

Publication Quality Maps and Plans

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Today's session



- Visualising spatial data
- What is a GIS?
- Spatial data types and concepts
- How to make a simple map in Google Earth Pro
- The elements of a good map
- Image captions and attribution
- Other GIS programmes - QGIS

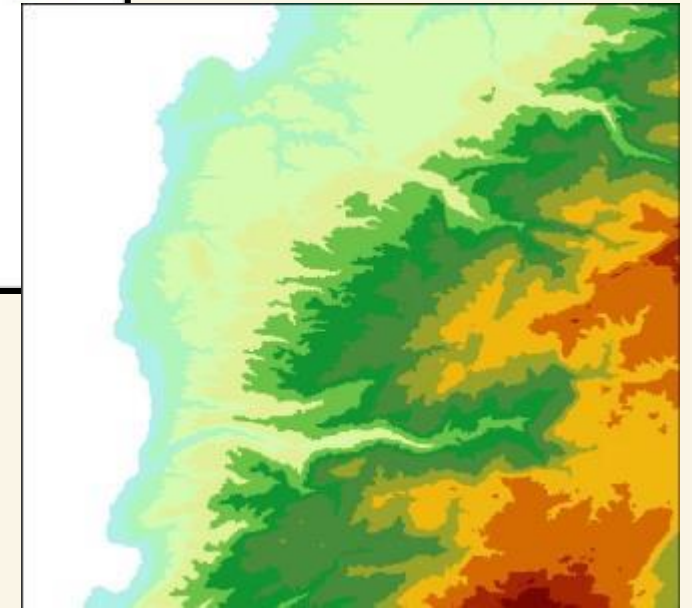
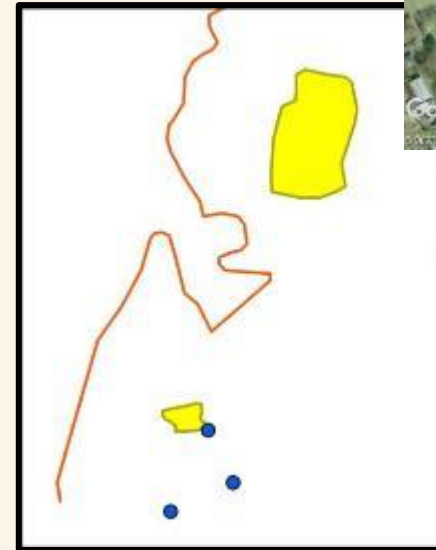


Visualising Spatial Data

- Maps – cities, sampling locations etc.
- Plans – detailed plans of buildings
- More complex visualisations - Predictive modelling, Buffers for analysis, Visibility Analysis, Cost Surface Analysis etc.



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SRTM 90m (available from USGS)

What is a GIS?



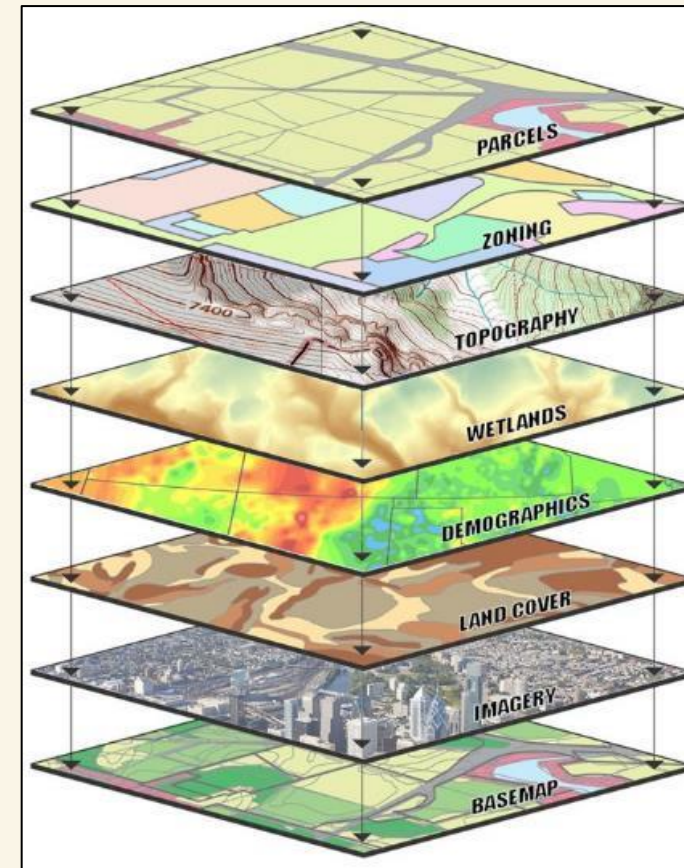
Geographical **I**nformation **S**ystem(s)

