



**Data Collection & Product Report for  
2018 Project over Rampart Range, Colorado  
Topographic response to the transition from snowmelt- to rainfall-  
triggered-extremes**

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**Data Collection Summary:**

|                                    |   |
|------------------------------------|---|
| Collection Dates, Flights:         | 4 flights total : 2 flights each on September 15 and 16, 2018 (DOY 258 and 259) |
| Aircraft, Equipment:               | Piper PA-31-350 Navajo Chieftain (N640WA), Optech Titan (14SEN340)              |
| Topography Flight Plan Parameters: | Flying Height: 700 m AGL, Speed: 140 kt, Overlap: 50%                           |
| Topography Equipment Parameters:   | PRF: 375/300 kHz, Scan Frequency: 25/32 Hz, Scan Angle: $\pm 28^\circ/25^\circ$ |
| Collected Area:                    | 100 km <sup>2</sup>   |

**GNSS Reference Station Summary:**

| Station Name | Operating Agency | Control Coordinates (NAD83(2011) epoch 2010.00/Ellipsoid) |
|--------------|------------------|---|
| NCALM1       | NCALM            | N 38° 48' 6.46888", W 104° 43' 52.53330", 1820.441m       |
| NCALM2       | NCALM            | N 39° 5' 20.40277", W 104° 51' 27.59962", 2125.081m       |
| CTMC         | CORS             | N 39° 43' 17.49312", W 105° 11' 34.33565", 1819.842       |
| ZDV1         | CORS             | N 40° 11' 14.27201", W 105° 07' 37.95983" W, 1541.784m    |
| P037         | UNAVCO           | N 38° 25' 18.29406", W 105° 06' 16.81888", 1617.718m      |
| P040         | UNAVCO           | N 38° 04' 17.4", W 102° 41' 13.128", 1102.656m            |
| RG16         | UNAVCO           | N 39° 31' 49.3284", W 106° 12' 19.6704", 2597.700m        |

**Data Processing Summary:**

|                             |   |
|-----------------------------|---|
| Scan Angle Cutoff:          | $\pm 1^\circ$   |
| Intensity Normalization:    | 800 m   |
| Data Adjustments:           | Line-by-line/channel-by-channel roll/elevation correction                     |
| Ground Classification:      | Terrascan   |
| Elevation Model Generation: | First Surface model from First-Returns and Ground Classified bare earth model |

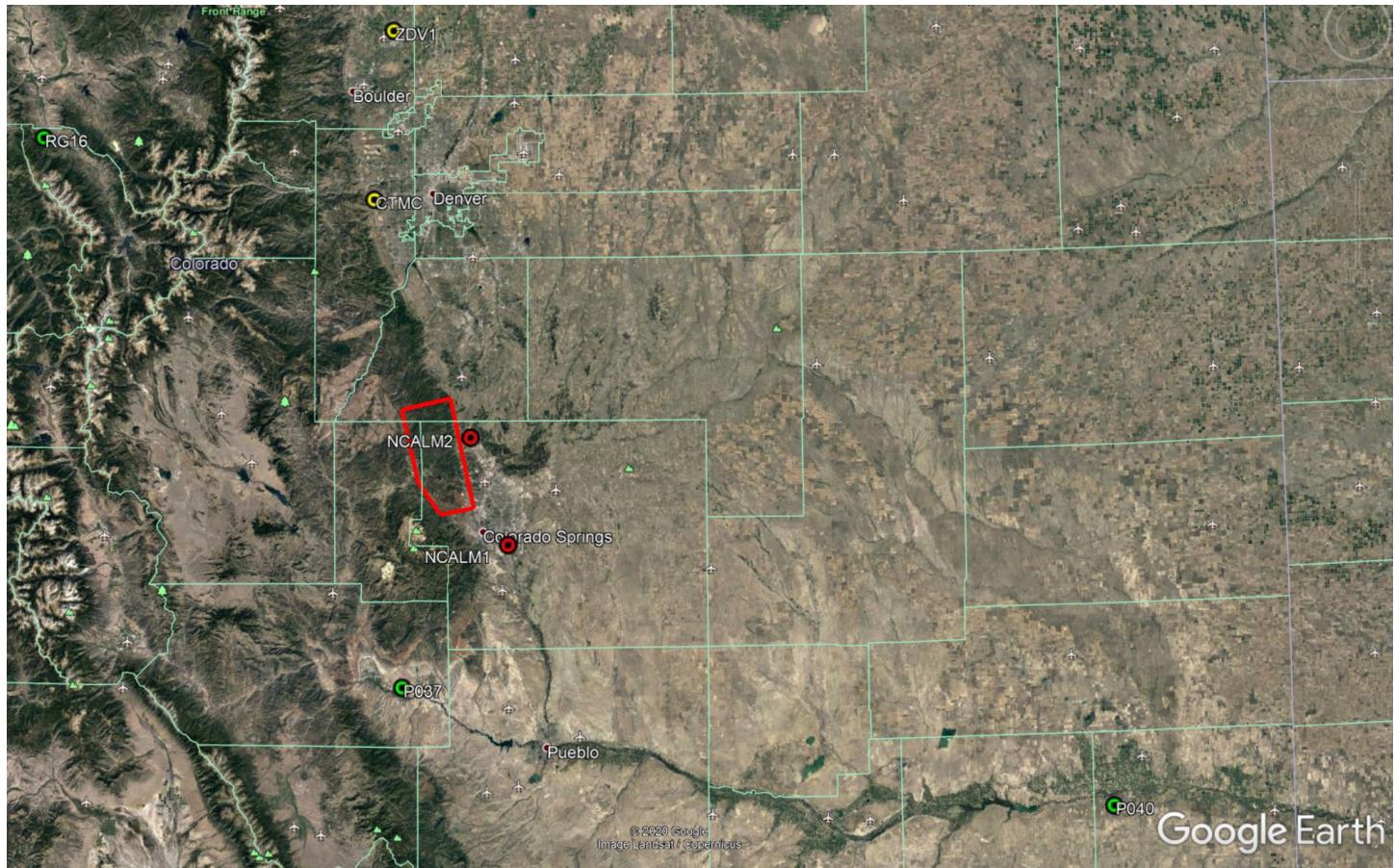
**Data Accuracy Summary**

|                        |         |
|------------------------|---------|
| Strip-to-Strip Average | 0.048 m |
| GCP Residual RMS       | 0.013 m |

**Data Product Summary:**

|   |  |
|---|--|
| Horizontal / Vertical Datum:                  | NAD83(2011) epoch 2010.00 / NAVD88 –GEOID12B   |
| Projection / Units:                           | UTM Zone 13N / meters  |
| Point Cloud Tiles:                            | 1000-m $\times$ 1000-m tiles in LAS format (Version 1.4) with unclassified and ground classified returns |
| First-Surface and Bare Earth Elevation Model: | ArcGIS FLT @ 1 m resolution  |
| First-Surface and Bare Earth Hillshade:       | GeoTIFF @ 1 m resolution   |

## Area of Interest:



**Location of survey polygon, aircraft trajectory, and GNSS reference stations.**

The requested survey area consisted of one polygon located north of Colorado Springs over the Front Range in Colorado. The polygon enclosed approximately 92.0 km<sup>2</sup>.