

Quiz 01

“Geoapplications Development“

<http://rgeo.wikienc.org>

Q:

Select all correct statements.

- A. Geoid represents the exact shape of the Earth.**
- B. Ellipsoid is defined by the lengths of its axes.**
- C. Coordinate reference system may not necessarily define projection info.**

Answer: B, C

A is incorrect, geoid approximates the Earth's surface

B is obvious

C is correct, since EPSG database has unprojected CRS entries, e.g. EPSG:4326

(see Coordinates lesson for A, B, C)

Q:

The components of a datum are (check all that apply):

A. Projection

B. Spheroid

C. Spheroid origin

D. Spheroid orientation

E. Prime meridian

F. Units

Answer: B, C, D, E

Q:

EPSG database contains (choose all that apply):

- A. Units**
- B. Coordinate systems**
- C. Datum**
- D. Prime meridians**
- E. Ellipsoids**

Answer: A, B, C, D, E

Q:

WGS84 may mean (choose all that apply):

- A. Ellipsoid**
- B. Datum**
- C. Projection**

Answer: A, B

C is incorrect, WGS may not mean a Projection

Q:

Transverse Mercator means:

- A. Datum**
- B. Projection**
- C. Spheroid**
- D. Coordinate system**

Answer: B

Q:

Given:

```
PROJCS["WGS 84 / UTM zone 37N",  
  GEOGCS["WGS 84",  
    DATUM["WGS_1984",  
      SPHEROID["WGS 84", 6378137, 298.257223563,  
        AUTHORITY["EPSG","7030"]],  
      AUTHORITY["EPSG","6326"]],  
    PRIMEM["Greenwich",0],  
    UNIT["degree",0.0174532925199433],  
    AUTHORITY["EPSG","4326"]],  
  PROJECTION["Transverse_Mercator"],  
  PARAMETER["latitude_of_origin",0],  
  PARAMETER["central_meridian",39],  
  PARAMETER["scale_factor",0.9996],  
  PARAMETER["false_easting",500000],  
  PARAMETER["false_northing",0],  
  UNIT["metre",1,AUTHORITY["EPSG","9001"]],  
  AUTHORITY["EPSG","32637"]]
```

What does EPSG:6326 define?

- A. Coordinate reference system**
- B. Geographic coordinate system**
- C. Datum**
- D. Projection**
- E. Unit**

Answer: C

Q:

Given:

Origin = (224385.0000000000000000,6322515.0000000000000000)

Pixel Size = (30.0000000000000000,-30.0000000000000000)

Metadata:

AREA_OR_POINT=Area

Band_1=band 1 surface reflectance

Image Structure Metadata:

INTERLEAVE=BAND

Corner Coordinates:

Upper Left (224385.000, 6322515.000) (34d27'55.58"E, 56d57'49.93"N)

Lower Left (224385.000, 6074385.000) (34d43' 3.37"E, 54d44'27.51"N)

Upper Right (470115.000, 6322515.000) (38d30'26.82"E, 57d 2'42.39"N)

Lower Right (470115.000, 6074385.000) (38d32' 5.80"E, 54d48'56.61"N)

Center (347250.000, 6198450.000) (36d33'23.03"E, 55d54'25.94"N)

Band 1 Block=8191x1 Type=Int16, ColorInterp=Gray

Description = band 1 surface reflectance

What corner coordinate has the raster pixel with index [8190, 0]?

- A.** 36d33'23.03"E, 55d54'25.94"N
- B.** 34d27'55.58"E, 56d57'49.93"N
- C.** 38d30'26.82"E, 56d57'49.93"N
- D.** 34d27'55.58"E, 56d57'49.93"N
- E.** 38d30'26.82"E, 57d 2'42.39"N

Answer: E

To be able to answer this question, you must understand all of the given metadata in this question.

You can check the answer using code from our classes:

http://rgeo.wikience.org/code/rgeo/lesson_03/GeoTIFFPointSubsetDemo.java.html

Q:

Select the projections that are equivalent

- A. Equirectangular**
- B. Equidistant Cylindrical**
- C. Geographic**
- D. Plate Carrée**

Answer: A, B, C

Q:

What is true about the UTM projection? (check all that apply):

- A. A single cylinder with the same alignment relatively to the Earth is used to create a map for any UTM zone**
- B. The scale of objects on a map in UTM projection is 1:1 only along the central meridian**
- C. 32N, 32T, 32S are UTM zones**
- D. Any point with coordinates (0, 0) is on the Equator**
- E. The point with coordinates (900 000m, 900 000m) is out of a UTM zone**
- F. UTM projection makes it possible to locate points on the Poles**
- G. Coordinate systems of neighboring UTM zones do not overlap**

Answer: E