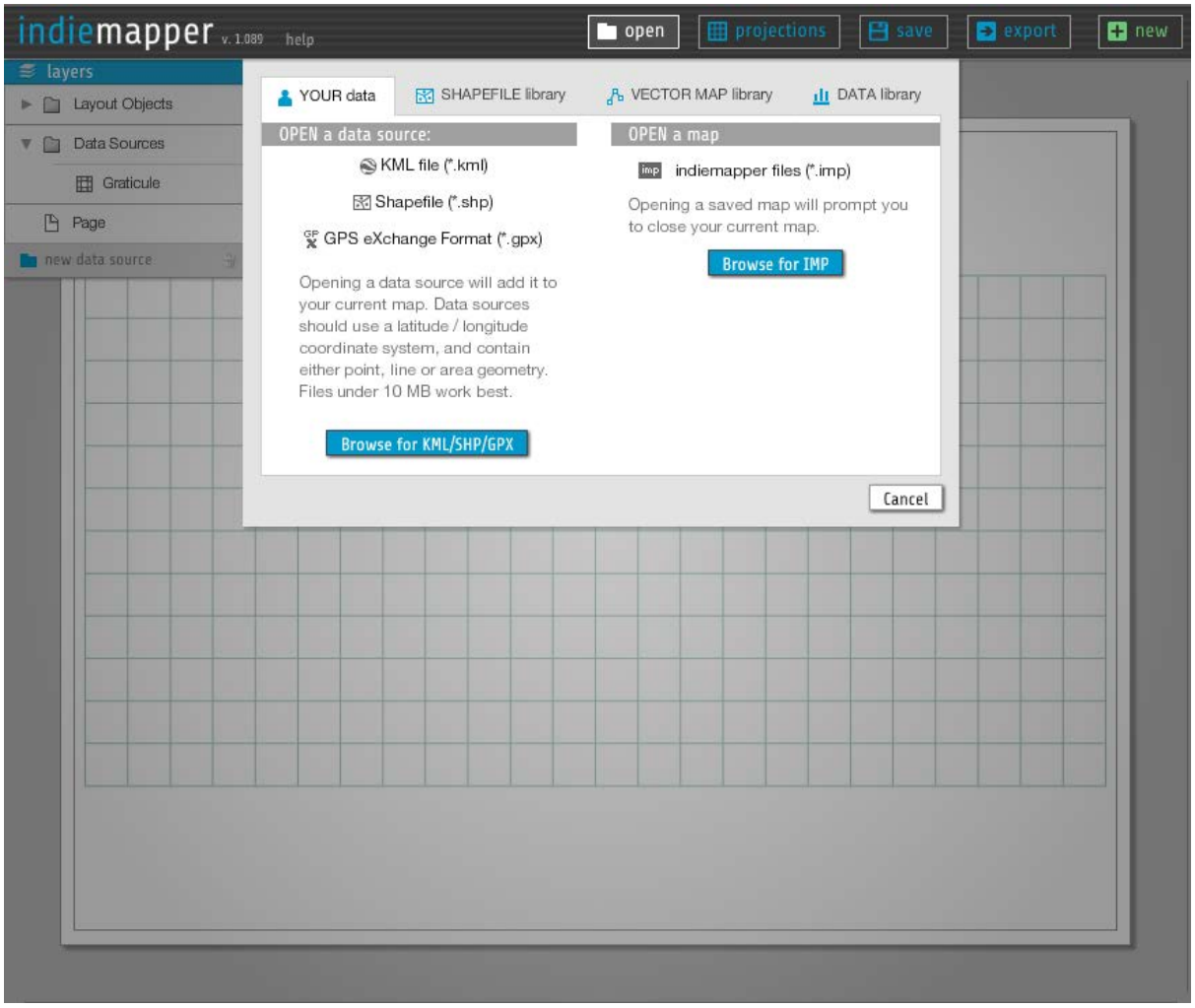
1. Start a web browser and go to **http://indiemapper.com/**

then click on the 

button

After a moment to initialise you should see something like this:



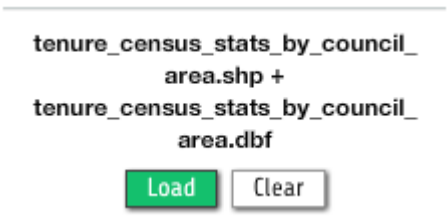
The indiemapper application needs the Flash browser plugin to work. If flash is not installed / enabled in the web browser then rectify this before moving on.

2. On the **YOUR data** tab, click on the Browse for KML/SHP/GPX button. This will open a dialogue prompting you to specify the file to upload.

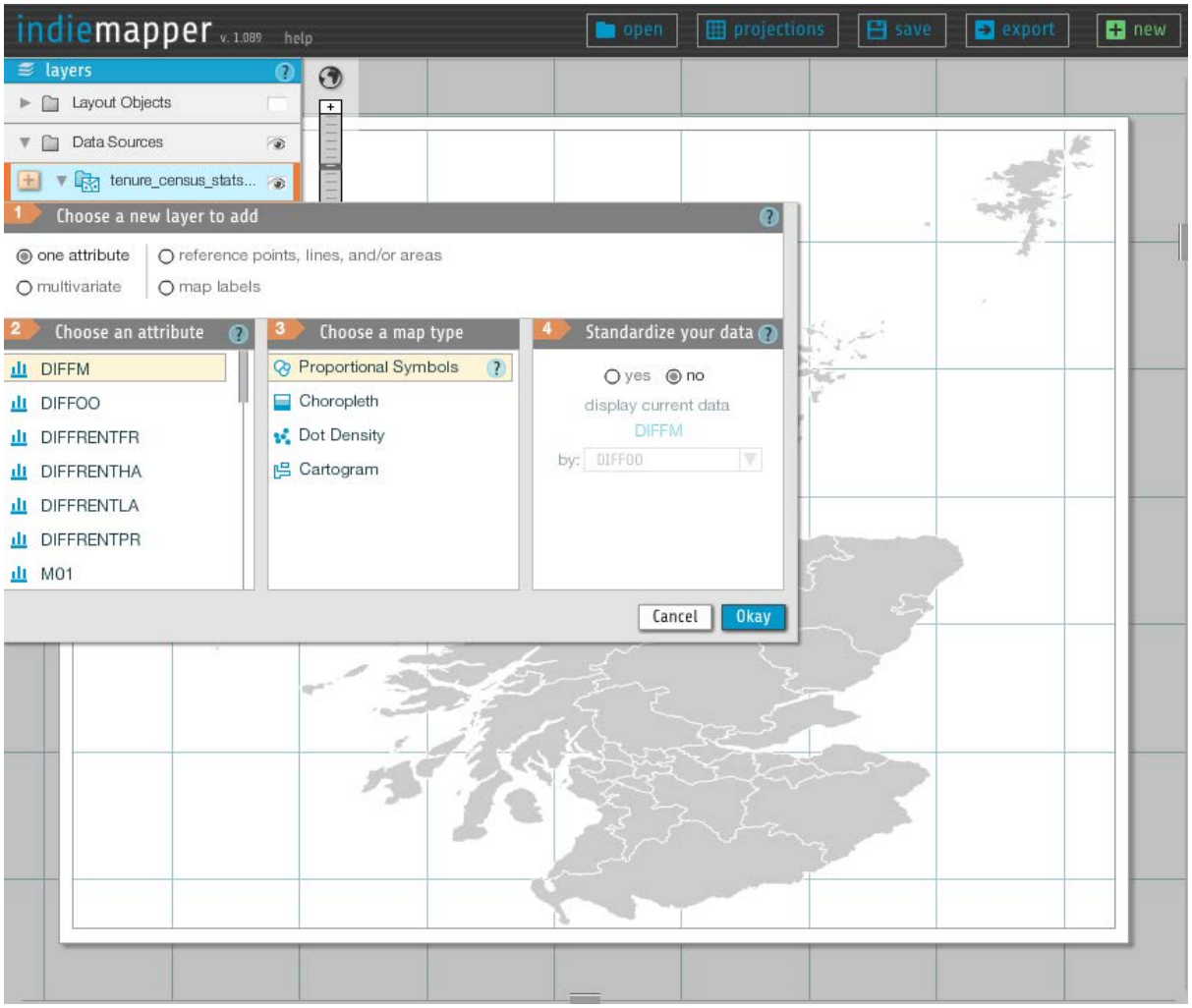
3. So, navigate to the location of the **tenure_census_stats_by_council_area.shp** file, click on **tenure_census_stats_by_council_area.shp** so that it is selected and then click the **Open** button.

4. indiemapper needs us to do likewise for the .dbf file. So Click on the Browse for DBF button. Again, this will open a dialogue prompting you to select the .dbf file to upload. This is **tenure_census_stats_by_council_area.dbf.**

5. indiemapper now has all it needs, so click the green Load button to continue.



6. indiemapper will load the shapefile and drop it onto a new map canvas.



