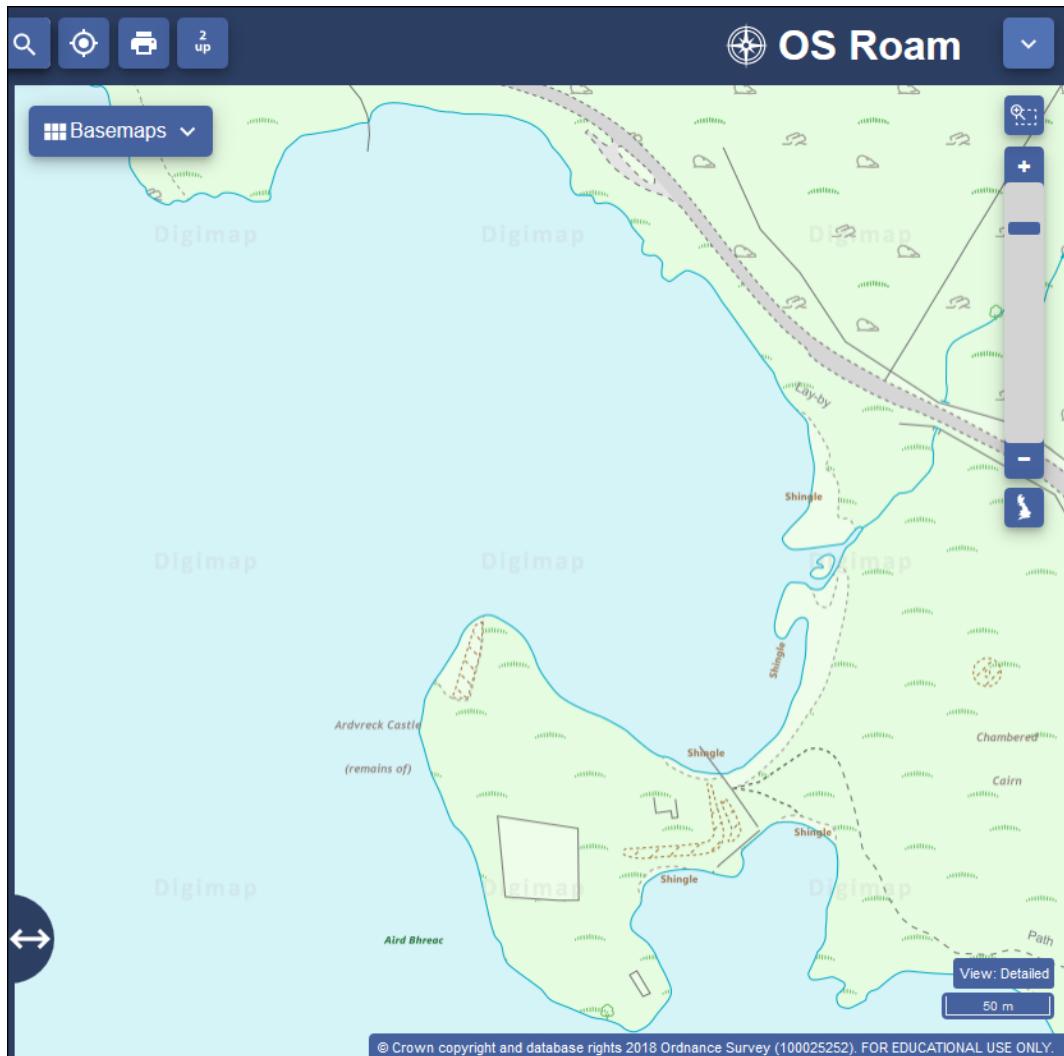


Digimap

Digital map data for Great Britain



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QGIS Development Team, 2019. QGIS Geographic Information System. Open Source Geospatial Foundation Project. <http://qgis.osgeo.org>

Font: Clear Sans

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Chapter 1

Digimap

1.1 Introduction

Digimap is a service provided to Higher Education in the U.K. by EDINA at Edinburgh University. Digimap provides a front end to digital maps and data of Great Britain from the Ordnance Survey and the British Geological Survey. As a member of the University of Leeds you have access to maps and data for use as part of your studies.

1.2 Learning outcomes

When you have finished this workbook you will

- be aware of the UK data available to you through the Digimap service
- understand how to use the Roam browser in the Digimap Collections to make a digital map displaying a selection of features
- know how to download images and pdf maps from the Digimap Collections for printing and use in other programs
- know how to use Data Download to download data from Digimap Collections for use in GIS programs

1.3 Logging in to Digimap

1.3.1 Registering

If you have not used Digimap before you will need to register using your University id, that is the username and password that you use to access University systems. Full instructions for registering and logging in are on the Digimap help pages at

<http://bit.ly/1yQusPx>

Start by selecting **University of Leeds** and logging in with your usual University username and password. Please do not use any other email address to register - it will only cause you problems when it comes to obtaining data later.

You need to register for each collection separately, but can do it in one go. For this workbook you won't need to use all collections, but it is worth registering for all that are available to you so that you can explore them for yourself. The University of Leeds does not subscribe to Marine or Global Digimap¹.

In the **Purpose** dropdown select **Academic Works (coursework, projects, dissertations etc.)**

¹as of September 2018

1.3.2 Logging in

To log in go to the Digimap Collections page (figure 1.1) at

<http://digimap.edina.ac.uk>

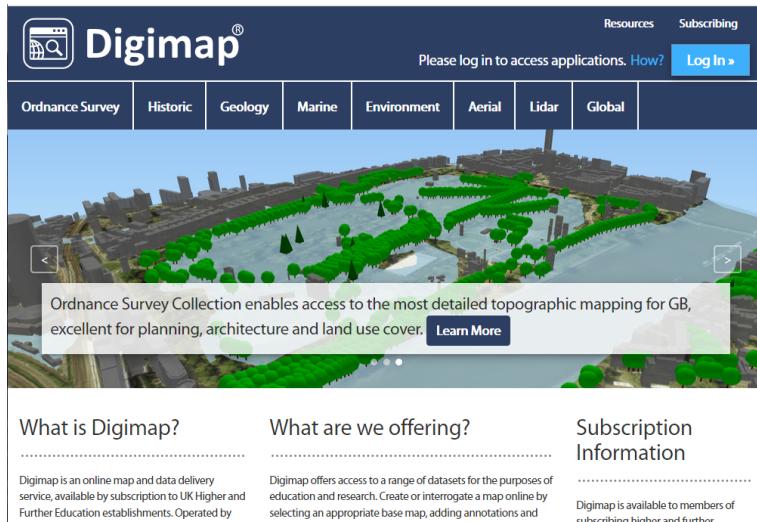


Figure 1.1: Digimap initial page

- Click the **Login** button at the top right of the screen and type **Leeds** in to the box and select the **University of Leeds** from the list of available institutions
- You should get the familiar University of Leeds login page, so type your **University username and password** into the appropriate boxes and then click the **Log in** button. If you are already logged in to Minerva you may find that you don't have to enter your login details again.

You should be taken to the Digimap initial page again (figure 1.2), but this time with your name at the top right.

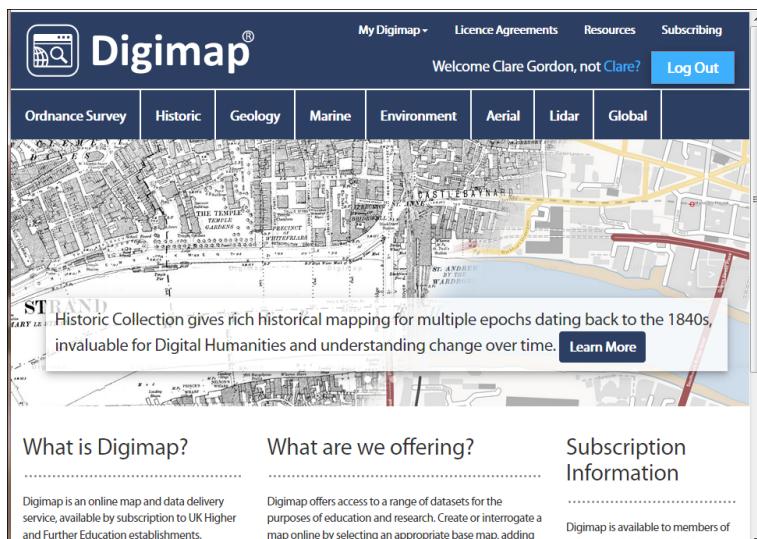


Figure 1.2: Choosing a data collection

The list includes options for a large number of collections. In this workbook we'll only be looking at the collections that are most relevant for creating the maps you'll need during your course, but if you are interested in any of the others feel free to explore them. Edina have worked to make all of the tools similar across each collection so just have a go!

1.4 Ordnance Survey Collection

We are going to start by looking at the **Digimap - Ordnance Survey Collection**. (Figure 1.3.) Click on the Ordnance Survey heading at the top of the screen and you'll be shown which services are available to you and information about the collection.