or

Geographical **I**nformation **S**cience

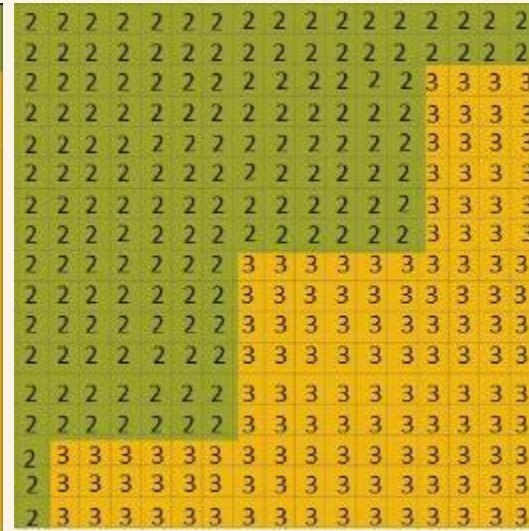
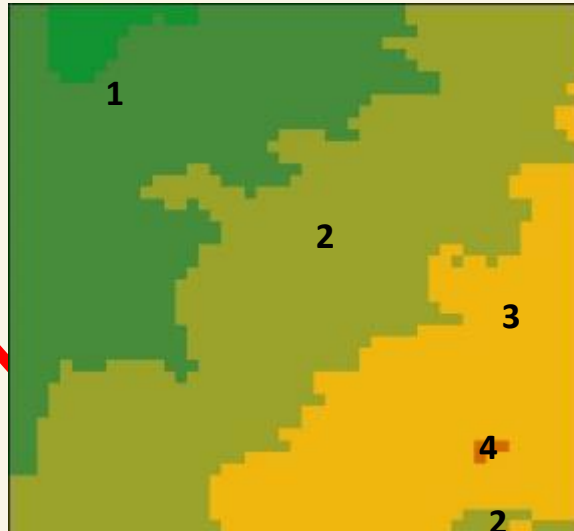
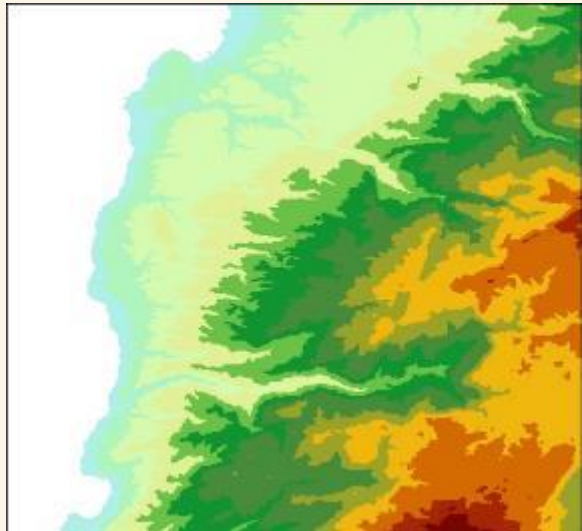
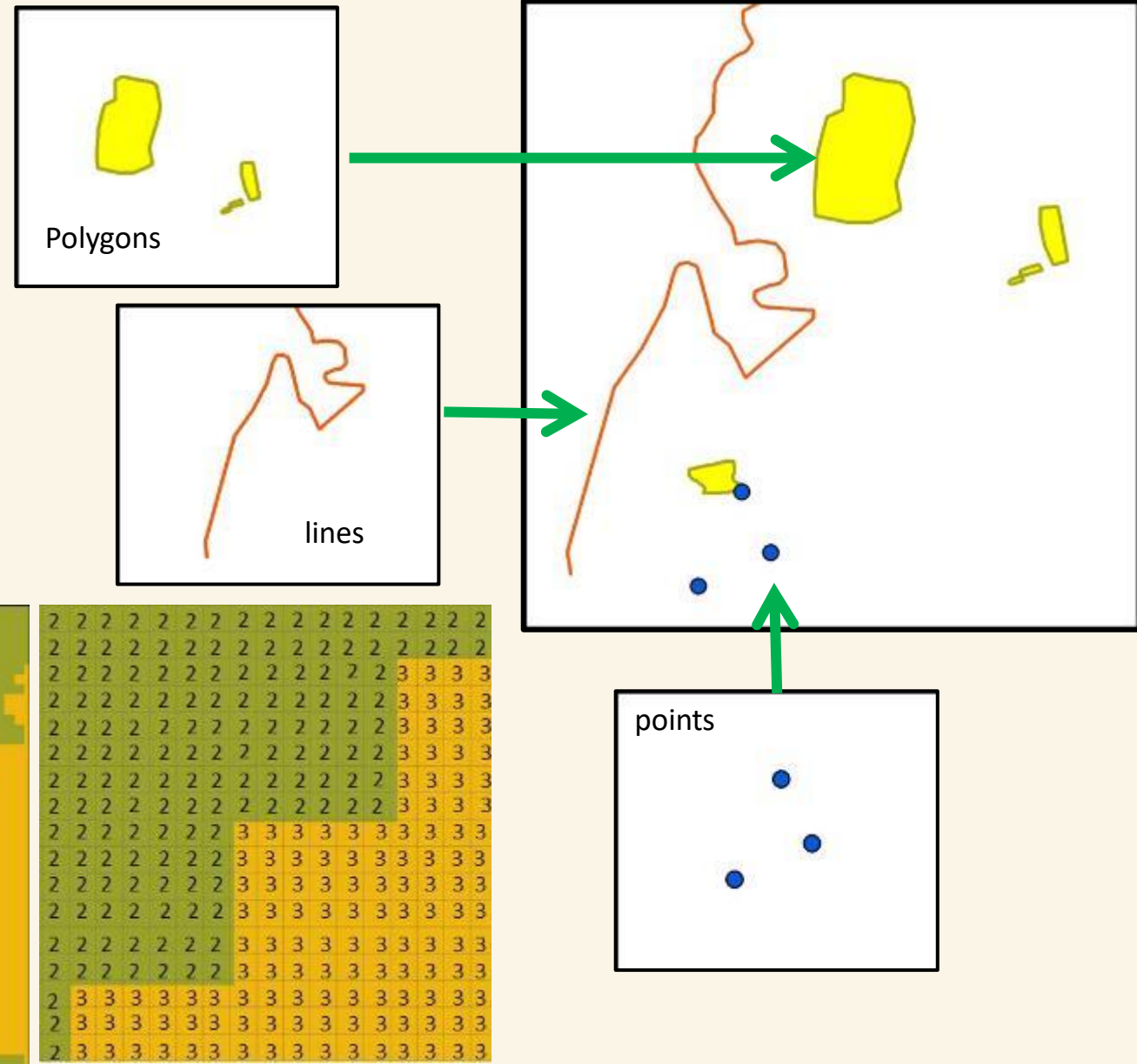
GIS allows a user to:

- + Capture, store, and manage vast amounts of spatial data
- + Query and analyze this data to answer a variety of unique questions and problems
- + Present the data and analysis in an attractive way



Types of spatial data

- Features (Vector data)
 - Have shape and size
 - Polygons, lines, and points
- Surfaces (Raster data)
 - Continuous
 - Have numeric values



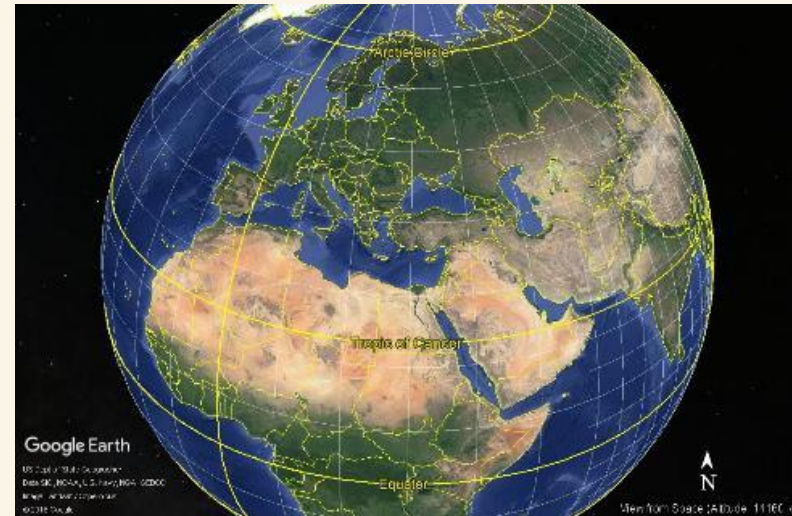
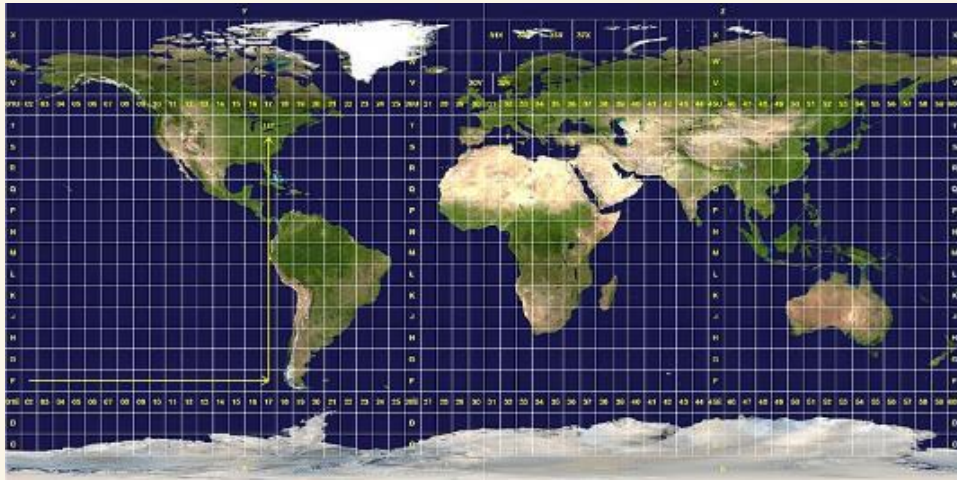
SRTM 90m (available from USGS)



Coordinate systems - how can you tell where you are?



- **Geographic Coordinate System**
- Measured in 3D using Earth's centre as central meridian
- Latitude/Longitude



- **Projected Coordinate System**
- Measured in 2D on a flat plane
- **IMPORTANT** – Possible to measure real world relationships
- Universal Transverse Mercator (UTM)