7. first off, if you`ve not done so already, maximise the browser window

8. so the shapefile we uploaded to indiemapper is in WGS84 and indiemapper has added it to the map canvas in a default projection. Let`s change this to something more appropriate

9. Click on the 

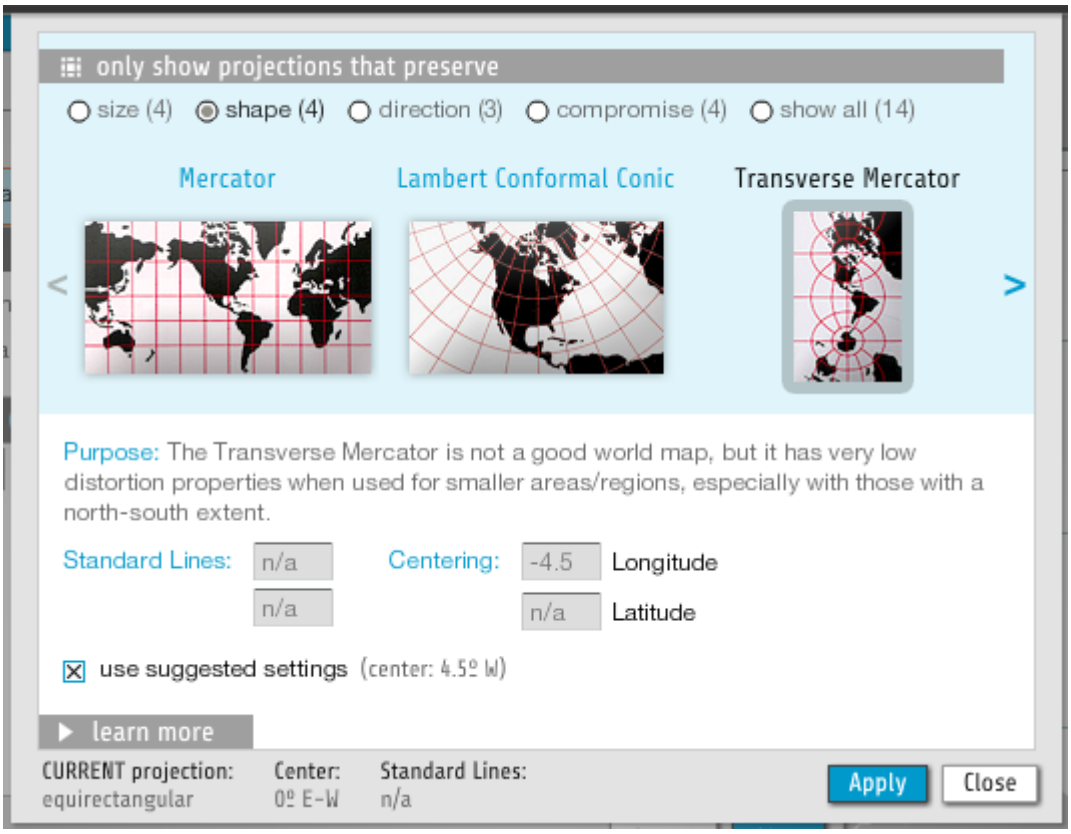
button

10. Picking a map projection involves making a compromise between size; shape and direction

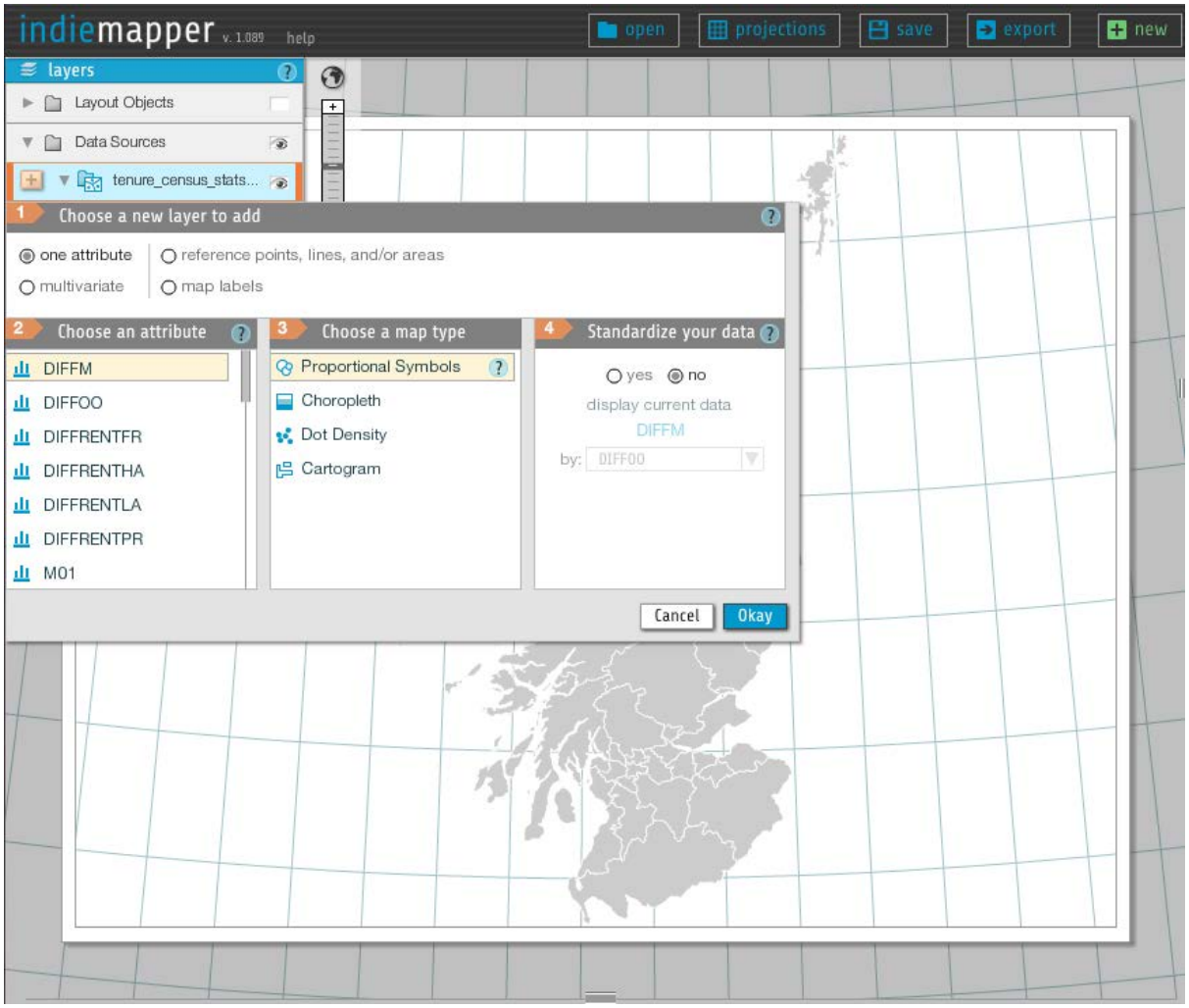
11. indiemapper supports 14 different map projections

12. changing the radio button to e.g. shape will show from the 14, only those projections that preserve a particular property

13. change to **shape** and then click on **Transverse Mercator**



14. click on the **Apply** button. indiemapper will redraw the data on the map canvas. Click the Close button to hide the projections dialogue. The geography of Scotland should now look more familiar.



15. We first need to tell indiemapper how it should treat the data provided in the shapefile that we have uploaded. Stick with the default of one attribute:

16. We now need to tell indiemapper which attribute we actually want to map

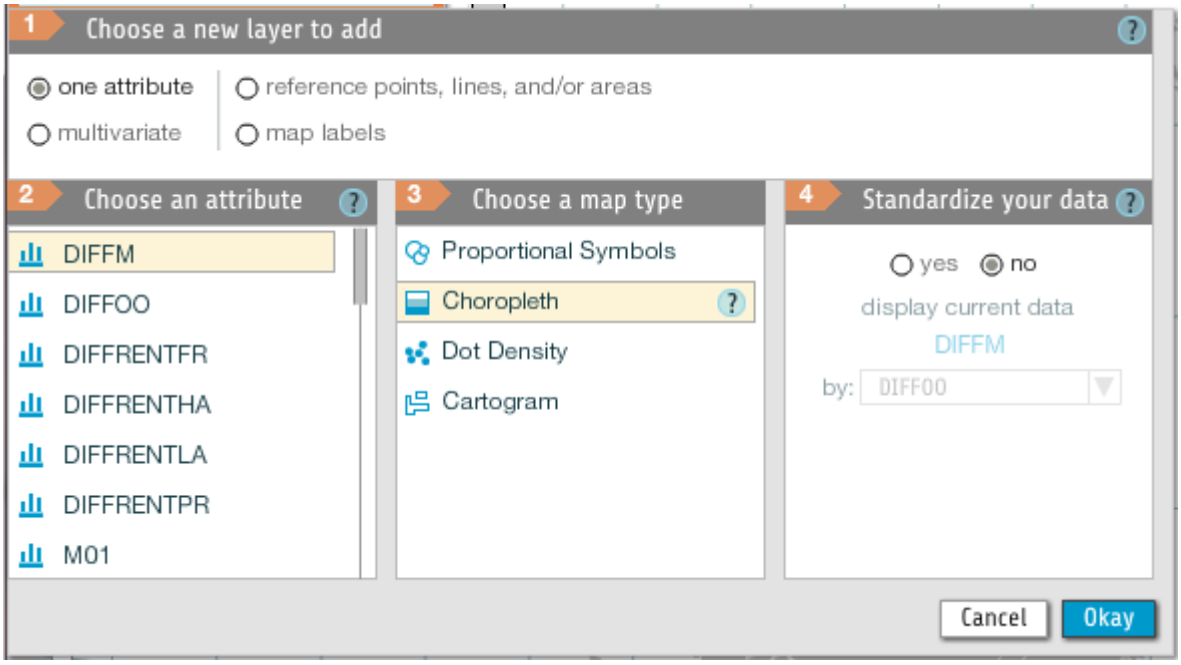
17. Click on DIFFM. If you consult the table at the back of these notes we can see that this attribute describes the percentage change of people living in a property mortgaged by their occupiers between 2001 and 2011.

