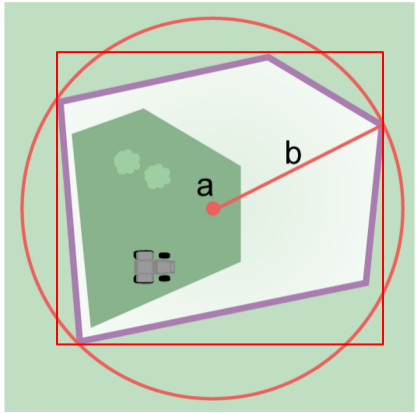
Darwin Core
& Georeferencing

John Wieczorek

PUBLIC DOMAIN

Georeferencing



Assigning a **numerical description** of a **location** in a **coordinate reference system**, including the **extent** and accounting for associated **uncertainties**.

Best Practice: … with sufficient information to be reproducible.

http://tiny.cc/GBP20200206

GBIF Documentation Project VertNet

Georeferencing Best Practices

Georeferencing Quick Reference Guide

Georeferencing Calculator / Manual

Georeferencing Calculator

English

Locality Type Distance at a heading (e.g., 10 mi E (by air) Bakersfield)

Coordinate Source USGS map: 1:24000 **Direction** E

Coordinate Format degrees minutes seconds **Offset Distance** 10

Input Latitude 35 22 24 N **Radial of Feature** 3

Input Longitude 119 1 4 W **Measurement Error** 0.0014

Datum North American Datum 1927 **Distance Units** mi

Precision nearest second **Precision** 1 mi

Calculate | Copy | Go here

Latitude	Longitude	Uncertainty (m)	Datum
35.3733333	-118.840681	15430	North American Datum 1927

Precision	Date	Georeferenced by	Protocol
0.0000001	2020-02-05T15:50:	A Champan I J Wieczorel	Georeferencing Quick Reference Guide. 20

Distance Converter: km = km

Scale Converter: 0.1 mm 1:24000 = 0.00149 mi

Version 20200131en

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Prospective Georeferencing

Gathering location information directly in numerical form in the field.

Retrospective Georeferencing

Interpreting location in numerical form from information available post-facto.

TDWG Home Terms Guides Namespace policy

Darwin Core quick reference guide

This page provides a list of all currently recommended terms of the Darwin Core standard. Categories such as `Occurrence` or `Event` correspond to Darwin Core classes which group other terms. Convenient files of these terms and their full history can be found in the Darwin Core repository.

Location	Class
Identifier	http://purl.org/dc/terms/Location
Definition	A spatial region or named place.
Comments	
Examples	The municipality of San Carlos de Bariloche, Río Negro, Argentina. The place defined by a georeference.

locationID | higherGeographyID | higherGeography | continent | waterBody | islandGroup | island | country | countryCode | stateProvince

county | municipality | locality | verbatimLocality | minimumElevationInMeters | maximumElevationInMeters | verbatimElevation

minimumDepthInMeters | maximumDepthInMeters | verbatimDepth | minimumDistanceAboveSurfaceInMeters

maximumDistanceAboveSurfaceInMeters | locationAccordingTo | locationRemarks | decimalLatitude | decimalLongitude | geodeticDatum

coordinateUncertaintyInMeters | coordinatePrecision | pointRadiusSpatialFit | verbatimCoordinates | verbatimLatitude | verbatimLongitude

verbatimCoordinateSystem | verbatimSRS | footprintWKT | footprintSRS | footprintSpatialFit | georeferencedBy | georeferencedDate

georeferenceProtocol | georeferenceSources | georeferenceVerificationStatus | georeferenceRemarks

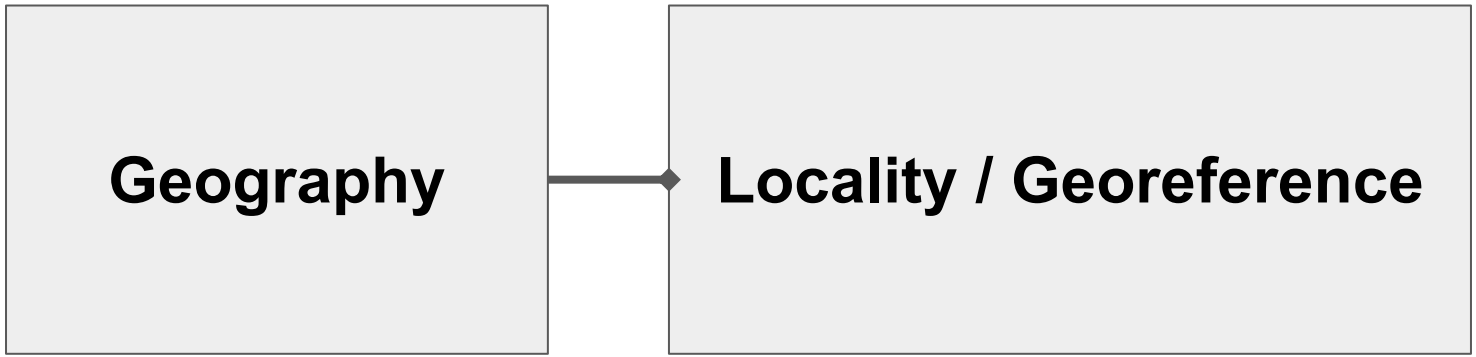
Record-level
Occurrence
Organism
MaterialSample
Event
Location
GeologicalContext
Identification
Taxon
MeasurementOrFact
ResourceRelationship
UseWithIRI

