

Camera Calibration Reporting

| CAMERA CALIBRATION PARAMETERS | | | | | | | |
|--|-----------------------------|--|--------------------------|---------------------------------|---------------|----------------------------------|---|
| PROJECT #: | Boresite Calibration Flight | GEOID MODEL: | CVGD 2013 (NAD83) | CAMERA NAME: | DMC III | PRINCIPAL POINT OFFSET ppx [mm]: | 0 |
| COMPANY NAME: | Peregrine Aerial Survey | IMU TYPE: | LCI-100C | CAMERA SERIAL #: | 27550 | PRINCIPAL POINT OFFSET ppy [mm]: | 0 |
| DATE OF CALIBRATION: | 31-May-19 | IMU orientation [ENU/NED]: | DD | # PIXEL (WIDTH) | 14592 | | |
| CALIBRATION LOCATION: | Abbotsford, BC | BASE/ROVER GPS TYPE: | Trimble NETRS | # PIXEL (LENGTH) | 25728 | | |
| NAME OF PERSON PERFORMING CALIBRATION: | Paul Gagnon | GPS SOLUTION : | Differential / Multipass | PIXEL SIZE [µm]: | 3.9 | | |
| GEODETTIC DATUM: | NAD83 (CSRS) epoch 2006 | MAX BASELINE LENGTH [Km]: | 27 km | A-Priory FOCAL LENGTH "f" [mm]: | 92 | | |
| VERTICAL DATUM: | CVGD 2013 (NAD83) | A-Priory Spatial boresight offsets dX dY dZ [m;m;m]: | .087, 0.00, .182 | #CHANNELS [R/G/B/IR/nIR] | R/G/B/NIR/Pan | | |
| PROJECTION: | UTM 10N | A-Priory Angular boresight offsets dR dP dH [°]: | 0, 0, 0 | BIT DEPTH [bit]: | 14 | | |

| BUNDLE BLOCK ADJUSTMENT (BBA) | | | | | |
|---|--|---|--------|---|--------|
| SOFTWARE NAME AND VERSION: | ImageStation Automatic Orientations 2018 | Variance Components Image Points [µm] (RMS): | 0.9 | Variance Components GPS positions [mm] (RMS): | 2.0 cm |
| BUNDLE BLOCK ADJUSTMENT PARAMETER ESTIMATES USED DURING ADJUSTMENT: | X0, Y0, Z0, omega, Phi, Kappa | Variance Components Image points x [µm] (RMS): | 0.8 | Variance Components GPS positions X-EASTING [mm] (RMS): | 2.0 cm |
| IMAGE MEASUREMENT WEIGHTING [µ]/[PIXELS]: | 2 µm | Variance Components Image points y [µm] (RMS): | 0.7 | Variance Components GPS positions Y-NORTHINGS [mm] (RMS): | 2.2 cm |
| GROUND CONTROL WEIGHTING in dN dE dZ [±m;±m;±m]: | 0.10 / 0.10 0.10 meters | Variance Components Coordinates [µm] (RMS): | 3.4 cm | Variance Components GPS positions Z-ELEVATION [mm] (RMS): | 2.0 cm |
| GPS POSITION WEIGHTING in dN dE dZ [±m;±m;±m]: | .5 / .5 / .5 meters | Variance Components Coordinates X-EASTING [mm] (RMS): | 3.3 cm | | |
| # 3D GROUND CONTROL POINTS: | 22 control / 180 check points | Variance Components Coordinates Y-NORTHING [mm] (RMS): | 3.6 cm | | |
| | | Variance Components Coordinates Z-ELEVATION [mm] (RMS): | 4.8 cm | | |

| BBA RESULTS | |
|---|---------------------------|
| A-Priory FOCAL LENGTH [mm]: | 92 mm |
| A-Posteriori FOCAL LENGTH [mm]: | 92 mm |
| A-Priory PRINCIPAL POINT OFFSET ppx [mm]: | 0 mm |
| A-Posteriori PRINCIPAL POINT OFFSET ppx [mm]: | 0 mm |
| A-Priory PRINCIPAL POINT OFFSET ppy [mm]: | 0 mm |
| A-Posteriori PRINCIPAL POINT OFFSET ppy [mm]: | 0 mm |
| Achieved angular Exterior Orientation Parameter Std.Dev Om/Phi/Kappa [±°;±°;±°] | .002 / .003 / .002 deg |
| Achieved positional Exterior Orientation Parameter Std.Dev in EAST/NORHT/ELEVATION [±m;±m;±m] | .022 / .022 / .016 meters |
| Sigma Naught [µm]: | 0.9 µm |
| Average Residuals of control points dE dN dZ [m;m;m] (RMS): | .015 / .015 / .037 meters |

Full software and residuals output to be submitted with this report