Figure 1.3: Ordnance Survey Collection

The list includes links to **Roam** and **Data Download**. We'll look at both of these in the sections below.

Roam and Download are fairly standard across all collections in Digimap (making allowances for the differences in the data) so once you've used them in the OS Collection you'll have a good idea of how they are likely to work for Geology, Aerial etc.

1.4.1 Digimap Roam

In this section you will learn how to use Roam to view and create maps using Ordnance Survey data.

- Click on the **Roam** heading.
- You may be presented with the copyright statement page.
- Read the copyright notice carefully and click on the **copyright terms and conditions link**. This launches the “Digimap: Ordnance Survey Data Sub-liscence Agreement” page which shows the full terms and conditions. You signed up to these terms and conditions when you registered so make sure that you follow them. Click your browser’s **back** button to return to the copyright notice, then click on the green button to acknowledge your agreement to the copyright statement.



Video Clip available - The Digimap video on Digimap Roam is available at <https://youtu.be/kSd0-2lnRGc> (this video has sound). Note that this video shows the beta version of Roam so there may be some differences.

Overview

Digimap Roam enables you to view and print maps using Ordnance Survey data at various pre-defined scales. PDF prints can be created in A4 or A3 size and landscape or portrait orientation. See figure 1.4 for an annotated overview of the Roam window.

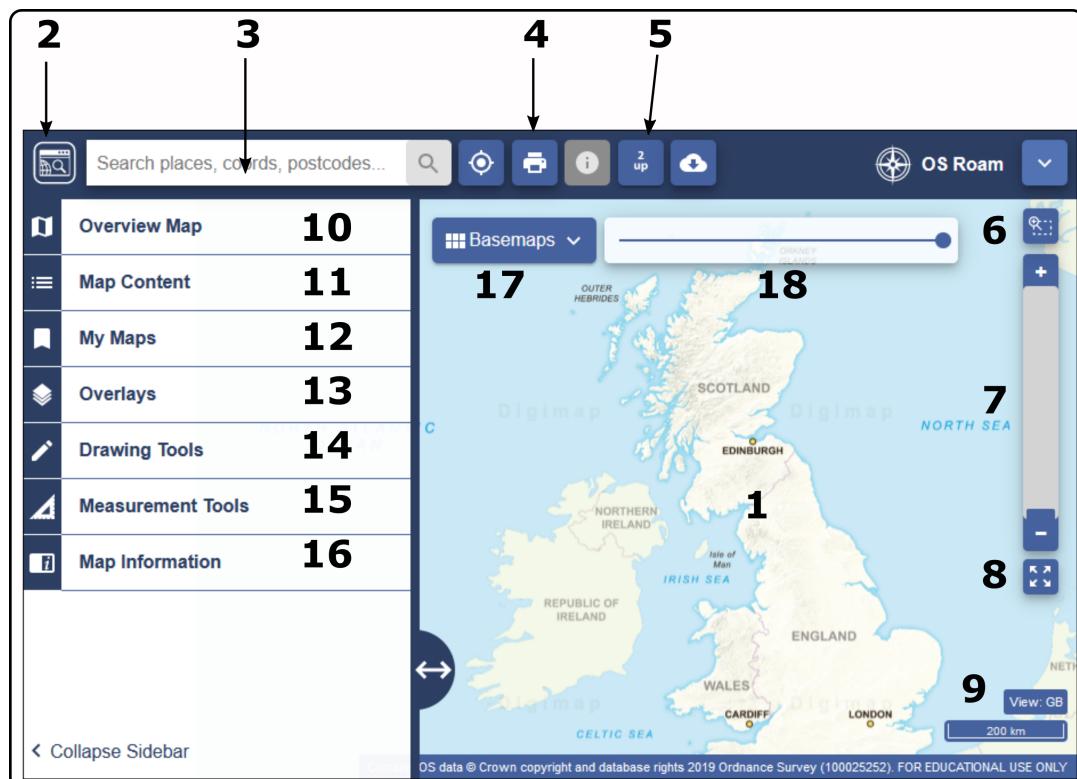


Figure 1.4: The Digimap Roam window

The service is being actively developed at the moment so keep an eye open for new buttons or headings and try them out.

1. = **Map window** - Where the maps are displayed
2. = **Home** - return to the Digimap home page
3. = **Search** - enter a place name, postcode or map coordinates here to search for them
4. = **Print** - produce a printable PDF file of your map
5. = **2 up** - open a second map window - allows you to look at two different maps of the same area side-by-side
6. = **Click and drag to zoom in** - as it says!
7. = **Zoom slider** - use to zoom in and out
8. = **Zoom to max extent** - Click to zoom out to full G.B. view
9. = **current view and scale bar** - shows current view type and the scale on the map
10. = **Overview map** - when you're zoomed in use this to show where in the country you are
11. = **Map content** - view map legend and customise map content when possible

12. = **My Maps** - previously saved map views and content
13. = **Overlays** - Enables hill shading at certain levels of zoom
14. = **Drawing tools** - Tools to create annotations, import your own data, or export data in various formats
15. = **Measurement tools** - Tools to measure distance and area
16. = **Map information** - current map product, data licence, date of map and other essential information
17. = **Basemaps** - Enables different map styles at certain levels of zoom
18. = **Opacity** - slider to change the transparency of the basemap

Searching for a location

You can search for a location in Roam by using a place name, postcode or grid reference.

To search using a **place name**:

- Type the place name (for this example type **Leeds**) in the search box and press **Enter** or click on the magnifying glass button.
- If there is more than one match for your place name the search results will be displayed below the search box - see figure 1.5. Click the place name that you are interested in to view it in the map window - in this case click on **Leeds (Leeds)**.

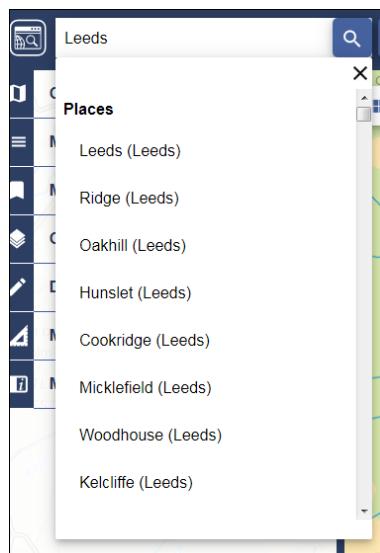


Figure 1.5: Search box and results of a search for “Leeds”

You'll need to click on the cross on the search results to close the list but when you do you'll lose the marker showing the centre of your search area.

To search using a **full postcode**:

- Try searching for the University postcode - **LS2 9JT**. Roam should take you straight to the centre of this postcode area.

To search using a **Grid Reference**:

- Type the grid reference, e.g. **SE4435** in the **Grid Reference** box and click **Find**. Roam will automatically navigate to that location.

Navigating in Roam

You can navigate in Roam by panning (moving the map in any direction by dragging it with the mouse) and by zooming in and out of the map.

To zoom in/out of the map you can:

- Double click to zoom in
- Use the zoom slider bar to zoom in or out either by clicking on the + and - signs or dragging the blue marker on the bar.
- Or click anywhere on the slider bar to zoom to that scale.

Map views

Roam has at least 13 pre-defined map scales, called **views**. The views consist of different Ordnance Survey map products which are appropriate for each view's scale (e.g. the Street view uses the VML (VectorMap Local) raster). once you have found your location of interest you can zoom in and out to find the appropriate view for your map.

The name of the view you are looking at appears in the bottom right of the map window, e.g. **City view**.

Search for the postcode LS2 9JT (The University).

Question 1.1. What view does Roam take you to when you click on “Find”?

Zoom in and out and notice the way that the map content changes between views. Pan around and explore an area of your choice.

Controlling map content and basemaps

In some of the views in Roam it is possible to customise which features are displayed on the map - e.g. display only A class roads and/or railways.

To customise the map view:

- Zoom to **Neighbourhood view** - the type of view is shown in the bottom right of the map.
- Click on **Basemaps** (top left of the map window) and select **VML Streetview**² See figure 1.6
- Click the **Map Content** tab in the task menu panel. The map content panel contains a list of the feature types that are included in the map so it can also function as a key.
- Switch features or groups of features (such as all roads) on and off by checking or un-checking the tick box next to the feature name.
- All features can be switched off by unchecking the **Clear/select all layers** tick box. **NB:** clearing all layers will result in a blank map, so remember to switch at least one layer back on!