GIS Terms to Know - Attribute tables

- Features are linked to information stored in a table

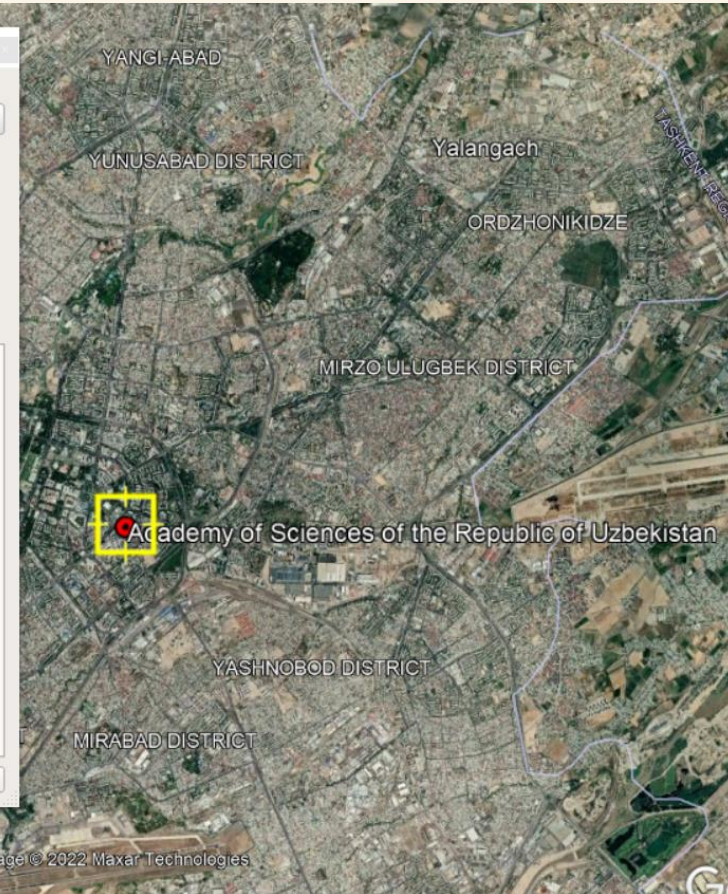
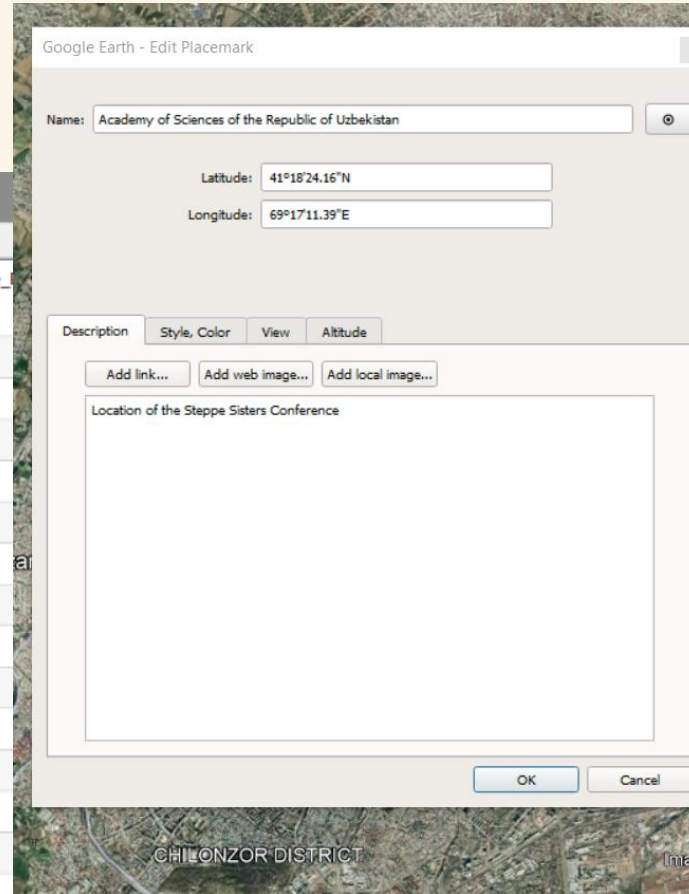
↓ Field (Column)

Row →

Finds :: Features total: 93, filtered: 93, selected: 0

ID	SURVEY_COD	E	N	Elevation	Pre_
1	1 KCS006.1	745073.72499...	3795194.9320...	36.347000000...	
2	2 KCS006.2	745074.92500...	3795198.9879...	36.363000000...	
3	3 KCS006.3	745075.70100...	3795202.8319...	36.472000000...	
4	4 KCS006.4	745076.58400...	3795206.4679...	36.574000000...	
5	5 KCS006.5	745077.67500...	3795209.8909...	36.716000000...	
6	6 KCS006.6	745078.51800...	3795213.0490...	36.831000000...	
7	7 KCS006.7	745079.66799...	3795216.4130...	36.921000000...	
8	8 KCS006.8	745080.80000...	3795219.8849...	37.134000000...	
9	9 KCS006.9	745081.70900...	3795223.1519...	37.263000000...	
10	10 KCS006.10	745082.77399...	3795226.4410...	37.378000000...	
11	11 KCS006.11	745077.62199...	3795227.4059...	37.488000000...	
12	12 KCS006.12	745076.36699...	3795224.7099...	37.382000000...	
13	13 KCS006.13	745074.88899...	3795221.5329...	37.254000000...	
14	14 KCS006.14	745073.35900...	3795217.7799...	36.970000000...	
15	15 KCS006.15	745072.35199...	3795214.2119...	36.780000000...	
16	16 KCS006.16	745071.40399...	3795211.3650...	36.698000000...	0

