

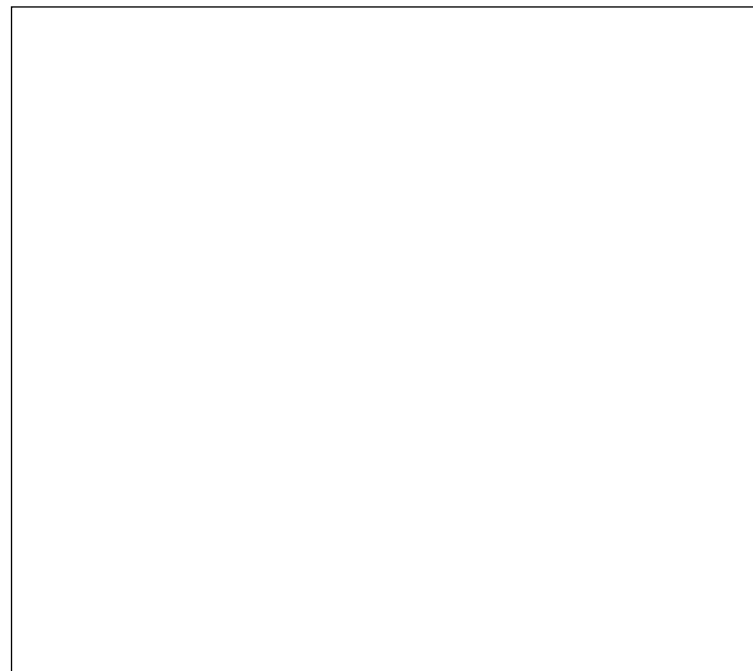


Producing Maps

- Cartographic Design Principles
- What is a Print Composer?
- Print Composer
- Adding Map Elements
- Graphic Elements
- Map Templates
- Printing or Exporting





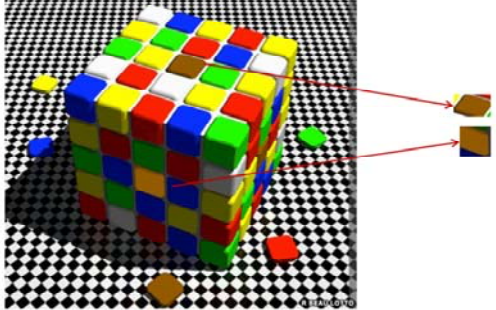
When creating a map...Simplify, reduce, cut everything but directly relevant information

Important questions to ask...

- *What function is the map going to serve*
- *What key messages is it going to portray*
- *Are there any secondary messages to include*
- *What size – what scale*
- *Accuracy of sources – adequate for intended map*
- *Who will read the finished map – USER*
- *Are there any copyright implications in sources*

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Presentation Decisions: Colour

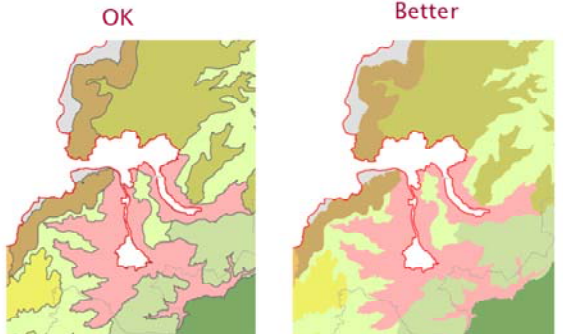


Use of neighbouring colours can affect how they appear,
Squares are actually the same colour!

Colours appear differently when surrounded by darker/lighter shades than themselves.

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Presentation Decisions: fills/borders

