



# Intro to QGIS

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# Learning objectives

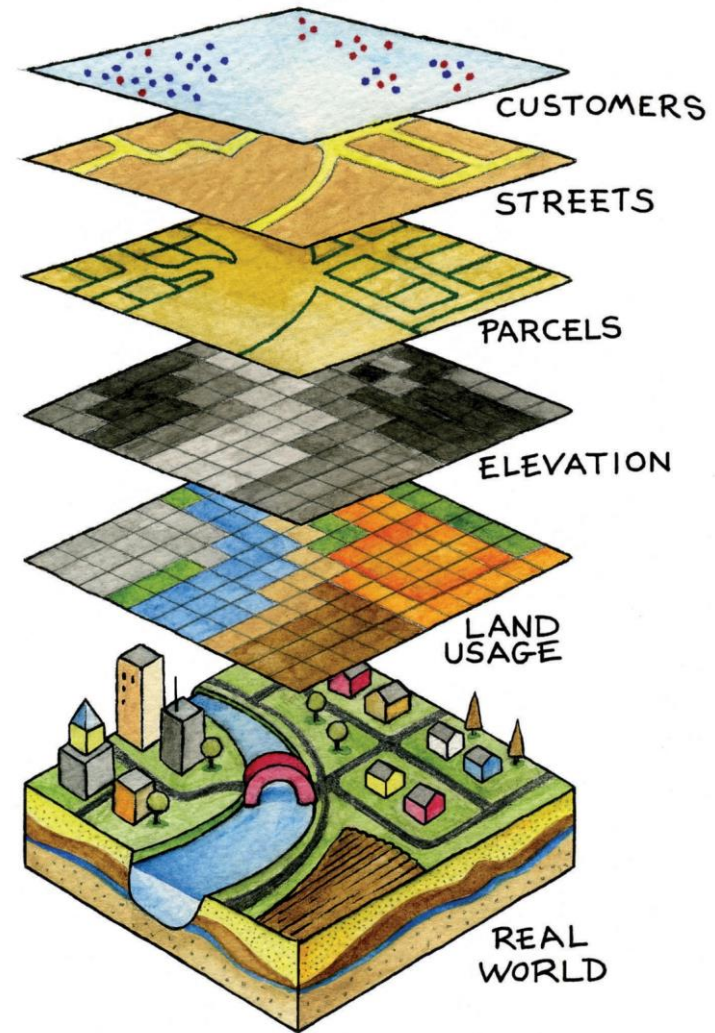
- Basic GIS concepts
- Understanding QGIS Workflow
  - Add a base map
  - Add point data on software
  - Create map layout

# Basic GIS concepts

- GIS= Geographical Information System (a map connected to a database)
  - Visualize
  - Map
  - Manage spatial data
  - Spatial analysis
- QGIS= Quantum GIS: Free and Open source GIS software
  - Alternative to ESRI/ArcGIS




# Basic GIS concepts

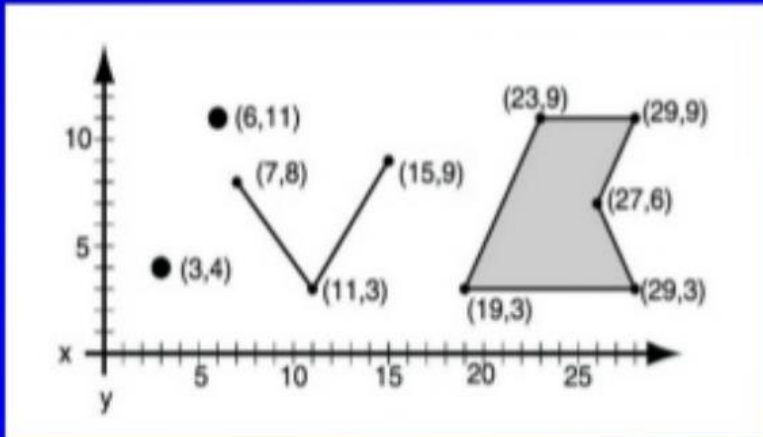
- Map is a superposition of Layers
- Each layer represent a specific type of information
- Each layer is georeferenced