Show All Features



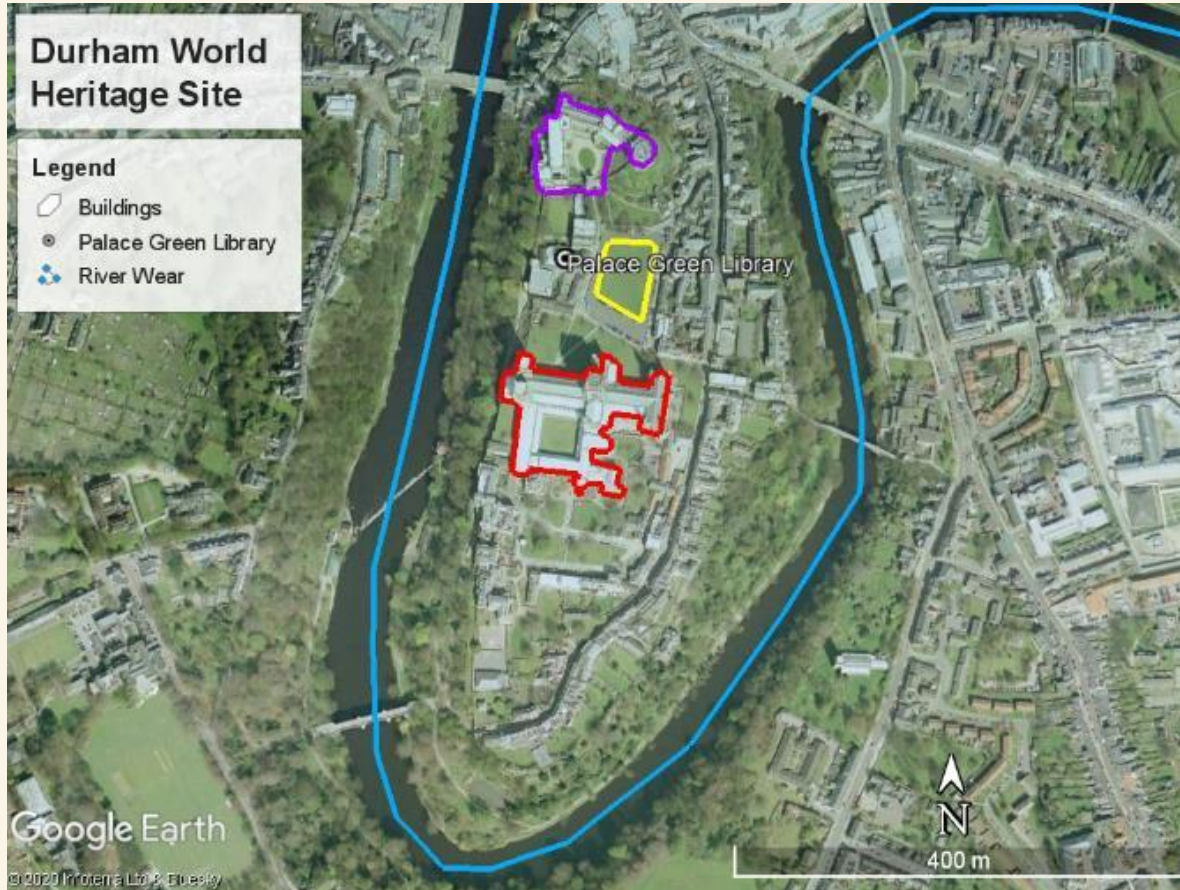
Software



- We will use Google Earth Pro in this session. If you want to follow along with making a map in Google Earth Pro, then download the programme.
- <https://www.google.co.uk/earth/download/gep/agree.html>
- I will also provide a tutorial for how to make a map in QGIS, which you can try after this session



Google Earth Pro - a kind of GIS



- We can make maps and include vector data we create
- .kml = keyhole markup language – the basic file type for vector data in GE Pro

Fig. 1. The Durham World Heritage Site on Google Earth in December 2001. Image © 2020 Infoterra Ltd & Bluesky.



