

# Comparing the Spatial Accuracy of Digital Surface Models from Four Unoccupied Aerial Systems: Photogrammetry Versus LiDAR

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**ST 1.** Locations of checkpoints (CP) in decimal degrees, altitude (m) of each checkpoint, and differences between respective DSMs and checkpoints in meters (m) listed by platform: LiDAR, INS (Inspire), MAT (Matrice), MAV (Mavic Pro), P4P (Phantom 4 Pro). Overall Mean Error (ME), Standard Deviation of Error (St. Dev.), Mean Average Error (MAE), and RMSE also listed.

| CP       | Longitude    | Latitude    | Altitude | LiDAR | INS 1   | MAT 1 | MAV 1  | P4P 3 |
|----------|--------------|-------------|----------|-------|---------|-------|--------|-------|
| P1       | -65.11892131 | 44.94836999 | 54.75    | 0.03  | 0.02    | 0.03  | 0.14   | 0.01  |
| P2       | -65.11953122 | 44.94875508 | 61.09    | 0.05  | 0.01    | 0.01  | 0.06   | 0.03  |
| P3       | -65.1196785  | 44.9482073  | 59.96    | 0.03  | 0.03    | 0.07  | 0.07   | 0.03  |
| P4       | -65.11980599 | 44.94866469 | 63.44    | 0.05  | 0.03    | 0.03  | 0.08   | 0.03  |
| P5       | -65.11989563 | 44.94911118 | 63.24    | 0.05  | -0.008  | 0.03  | 0.02   | 0.03  |
| P6       | -65.11986297 | 44.94773879 | 57.41    | 0.01  | 0.02    | 0.03  | 0.02   | 0.008 |
| P7       | -65.12068701 | 44.94759533 | 57.64    | 0.08  | 0.08    | 0.11  | 0.07   | 0.02  |
| P9       | -65.12173866 | 44.94883572 | 72.04    | 0.02  | -0.03   | -0.15 | 0.06   | -0.05 |
| P10      | -65.1212735  | 44.94880432 | 71.54    | -0.02 | 0.003   | -0.04 | -0.008 | -0.02 |
| P11      | -65.12122784 | 44.94902887 | 72.39    | 0.03  | -0.0004 | -0.10 | -0.06  | -0.02 |
| P12      | -65.12026788 | 44.94908824 | 66.85    | 0.04  | -0.02   | 0.005 | -0.005 | 0.02  |
| P20      | -65.11967805 | 44.94780874 | 57.09    | 0.01  | -0.0006 | 0.004 | 0.03   | 0.009 |
| ME       |              |             |          | 0.03  | 0.01    | 0.003 | 0.04   | 0.007 |
| St. Dev. |              |             |          | 0.02  | 0.03    | 0.07  | 0.05   | 0.03  |
| MAE      |              |             |          | 0.04  | 0.02    | 0.05  | 0.05   | 0.02  |
| RMSE     |              |             |          | 0.04  | 0.03    | 0.06  | 0.06   | 0.03  |