



**Office of the Chief Information Officer
Ministry of Labour and Citizen's Services**

Common Raster Cell Origin, Shape and Sizes Standard for the Government of British Columbia

Version 1.0

Prepared by: Natural Resource Sector Information Working Group

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Resource Information Standards Committee**

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1. Background

Raster (grid) data formats are being more widely used within the government of British Columbia. Sample applications include: modelling and forecasting forest pest infestations, climate modelling, hydrologic modelling and biodiversity analysis and reporting. Sample grid values would include: elevation, temperature, percent mortality, soil porosity.

Currently, where datasets are created based upon different origins (place where a raster grid is initiated), issues with alignment must be managed when the datasets are combined. This requirement to shift and/or resample data can generate data artefacts. Similarly, where raster shapes and resolutions (the size of each raster cell) are different combining datasets with shapes and sizes which are not evenly divisible can pose processing challenges.

This common origin and set of raster cell sizes is recommended for adoption to facilitate efficient data sharing. The standard is based upon the existing provincial, 25 metre gridded Digital Elevation Model (DEM), which is readily available, widely applied and had a significant investment in its creation. The gridded DEM uses even planar coordinates generated in the provincial standard BC Albers coordinate reference system to define its centre-points. Therefore the outer boundaries of each cell which represent this origin are situated at Albers planar coordinates ending in 2.5m or 7.5 m.

2. Objective

To simplify the combination of raster data created by independent projects, through the adoption of common raster cell origin, shape and sizes.

3. Scope of Application:

While imagery data can be configured to this standard, the application of the standard to imagery is optional.

Each aspect of the standard (origin, standard sizes and shapes) is independent, however, the more consistently they can be applied the more efficiently future projects can be processed.

4. Custodian of Standard

The GeoBC Crown Registry and Geographic Base branch will act as the custodian for this standard.

5. Standards

<p>Common Raster Cell Origin, Shape and Sizes Standard</p> <p>Office of the Government Chief Information Officer Province of British Columbia</p>	<p>Effective Date: TBD</p> <p>Scheduled Review: TBD</p>
<p>5.1. Coordinate Reference System (CRS)</p>	

Standard:

The coordinate reference system (CRS) for raster data MUST follow the Albers projection of British Columbia (BC Albers) as defined below:

Datum: NAD83
Ellipsoid: GRS1980

Latitude of projection origin: 45° 00' 00"
First standard parallel: 50° 00' 00"
Second standard parallel: 58° 30' 00"
Central meridian: -126° 00' 00"
False easting: 1000000.0
False northing: 0.0

Notes:

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<p>5.2. Cell Shape</p>	

Standard:

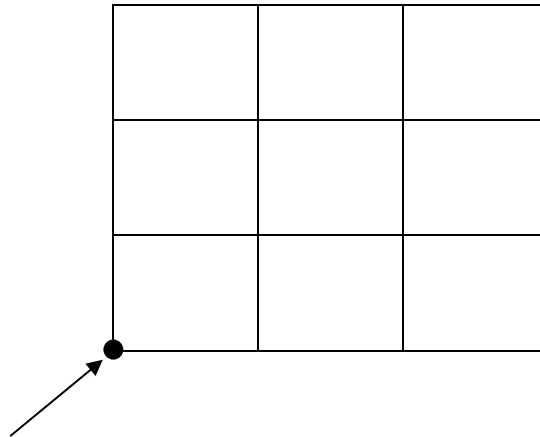
The shape of raster cells (grids/pixels) MUST be square with cell height equalling cell width.

Notes:

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<p>5.3. Origin</p>	

Standard:

The origin for raster data in BC Albers coordinates MUST be:



Common raster cell origin
BC Albers
Easting: 159 587.5
Northing: 173 787.5

Notes:

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<p>5.4. Cell Size</p>	

Standard:

The RECOMMENDED size of raster cells is multiples of 5 that nest completely with the next highest cell size (e.g. 5, 25, 50, 100, 200, 400, 800).

Raster cell sizes less than or equal to 5 may be used at the discretion of the user (e.g. if cell alignment error is considered insignificant to the intended use).

Raster cell sizes in multiples of 10 up to and including 1000 may be used at the discretion of the user (e.g. if cell alignment error is insignificant to the intended use).

Notes:

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5.5. Metadata	

Standard:

The following items SHOULD be included in the metadata:

- 1) Reference point of the cell (e.g. corner or center point)
- 2) Indexing scheme (e.g. lower left or upper left)
- 3) File format (e.g. ESRI GRID, GeoTIFF, MrSid, etc.)
- 4) Raster creation methodology (e.g. scanning, vector raster conversion)

Notes: