Linking and mapping geographically referenced data

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RDI Researcher Development Initiative

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

Overview of session

- Some practicalities
- The Geo-Refer projects
- Geographical referencing concepts
- Georeferencing methods: linking data
- Georeferencing methods: mapping data
- Getting more help: how to use the Geo-Refer online resources

Purpose of session

- Challenge participants to consider whether there might be geographical aspects to their own work
- Overview issues involved in geographical referencing of social, economic and environmental datasets
- Some pointers to useful methods and techniques
- Key points in relation to a few essential datasets
- Information about online resources that will help you go further

Some practicalities

- Presentation based on one more often used in association with a practical hands-on session
- Here, restricted to demonstration and discussion
- This is an informal session – it will work best if interactive
- There is no such thing as a silly question!
- Please interrupt

Why would I want to know about georeferencing and mapping?

- Massive growth in geographical data – frequently embedded within existing and new data sources
- Adds analytical value
- Fundamentally, geographical referencing leads to either:
  - Data linkage, potentially for aspatial analysis
  - Mapping, and other forms of spatial analysis

Audience participation…

What data do (or might) you use that are (or could be) geographically referenced?

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The Geo-Refer Projects

- ESRC Researcher Development Initiative
- 2 Geo-Refer projects
- With colleagues Samantha Cockings and Samuel Leung
- Focus on training resources in geographical referencing issues
- Particularly aimed at users who are not geographers/ geographical information specialists
- Training workshops and online resources

Georeferencing examples

- Link survey results to census data
- Associate postcoded patient records to indices of deprivation
- Produce a map of local authorities showing response rates
- Allocate questionnaire responses to urban/rural neighbourhood types
- Identify which service delivery locations fall within different policy areas

Geo-referencing concepts and methods

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Geographical referencing of social science phenomena: 1

- Characteristics of people or events, recorded at mail addresses
- Geographical location of mail address

Geographical referencing of social science phenomena: 2

- Administration or policy related to defined areas, aggregations of individuals
- Geographical location of area boundaries

Geographical referencing of social science phenomena: 3

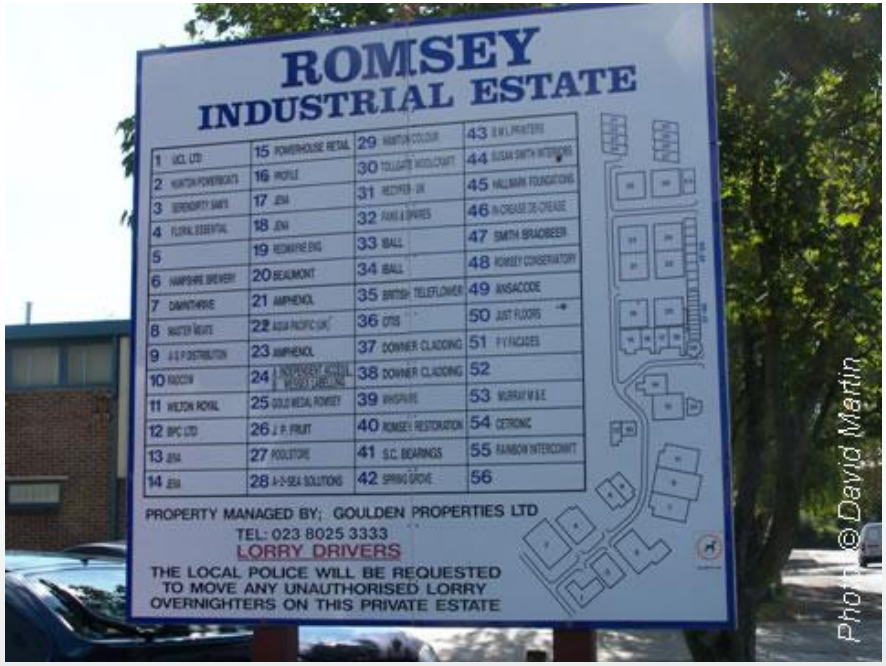
- Phenomena that are linear, describing routes or flows
- e.g. bus route, telephone conversation, social network link

Geographical referencing of social science phenomena: 4

- Phenomena or events that have locations but do not fit standard descriptions
- e.g. road accident, environmental quality

Geographical referencing of social science phenomena: 5

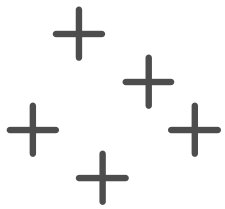
- Complex phenomena not captured by a simple location
- e.g. business locations, catchment populations



Geographical object types

POINTS

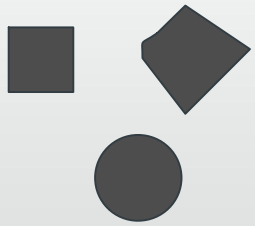
E.g.
Health data
Meteorological data
Pollution sources
Hospitals
Landfill sites



LINES

E.g.
Roads
Powerlines
Railways
Rivers

AREAS



E.g.
Enumeration Districts
Wards
Health Authorities
Grid squares
Water supply zones

+ NETWORKS?
+ SURFACES?

Geographical object types

- **Points: a single pair of coordinates**
- Lines: an ordered sequence of coordinates
- **Areas: closed, ordered sequences of coordinates**
- Networks: complex line-based structures
- Surfaces: mathematically modelled representations of continuously varying phenomena

Direct and indirect georeferencing

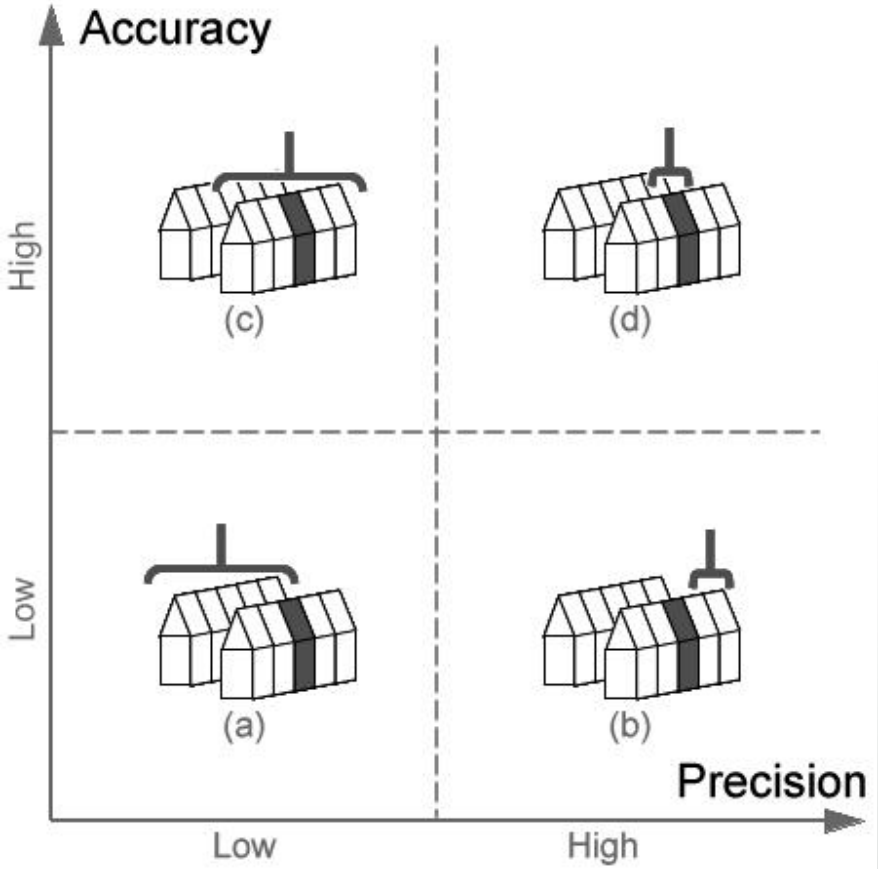
- Direct georeferencing: explicit coordinate system
  - Lat/Long, Ordnance Survey grid reference
- Indirect georeferencing: any type of area code or name relating to a known location
  - Postcode, Zip code, County, Census output area/enumeration district/tract; local government district; health authority, etc…

Where do coordinates come from?