# A layer can be represented as a vector or as raster

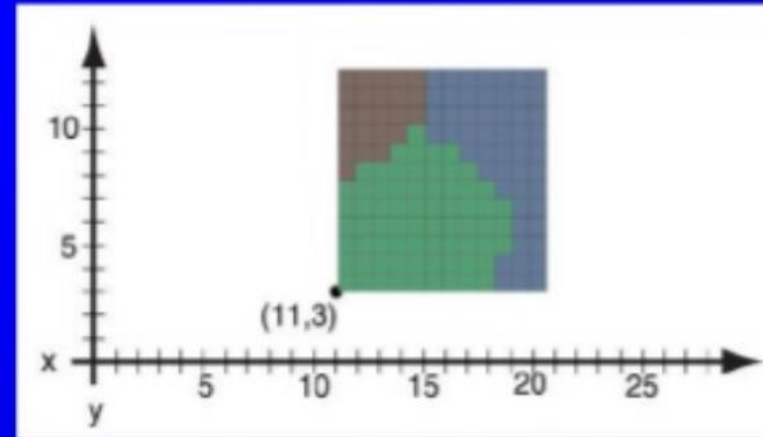
- *Vector create feature layers*

- Point 
- Lines (direction and length) 
- Polygons (area, centroids, and perimeter) 



- *Raster create surface layers*

- Records information about each element on a fixed grid as pixels (E.g.: Satellite images, aerial photos)



# Objects are geographically located by coordinate systems

## Geographic Coordinate System

a network of intersecting lines

- latitude (North/South)

- longitude (East/West)

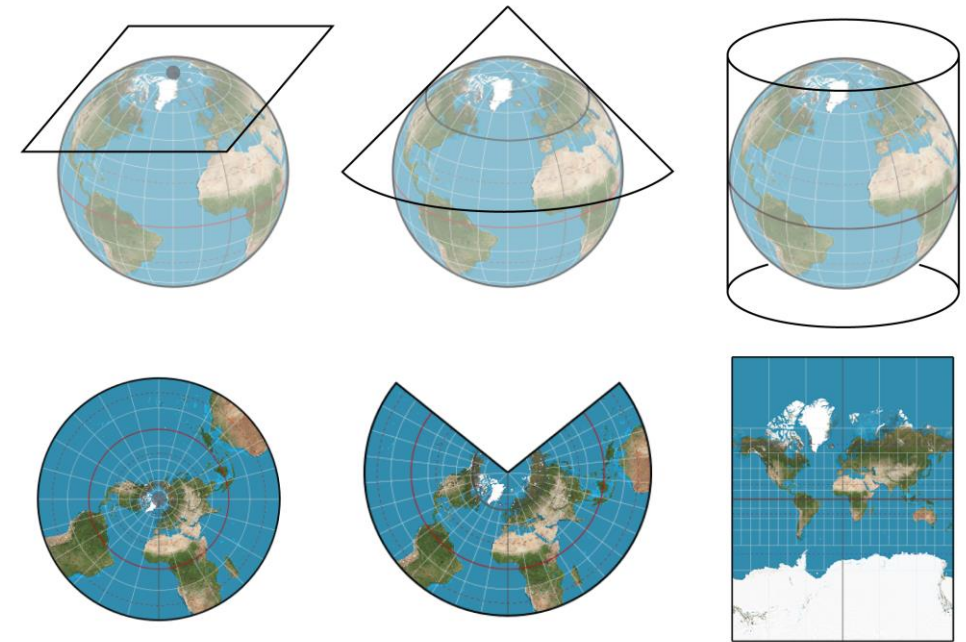
Eg:  $3.790334^{\circ}\text{N}$

$10.020218^{\circ}\text{W}$



# Map projection

- Projection is transformation between angular coordinates and planar coordinates.
- The round shape of the earth make it difficult to represent it on a flat surface
- Distortion
- Different projection has its own field of focus.
- Data or layers of a same map project should be display on the same projection