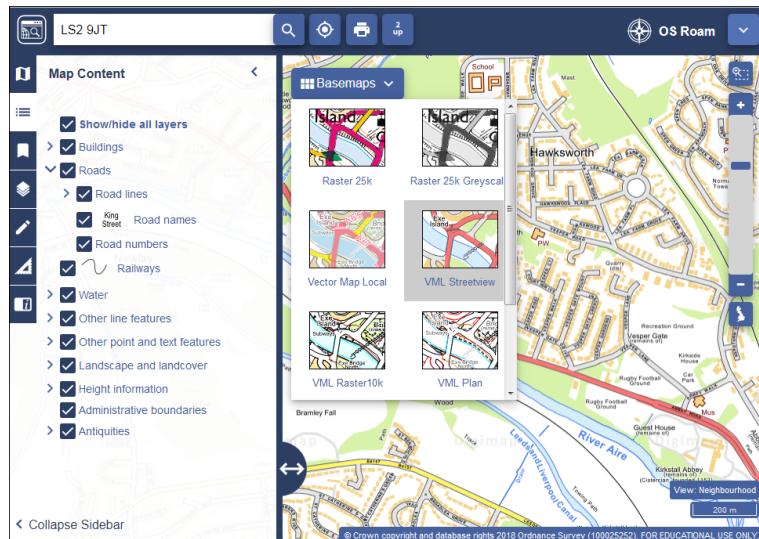


Figure 1.6: Choosing a basemap in Neighbourhood view in Roam. Note the tickboxes next to the features for the VML Streetview basemap.

Note: Many other views cannot be customised because the Ordnance Survey data used in these views are in raster data format which do not allow selection of features. You will still be able to see the features listed in the map content control panel but there won't be tick boxes next to them.

Question 1.2. Name some other view and basemap combinations besides Neighbourhood
>> VML Streetview that allow you to select content?

Using the measuring tools

Roam provides tools for measuring distance and area.

- Click on **Measurement Tools** on the sidebar to open them (figure 1.7).
- Click on the first button - **Measure Distance**.
- Click on the map to start measuring, click for each corner, then double-click to stop measuring. The measurement in metres will appear on the toolbar as well as on an overlay on the map.

**Question 1.3. Use the Measure Distance tool to measure your route to the University.
How far away do you live?**

²VML stands for VectorMap Local and refers to a particular Ordnance Survey product which is used in many of their web mapping applications.

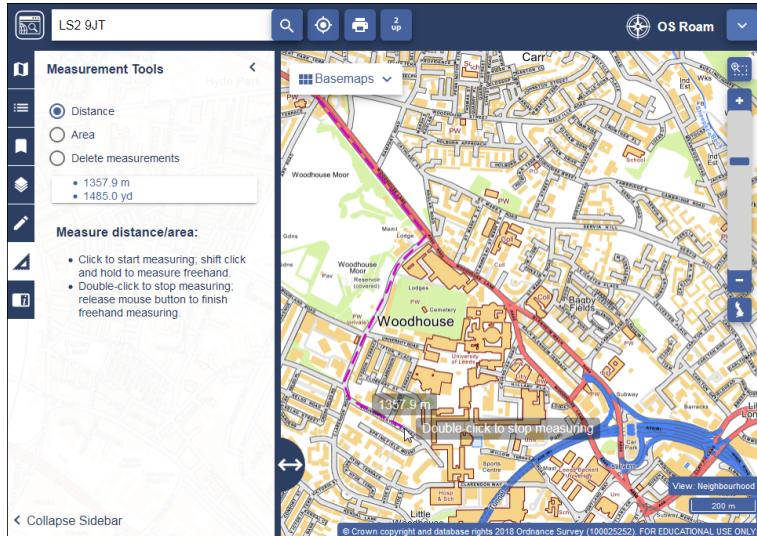


Figure 1.7: Measurement tools - click on the map to start measuring, double-click to stop

In a similar way try out the **Measure Area** tool.

Try very roughly to measure the area of Woodhouse Cemetery (now disused and known as St George's Fields) which is just north of us here in Earth and Environment.

Question 1.4. What is the area of Woodhouse Cemetery?

Using the drawing tools

Roam has a set of drawing tools that allow you to draw on a map and add labels. This is particularly useful for marking up maps for reports or to show people where you are working.



Video Clip available - The Digimap video on Annotating maps with Roam is available at <https://youtu.be/GeFa2Er1Z9M> (this video has sound)

- Click on **Drawing Tools** on the sidebar - the Drawing Tools panel should open (figure 1.8).
- Explore the tools and scribble all over your map! There is a **Delete All** button so you can clear everything when you have finished, or you can toggle visibility so that you can turn the annotations off without losing them.

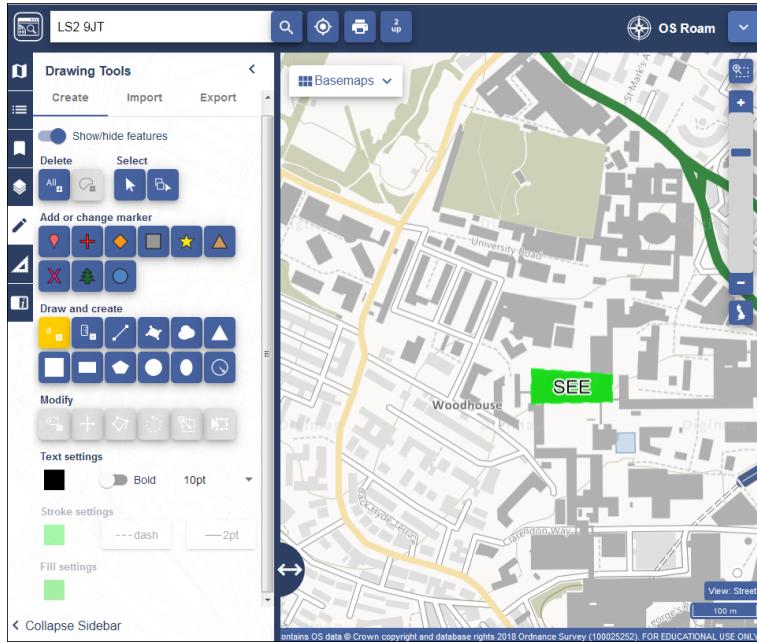


Figure 1.8: The Drawing Tools panel

Return to the University (LS2 9JT) and check that the view is set to Street View.
Use the drawing tools to draw a box with a red line around the Earth and Environment building (i.e. this building!) and label it “SEE” in bright green.

Exporting annotations

It is possible to save your annotations or drawings to file. This is particularly useful as one of the options is Shapefile which can be directly opened in ArcGIS, and another is kml which can be opened in Google Earth.

- Click on **Export** on the Drawing Tools panel, (figure 1.9) give your file a name that will help you identify it again later and select a file format:
 - **Shapefiles** can be opened in most GIS software
 - **KML** will open in Google Earth
- Then click on **Export** to save the file to disk

Printing from Roam

Roam allows you to create printable PDF (Portable Document Format) maps or export jpg or png images in A4 to A0 size and in portrait or landscape layout. The image formats make it possible to import maps into Word or Powerpoint.

You won't be printing directly from Roam, really this is more of an **export** function.

Using the map that you were looking at in the previous exercise create a pdf map which you'll save to your M:/ drive. You don't need to print it unless you particularly wish to.

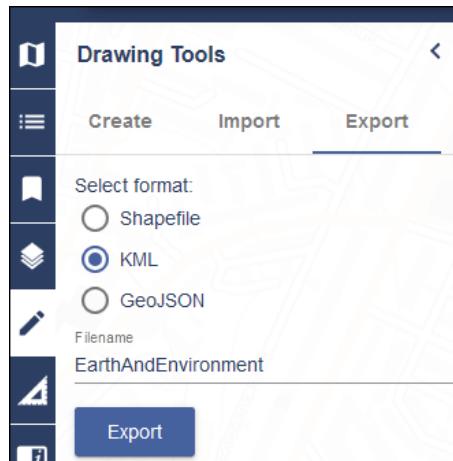


Figure 1.9: Saving annotations to file in Roam



Video Clip available - The Digimap video on Printing Roam maps is available from <https://youtu.be/mPZ0yGp75h0> (this video has sound)

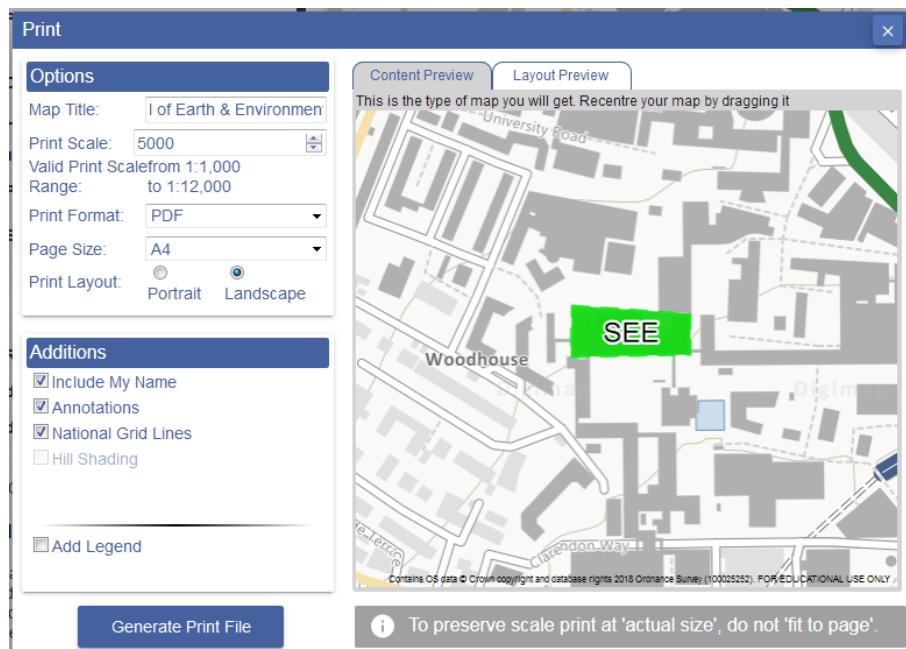


Figure 1.10: Printing to pdf or image file from Roam

- Click the **Print icon** at the top right to open the print options in a new browser window (figure 1.10).
- Enter a map title in the appropriate box.
- Click to add National Grid Lines.
- Select the page size and layout using the drop down menus.
- Look at the **Layout Preview** tab to check that the area that you want will be printed and move the map, or rescale it if you need to
- Click **Generate Print File**, depending on your choice this will either produce a PDF file which

you can save or print, or an image file that you can include within other documents.

