Seed Project: Quantifying rock strength controls on landscape morphology in the Guadalupe Mountains, NM/TX

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Data Collection Summary:

Collection Dates, # Flights:	June 4, 2018 (DOY 155)
Aircraft, Equipment:	Piper Navajo Chieftain (Tail No.: N640WA), Lidar: Optech Titan (14SEN/CON340)
Flight Plan Parameters:	Flying Height: 500 m AGL, Swath Width: 575 m, Overlap: 50%, Line Spacing: 200 m
Equipment Parameters:	PRF: 100 kHz x 3, Scan Frequency: 26 Hz, Scan Angle: ± 30°
Requested/Collected Area:	40 / 62.7 (based on DSM) km²
Nominal Pulse Density	20 P/m² (high Priority area), 12 P/m² (low Priority area)

GNSS Reference Station Summary:

BRAN	NCALM	32°20' 44.09840" N, 104°15'15.38950" W
MCKT	NCALM	31°57'39.71070" N, 104°40'40.49476" W

Data Products Summary:

Horizontal / Vertical Datum:	NAD_83(2011)(EPOCH:2010.0000) / Geoid12B NAVD88
Projection / Units:	UTM Zone 13N / meters
Point Cloud Tiles:	1000 m × 1000 m tiles in LAS format (Version 1.4), classified into following classes: 1) Unclassified – Class 1 2) Ground – Class 2 * Each of the returns contained on the LAS tiles are encoded with a laser channel value. The values used are *1* (1550 nm), *2* (1064 nm), and *3* (532 nm), and are stored in the 'User Data' record of the Point Data records in the LAS file. * Lidar height was validated against 661 kinematic GPS measurements obtained at the Aransas County Airport (KRKP), accuracy of lidar elevations was assessed at 0.026 m.
Digital Elevation Models:	ESRI FLT format @ 1-m resolution for the following: 1) DEM Grid & Hillshade from classified ground returns from all channels 2) DSM Grid & Hillshade from first returns from all channels

A detailed summary of the equipment and processing techniques used by NCALM is included in the [Data Collection & Processing Summary](#).
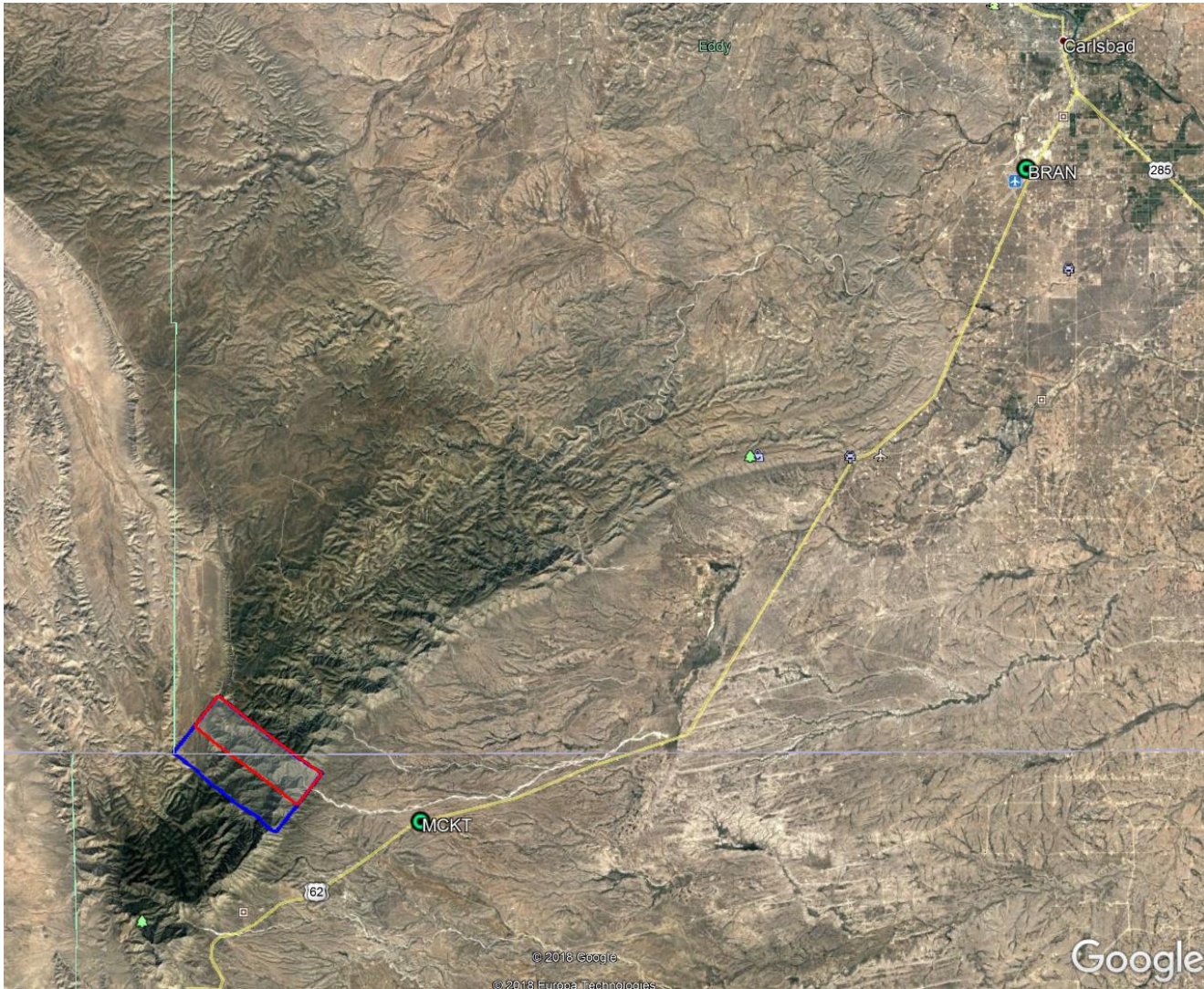
Area of Interest:

Figure 1. Location of survey polygon (high priority in red and low priority in blue) and GNSS reference stations in green (BRAN and MCKT)

File Naming Schemes:

LAS Point Cloud Files

The 1000 m × 1000 m tiles follow a naming convention using the lower-left coordinate (minimum X, Y) of the UTM coordinates as the seed for the file name as follows: *XXXXXX_YYYYYYY*. For example, if the tile bounds are the coordinate values from Easting 513000 through 514000, and Northing 3540000 through 3541000, then the tile file-name incorporates 513*000_3540000*.

ESRI Files

Due to the limited number of characters that can be used for ArcGIS data products, the resulting format is followed: NNNN_TDR_##U. "NNNN" correspond to the 4-character identifier for the project or project area, "MCKI" for this project. Character "T" represent the type of raster and it can be "G" for a grid, "H" for a hillshade. Character "D" represents what kind of data was used to create the raster (an "E" for elevation). Character "R" represents the type of return that was used for creating the raster and could be a "F" for first return or "G" for ground return. The characters "##" represent the raster resolution in decimeters. Finally, the last character "U" is an indicator for the unit of measurement. For e.g. a bare earth elevation grid with ground classified points and resolution 1 m will be named as: "MCKI_GEG_01M.FLT"