost 30 GB).

Also included is the file “Fagradalsfjall\_2021\_eruption\_UAS\_survey\_processing\_data.xlsx”. This is a spreadsheet containing a concise summary of all survey and processing data in one file. The spreadsheet also includes a reference map of the lava flow field including vent locations and place names. This file can also be used to provide a quick overview of the source data, data product quality, and help determine which surveys are of most use to the user.

For additional questions regarding this data, please contact:

Dr. Brett B Carr

bbcarr@arizona.edu

Research Scientist

Lunar and Planetary Laboratory

University of Arizona