Tutorial – Basics of Google Earth Pro

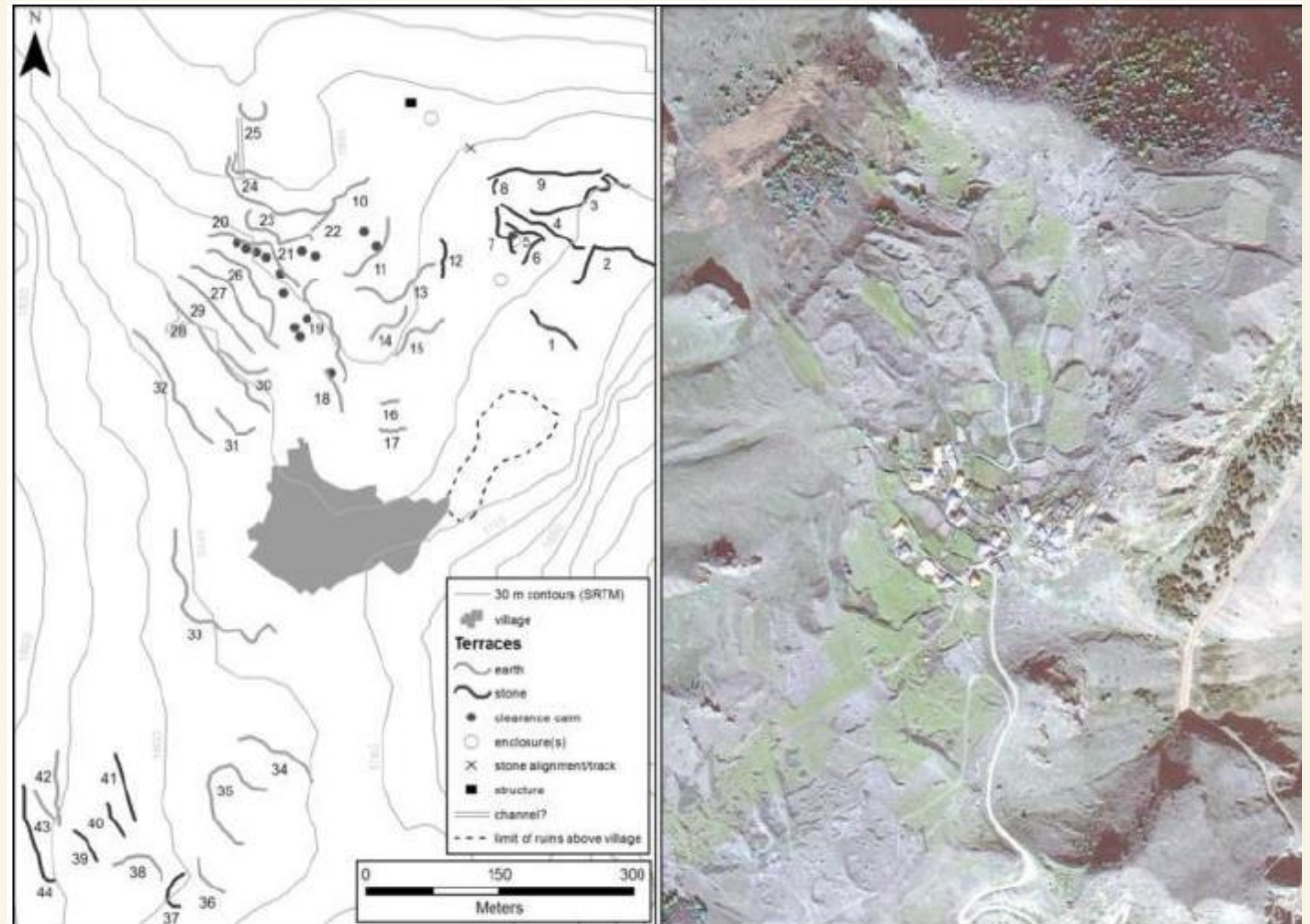


- I'm going to demonstrate how to make a map in GE Pro now, feel free to follow along and create your own map
- For a useful tutorial go here:
 - <https://www.youtube.com/watch?v=9SZpv6DkbsI>



Basic elements of a good map or plan

- I would argue the non-negotiable elements of any map!!!
 - Scale bar
 - North arrow
 - Legend
- Can also include:
 - Title
 - Labels on map



Basic elements of a good map or plan

How could this map be improved?

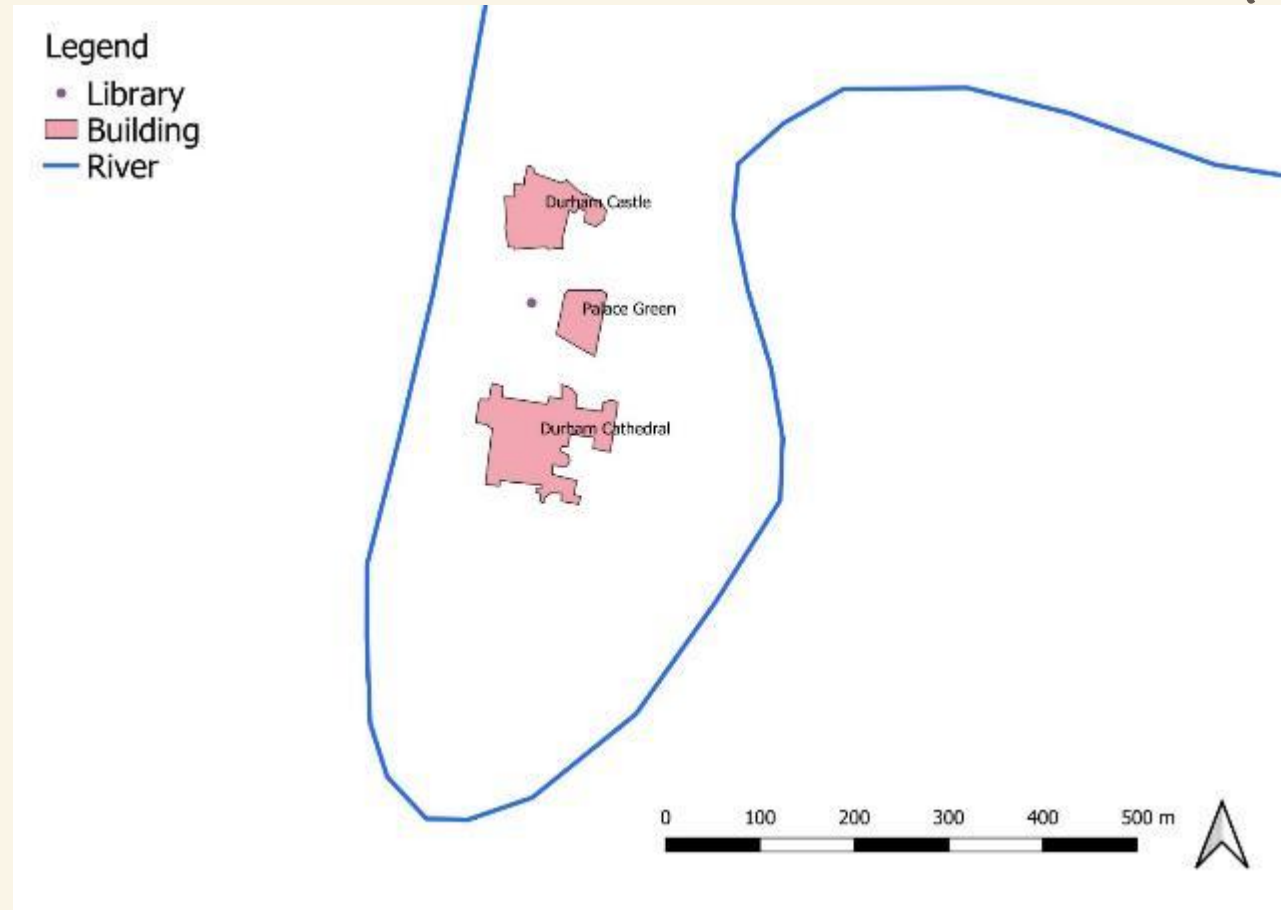


Image Captions

- Brief and informative, for example:
 - Plan of Structure A. Rooms specifically discussed in the text are highlighted in red.
- Map of sampling locations in the study area.