- Surveys for mapping
- Remote sensing
- Digitising paper source documents
- Direct capture using Global Positioning System (GPS) receiver
- **In the social sciences, geographical coordinates are generally secondary data, even when embedded within primary data!**

Accuracy and precision

- Accurate location
  - free from locational bias
  - e.g. respondent lives in Southampton
- Precise location
  - provides detail (but not necessarily accurate)
  - e.g. respondent lives at 25b Highfield Lane
- Need to assess and adopt different strategies according to purpose

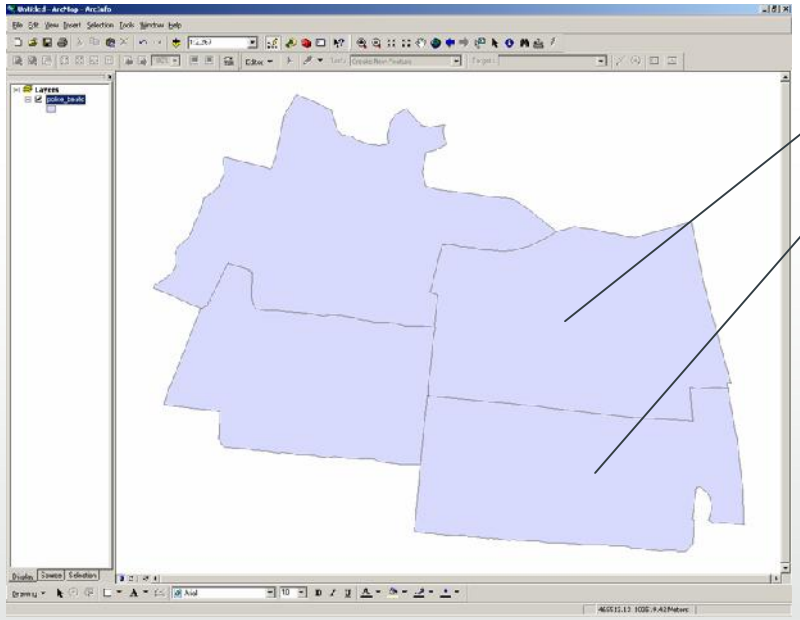


Scale and projection

- Map scale
  - Explorer map: 1:25,000
  - Road atlas: typically 1:400,000
- Leads to inclusion/generalization of different features, boundary details,etc.
- Projection systems:
  - Very important when using lat/long datasets,
  - GB National Grid sidesteps the issues…

Locations and attributes

- Locations: points, area boundaries



Attributes of BEATATTS

OID	BEATID	NAME	NOFFS	AUTH
0	1	Westend	30	Anywhere
1	2	Southend	20	Anywhere
2	3	Eastend	5	Nowhere
3	4	Northend	10	Nowhere

Record: 1 Show: All Selected Records (0 o

- Attributes: values, characteristics

Geoprivacy issues

- Detailed location is potentially disclosive
- Postcode is generally considered to be sensitive information
- Explicit subject consent in data collection?
- Subject identification may be possible through linkage and mapping
- All usual rules apply, so give consideration when considering research ethics

What about geographical information systems?

- Massive growth in use of GIS since early 1980s: complex software systems
- GIS growth promoting data standards, growth of geoinformation industry etc.
- GIS provide useful georeferencing tools and lots of other functions not needed here…
- ArcGIS and MapInfo (and others) widespread in UK universities
- This is not a GIS workshop!

