GeoBC Digital Data Naming Conventions

GeoBC

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GeoBC

BRITISH COLUMBIA

Ministry of Land, Water and Resource Stewardship

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Introduction

These specifications provide the file naming conventions for various product deliverables (LiDAR products and derivatives, Orthophoto, Metadata and Reporting, etc.) that are accepted by the British Columbia Provincial Government.

The term “Branch”, used herein, shall mean GeoBC of the Ministry of Forests, Lands and Natural Resource Operations and Rural Development in the Province of British Columbia.

The Branch shall be the final authority on acceptance or rejection of submitted data file naming. There shall be no uppercase letters, spaces, or special characters in any file or folder names on the submitted drives, unless otherwise specified in this document. Folder names shall only contain lowercase letters, numbers, and underscores as separators.

All file naming conventions listed in this document shall be adhered to, unless otherwise specified in the project contract. Contract naming conventions will take precedence.

LiDAR Deliverables, Metadata and Reporting

1.1 LAS/LAZ File Format Deliverables

1.1.1 Tiled LiDAR (classified or unclassified)

[Ownership]_[Geographic Extent]_x[Classification]_[Nominal Pulse Density]_ [Projection]_[Date].[file type]

Ownership = ‘bc’

Geographic Extent = Geographic BC Map tile

Classification = ‘yes’ or ‘no’

Nominal Pulse Density = the project design pulse density in points per square metre, shall be an integer number (e.g., 5) or a decimal number denoted by ‘p’ (e.g., 7p03)

Projection = Data projection (e.g., ‘bcalb’ for BC Albers or ‘utm10’ for Universal Transverse Mercator Zone 10)

Date = year of acquisition

e.g., bc_092b081_1_1_3_xyes_8_utm10_2016.laz

1.1.2 Calibrated, Unclassified, Strip Adjusted LiDAR

[File Source ID]_[GPS Day]_[Year]_[System Serial Number]_[Tail Number].[file type]

File Source ID = the raw strip equivalent to the original FL number assigned to the file, ranging from 1 through to 65,535 (2 byte unsigned short); according to the LAS 1.4 Specifications [5]

GPS Day = Day of year wherein January 1st is considered '001', in increasing increments through to day 365 (December 31st)

Year = year of data collection

System Serial Number = serial number of acquisition system (Laser)

Tail Number = identification number of aircraft used in data collection

e.g., 00001_234_2020_s1236_G-CHJI.laz

1.1.3 Spectral Encoded Point Cloud

[Ownership]_[Geographic Extent]_x[Acquisition Type]_[Design Ground Point Density]_[Projection]_[Date]_[Visible Bands].[file type]

Ownership = 'bc'

Geographic Extent = Geographic BC Map tile

Acquisition Type = 'li' for LiDAR, 'r' for Radar, and 'rgb' for Photogrammetric

Design Ground Point Density = the project design ground point density in points per square metre, shall be an integer number (e.g., 12) or a decimal number denoted by 'p' (e.g., 7p5)

Projection = Map projection (e.g., 'bcalb' for BC Albers, or 'utm10' for Universal Transverse Mercator zone 10 North)

Date = year of acquisition

Visible Bands = visible bands used for spectral encoding (e.g., rgb, irrg)

e.g., bc_092o061_xli_12_utm10_2016_rgb.las
e.g., bc_092b052_4_1_2_xr_7p05_utm10_2017_irrg.laz

1.2 GeoTIFF Format Deliverables

1.2.1 Density Grids

[Contract Number]_DensityGrid_[Resolution]_[Site Name]_lastreturn.tif

Contract Number = Contract number (e.g., OP20BMRS078)

DensityGrid = “DensityGrid”

Resolution = Calculated as number of points per square metre, delivered at a resolution of 5 metres.

Site Name = Survey site name, with no underscore, spacing, or dashes. (e.g., Site called “Skeena Main” will result in site name of “SkeenaMain”)

lastreturn = “lastreturn”

e.g., OP20BMRS078_DensityGrid_5m_SkeenaMain_lastreturn.tif

1.3 Shapefile Format Deliverables

1.3.1 Swath Extent Polygons

Note: The naming convention follows the same as Calibrated, Unclassified, Strip Adjusted LiDAR, with a shapefile extension (.shp) rather than LAS/LAZ (e.g., .laz). Where the LAZ files may be split (due to file size restraints), the Swath Extent Polygon shapefiles shall be split to match.