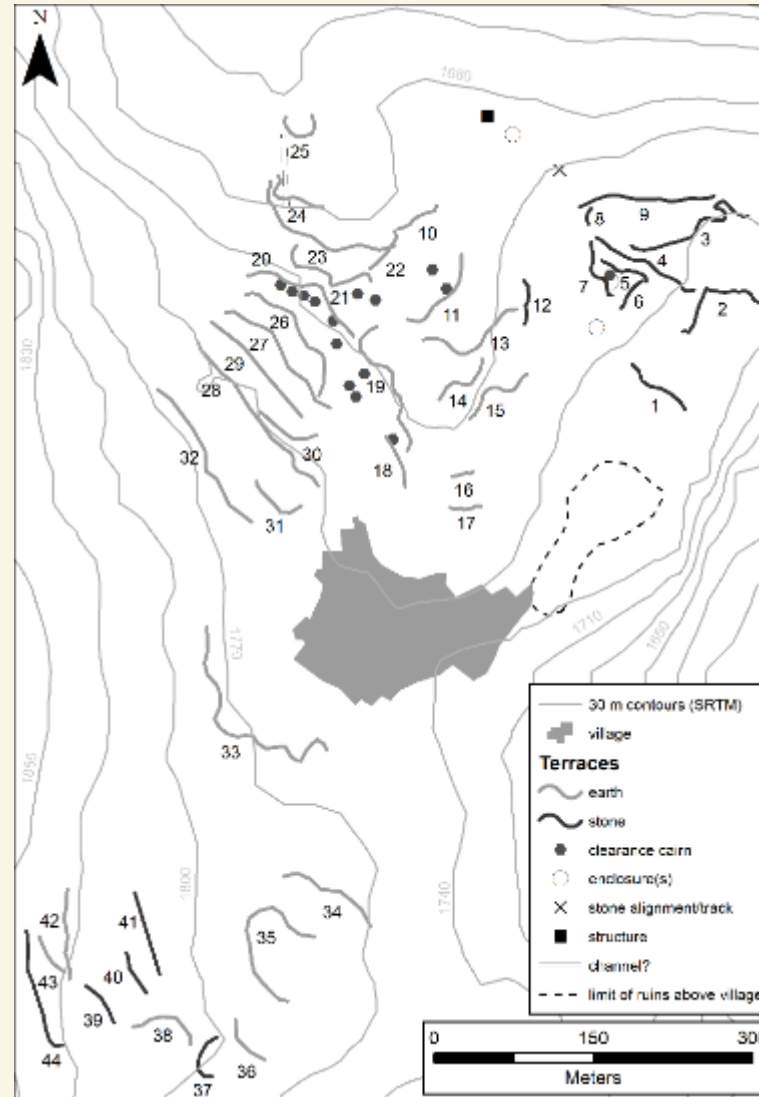


Fig. 10:54: Plan of terraces and other features at DPS-10 and DPS-11.



From Hopper et al. (2020) Landscape investigations in the Dariali Pass, Georgia. *Dariali: the 'Caspian Gates' in the Caucasus from Antiquity to the Age of the Huns and the Middle Ages. The joint Georgian-British Dariali Gorge excavations & surveys 2013-2016* (by Sauer et al. The British Institute of Persian Studies Archaeological Monographs Series V, Volume I. Oxbow Books, Oxford.