Georeferencing methods: linking data

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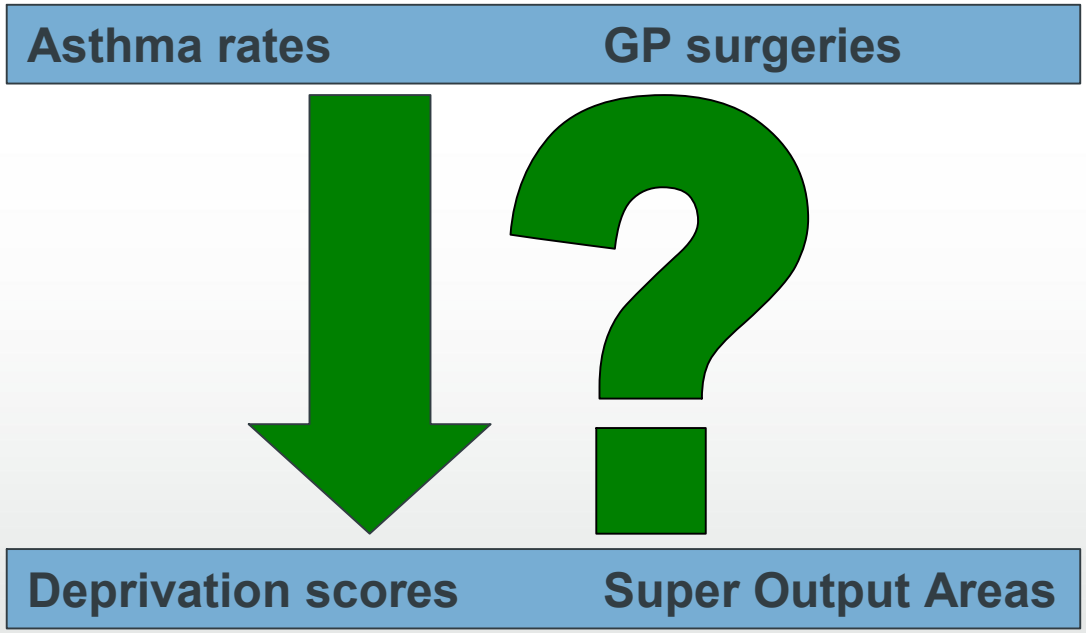
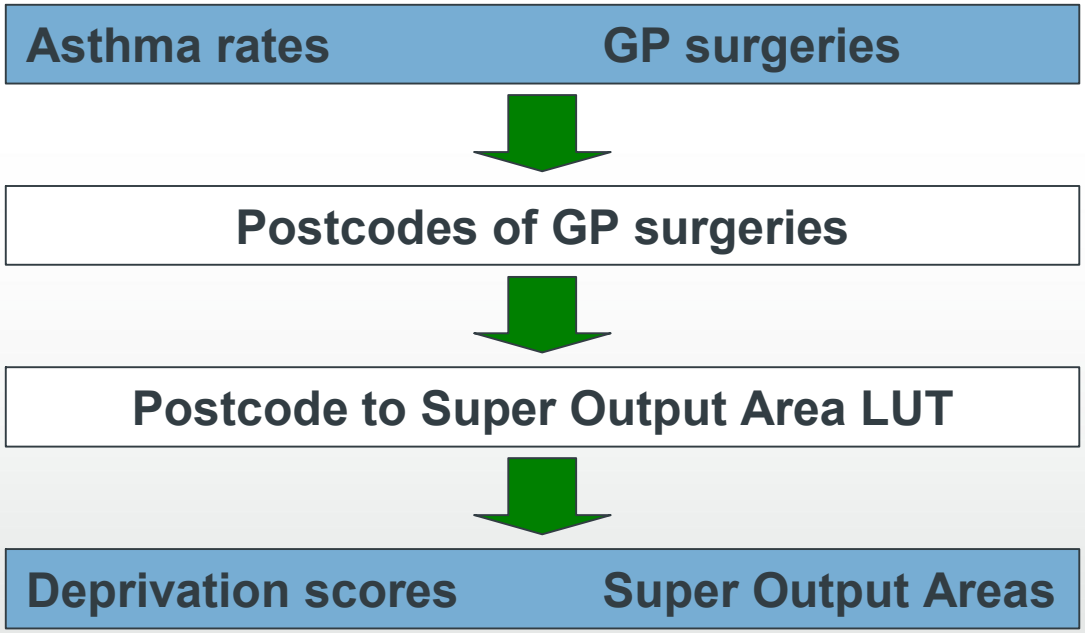
Tabular data linkage example

Research question: What is the relationship between asthma and deprivation?



Tabular data linkage example

Tabular linkage requires lookup(s) between georeferences on two or more datasets



Dataset 1

Georeferences

Geographical lookup table (LUT)

Dataset 2

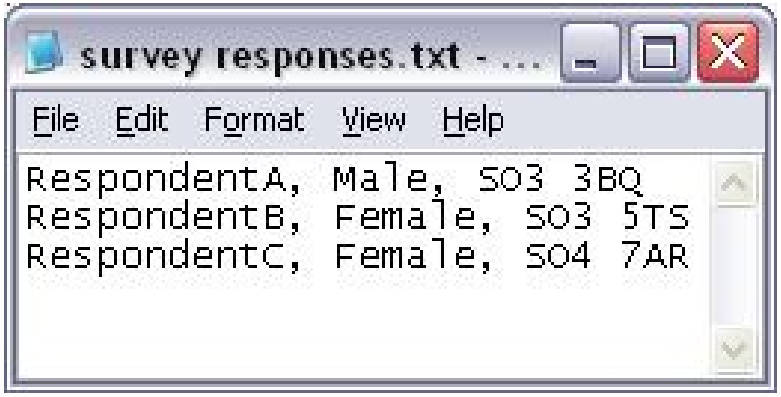
Assumes surgery is appropriate georeference for patient data!