[File Source ID]_[GPS Day]_[Year]_[System Serial Number]_[Tail Number].[file type]

File Source ID = the raw strip equivalent to the original FL number assigned to the file, ranging from 1 through to 65,535 (2 byte unsigned short); according to the LAS 1.4 Specifications

GPS Day = Day of year wherein January 1st is considered ‘001’, in increasing increments through to day 365 (December 31st)

Year = year of data collection

System Serial Number = serial number of acquisition system (Laser)

Tail Number = identification number of aircraft used in data collection

e.g., 00001_234_2020_####_G-CHJI.shp

1.3.2 Final LiDAR Coverage Extent Polygons

[Contract Number]_[Business Area]_[Product Type]_bcalb.shp

Contract Number = Contract number (e.g., OP20BMRS078)

Business Area = Project Code in Full (e.g., 'BCTS_TSK_TSN' or 'Fraser')

Product Type = 'LiDAR' or 'Ortho' (where imagery required for a project)

bcalb = Projected in NAD83 / BC Albers (EPSG: 3005)

e.g., OP20BMRS078_BCTS_TSK_TSN_LiDAR_bcalb.shp

1.3.3 Hydro Breaklines/Shoreline Delineation

[Contract Number]_[Business Area]_HydroBreaks_[Projection].shp

Contract Number = Contract number (e.g., OP20BMRS078)

Business Area = Project Code in Full (e.g., 'BCTS_TSK_TSN' or 'Fraser')

HydroBreaks = 'HydroBreaks'

Projection = Data projection (e.g., 'bcalb' for BC Albers or 'utm10' for Universal Transverse Mercator Zone 10)

e.g., OP20BMRS078_BCTS_TSK_TSN_HydroBreaks_utm10.shp

1.4 Metadata Reports (XML/PDF)

LiDAR Metadata Reports are delivered in both XML and PDF formats

[Contract Number]_[Year]_Metadata.pdf

[Contract Number]_[Year]_Metadata.xml

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Metadata = 'Metadata'

e.g., OP20BMRS078_2021_Metadata.pdf

1.5 Reporting Deliverables (PDF)

1.5.1 In-Situ Calibration Report

[Contract Number]_[Year]_LiDAR_Calib_[LiDAR Serial Number].pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

LiDAR_Calib = 'LiDAR_Calib'

LiDAR Serial Number = Serial number of calibrated LiDAR system

e.g., OP20BMRS078_2021_LiDAR_Calib_SN001234.pdf

1.5.2 LiDAR Data Adjustment Report

[Contract Number]_[Year]_LiDAR_Adjustment_Report.pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

LiDAR_Adjustment_Report = 'LiDAR_Adjustment_Report'

e.g., OP20BMRS078_2021_LiDAR_Adjustment_Report.pdf

1.5.3 Calibrated, Unclassified, Strip Adjusted LiDAR QC Report

[Contract Number]_[Year]_LiDAR_Strip_QC_Report.pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

LiDAR_Strip_QC_Report = 'LiDAR_Strip_QC_Report'

e.g., OP20BMRS078_2021_LiDAR_Strip_QC_Report.pdf

1.5.4 Classified LiDAR Point Cloud QC Report

[Contract Number]_[Year]_LiDAR_Classified_QC_Report.pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

LiDAR_Classified_QC_Report = 'LiDAR_Classified_QC_Report'

e.g., OP20BMRS078_2021_LiDAR_Classified_QC_Report.pdf

1.5.5 Final Project Report

[Contract Number]_[Year]_Final_Report.pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Final_Report = 'Final_Report'

e.g., OP20BMRS078_2021_ Final_Report.pdf

Ground Control Deliverables

1.6 Shapefile Format Deliverables (.shp)

[Contract Number]_[Year]_Ground_Control_[Projection].shp

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Ground_Control = 'Ground_Control'

Projection = Data projection (e.g., 'bcalb' for BC Albers or 'utm10' for Universal Transverse Mercator Zone 10)

e.g., OP20BMRS078_Ground_Control_UTM10.shp

1.7 Reporting Deliverables (PDF)

[Contract Number]_[Year]_Control_Report.pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Control_Report = 'Control_Report'

e.g., OP20BMRS078_2021_Control_Report.pdf

DEM Products

1.8 LiDAR, Radar or Photogrammetrically Derived DEM

[Ownership]_[Geographic Extent]_x[Acquisition Type][Grid Size]