Image Accreditations and copyright

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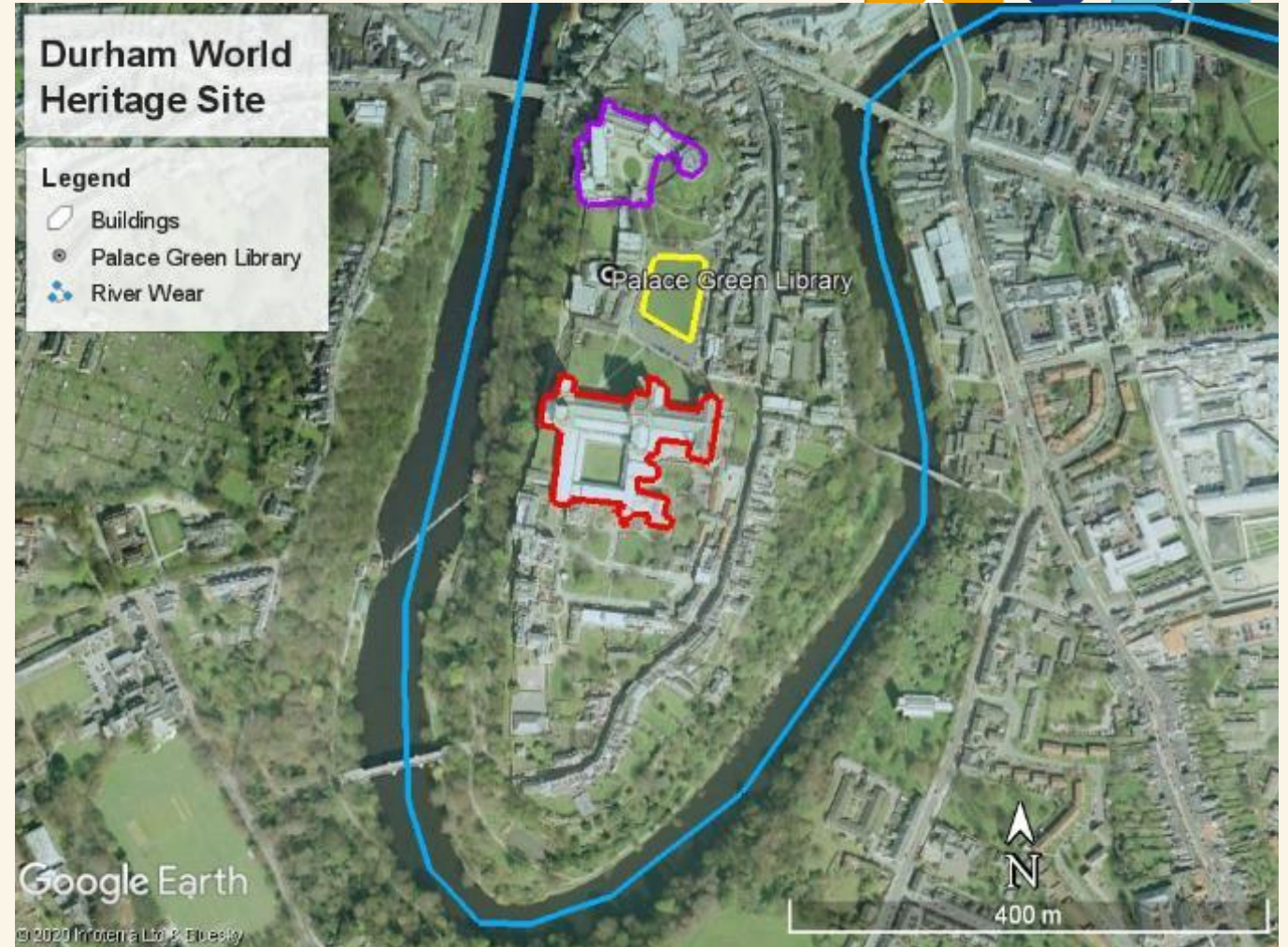
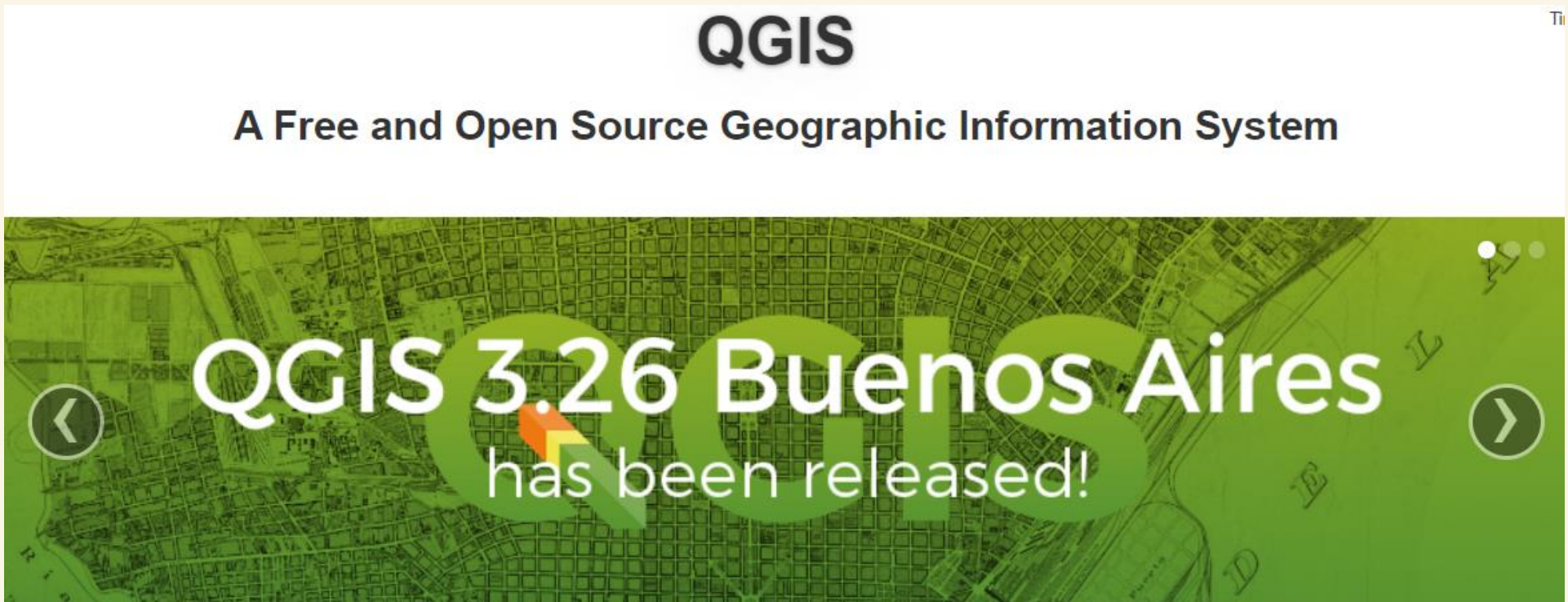


Fig. 1. The Durham World Heritage Site on **Google Earth** in **December 2001**. Image © 2020 Infoterra Ltd & Bluesky.

QGIS - an open source GIS

- <https://qgis.org/en/site/forusers/download.html>
- Watch a free tutorial on making a simple map here: <https://www.youtube.com/watch?v=98kxd1A2m70>





Any Questions?

- Thanks for listening!