Tabular linkage tools

- Access, SPSS etc. – general purpose database or statistical packages for matching lists with common data items
  - Probably necessary for large or non-standard data linkage tasks
- GeoConvert – online tool specific to recent UK postcode-based lookup
  - Very useful for a wide range of small-medium standard UK data linkages

Data linkage example: input tables

Coded survey responses



Respondent ID

Gender

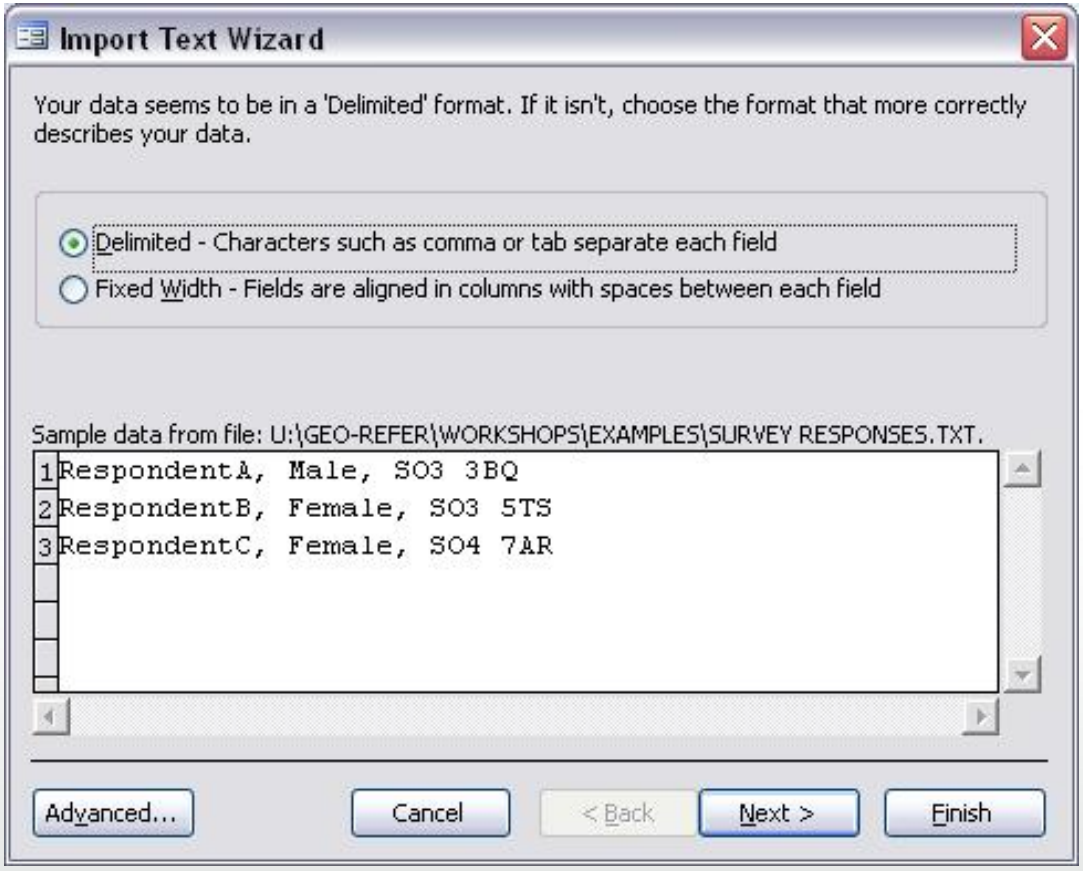
Postcode

Postcode directory