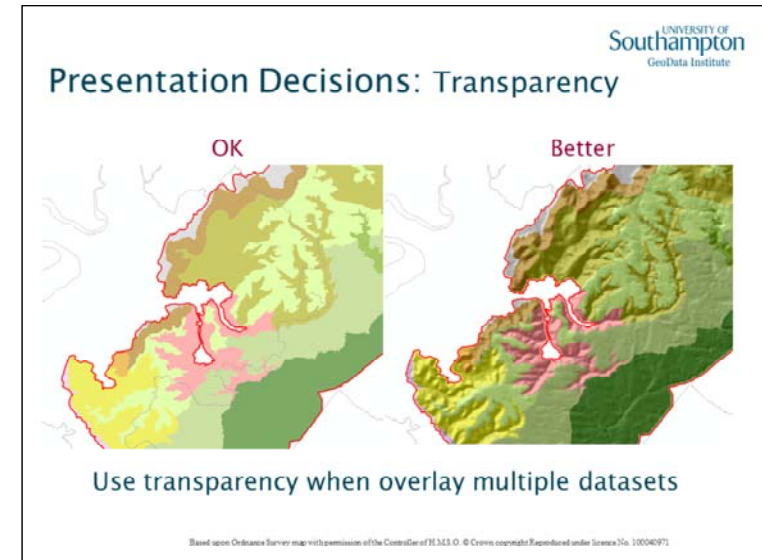
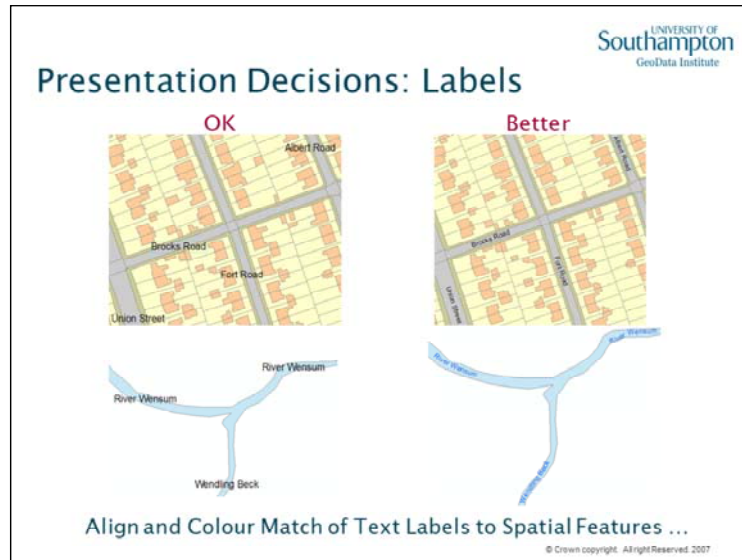


Remove Polygon Outlines

Based upon Ordnance Survey map with permission of the Controller of HMSO. © Crown copyright Reproduced under licence No. 10004971

From a user's point of view a map may be bad either because the information has a poor correspondence with the phenomena, or is inadequate or out of date

In designing a map a cartographer uses visual perception, visual imagination and his own visual experience. The response of the map user is conditioned partly by the visual characteristics of the map, but also by the user's own visual information processing abilities and aptitudes.



Other Pointers ...

Do not use too many bold colours
Do not put too much on one map
Use pastel shades for base data
Use of halos make labels appear more clearly

Bad

Better

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The importance of colour in maps, do the colours and patterns support the hierarchy of info? Do the most important things stand out more than others?

Is there subliminal harmony in the choice of colours, i.e. the lowest level of hierarchy should be subliminal (background)

The map must hold users attention and as a result will convey more information.

Adding a halo to text prevents domination of this symbol against other important elements

For point symbols contrast needs to be high in order to achieve legibility against light backgrounds

Print Composer

- An application used to produce a presentation map

A Composer window is used to prepare a final map for output to a printer or plotter.

It enables you to combine maps, tables, charts and other graphics such as titles, north arrows and logos, into a single document which has the dimensions of a sheet of paper.

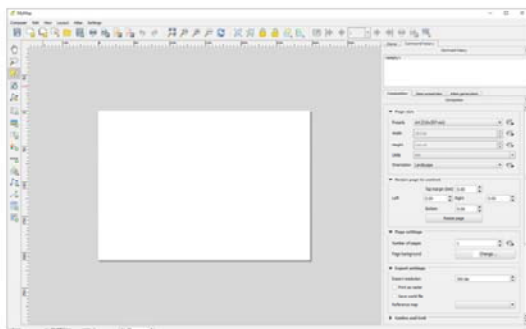
The print composer in Quantum is the Interface used to create presentation maps for export to formats such as PDF and also to print to paper.

There is a toolbar to aid the map production and each element added to the map will have an accompanying menu appear to the right of the screen with tabs and drop down menus to customise the element. For example the legend elements menu has the ability to edit the font of each element and choose which items are within the legend.

To delete a composer window the Composer Manager (*Project > Composer Manager...*) must be used, closing a Composer window doesn't delete it.

Defining the page

- Choose the paper size.
- Set orientation.
- Set the print quality.

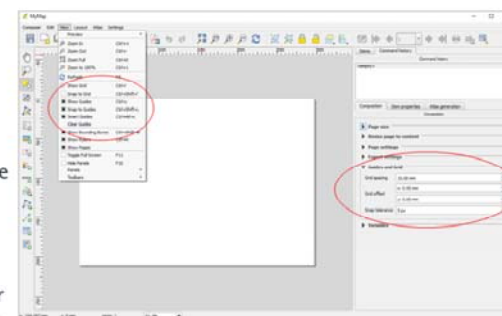


When you first open up the Print Composer, the menu on the right hand side has 2 tabs. Composition and Item Properties.

Under the Composition tab you can define the page settings.

Setting snapping

- Snapping allows you to align different map elements to each other.
- You need to set the spacing of the grid and select a grid colour.
- This grid will not be visible on your final printed map.





