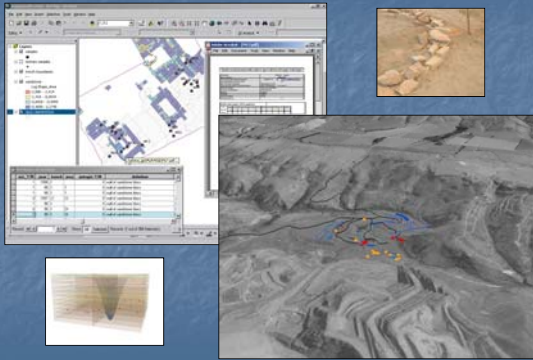


### Geographical Information Systems (GIS) and Anthropology




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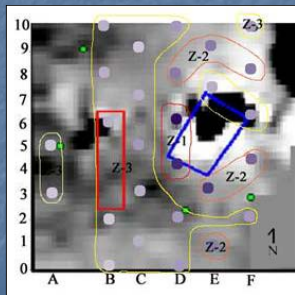
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### Geographical Information Systems (GIS) and Anthropology

What is GIS?

- G = Geographic
  - positions
  - attributes
  - spatial relationships
- I = Information
  - useful data
  - linked via location
- S = System
  - Users
  - Hardware
  - Software
  - Data




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### Geographical Information Systems (GIS) and Anthropology

What is GIS?

- Definitions of GIS - numerous, to say the least!
- In one sense, simply a software package
  - a computer database containing information about the earth
  - an integrated system of software and geo-referenced data for planning

“A set of tools for collecting, storing, retrieving at will, transforming, and displaying spatial data ... for a particular set of purposes.” (P.A. Burrough, 1986)

“An information system that is designed to work with data Referenced by spatial or geographic co-ordinates. In other words a GIS is both a database system with specific Capabilities for spatially referenced data as well as a set of Operations for (analysis) with the data.” (Star and Estes 1990)

Today, they are even more ways to define GIS!

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### Geographical Information Systems (GIS) and Anthropology

#### What is GIS?

Why is it useful? Because its unique!

- Events occur in places, where they occur is important
- Problems that involve an aspect of location are geographic problems
- A GIS knows about locations

#### History of GIS

- 1960's - the first GIS
- 1970's - advances in technology
- 1980's - commercialization
- 1990's - advances in usability
- Today - everywhere you want to be




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### Geographical Information Systems (GIS) and Anthropology

#### Components of a GIS

1. Computer System
  - software to do the job
  - processor requirements
  - enough storage for large amounts of data
2. Spatially referenced data (geo-referenced)
  - thematic layers
  - two types, raster and vector
3. Data management procedures
  - allows for storage, manipulation and retrieval of data
  - should provide access to multiple users and allow efficient updating
4. People
  - the most important aspect

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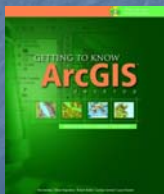
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### Geographical Information Systems (GIS) and Anthropology

#### Components of a GIS Computer System

Hardware - general rule "the faster the better"  
Recently, most mid-range laptops can handle these programs

Software - two main programs used by archaeologists




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### Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Its all about the thematic layers



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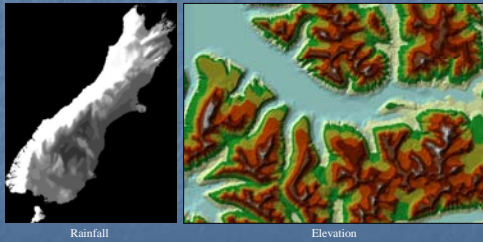
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### Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Raster Data - continuous data



Rainfall

Elevation

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### Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Raster Data - continuous data



Images

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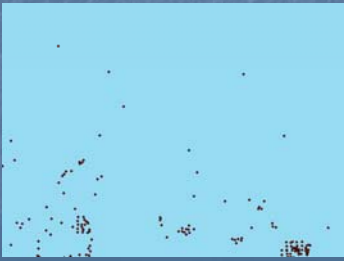
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Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Vector Data – points



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Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Vector Data – points, lines



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Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Vector Data – points, lines, & polygons (area)



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Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Vector Data – points, lines, & polygons (area)



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Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Vector or Raster? Is there a better format?



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Geographical Information Systems (GIS) and Anthropology

Components of a GIS Structure

Vector or Raster? Is there a better format?  
We use both, we need both.



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### Geographical Information Systems (GIS) and Anthropology

#### Components of a GIS - Data Management Procedures

- storage, manipulation and retrieval of data
- provide access to multiple users and allow efficient updating
- documentation promotes above qualities, its necessary but often lacking

I chose to use ArcGIS' geodatabase structure

Do you have the documentation? Of course!



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### Geographical Information Systems (GIS) and Anthropology

#### Components of a GIS People!

The most important component

No GIS exists in a vacuum, they are made to be used

People are required to plan, implement and operate the GIS

People make the decisions based on GIS

Human being are part of the world



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### Geographical Information Systems (GIS) and Anthropology

#### Components of a GIS

##### Enter Data

Global Positioning System (GPS)

Standard survey equipment

Scanning maps

Digitizing features by hand (the most time intensive)

The internet (very fast)

##### Integration of Data

Looking at data in meaningful ways

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