Postcode

Ward code

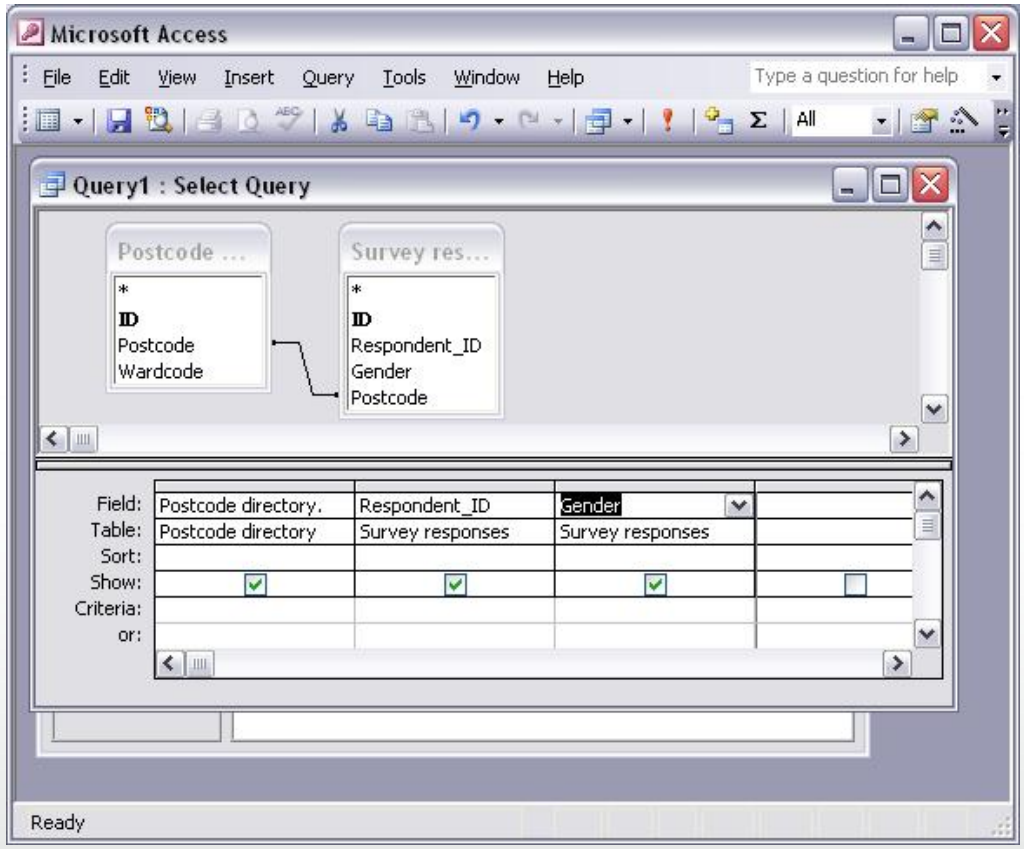
Import external data files



Get external data > import

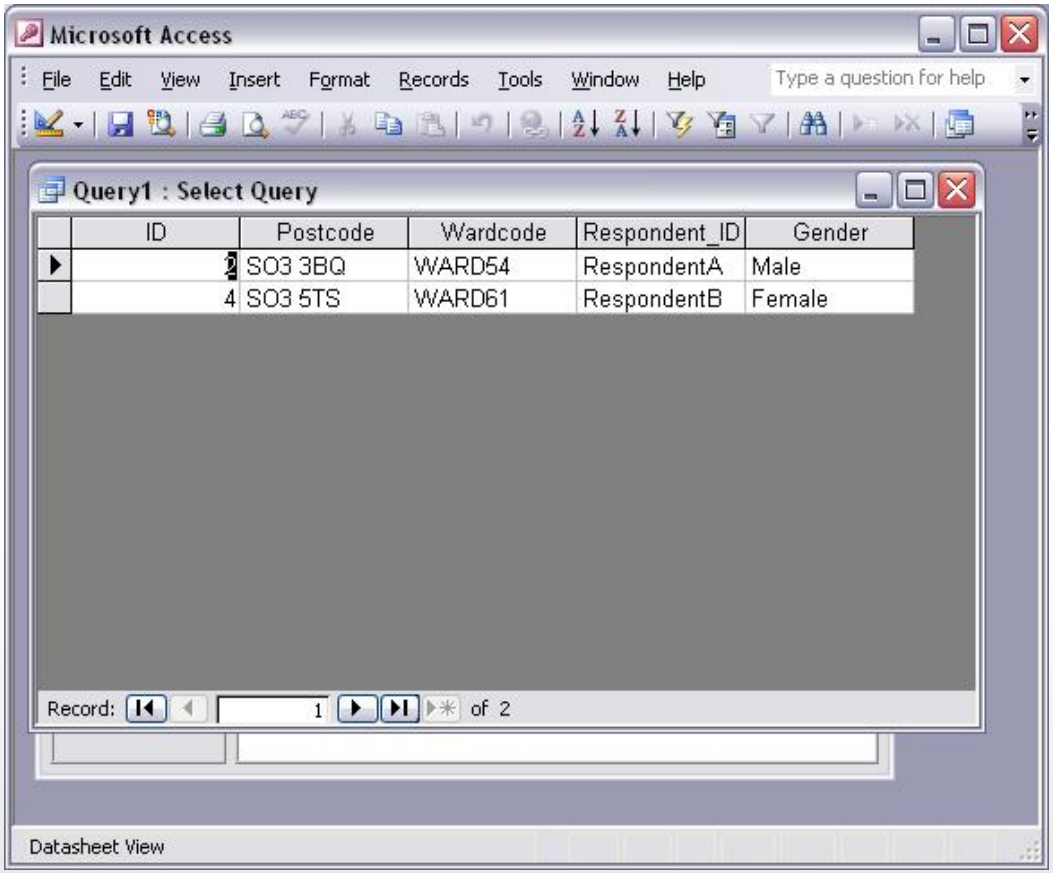
We need to describe the data structure (here comma separated)

Build new Access query



We now add both tables to a new query, link them by the postcode field and select the items required in output

Matched lists



The resulting query contains requested fields for all matching rows and can be exported

NB not all are matched!