Adding a map canvas to the print composer

- Click on the **Add New Map**  button and drag a rectangle on the map canvas.
- Various options for the map canvas can be changed from the **Item** tab, such as size, scale, rotation and display mode.



Manipulating the map canvas and Page navigation

- Use the **Select/Move Item** tool  to move and re-size the map canvas or other element.
- Use the **Move item content** tool  to move (pan) the content of the map canvas.



- Page layout navigation controls



Adding a second map

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1st Map canvas showing the main map.

2nd Map canvas showing different layers from the same project.

Option for extent indicator

You can use additional map canvases in different ways - for example, to show insets and overviews or to allow map readers to compare different representations of the same area.

Other map elements can generally be associated to a map canvas through their item properties

If an overview map is desired, then an the extent of another map canvas can be inserted using the 'Overviews' section of the Map Canvas item properties

Adding a second map

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Multiple map canvases gives you the ability to show overview maps for the area of interest.

- Before modifying the composer, define **map presets** for the layers that will be used in each of the composer maps
- Associate the multiple maps in the composer to the appropriate preset to ensure that they show the correct content

Map presets only store the layers that are visible or not. They don't store styling changes etc. If you need to use the same layer with different styles in a second composer map then duplicate it in the map window before changing the symbology and assigning it to the second preset.

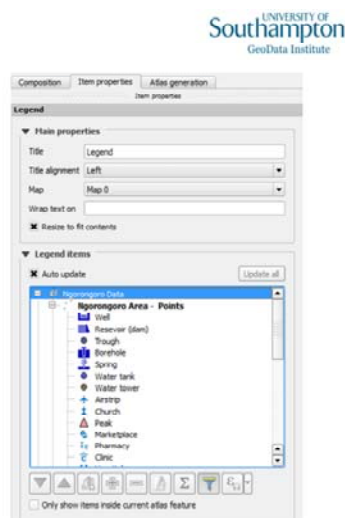
Adding a Legend

- Use the **Add new vector legend** button.
- Draw a box where you want your legend to go and then use the **Item Properties**, **Legend Items** and **General Options** sections in the **Item** tab to customise your legend.

Legend

Water points

- Well
- Reservoir (dam)
- Trough
- Borehole
- Spring
- Water tank
- Water tower



Adding a Scale Bar

- Use the **Add new scalebar** button.
- Draw a box where you want your scalebar to go and then use the **Scalebar**, **Font**, and **Color** sections in the **Item** tab to customise your scalebar.

0 150 300 450 m



The 'Map units per bar unit' box allows a scale factor to be entered to convert between the map distance unit and the units shown in the scalebar, for example a map in the British National Grid CRS will have map coordinates in metres, to display kilometres in the scale bar, enter **1000** in the 'Map units per bar unit' box, and **km** in the 'Unit label' box.



Adding a North Arrow

- Use the **Add Image** button.
- Draw a box where you want your north arrow to go and then select an appropriate arrow from the **Picture** Options tab. Use the **General Options** tab to further customise your arrow.







- All pictures are added and customised in exactly the same way. i.e. you could browse your local files to add a company logo.



Under the Picture Options tab, tick the **Sync with Map** option to automatically rotate your North arrow if you rotate the map in the main map window.

Adding other elements

- You can add other items to your print composer window to further enhance your map.
 - Labels 
 - Graphic Shapes 
 - Arrows 
 - Attribute Tables 

Labels

Any features which are labelled in your project window will be labelled in your print composer window. This Labels tool allows you to add extra labels.

Graphic Shapes

Allows you to draw basic graphic such as ellipses, rectangles and triangles. These can be useful to highlight certain features on your map.

Arrows

Allows you to draw arrows over your print composer window. Useful to highlight or relate different aspects of your map.

Attribute Tables

Allows you to insert the attribute table for any of the layers currently loaded in your project window.

Using Templates

- It is possible to create a map template and then import it to multiple projects.
- Useful for corporate templates/layouts.



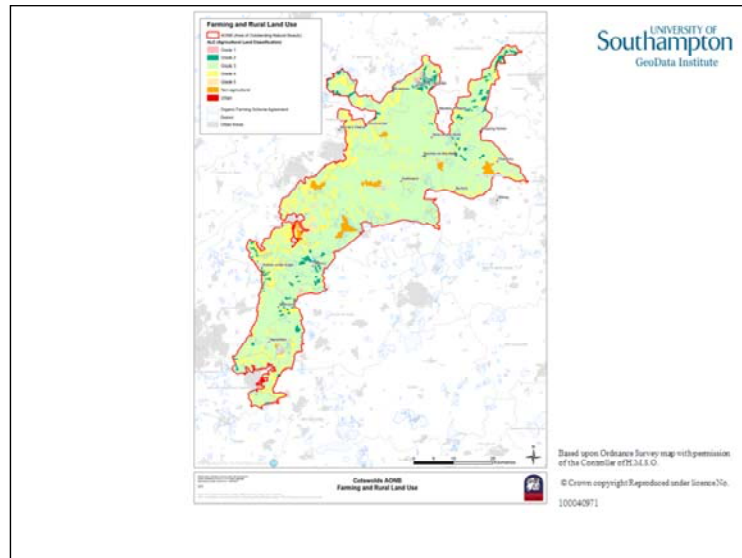
- It is saved as a .qpt file.
- You can load a .qpt file to any print composer.