18. We now need to tell indiemapper which type of map is to be created from our data.

indiemapper supports 4 different types of map. This includes a Choropleth Maps and (non-contiguous) cartograms. If you click on the (?) icon, indiemapper will bring up a help page describing

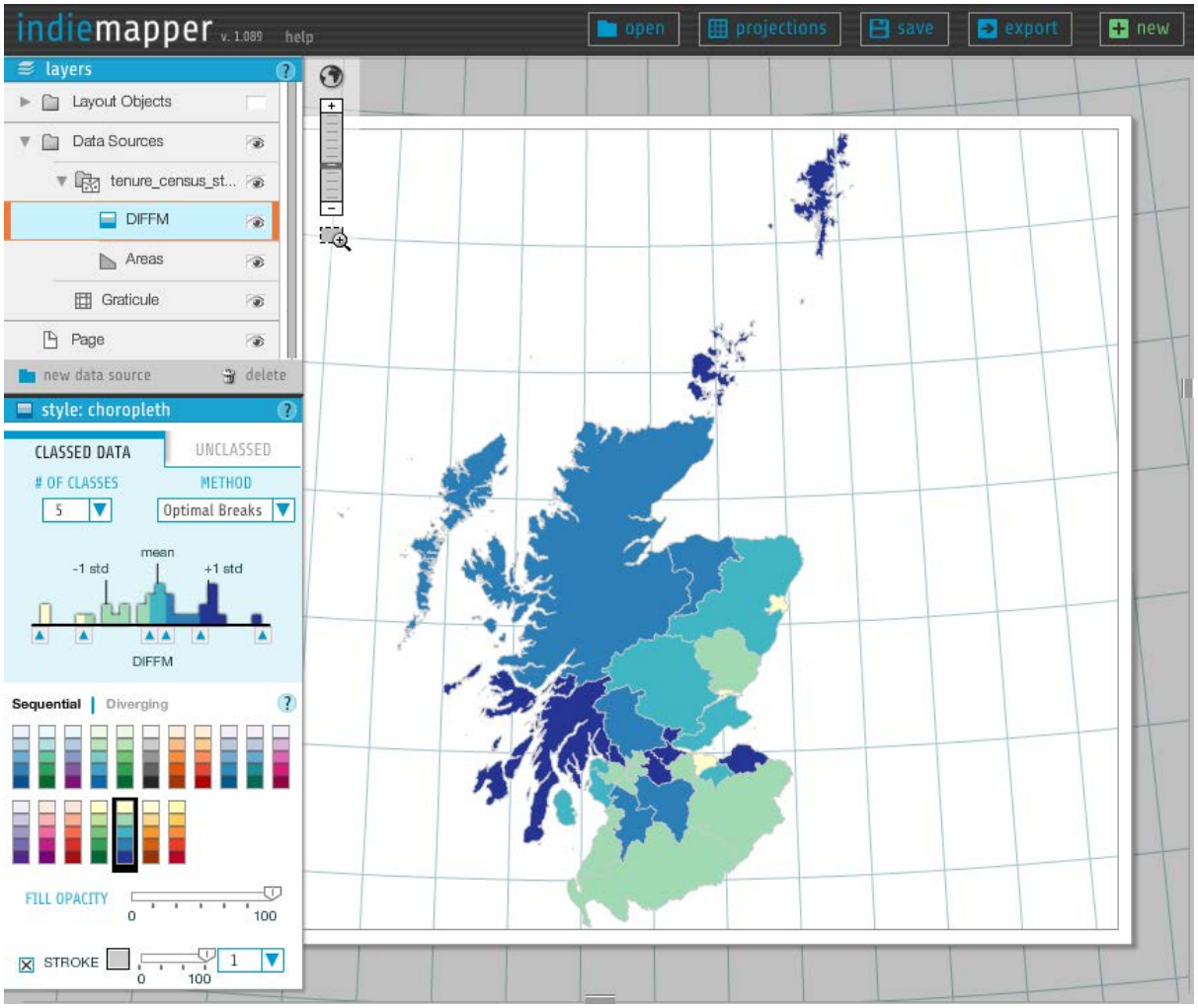
the map type, which you can spend a few moments reading if needed. Let`s stick with the Choropleth map type.

19. Under **Standardize your data**, keep this set to no. We would standardize data if we wanted to make our map comparable with maps from other countries. For example if we were mapping raw counts then by standardizing these counts by total population we would be able to express the raw counts as a percentage. Since the DIFFM attribute is already expressed as a percentage, standardization is not needed. Before proceeding make sure you have something like this:



20. Click the **Okay** button to continue.

21. indiemapper will redraw the map, maintaining our chosen map projection and will have applied a default data classification method and colour style to our DIFFM attribute that we chose to map.



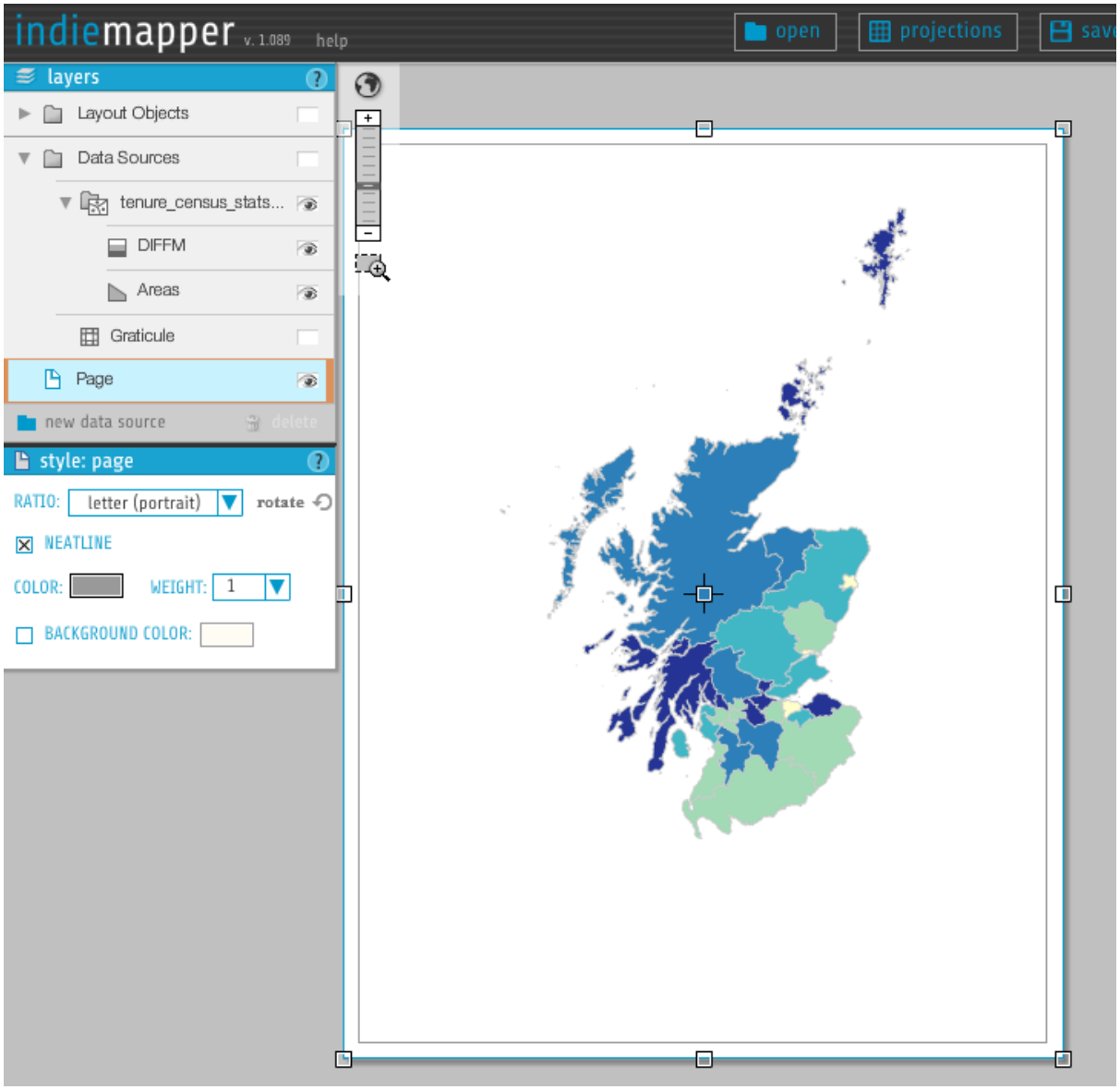
22. Before we go any further, let's change some default choices which indiemapper has applied to our map, namely the graticule and the page orientation. The graticule is the blue curving horizontal and vertical grid lines shown across the map. To make things clearer we can turn these off. To do this, go to layers at top left and click on the eye icon to the right of Graticule

so that it changes to a white box

The graticule lines will be hidden and things will be much clearer.

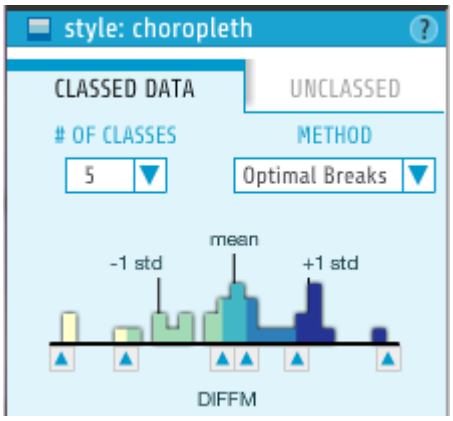
23. Let`s change the page layout from Landscape to Portrait. To do this, in layers at top left, click on

and change the RATIO dropdown from letter (landscape) to **letter (portrait)**



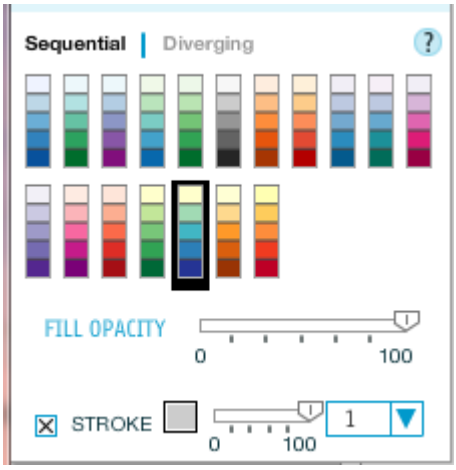
24. Let`s change the data classification method applied to our data by indiemapper and the colours used in each class. On layers at top-left, under Data Sources >> tenure_census_stats… >> DIFFM, click on DIFFM. This will re-open the choropleth panel.

25. In the top half of the panel we tell indiemapper the number of classes that should be used to classify the data and the classification method which is to be used.

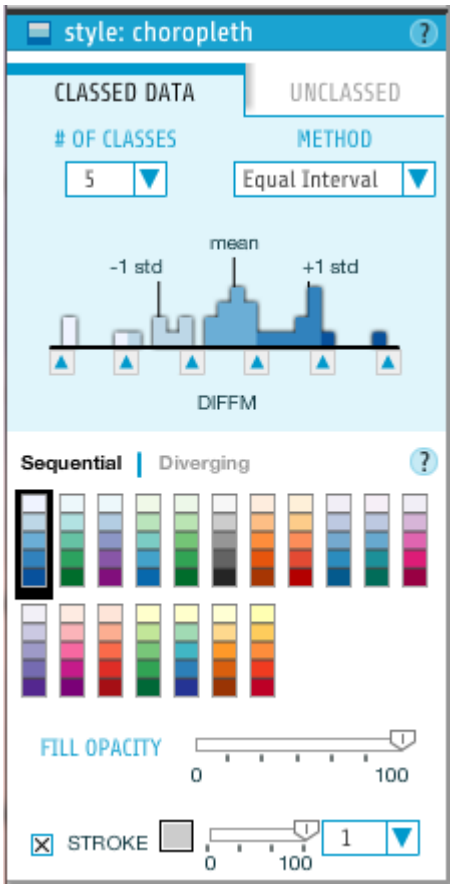


Stick with 5 classes, but change the METHOD dropdown to **Equal Interval**.

26. In the lower half of the panel we set the colour ramp that indiemapper should use to colour each data class. We have a choice between Sequential and Diverging colour ramps. We also have the option to control the colour and width of the polygon outlines.



27. Stick to **Sequential** and then pick one of the colour ramps. I`ve picked one that ranges from white for the lowest values through to dark blue for the highest values. I`ve also changed stroke colour to black to make the polygon outlines stand out more. Before going any further make sure you have something like this:



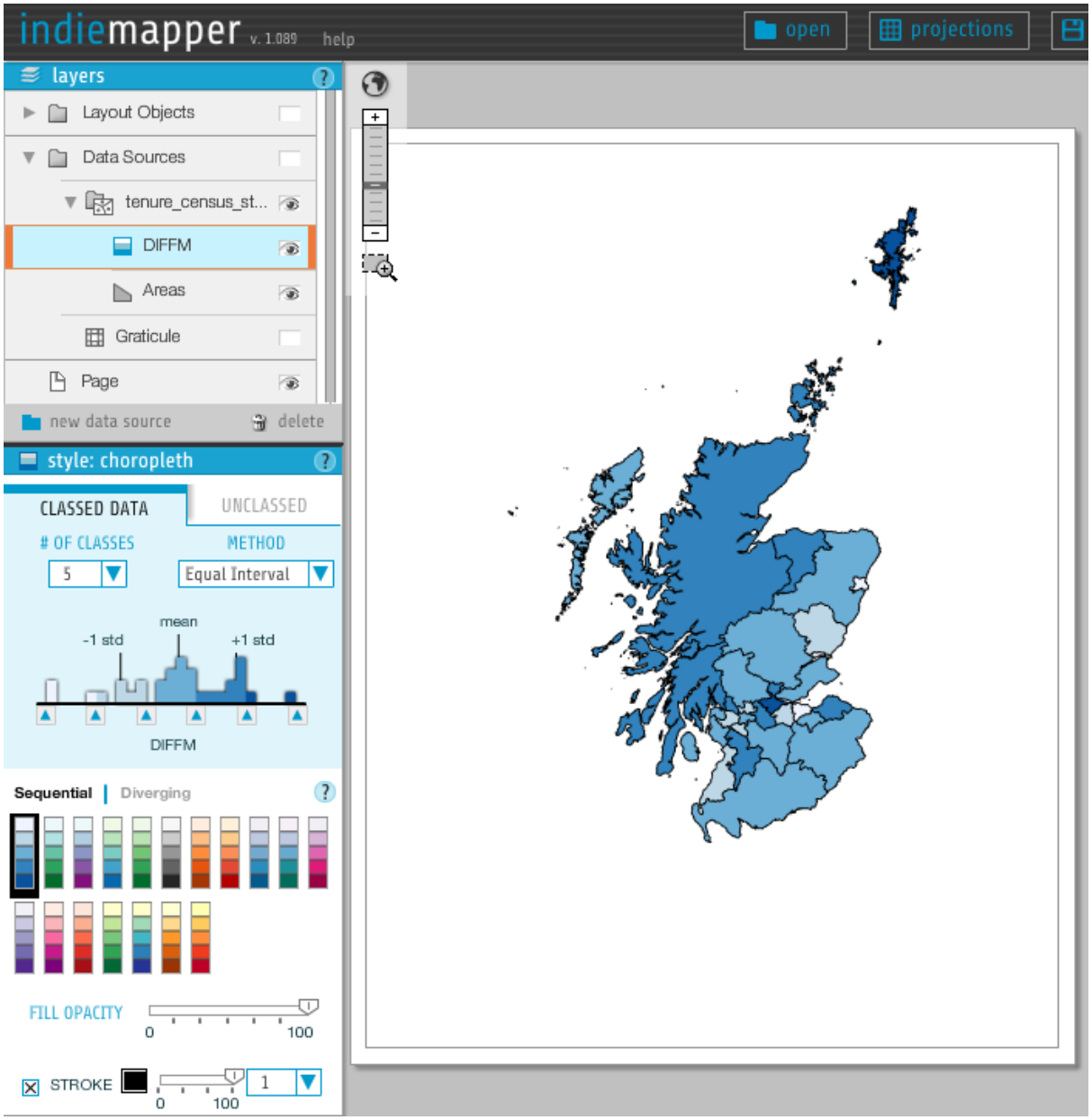
28. You might find that relative to the page, your map looks quite small. To the right of the layers list are a set of controls which you can use to alter the map scale by zooming in and out.

Zoom to full extent of map layers

zoom in/out

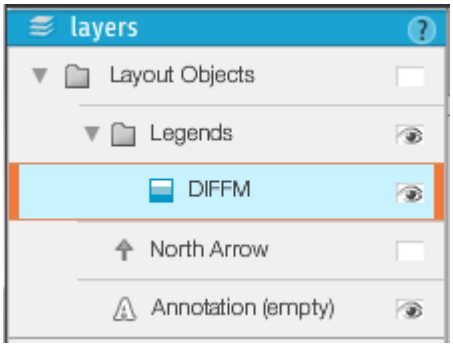
zoom by box

29. Using the Zoom to full extent of map layers will fill the page with your map, whilst using the zoom in/out and zoom by box controls you can fine tune the extent of the mapping shown on the page.

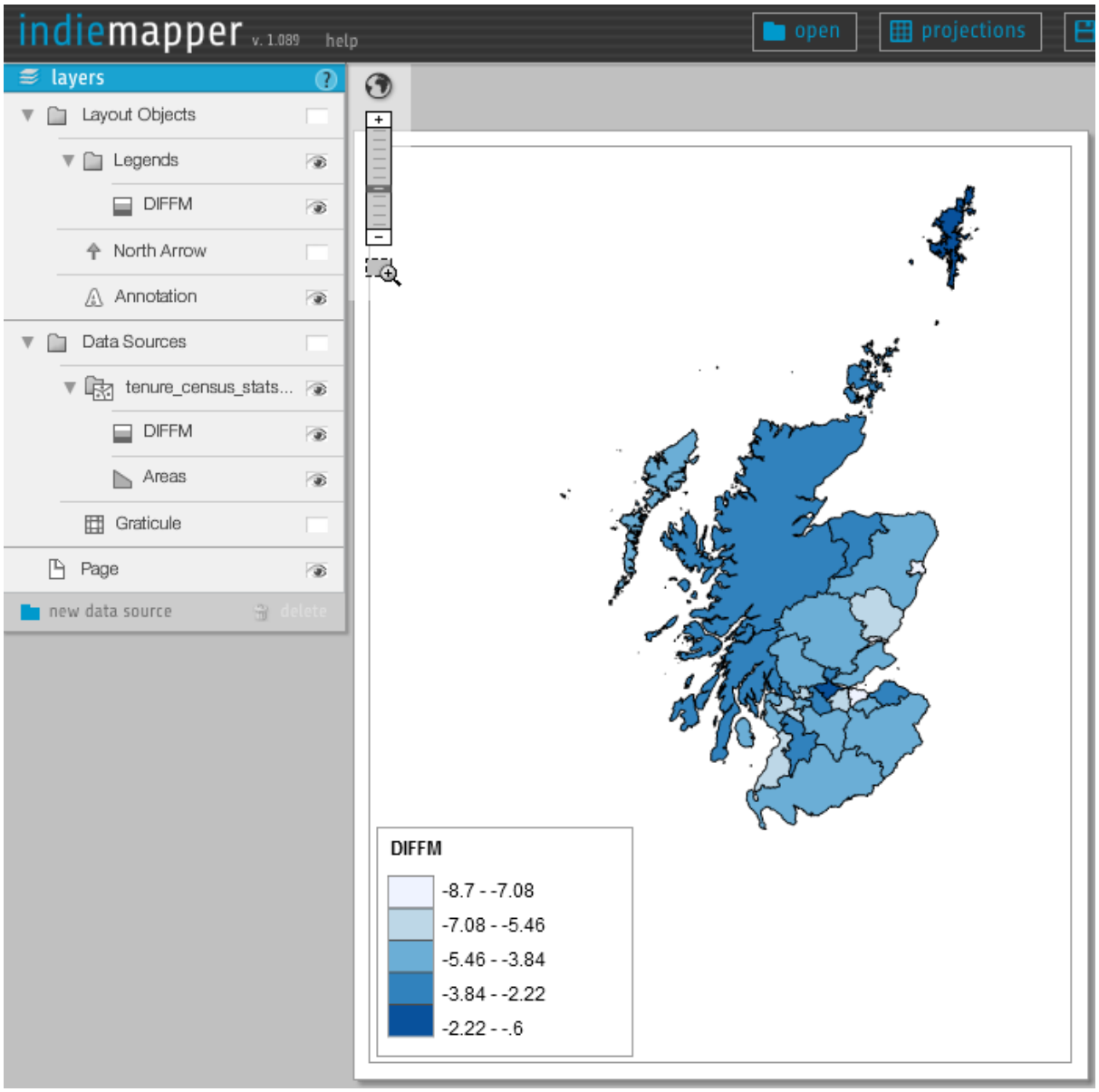


30. Let`s add some essential cartographic "map furniture" to the map.

31. From layers, click on Layout Objects. Once it has expanded, click on Legends. Click on the small white box to the right of the DIFFM item to make the legend for our map visible.



32. A Legend will be added to the map canvas.



33. You can click and drag the legend to move it to a better place on the map canvas, say lower left.

The legend will display the name of the attribute being mapped – DIFFM.

34. Various properties of the legend can be tweaked. For example, you can set the background of the legend to yellow to make it stand out against the rest of the map.

35. The legend tells us what the colours on the map mean.

36. In the case of the data we are showing we can see that between 2001 and 2011 across all of the 32 local authorities in Scotland there has been a decrease in the proportion of people living in

mortgaged properties. Nowhere has there been an increase. The decrease has been particularly high (the regions shaded the lightest colour) in Edinburgh, Dundee and Aberdeen. Think about why this could be.

37. Before we go any further let`s add a 2nd set of data to show the location of cities within Scotland.

38. Click on 

, and repeat the steps of pointing indiemapper to the .shp/.dbf files.

39. Only this time select **cities.shp** and **cities.dbf**

40. Again we need to tell indiemapper how to treat the data in the Shapefile and the sort of map to create from the data.

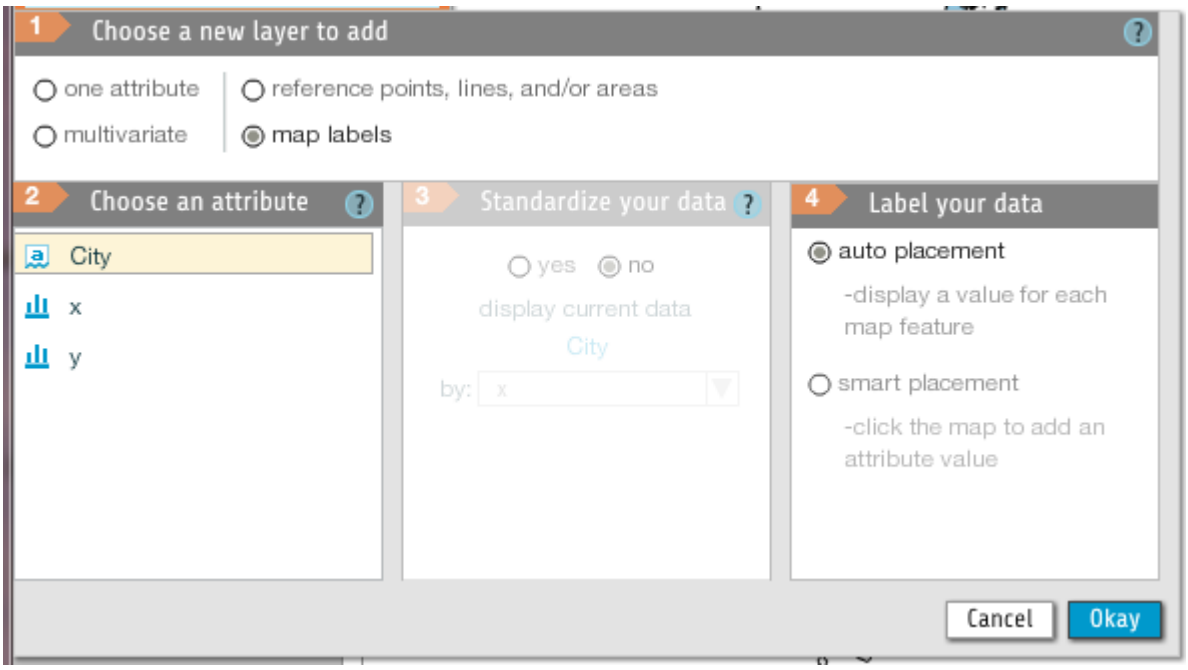
41. Each of the records in this shapefile has a name of a Scottish city. By drawing these names on the map we provide some additional geographical context for the data.