Watch the time!

- Extreme care needs to be taken when matching between datasets relating to different dates
- Postcodes, boundaries, area names all subject to change
- All changes on different timescales
- Assume another time = another geography!

Georeferencing methods: mapping data

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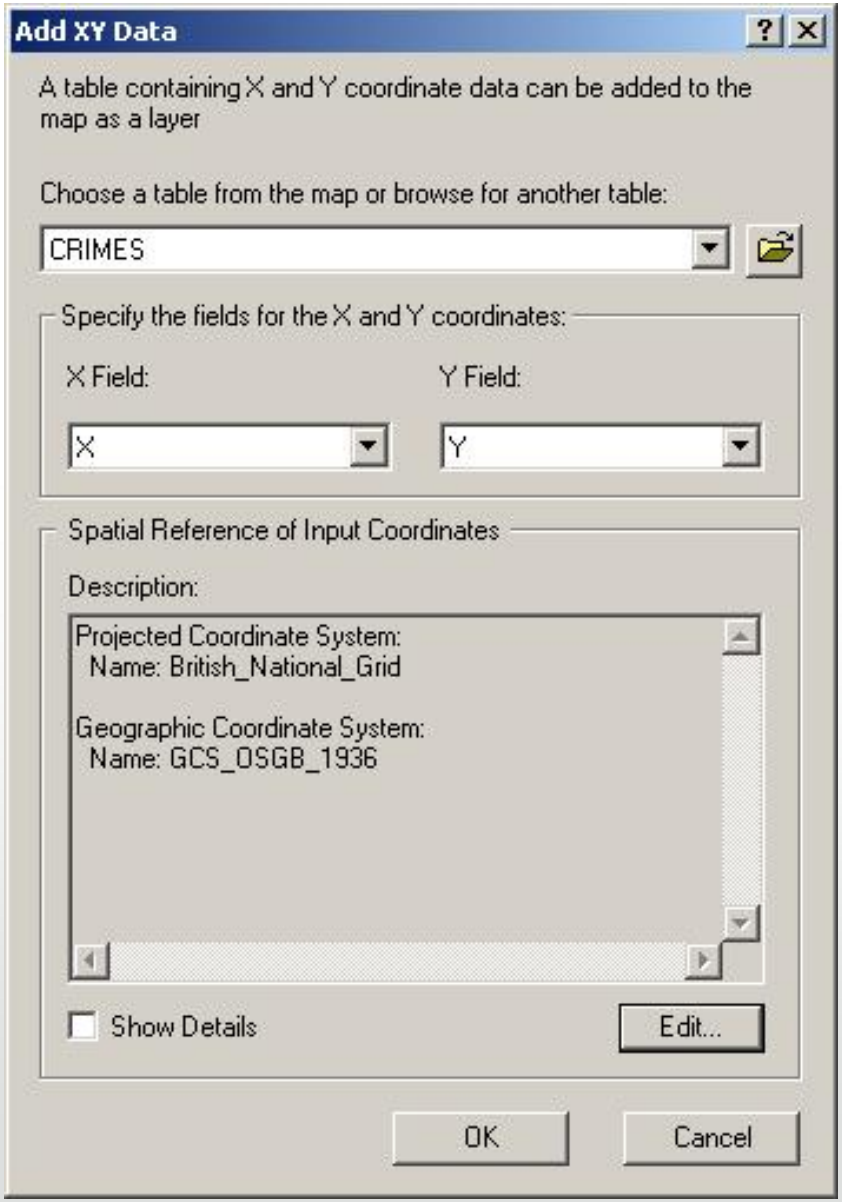
Mapping

- Map locations of points and/or areas
  - e.g. grid-refs of survey responses
  - e.g. boundaries of Lower Layer Super Output Areas (LSOAs)
- Map attributes of areas
  - e.g. Link survey responses on attitudes to recycling to wards, then map response rates by ward