See section 1.7 on page 24 for information on how to print and edit PDF files.

Saving map views for future use

Once you have set up a view and, maybe, added annotations, Roam allows you to bookmark it so that you can go back to it later.

- Click on **My Maps** on the sidebar
- Click on **Save** and give your map a name that will help you to identify the map later then click **Save** on this screen.
- Next time you want to use that map click on **Open** and open it from the list that appears there - figure 1.11.

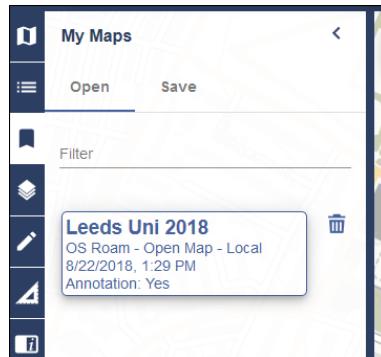


Figure 1.11: My Maps

1.4.2 Data Download

Data Download is a tool for downloading Ordnance Survey data for use in GIS or CAD software. The format that the data is delivered in will determine whether you will be able to open it directly in a software package or whether you will need to convert it.

We'll be using data from Digimap in ArcGIS later in the module so you need to know your way around this section. Instructions for converting, importing and viewing file types that need it will be given during the ArcGIS part of the course.

Selecting your Ordnance Survey data

- Go to the Digimap home page
- Click on **Ordnance Survey** in the menu at the top of the page
- From the Ordnance Survey page choose **Data Download** (Figure 1.12.)

Data download takes you to a map that looks very similar to Digimap Roam but with some important differences.

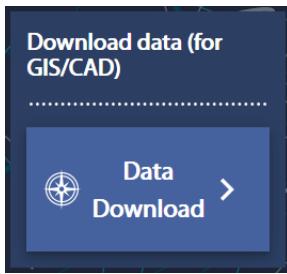


Figure 1.12: Data Download



Figure 1.13: Search for & select an area

Selecting an area

On the left there is a menu panel with options for selecting an area with a search box above it (figure 1.13).

- Click in the **Search** box and type **University Road, Leeds**, then press **Enter** or click on the magnifying glass to search.
- When you get the results click on **Roads (100+)** then select **University Road (University - Leeds)** to zoom in then close the search results.
- Under **Draw** click on the rectangle and use the mouse to draw a box around part of the University, clicking to start and finish the box. (Figure 1.14)

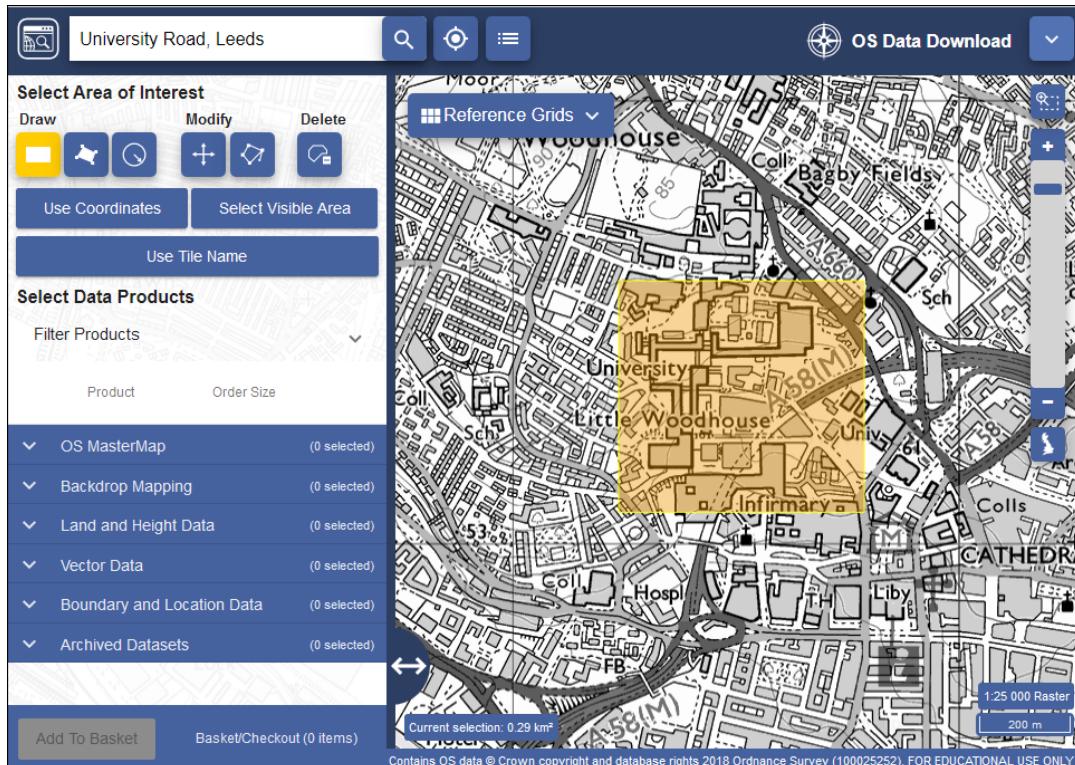


Figure 1.14: Selecting an area in Digimap Download

Note: The map that you see on the screen only shows the area that you will be downloading data for, **not** the actual data that you'll be downloading. You'll select the data separately so don't worry what it looks like for now.

Selecting data sets

Now that you've selected an area you have to select the data that you need.

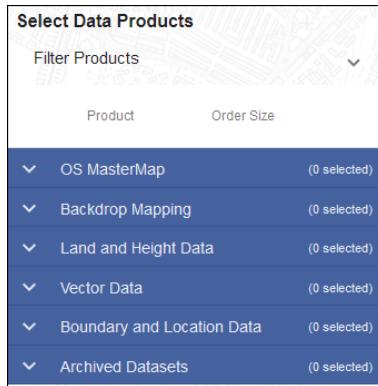


Figure 1.15: Select products from the list

- Back in the panel on the left, under **Select Data Products**, drop down each of the headings in turn. (Figure 1.15.)
- There are a lot of different data sets here and most of them won't mean anything to you. For now select the following datasets when you find them by putting a tick in the box next to them.

Backdrop mapping: VectorMap Local Raster
Land and Height data: OS Terrain 5 Contours

You can get more information about the datasets by clicking on the arrow next to them. This includes information on licences.

The figure on the right in brackets under **Order Size** shows how many tiles your selected area uses out of the maximum downloadable number.

- When you have selected the data you require click on **Add to Basket**. (Don't worry - despite the Shopping Basket and Checkout you won't be charged. The University has already paid the subscription!)

Your basket should appear with details of your order. (Figure 1.16.)

- Some datasets will give you an option to change the format (highlighted in yellow). In this case click on **Select Format** next to the contours. The choices are **Shape**, **GML3** or **DWG**. Choose **Shape** in this case.
- You may also need to select a theme - for the VectorMap Local Raster there is a choice of themes - pick whichever one you like this time!