[Projection][Date].[file type]

Ownership = 'bc'

Geographic Extent = Geographic BC Map tile

Acquisition Type = 'li' for LiDAR, 'r' for Radar, and 'rgb' for Photogrammetric

Grid Size = cell size in metres, shall be an integer number (e.g., 2m) or a decimal number denoted by 'p' (e.g., 2p5m)

Projection = Map projection (e.g., 'bcalb' for BC Albers, or 'utm10' for Universal Transverse Mercator zone 10 North)

Date = year of acquisition

e.g., bc_092o061_xli2m_utm10_2016.tif

1.9 DEM Metadata Report

[Contract Number]_[Year]_DEM_Metadata_Report.pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

DEM_Metadata_Report = 'DEM_Metadata_Report'

e.g., OP20BMRS078_2021_DEM_Metadata_Report.pdf

DSM Products

[Ownership]_[Geographic Extent]_x[Acquisition Type][Grid Size]

[Projection][Date]_dsm.[file type]

Ownership = 'bc'

Geographic Extent = Geographic BC Map tile

Acquisition Type = 'li' for LiDAR, 'r' for Radar, and 'rgb' for Photogrammetric

Grid Size = cell size in metres, shall be an integer number (e.g., 2m) or a decimal number denoted by 'p' (e.g., 2p5m)

Projection = Map projection (e.g., 'bcalb' for BC Albers, or 'utm10' for Universal Transverse Mercator zone 10 North)

Date = year of acquisition

e.g., bc_092o061_xli1m_utm10_2016_dsm.tif

Ortho-image & Stereo Model Products & Metadata

1.10 Tiled Ortho-image Deliverables

File formats for these products vary (e.g., TIFF, JPEG, JPEG-compressed TIFF), and shall adhere to the contract format requirements. All file names shall be lowercase for ortho-image products.

[Ownership]_[Geographic Extent]_x[Image Type][Resolution]_[Projection]_[Year of photography]_.[file type]

Ownership = 'bc'

Geographic Extent = Geographic BC Map tile (e.g., 092b002_3_2_1)

Image Type = 3-band colour ('c'), 4-band colour ('ci'), black and white ('b'), false colour ('fc')

Resolution = the size of the pixels in the image in millimeters (e.g., 200mm, 500mm)

Projection = map projection (e.g., 'bcalb' for BC Albers, or 'utm10' for Universal Transverse Mercator zone 10 North)

Year of Photography = the year in which the image was taken

e.g., bc_092b051_4_4_1_xc100mm_utm10_2015.tif
e.g., bc_092b032_3_3_5_xfc300mm_bcalb_2017.tiff

1.11 Ortho-image Overview

File formats for these products vary (e.g., TIFF, JPEG, JPEG-compressed TIFF), and shall adhere to the contract format requirements. All file names shall be lowercase for ortho-image products.

[Ownership]_[Business Area]_x[Image Type][Resolution]_[Projection]_[Year of Photography].[file type]

Ownership = 'bc'

Business Area = Project Code in full (e.g., 'bcts_tsk_tsn' or 'fraser'), all lowercase

Image Type = 3-band colour ('c'), 4-band colour ('ci'), black and white ('b'), false colour ('fc')

Spatial Resolution = the size of the pixels in the image in metres (e.g., 2m, 5m)

Projection = map projection (e.g., 'bcalb' for BC Albers, or 'utm10' for Universal Transverse Mercator zone 10 North)

Year of Photography = the year in which the image was taken

e.g., bc_fraser_xc5m_utm10_2015.tif

e.g., bc_westwilliamslake_xci5m_utm10_2015.tif

1.12 Stereo Model Setups

Stereo image files shall be named according to the Digital Image Numbering and Naming Convention for the Acquisition of Digital Imagery.

[Focal Length]bcd[Year][Frame Series]_[Frame Number]_[GSD]_[Bit Depth]bit_[Image Bands].[file type]

Focal Length = two digits, rounded to the next digit, unit [cm]

'bc' = Province identifier, 'bc'

'd' = One character media type lowercase 'd' = digital frame camera

Year = last two digits of the year of acquisition 'YY'

Frame Series = three digits, frame series assigned by the province, including leading zeroes ('001')

Frame Number = three digits, consecutive image frame number, including leading zeroes ('001') with a maximum of '999'

GSD = ground sample distance, rounded in unit [cm]

Bit Depth = Image bit depth per band, variable length, e.g., '12'