42. At Choose a new layer to add, change from the default of **one attribute** to **map labels**

43. At Choose an attribute, select **City**

44. Standardize your data will be greyed out, since City is a text column and it`s not possible to standardize text.

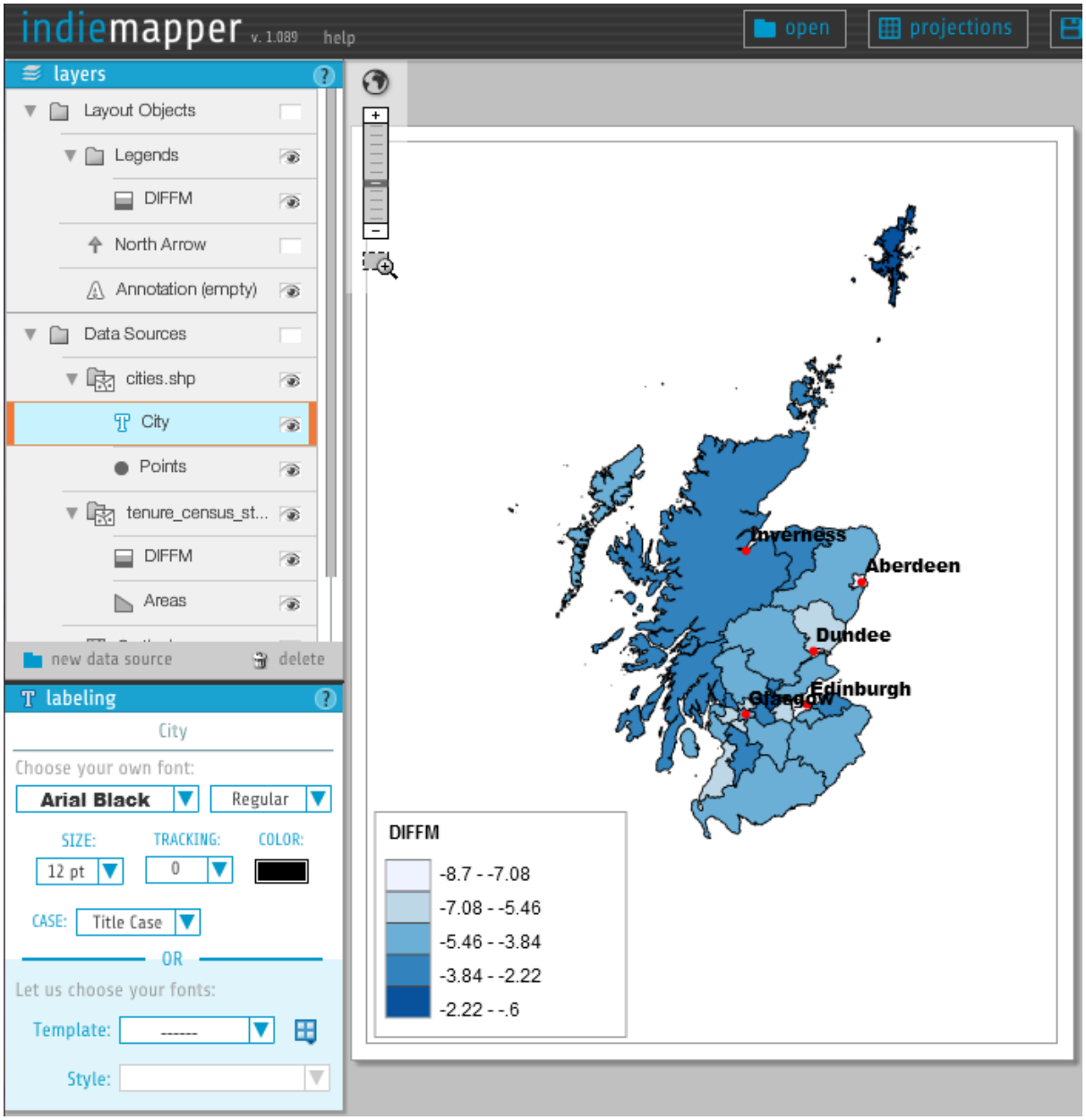
45. At Label your data, stick with auto placement. You should have something like this:



Happy you have this, click the **Okay** button.

46. indiemapper will display names next to each of the 5 points.

47. A labelling dialogue will be shown. You can tweak the size of the names, font choice/colour etc.

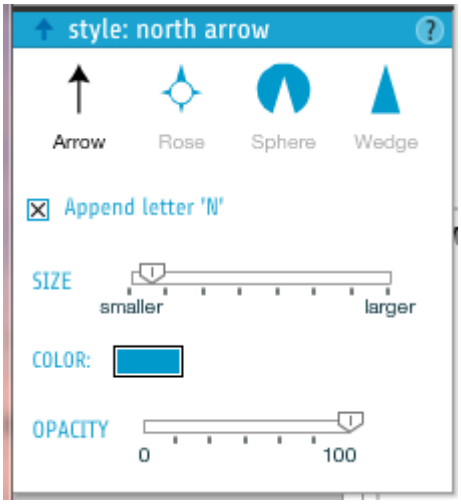


48. Our map is shaping up, let`s add a few more things and we are done. We`ll add a north arrow and give the map a title.

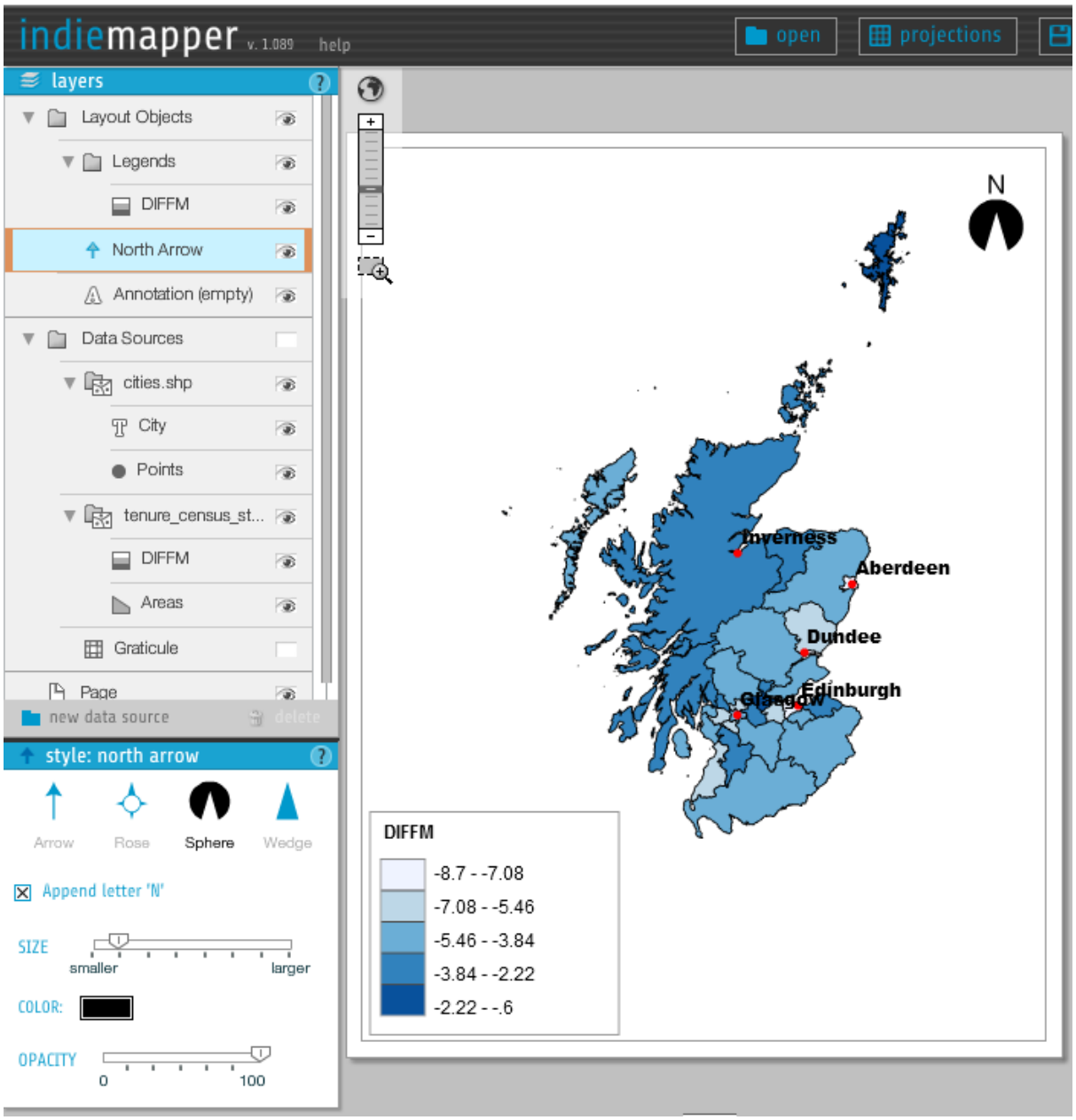
49. We`ll also add a copyright statement to the map to acknowledge the source of the data used in the map.

50. So let`s add the North Arrow. Under Layout Objects >> North Arrow, click on the small white box at right.

A widget like this will be shown:



51. 4 north arrow styles available. Click on one of these (I like Sphere) and drag it over to the map canvas. A good position for the north arrow is the top left corner of the map. Again we can make the north arrow bigger and change the colour etc.



52.Now let`s give the map a title. Under Layout Objects, click on Annotation.

In the annotation control, click on  add your own text , it will change to  exit text mode

then click on the map (a good place to click to place the text would be at the top of the map, to the left of the north arrow). A blinking cursor will be shown inviting us to add some text. Something like this would be appropriate:

Change (%) of people living in a property mortgaged by their occupiers between 2001 and 2011.