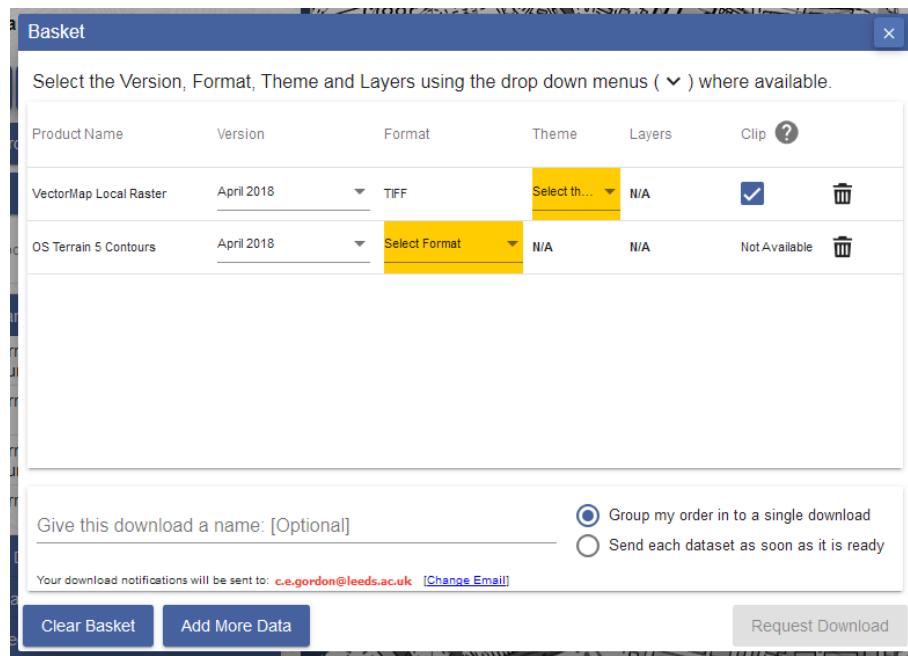


Figure 1.16: Details of your order in the Basket

- Some items will have a **Clip** option. This means that the data will be sent to you clipped to the area outline that you requested. If you are really short of disk space this could be useful, but it doesn't usually hurt to have extra data around the outside of your study area. I prefer to untick this box and download full map tiles.
- Give the order a name, e.g. **Leeds**. This will be part of the file name of the zip file that you download so try to make it short but helpful!
- Click on **Request Download**.

Downloading your data

You'll receive an email confirming your order, then another with a download link. Make sure that you are still logged on to Digimap before you click on the download link (figure 1.17).

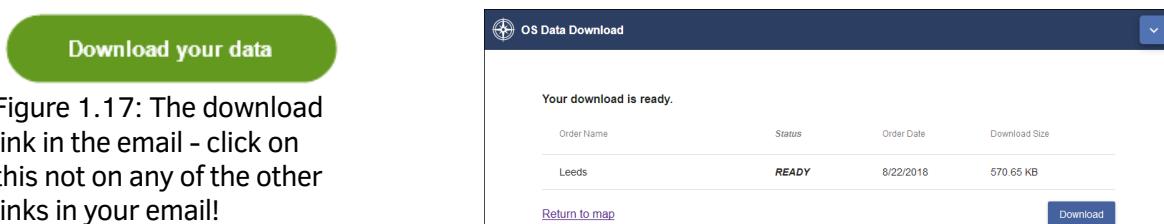


Figure 1.17: The download link in the email - click on this not on any of the other links in your email!

Once you have clicked on the link a window should open telling you that your order is ready to download (figure 1.18).

- Click on **Download**.
- You'll download a zip file. **NOTE:** Don't run or open the file directly from your browser, and make sure that you **DON'T** save your zip file to a **temp** folder where you will probably be unable to unzip it.

Make sure that you remember where you have saved the zip file.

Now open **My Computer** and navigate to the location where you saved the zip file. Right-click on the compressed map data file that you downloaded and choose **7-zip > Extract files...**. Select where you want to save the extracted files, and make a note of where you save them to. You should end up with a folder for each dataset that you requested.

Viewing your data

In this case the files that you have downloaded are either tiff graphics files or shapefiles. Navigate to the downloaded folder called something like `vml-raster_746810.se` (your order number will be different) and look at the contents. Open one of the `.tif` files from the VectorMap Local Raster download by double-clicking on it. These files should open in a graphics program. In future classes we'll be using these in our own maps. Try opening one of the `.shp` files too. It's unlikely that you will be able to. These are a specific format for use in Arc and other GIS programs and we'll look at that in the ArcGIS sessions³.

The download facility includes a lot of different formats and products, but the basic method of download is the same for all of them. The challenge tends to be in knowing how to use them once you have downloaded them and you'll be looking at that in future sessions.

1.5 Geology Digimap

Geology Digimap gives you access to British Geological Survey (BGS) data, if you use Geology Roam it is on a background Ordnance Survey maps.

1.5.1 Geology Roam

Geology Roam works in a similar way to the Digimap Ordnance Survey Roam so you may find that some of this seems familiar.



Video Clip available - The Digimap video on Geology Roam is available at <http://bit.ly/1y191L7> (this video has sound). Note that this refers to an older version of Geology Roam.

If you are already in the Ordnance Survey section find the **Digimap home page** by clicking on **Digimap Home** at the top left of the screen.

From the Digimap home page click on the Geology heading and click on **Geology Roam**.

The Geology Roam map window (figure 1.19) is basically the same as the Ordnance Survey Roam window.

Geology Roam is very similar in functionality to the Ordnance Survey Roam, so the buttons and task menu should be familiar to you from the previous sections.

- Open the **Search** menu and enter the University of Leeds postcode - **LS2 9JT** - into the postcode search box, then click on **Find**.

³Note that there may also be other files in the VectorMap Local folder with a `.tfw` extension. These won't open in any program but, if present, are essential for using the tif file in GIS programs such as ArcGIS, so make sure that you keep this together with the tif file.

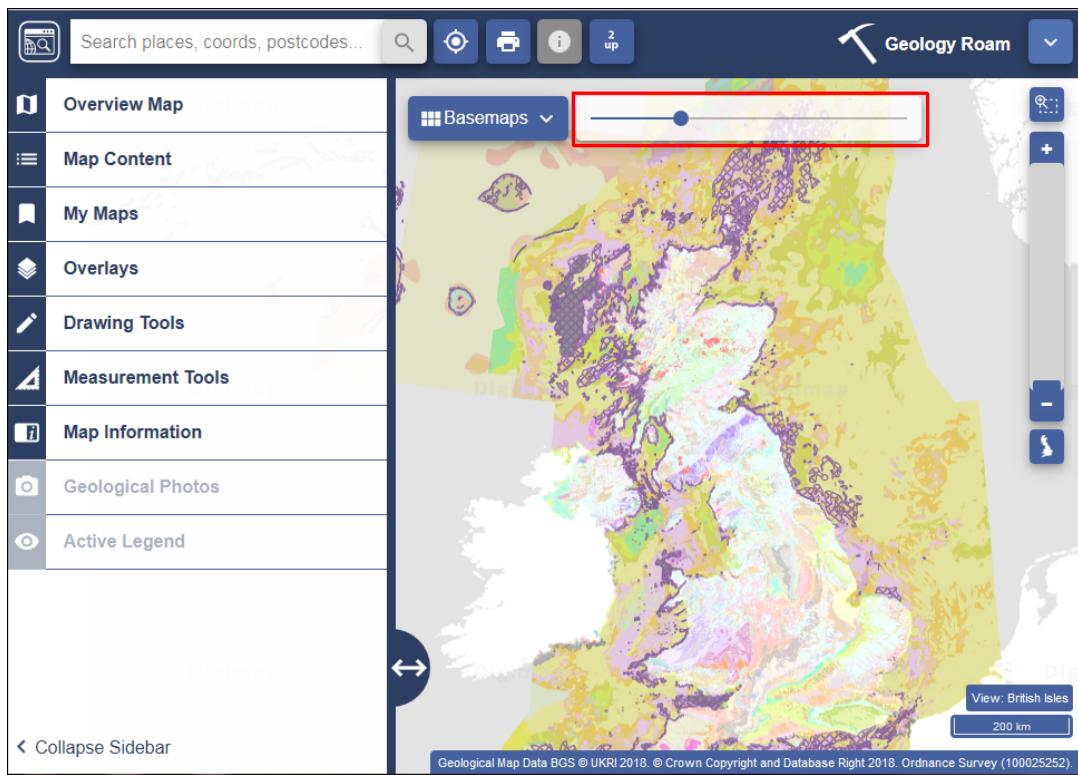


Figure 1.19: Geology Roam map window

- As in OS Roam use the controls to change scale and level of detail.
- One feature that is different from OS Roam is the slider at the top of the map window (outlined in red in figure 1.19). Try sliding it and see its effect on the transparency of the geology over the topography.
- use the **Basemaps** menu to load different geology layers, for example, in the more zoomed in views try changing the 1:50 000 geology so that it shows **rock types** instead of **rock units**.

Controlling map content

- Once you have a geological map of the area you require click on the **Map Content Control** tab (figure 1.20). This will give you a key to the area shown in the current map and a way to control the visible layers.
- Try turning off the **Superficial Deposits** by unticking the box next to that heading and see what difference it makes to the map. You may have to be patient if you can't see the geology at all for a minute or so - it should return eventually! Try the same with **Artificial Ground**
- To find out what geology is present in a particular area click on the button for the **Feature Information** tool on the toolbar at the top...
- ...then click on the unit on the map that you want to find out more about. A box will appear showing basic details for all of the layers underneath the cursor (figure 1.21), plus the National Grid coordinates. The features selected in the list at the left of the box will be outlined on the map.

Question 1.5. What is the Bedrock geology underneath the School of Earth and Environment?