Example GeoData template



Here is one example of a template that we use when mapping at GeoData. Often you need to create different templates for different projects and you may also need to adopt a template used by your client. All of our templates will fill the whole page and have borders around certain elements that are also aligned which makes the map neater.

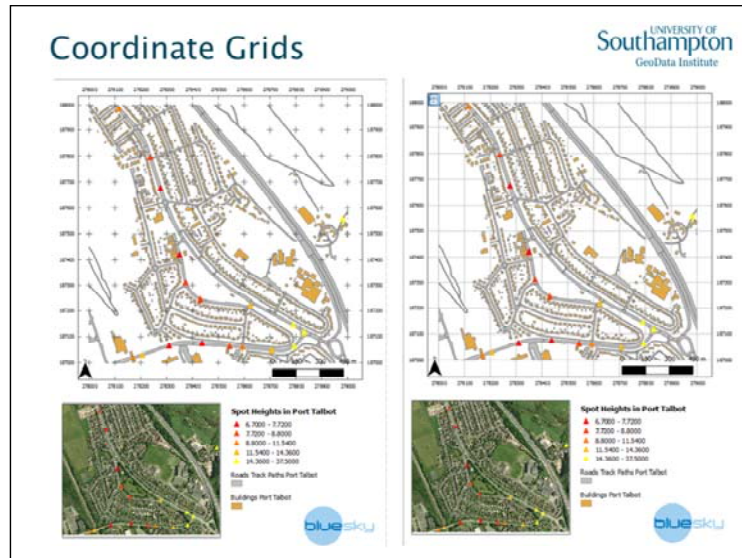


A map produced in 2007 that formed part of the Farming and Rural Land Use work conducted on behalf of the Cotswold Conservation Board. The thematic map shows Agricultural Land Classification data and Organic Farming Scheme Agreements within the Cotswold Area of Outstanding Natural Beauty.

Coordinate Grids / Graticules

- QGIS allows you to add and modify a coordinate grid over your print composer map.
- Use the **Grid** menu from the **Item Properties** tab with the map canvas selected.

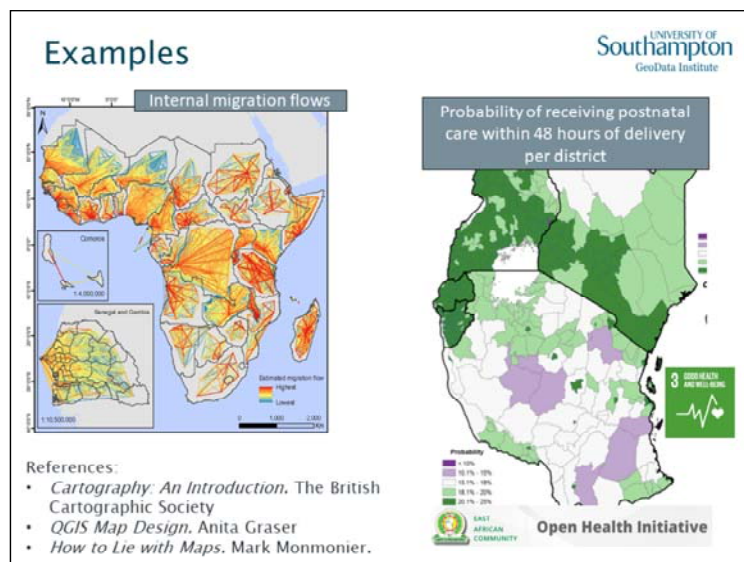




QGIS allows you to choose which type of grid to show. You can also customise the cross/line width, colour and offset.

Printing / Exporting a map

- QGIS allows you to export to a number of formats, including various image files such as .tiff and .jpg as well as .pdf and .svg files.
- A World file (.tfw, .jgw etc) can be generated by checking the 'World file on' box under the Composition tab.
- To print: **Composer > Print** and follow your own printer menus.



References:

Cartography: An Introduction. The British Cartographic Society – a small booklet giving some very useful tips for use of colour, shape, size, layout.

How to Lie with Maps. Mark Monmonier.