Again we can change the size of the text and font type/colour etc. to make it more readable.

53. The final item we need to add to the map is a copyright citation at the bottom of the map. In the same way that we added a title at the top of the map, add copyright citation text at the bottom of the map. A question arises though – *what text should we use for the copyright citation?*

If you go to the data folder there is a **TermsAndConditions.html** file. If you open this up in notepad this file tells us the terms of use under which this data is made available to us. In this case the census attributes and digital boundaries are released by NRS under the Open Government Licence (OGL) and the following copyright statements MUST be used when reproducing or using this dataset within a map or other graphic:

Contains NRS data © Crown copyright and database right [year]

Contains OS data © Crown copyright [and database right] (year)

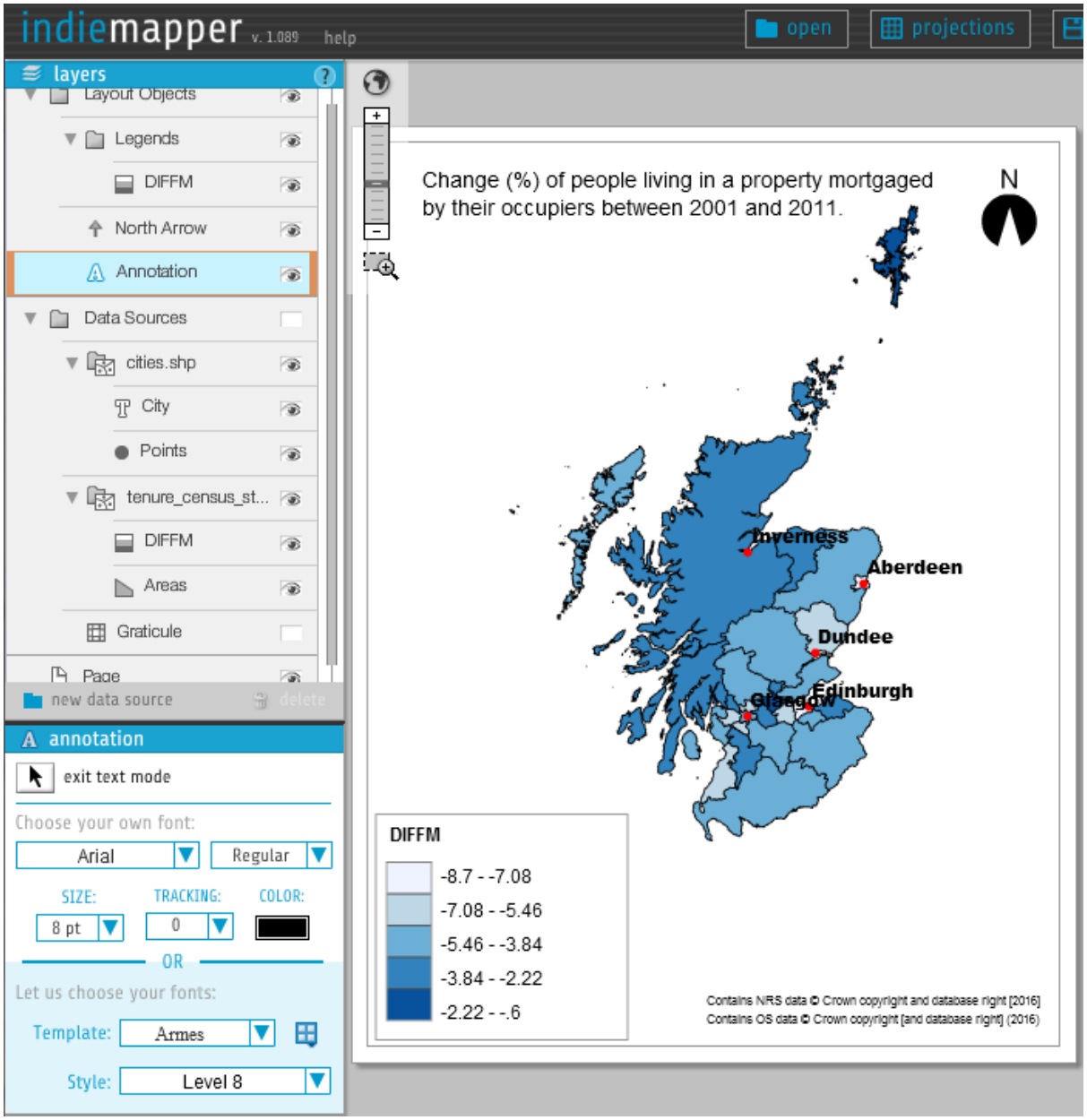
Adding in appropriate includes for this year, 2016, we end up with:

Contains NRS data © Crown copyright and database right [2016]

Contains OS data © Crown copyright [and database right] (2016)

which we can copy and paste into our map in indiemapper as a new map annotation.

54. That`s it! - we`ve made our map.



53. Before we forget, let`s export the map from indiemapper so we could, for example incorporate it into a report or presentation to colleagues we are making. Unsurprisingly to do this, click the 

button.

54. By default indiemapper will export the map out as a layered SVG and has the option to export the attributes (i.e. the census attributes too). For most folks, we just want an ordinary image. So select either JPEG or PNG, specify a filename, e.g. **MyCensusMap.png** and click the GENERATE file button.

55. When indiemapper is done, a green EXPORT to your COMPUTER button will be shown.

56. Click on this button and navigate to the location of where to download the image to, say you're Desktop.

57. what to do next?

if you have time you could try mapping some of the other attributes present in the Shapefile.

Again, if you look in the table at the end of this document it describes each of the attributes that are available.

It`s interesting to create different maps and compare

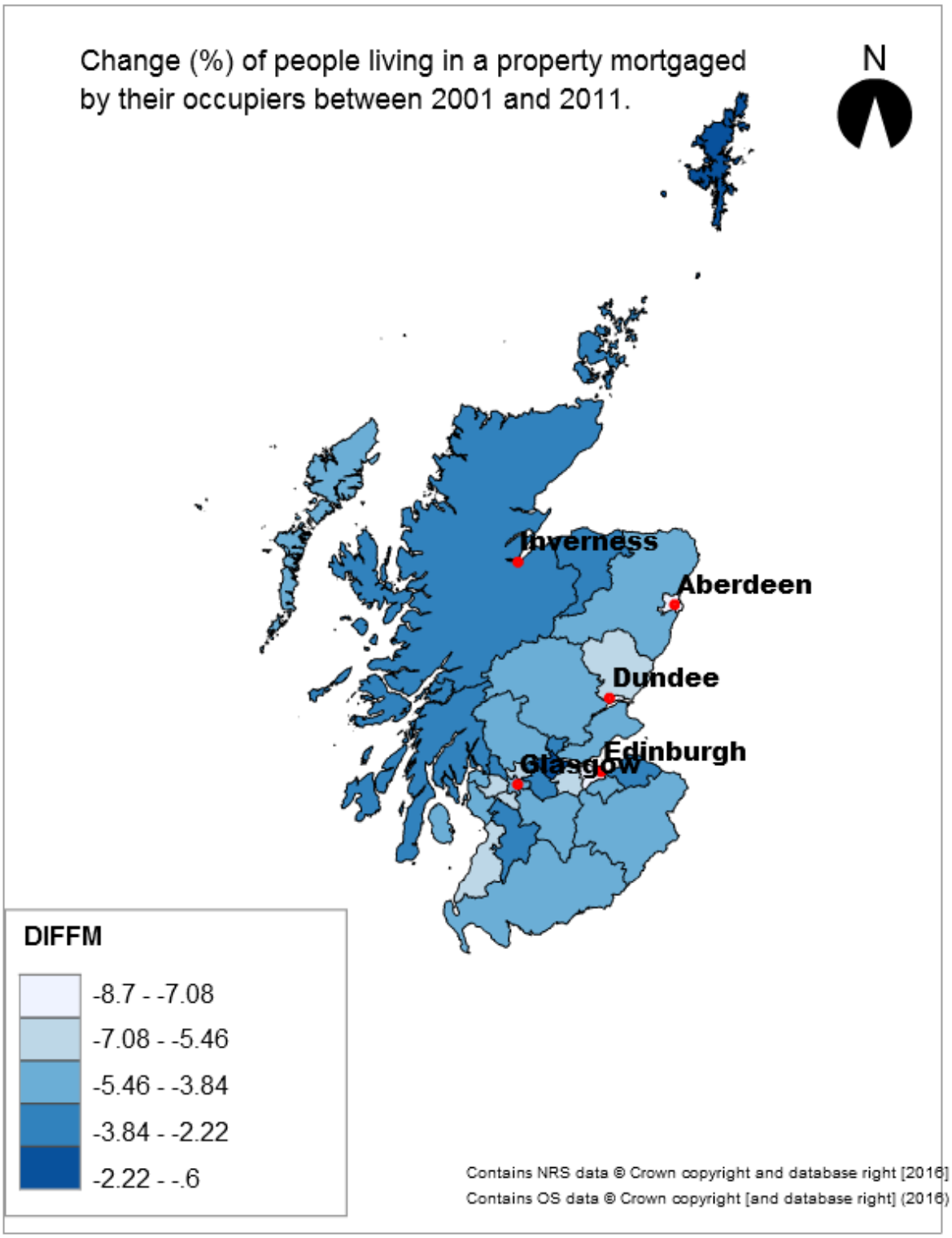
% mortgaged VS % local authority VS % housing association VS % private rented, how these compare with one another and how they have changed between 2001 and 2011

You`ve also been provided with a 3rd shapefile **tenure_census_stats_by_council_area_cartogram.shp**.