Figure 1.20: Map Content Control

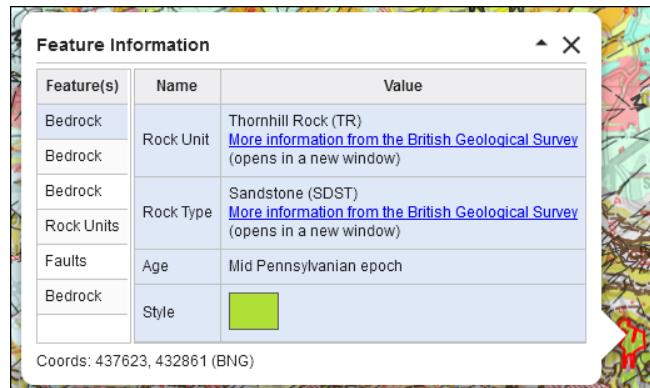


Figure 1.21: Feature information



Geological photographs

The geological photos panel adds icons that open photographs from the BGS photo archive. These include a caption with information about the geological features that they show.

Currently there are no geological photos available for the Leeds area. Search for and go to **Malham Cove** on the map and then click on **Geological Photos** in the side panel.

You should see lots of “camera” icons appearing on your map – figure 1.22.

Click on one of the icons to see a thumbnail. Click on that to see the large photo and more details (you may need to scroll down to see explanatory text).

Alternatively open out the **Geological Photos** list on the left-hand side of the screen and click on items in the list there.

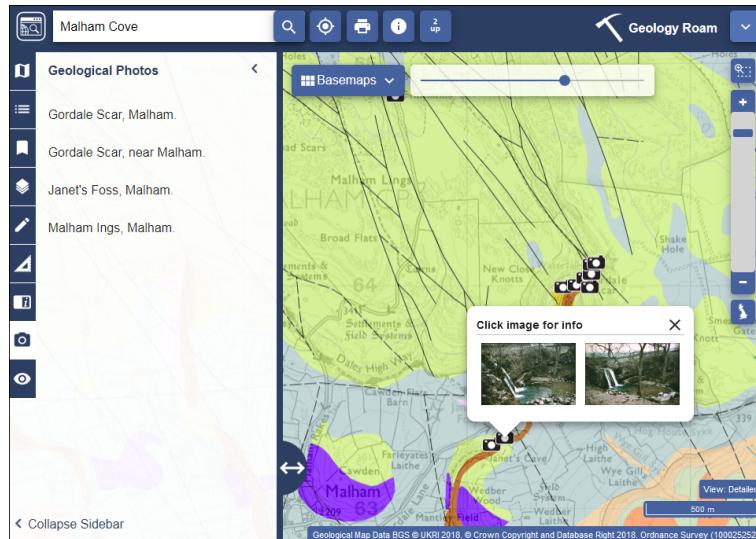


Figure 1.22: Viewing geological photographs

Printing from Geology Roam

Printing from Geology Roam means that you produce a file which you can save to print later if you wish, or include in another document.

- Click on the **Print** icon. The print dialog will open in a new window (figure 1.23).
- Fill in a map title
- Select the **print format** that you require - pdf for printing, png or jpg for importing into other documents - and whether you want to print in portrait or landscape format.
- Select the **Page Size** that you require.
- Note that the extent shown on the preview will not necessarily correspond with the extent that will actually print out - you can check that on the **Layout Preview** tab.
- Select whether you wish to include **National Grid lines** or **Rock Code Labels** (the labels are useful if you add a legend, but are rather obvious on the map).
- Select **Add Legend** if you want to generate a separate legend. If you choose this then your output will be two files inside a zip file.
- Click on **Generate Print File**, this will produce a file which you can then save or print.
- See section 1.7 on page 24 for information on how to print and edit PDF files.

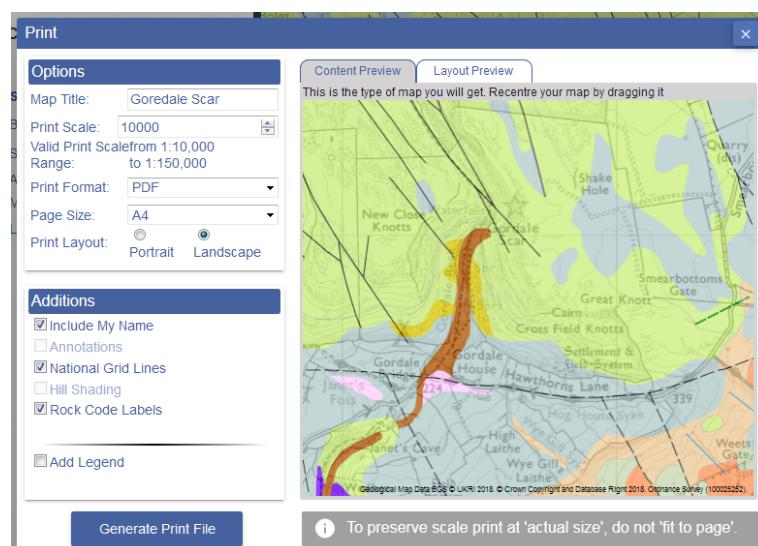


Figure 1.23: Geology print dialog

Other features of Geology Roam

In addition to the features listed above Geology Roam allows you to make annotations, measure distance and area, save and open maps, and save annotations to file in exactly the same way as Ordnance Survey Roam. See the notes in section 1.4.1 from page 3 for more information.

1.5.2 Geology Download

Geology Digimap also gives you the opportunity to download tiles of geological data to add to your own maps. We'll download some data now, but it is delivered in a format that has to be opened in a GIS program and you'll find out how to do that later in the workbook.



Video Clip available - The Digimap video on Geology Download is at <http://bit.ly/1xssnUC> (this video has sound), again, this refers to the older version.

- Click on the **Home** button in the top left-hand corner of the screen to return to the Digimap home page.
- Click on **Geology** in the menu at the top, then on **Geology Data Download** to bring up the map for selecting downloads.

Geology Download works in the same way as Ordnance Survey download, but of course, you have a different selection of layers to download. So start by selecting the area you require - using **search** and then the rectangle tool under **Draw** to outline the correct area.

Search for “Malham Cove” and outline a small area around that.

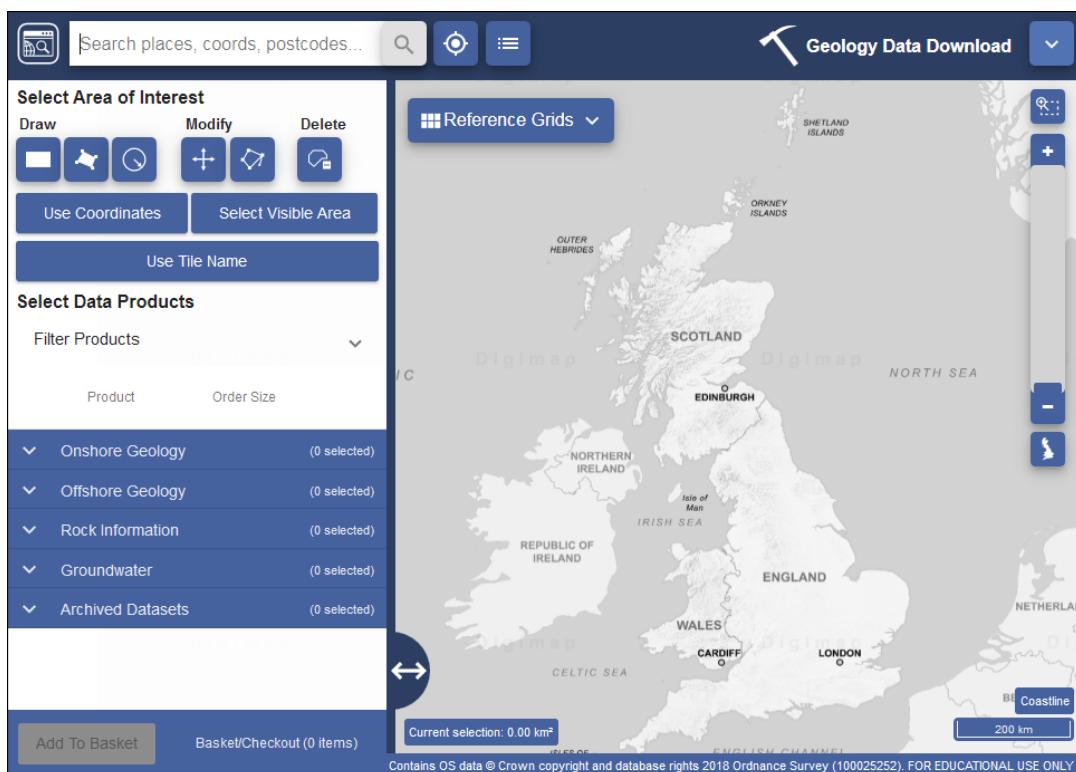


Figure 1.24: The Geology Download interface

You then need to select the data sets that you are interested in from the panel on the left. Usually you'll want layers from the **Onshore Geology** section.