LivingSpecimen
PreservedSpecimen
FossilSpecimen

https://dwc.tdwg.org/terms/

Geography - Locality - Georeference

Geography - Locality with Georeference



Location Term Categories

https://dwc.tdwg.org/terms/#location

higherGeographyID | higherGeography | countryCode | country | stateProvince | county | municipality | continent | waterBody | islandGroup | island

"Higher" Geography

minimumElevationInMeters | maximumElevationInMeters | verbatimElevation

minimumDepthInMeters | maximumDepthInMeters | verbatimDepth

minimumDistanceAboveSurfaceInMeters | maximumDistanceAboveSurfaceInMeters

decimalLatitude | decimalLongitude | geodeticDatum | coordinateUncertaintyInMeters | coordinatePrecision

footprintWKT | footprintSRS | footprintSpatialFit | pointRadiusSpatialFit

georeferencedBy | georeferenceProtocol | georeferencedDate | georeferenceSources

georeferenceVerificationStatus | georeferenceRemarks

Location Term Categories

https://dwc.tdwg.org/terms/#location

Locality

- locationID
- locality
- verbatimLocality
- locationAccordingTo
- locationRemarks
- verbatimLatitude
- verbatimLongitude
- verbatimCoordinates
- verbatimCoordinateSystem
- verbatimSRS
- minimumElevationInMeters
- maximumElevationInMeters
- verbatimElevation
- minimumDepthInMeters
- maximumDepthInMeters
- verbatimDepth
- minimumDistanceAboveSurfaceInMeters
- maximumDistanceAboveSurfaceInMeters

- decimalLatitude
- decimalLongitude
- geodeticDatum
- coordinateUncertaintyInMeters
- coordinatePrecision
- footprintWKT
- footprintSRS
- footprintSpatialFit
- pointRadiusSpatialFit
- georeferencedBy
- georeferenceProtocol
- georeferencedDate
- georeferenceSources
- georeferenceVerificationStatus
- georeferenceRemarks

Location Term Categories

https://dwc.tdwg.org/terms/#location

higherGeographyID | higherGeography | countryCode | country | stateProvince | county | municipality

continent | waterBody | islandGroup | island

locationID | locality | verbatimLocality | locationAccordingTo | locationRemarks

verbatimLatitude | verbatimLongitude | verbatimCoordinates | verbatimCoordinateSystem | verbatimSRS

minimumElevationInMeters | maximumElevationInMeters | verbatimElevation

Georeference

decimalLatitude | decimalLongitude | geodeticDatum | coordinateUncertaintyInMeters | coordinatePrecision

footprintWKT | footprintSRS | footprintSpatialFit | pointRadiusSpatialFit

georeferencedBy | georeferenceProtocol | georeferencedDate | georeferenceSources

georeferenceVerificationStatus | georeferenceRemarks

Georeference Input Terms

Administrative	Locality
higherGeography continent countryCode country stateProvince county municipality waterbody islandGroup island	locality verbatimLocality locationRemarks verbatimLatitude verbatimLongitude verbatimCoordinates **verbatimCoordinateSystem** (redefine) verbatimSRS

Georeference Input Terms

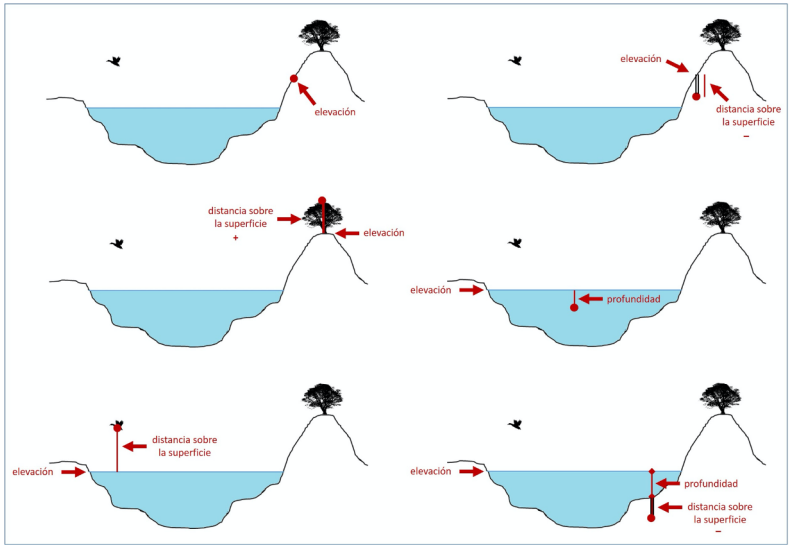
Locality (vertical components)

minimumElevationInMeters
maximumElevationInMeters
verbatimElevation

minimumDepthInMeters
maximumDepthInMeters
verbatimDepth

verticalDatum (missing)

minimumDistanceAboveSurfaceInMeters
maximumDistanceAboveSurfaceInMeters



Constraining terms

Non-locality

scientificName

lifeStage

recordedBy

eventDate

habitat

\+

dc:language

Georeference Output Terms

Point-radius	Shape	Generalization
decimalLatitude **decimalLongitude** **geodeticDatum** **coordinateUncertaintyInMeters** coordinatePrecision pointRadiusSpatialFit	**footprintWKT** **footprintSRS** **footprintSpatialFit**	dataGeneralizations informationWithheld

Process	
georeferencedBy georeferencedDate georeferenceProtocol	georeferenceSources georeferenceVerificationStatus georeferenceRemarks

Questions ?

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