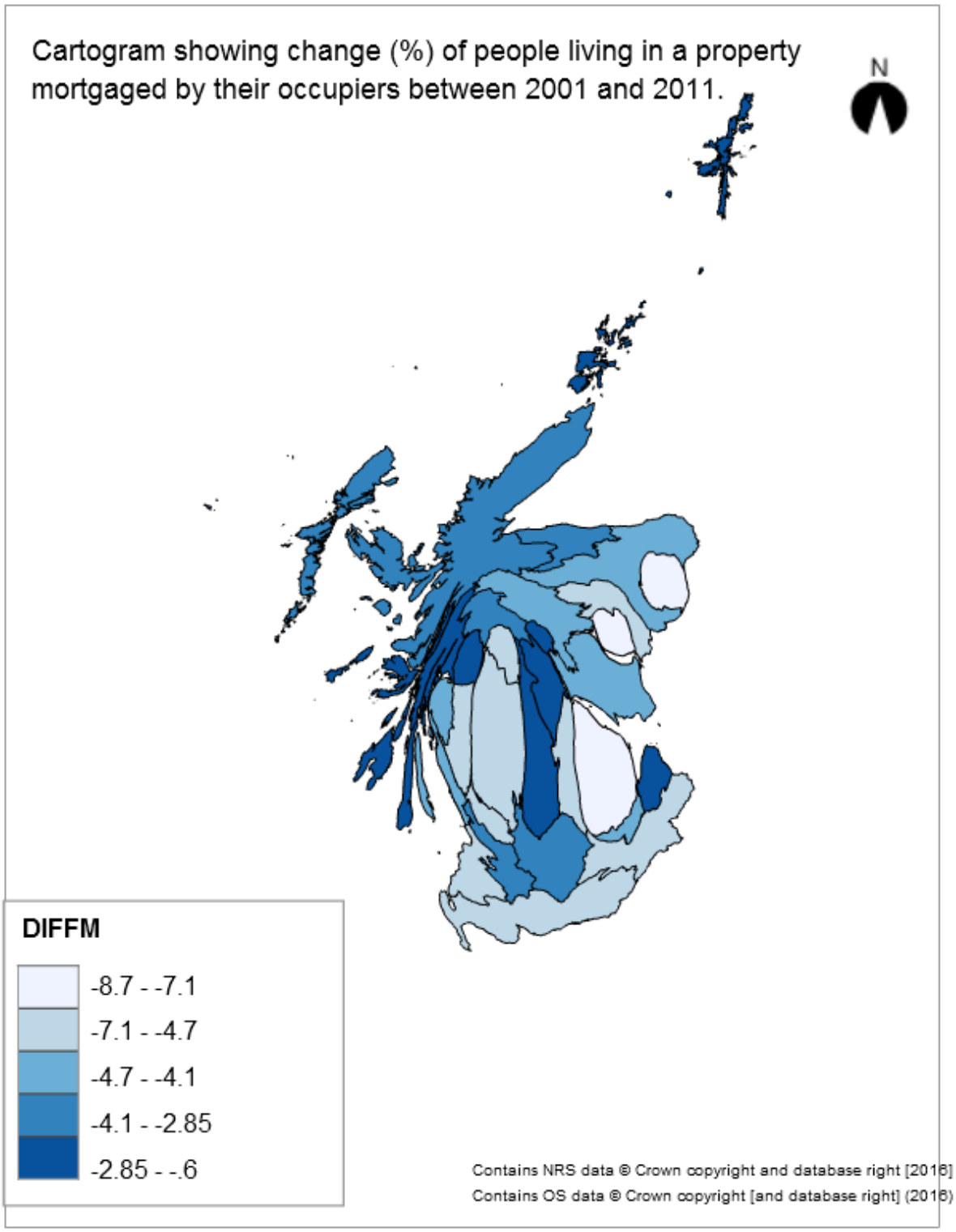
This Shapefile is a contiguous cartogram where each of the council areas in tenure_census_stats_by_council_area.shp has been distorted according to 2011 population within that council area. If you repeat the steps and create a choropleth using this shapefile instead you`ll see the same patterns but it will be much easier to pick out the urban areas.

The Cartogram is also shown at the end of the document.

Appendix 1 - Final Choropleth map created during the exercise.



Appendix 2 - Alternative contiguous cartogram showing the same data.



Appendix 3 – Description of Shapefile datasets provided

tenure_census_stats_by_council_area.shp

Boundary dataset made up of 32 polygons describing Scottish Council Areas in use on census day 2011. A "Shapefile" actually consists of a collection of files

These bits are *mandatory*:

tenure_census_stats_by_council_area.shp

tenure_census_stats_by_council_area.shp - holds the (polygon) feature geometries

Note that the polygon feature geometries have been simplified to reduce the number of points that make up each polygon.

This reduces considerably the overall file size of the shapefile and makes it quicker for the dataset to be displayed in applications. However the dataset (in this simplified form) should not be used for spatial analysis.

tenure_census_stats_by_council_area.shx - feature shape index

tenure_census_stats_by_council_area.dbf - feature attributes

this specfic shapefile has attributes like this:

* geoid - 9 digit GSS code e.g S12000015 - geoid, uniquely identifying this geographic region

* name - local name for the geographic region - e.g. "Fife"

* pop11 - total number of people (2011)

See Appendix 4 for a description of all the columns provided in the shapefile.

These bits are *optional*:

tenure_census_stats_by_council_area.cpg - code page identifying character encoding used in dbf file

tenure_census_stats_by_council_area.prj- describes the spatial reference system used in the Shapefile.

This dataset is provided in WGS84

tenure_census_stats_by_council_area_cartogram.shp

Alternative, *Cartogram* version of tenure_census_stats_by_council_area.shp

cities.shp - Point dataset showing the location of 5 scottish cities.

TermsAndConditions.html - includes OGL attribution statements to include when publishing results based on the data.

Appendix 4 – Columns / Attributes included in the **tenure_census_stats_by_council_area.shp and tenure_census_stats_by_council_area_cartogram.shp** shapefiles.

Column	Description
Diffm	Percentage change of people living in a property mortgaged by their occupiers between 2001 and 2011
Diffoo	Percentage change of people living in a property owned outright by their occupiers between 2001 and 2011
diffrentfr	Percentage change of people living in a property rented, rent free between 2001 and 2011
diffrentha	Percentage change of people living in a property rented from a housing association between 2001 and 2011
diffrentla	Percentage change of people living in a property rented from a local authority between 2001 and 2011
diffrentpr	Percentage change of people living in a property rented from a private landlord between 2001 and 2011
geoid	9 digit unique geographic identfier
m01	Number of people living in a property mortgaged by their occupiers (2001)
m01pc	Percentage of people living in a property mortgaged by their occupiers (2001)
m11	Number of people living in a property mortgaged by their occupiers (2011)
m11pc	Percentage of people living in a property mortgaged by their occupiers (2011)
name	Scottish council area name
oo01	Number of people living in a property owned outright by their occupiers (2001)
oo01pc	Percentage of people living in a property owned outright by their occupiers (2001)
oo11	Number of people living in a property owned outright by their occupiers (2011)
oo11pc	Percentage of people living in a property owned outright by their occupiers (2011)
pop01	Total number of people (2001)
pop11	Total number of people (2011)

Column	Description
rentfr01	Number of people living in a property rented, rent free (2001)
rentfr01pc	Percentage of people living in a property rented, rent free (2001)
rentfr11	Number of people living in a property rented, rent free (2011)
rentfr11pc	Percentage of people living in a property rented, rent free (2011)
rentha01	Number of people living in a property rented from a housing association (2001)
rentha01pc	Percentage of people living in a property rented from a housing association (2001)
rentha11	Number of people living in a property rented from a housing association (2011)
rentha11pc	Percentage of people living in a property rented from a housing association (2011)
rentla01	Number of people living in a property rented from a local authority (2001)
rentla01pc	Percentage of people living in a property rented from a local authority (2001)
rentla11	Number of people living in a property rented from a local authority (2011)
rentla11pc	Percentage of people living in a property rented from a local authority (2011)
rentpt01	Number of people living in a property rented from a private landlord (2001)
rentpt01pc	Percentage of people living in a property rented from a private landlord (2001)
rentpt11	Number of people living in a property rented from a private landlord (2011)
rentpt11pc	Percentage of people living in a property rented from a private landlord (2011)