To find out whether there is 1:10 000 or 1:25 000 coverage of the area that you are interested in click on the grid symbol next to the layer in the Selection panel.

If there is data available the tiles will then be highlighted and you'll be able to see the tile names too. If you've zoomed to Malham Cove there won't be anything visible.

Click on the grid icon next to 1:50 000 Geology, then zoom out. You should reach a point where you can see the outlines of the tiles of data.

Question 1.6. What is the Tile Name for 1:50 000 data at this location?

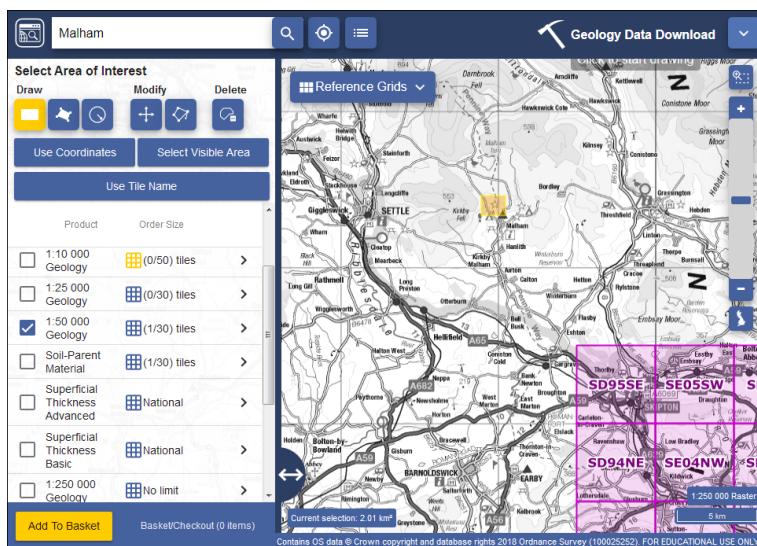
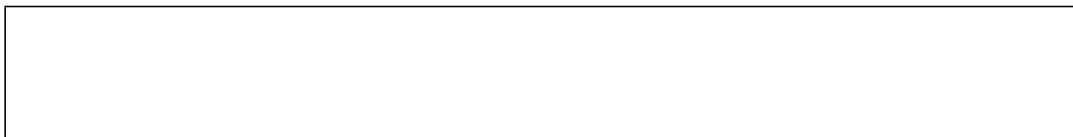


Figure 1.25: Finding out the availability of geological data: the shaded areas in the south east of the area around Skipton show 1:10 000 tiles which are available for this area. There is by no means full coverage of either 1:10 000 or 1:25 000

In this case

Select 1:50 000 Onshore data and don't forget to add it to your Basket. Once you've done that go to Checkout where you will be able to choose the format for your data, and when appropriate, the layers (figure 1.26).

The format choices will be either **SHAPE**, **MIF/MID** or **TAB**. Shapefiles are opened in ArcGIS (and many other GIS programs) so once you have completed the rest of this module you will have the knowledge to open the downloaded files in Arc, but for now just be aware that the data is available. Mid/mif format opens in MapInfo - another GIS program which is also available within the university but which we won't be covering here.

1.5.3 Geological maps in the School of Earth and Environment

The geological maps that are available through Digimap are also available in paper form by speaking to Clare Gordon in the Kennedy Library (C.E.Gordon@leeds.ac.uk).

The paper geological maps still provide more information than the digital service, such as cleavage and bedding, and complete legends.

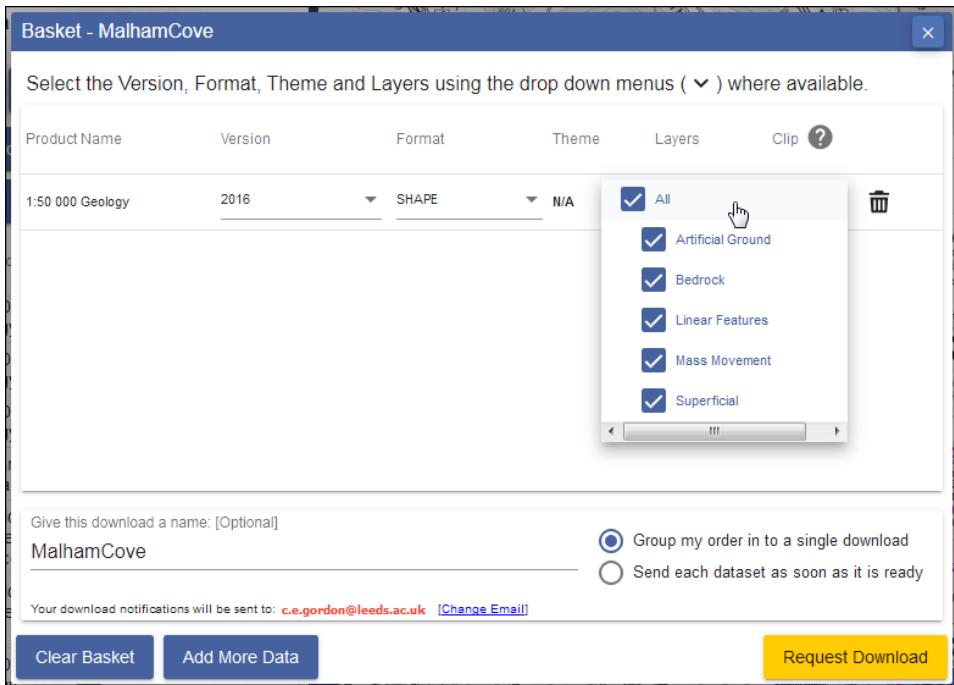


Figure 1.26: Format and layer options for downloading geological data

1.6 Aerial Digimap

Since 2016/2017 Digimap has given access to 25cm resolution aerial imagery from Getmapping. This is a fantastic resource and enables you to see a great deal of detail. It's well worth downloading imagery for your field areas. As in other collections in Digimap, you have a choice of Roam or Data Download and these work in a similar way, so refer back to the previous sections if you need a reminder, but there are inevitably some differences because of the different nature of the data.

1.6.1 Aerial Roam

From the Digimap home page click on the **Aerial** heading and then on **Aerial Roam**

The Aerial Roam map window is basically the same as the Ordnance Survey Roam window and the functionality is very similar so I won't go through it all here.

- Open the **Search...** menu and enter the University of Leeds postcode - **LS2 9JT** then click on **Search**
- You should be taken to a view which looks something like figure 1.27

Note that the imagery isn't available to browse at all zoom levels. Look at the bar on the right of the window (figure 1.27) and you'll see that the most zoomed out levels are labelled **OS**. As you zoom in closer the map will change to imagery.

Zoom in and out and move around the map to see what is available.

Opacity and viewing place names and roads

You can use the opacity slider at the top of the screen (above the zoom control) to allow the map to be shown through the aerial photograph.

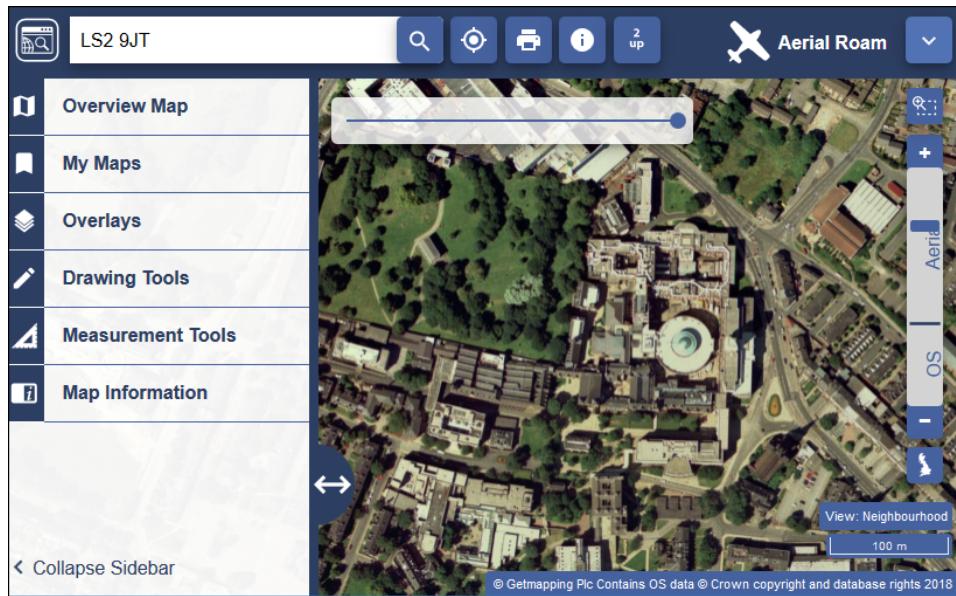


Figure 1.27: The Aerial Roam window

If you don't want to make the aerial layer transparent, but do want to be able to see the names of places and the roads, click on **Overlays** > **Road/Place names** in the sidebar. This is a toggle, so do the same again to switch the names off.