# Attribute table

Object attributes

Object location

Object attributes



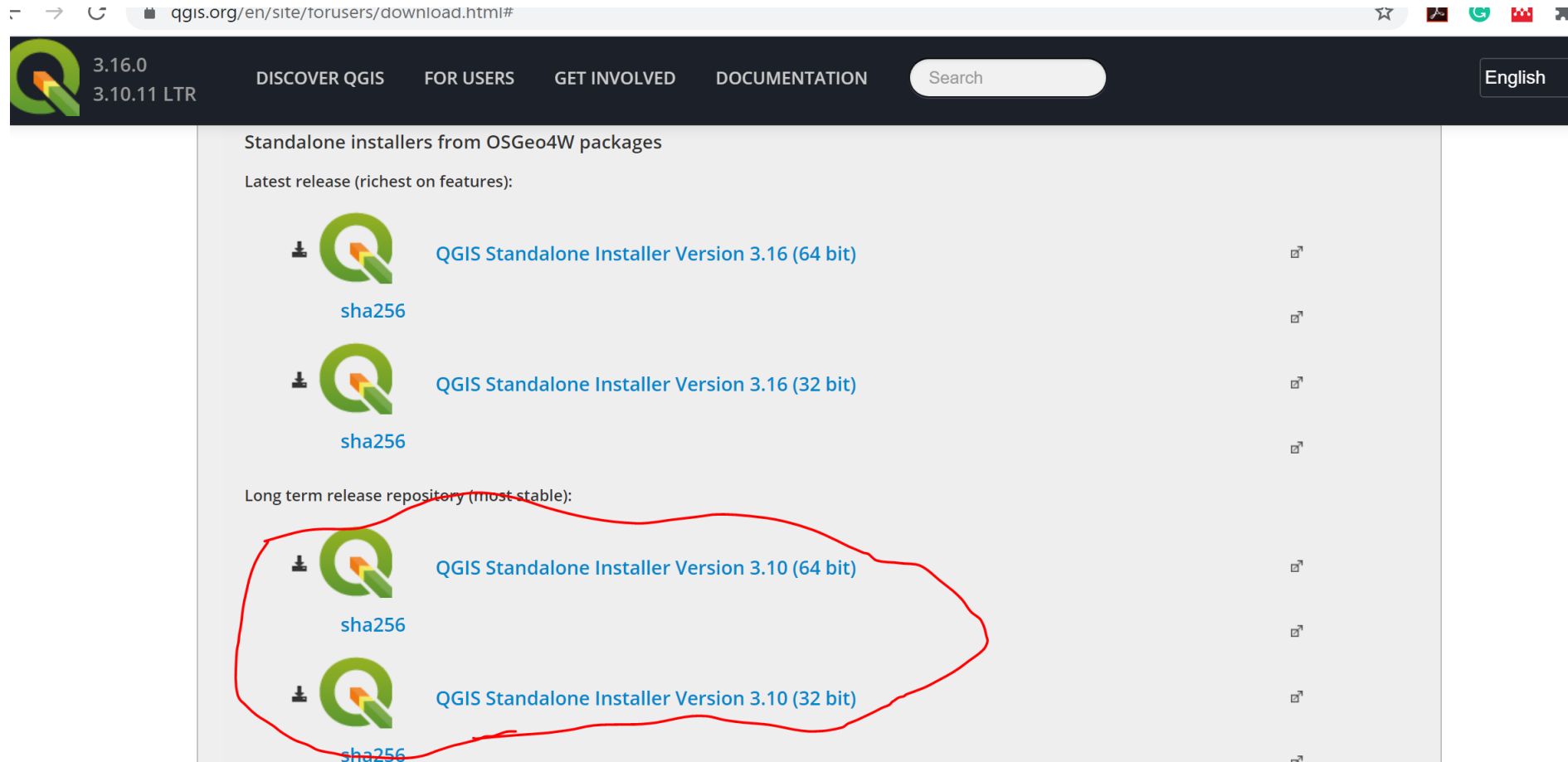
A	B	C	D	E	F	G	H	I	J	K	L	M
ID observat	Mort	Observation	Group	Sub group	Species	Date	Latitude	Longitude	Animal location	State of the	cause of death	
1	0	Animal	Fish	Other fish	Others fish	01/11/2020 09	2.938501	9.908488	Autres	Mort	Chassé	
2	0	Animal	Fish	Other fish	Others fish	02/11/2020 13	2.570033	9.824786	Au marché	Mort	Chassé	
3	0	Animal	Fish	Other fish	Others fish	02/11/2020 14	2.716768	9.870193	Sur la plage	Mort	Chassé	
4	0	Animal	Fish	Other fish	Others fish	04/11/2020 14	2.570033	9.824786	Au marché	Mort	Chassé	
5	0	Animal	Fish	Other fish	Others fish	08/11/2020 09	3.083075	9.97262	Au marché	Mort	Chassé	



# QGIS WORKFLOW

# Download QGIS and Install

<https://qgis.org/en/site/forusers/download.html#>



The screenshot shows the QGIS website's download page. The header includes the QGIS logo, version numbers (3.16.0 and 3.10.11 LTR), navigation links (DISCOVER QGIS, FOR USERS, GET INVOLVED, DOCUMENTATION), a search bar, and a language selector set to English. The main content area is titled 'Standalone installers from OSGeo4W packages'. Under the heading 'Latest release (richest on features):', there are two download links for version 3.16: 'QGIS Standalone Installer Version 3.16 (64 bit)' and 'QGIS Standalone Installer Version 3.16 (32 bit)', each with a download icon and a 'sha256' link. Below this, under the heading 'Long term release repository (most stable):', there are two download links for version 3.10: 'QGIS Standalone Installer Version 3.10 (64 bit)' and 'QGIS Standalone Installer Version 3.10 (32 bit)', each with a download icon and a 'sha256' link. A red hand-drawn circle highlights the 3.10 version options.