Bit = 'bit'

Image Bands = image band(s) (lowercase, variable length), e.g., 'rgb', 'rgbir', etc.

e.g., 15bcd22009_897_25_12bit_rgb.tif
e.g., 15bcd2100_534_30_16bit_rgbir.tif

1.13 Supplemental Deliverables

1.13.1 Manufacturer Provided Camera Calibration Report (PDF/.doc/docx)

[Contract Number]_[Year]_Manuf_Calib_[Camera Serial Number].pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Manuf_Calib = Manufacturer Calibration 'Manuf_Calib'

Camera Serial Number = Serial Number of camera that was calibrated (e.g., SN002345)

e.g., OP20BMRS078_2021_Manuf_Calib_SN002345.pdf

1.13.2 In-Situ Camera Calibration Report (PDF/.doc/.docx)

[Contract Number]_[Year]_Calib_[Camera Serial Number].pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Calib = "Calib"

Camera Serial Number = Serial Number of camera that was calibrated (e.g., SN002345)

e.g., OP20BMRS078_2021_Calib_SN002345.pdf

1.13.3 Air Photo Metadata File (Excel .xlsx)

[Contract Number]_[Year]_AMF_[Film Roll].xlsx

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Air Photo Metadata File = 'AMF'

Film Roll[1] = <focal length><bc><d><year><Frame Series>

e.g., OP20BMRS078_2021_AMF_21bcd22101.xlsx

1.13.4 Geo-referencing Report (Direct or Indirect; PDF/.doc/.docx)

[Contract Number]_[Year]_Georef_Report_[Indirect or Direct].pdf

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Georef_Report = 'Georef_Report'

Indirect or Direct = Either 'Indirect' or 'Direct'

e.g., OP20BMRS078_2021_Georef_Report_Direct.pdf

1.13.5 PatB File (ASCII File .ori)

[Contract Number]_[Year]_PatB.ori

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

PatB = 'PatB'

e.g., OP20BMRS078_2021_PatB.ori

[1] See Digital Image Numbering and Naming Convention for the Acquisition of Digital Imagery (Digital Frame Camera) specifications for more detail on film roll.

1.13.6 Photo Centre Index File (shapefile)

[Contract Number]_[Year]_Photo_Centre_Index.shp

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Photo_Centre_Index = 'Photo_Centre_Index'

e.g., OP20BMRS078_2021_ Photo_Centre_Index.shp

1.13.7 Ground Sample Verification Report (Excel .xlsx)

[Contract Number]_[Year]_GSD_reporting.xlsx

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

GSD_reporting = 'GSD_reporting'

e.g., OP20BMRS078_2021_GSD_reporting.xlsx

1.13.8 Ortho-image Positional Accuracy Report (Excel .xlsx)

[Contract Number]_[Year]_Ortho-image_Positional_Accuracy.xlsx

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Ortho-image_Positional_Accuracy = 'Ortho-image_Positional_Accuracy'

e.g., OP20BMRS078_2021_ Ortho-image_Positional_Accuracy.xlsx

1.13.9 Tree Top Heights from Stereo (.shp & Excel .csv)

[Contract Number]_[Year]_Tree_Height.[file type]

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Tree_Height = 'Tree_Height'

File Type = .shp or .csv

e.g., OP20BMRS078_2021_Tree_Height.shp
e.g., OP20BMRS078_2021_Tree_Height.csv

1.13.10 Ortho-image Seamlines

[Contract Number]_[Year]_[Site Name]_Seamlines.shp

Contract Number = Contract number (e.g., OP20BMRS078)

Year = Contract year as YYYY

Site Names = If applicable, include site name for submitted seamlines, with no spaces/underscores/dashes in the name

Seamlines = 'Seamlines'

e.g., OP20BMRS078_2021_Seamlines.shp
e.g., OP20BMRS078_2021_SkeenaMain_Seamlines.shp

1.13.11 Ortho-image Extents

[Contract Number]_[Business Area]_[Product Type]_bcalb.shp

Contract Number = Contract number (e.g., OP20BMRS078)

Business Area = Project Code in Full (e.g., 'BCTS_TSK_TSN' or 'Fraser')

Product Type = 'LiDAR' or 'Ortho' (where imagery required for a project)

bcalb = Projected in NAD83 / BC Albers (EPSG: 3005)

e.g., OP20BMRS078_BCTS_TSK_TSN_Ortho_bcalb.shp