Finding the date of the imagery

If you have searched for **LS2 9JT** and are looking at a view of the University, move the map so that you can see the SEE building. There is a lot of building work going on around the University so it would be useful to know when the imagery was taken to have some idea of how much is likely to have changed since. To find out the date it was flown do the following:

- Click on the **i** for information button at the top of the screen (next to the Overlays)
- Now click somewhere on the map, close to the SEE building.
- You should be shown a panel with the Tile name, Date Flown and the eastings and northings of the location that you clicked - see figure 1.28

In 2000 the company Getmapping flew aerial imagery for the whole of the UK - which is extremely impressive given that they were obtaining high resolution, cloud-free data. For how many days in the year is the UK completely cloud free?

Most of the data available in Aerial Digimap has been flown much more recently.

Note that when you click on the map for information you are also shown a red outline for the tile that you have clicked on. You may need to zoom out and move the Tile Name dialog out of the way to see this.

Search for the following British National Grid easting and northing using the search box:

- **289576, 812418**

Question 1.7. What is the Tile Name at this location, and on what date was the aerial imagery at this location flown? As a bonus, what town is this point within?

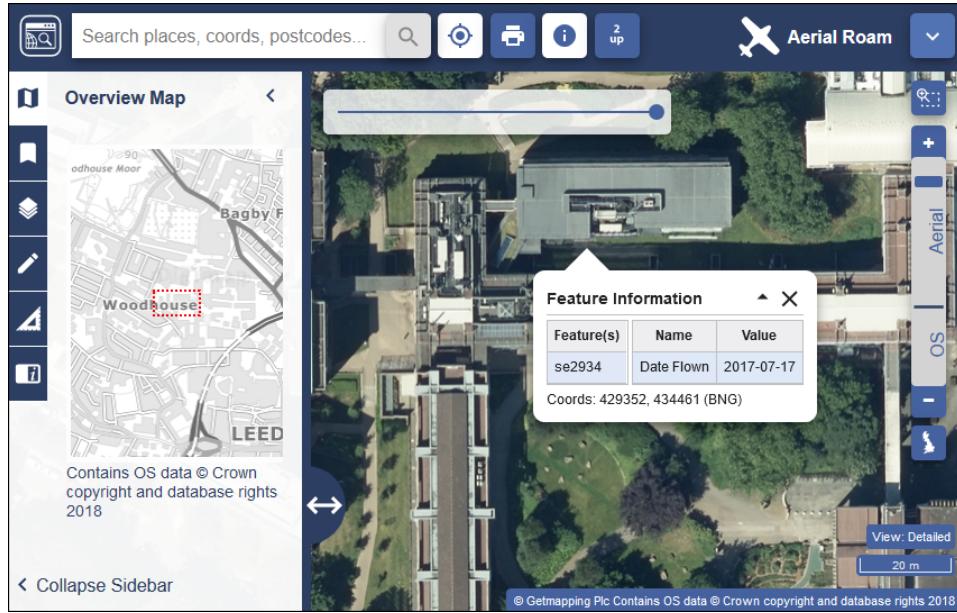


Figure 1.28: Information about the tile of aerial imagery, including the date that it was flown

1.6.2 Aerial Download

Return to **Digimap Home** and now select

- **Aerial and Aerial Data Download**

As with the other download interfaces the map that you see on the screen is only an indicator of the area that you will be downloading, it is not the actual data.

Use **Search** to go to British National Grid coordinates **254042, 271408**. You'll see that this is a coastal area of Wales with a rocky foreshore. Use the **Rectangle** tool to draw a rectangle around a small part of the rocky coast. These imagery downloads can be very large so for now just pick a very small area, at the bottom right of the map you can see the size of your current selection in km^2 , try to go for something of about 0.25 km^2 .

- Go to **Aerial Imagery (Latest)** in the panel on the left and put a tick in the box next to **High Resolution (25cm)**
- The number in brackets after this shows how many tiles you have selected to download out of the maximum of 100. If you have selected to download more than 4 files then I'd suggest that you outline a smaller area just for the purposes of this exercise.
- If you click on the arrow next to the dataset you are given more information about it, including the recommended copyright acknowledgement. Make a note of this and add it to any document or map that you create with this data.
- Now click on **Add To Basket** and give your download a name, then **Request Download**

This works in exactly the same way as OS and Geology download, so having requested the data you need to wait for an email which contains the download link. Once you have this, download the data, move it to your M: drive and **unzip it** (Right-click on the zip file - [7-zip] Extract here).

View the files in ArcGIS

You can open the jpg files in a graphics editor if you want a quick look at them, but for our purposes it makes more sense to add them to a map.

- Open ArcGIS, set up a new map and add the jpg file(s) that you have downloaded.
- You should be able to zoom in on an area of the rocky coast and have a look at the amount of detail that is available
- The files are georeferenced so can be used alongside map tiles from Digimap Ordnance Survey download
- If you are using this in a map for coursework or your dissertation, or indeed for showing to anyone else, don't forget to add the correct copyright acknowledgement.

Using aerial imagery for fieldwork

If you are setting up a map for geological fieldwork in an area of the UK it is well worth downloading this data and creating a set of aerial images too. Data may be available for other countries but it won't be downloadable via Digimap. If you can't find any aerial imagery for your area try searching for **World Imagery** in ArcGIS Online or the basemaps and add that to your map. It won't be as detailed as 25cm resolution, but will be better than nothing.

1.7 Printing and editing PDF files

1.7.1 To print

PDF files can be viewed and printed in any PDF reader, such as Adobe Acrobat Reader.

- From **My Computer** double-click on the pdf file and it should open automatically in the default reader.

For your own computer there are a lot of different programs that will read PDF files. See the list at

http://en.wikipedia.org/wiki/List_of_PDF_software#Viewers_4⁴

1.7.2 To edit

PDF files can be edited in Adobe software such as Photoshop and Illustrator, and in CorelDraw. It is also possible to edit files in Inkscape. Open the file as follows -

- .

⁴Last accessed: 17th September 2019.

1.8 Copyright acknowledgements for Digimap data

Copyright is important. Remember that most data providers ask you to sign up to conditions that include an obligation to add a copyright acknowledgement to your map. Check what that copyright statement is and add it.

e.g. when you signed up to use the Digimap collections you agreed to add copyright acknowledgements whenever you created a map with the data. These do change from time to time so it's worth knowing how to check it for yourself.

- To find these copyright acknowledgements go to the **Digimap Resource Centre (Resources** at the top of the main Digimap page)
- Look for a link to **Digimap Licence Agreements** and click on it.
- Click on the End User or Sub-licence agreement for the data that you've used
- then look for the information under **In return, you must:** - that gives you the acknowledgement text.

For example, as of April 2019 when you use Ordnance Survey data obtained from Digimap you are expected to add the following text to your map.

© Crown copyright and database rights year. **Ordnance Survey (100025252).**

Where *year* is replaced by the current year.

Remember that you do have to acknowledge each different dataset that you use and will have signed up to that when you registered.

Adding the copyright symbol to your text

To add the **copyright symbol** - ©- to your text

- check that the **Num lock** is on on the keyboard
- hold down the **Alt** key
- use the number pad to type **0 + 1 + 6 + 9**
- release the **Alt** key

Table 1.1: Adding the copyright symbol to your text

If you are *not* using U.K. Ordnance Survey data this is **not** the correct copyright acknowledgement to use, for example if you are using data for Spain or the United States, or indeed UK data that you haven't downloaded from Digimap. You'll need to find the correct copyright acknowledgement for yourself. The web page⁵ at <http://bit.ly/1ZSifnd> gives some information about how to cite GIS materials - including the software as well as the data. Have a look at that and follow the suggestions to cite non-Digimap data.

Advice on citing Digimap data, as opposed to the copyright acknowledgement is at <https://digimap.edina.ac.uk/webhelp/resources/citation/services.html>

⁵Last viewed: 18th September 2018

1.9 Further help with Digimap

1.9.1 Additional Digimap collections

This booklet has only covered the basic collections from Digimap. The University of Leeds also subscribes to Geology, Aerial, Historic and Environment collections.

All of the collections have a Roam and a Data Download interface which work in a similar way to the examples you have used.

You have access to all of these collections, feel free to have a look at what is available and make use of any of the data or maps in your work.

1.9.2 Digimap Collections online help

Digimap help is available from both the Digimap Ordnance Survey and Geology home pages. Click on the links in the left hand menu for more information about how to use the services and file formats.

Alternatively use the Help links from within Roam or Download or use the videos that Edina have uploaded to YouTube at -

<http://www.youtube.com/user/EDINADigimap>⁶

If you want more detailed information Edina provide e-learning units which are linked from the main Digimap home page.

1.9.3 School of Earth and Environment

Clare Gordon can provide help and advice on using Digimap. Contact her in room 10.140b at the back of the Kennedy Library or on c.e.gordon@leeds.ac.uk.

The most up to date edition of this workbook will be available in Minerva for those modules on which it has been used.

⁶Last accessed: 29th August 2019