3.16.0  
3.10.11 LTR


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Standalone installers from OSGeo4W packages


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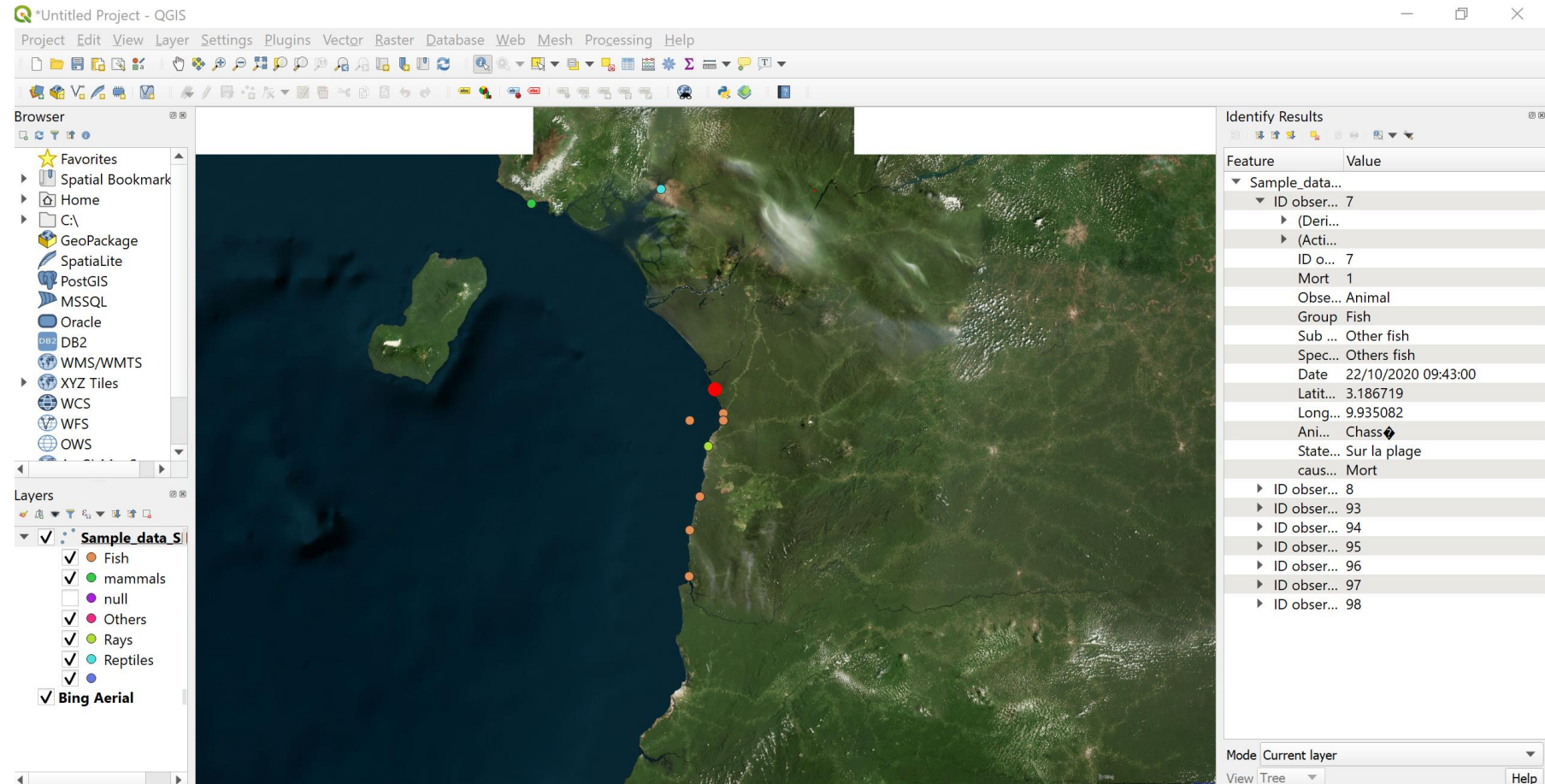
 [QGIS Standalone Installer Version 3.16 \(32 bit\)](#) [sha256](#)

Long term release repository (most stable):

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# QGIS interface



Download and install **OpenLayer** Plugin

# Prepare data points

- Verify that the geographical coordinates and attributes are correct
- Convert datasheet with geographical coordinates into CSV (comma delimited)

# Upload data into QGIS Software

- Add point data
- Change symbology
- Add label
- Check Attribute table

# Map layout



Export map