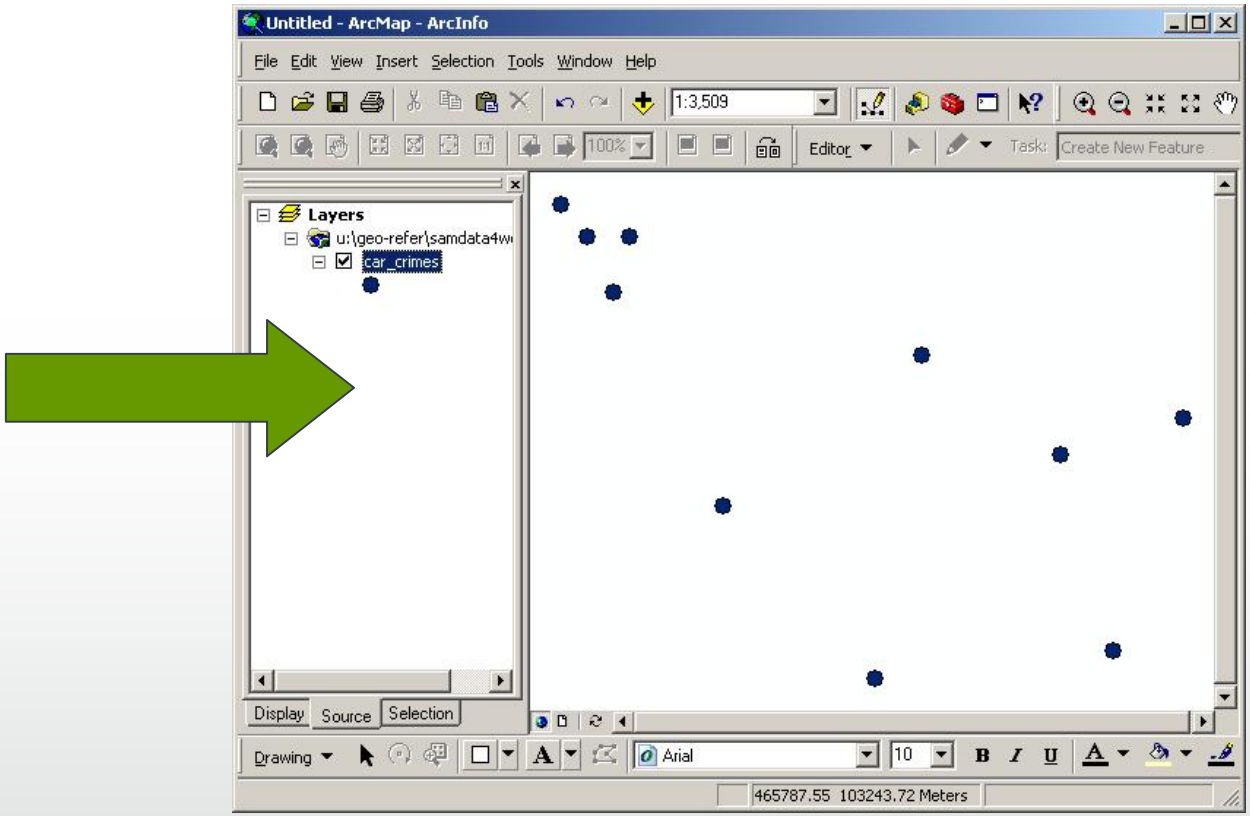
Mapping a set of grid-referenced points



Mapping grid-referenced points

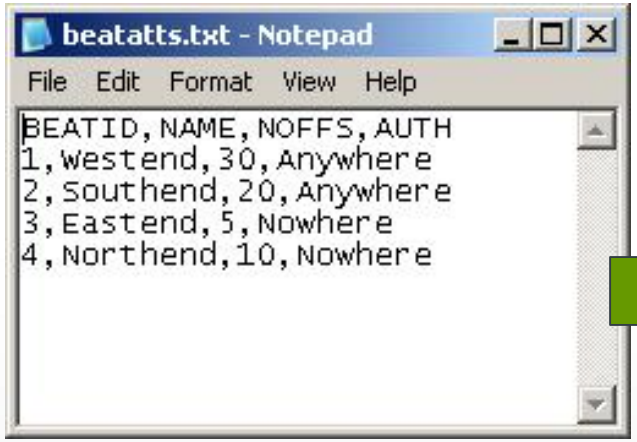
Grid-refs of car crimes

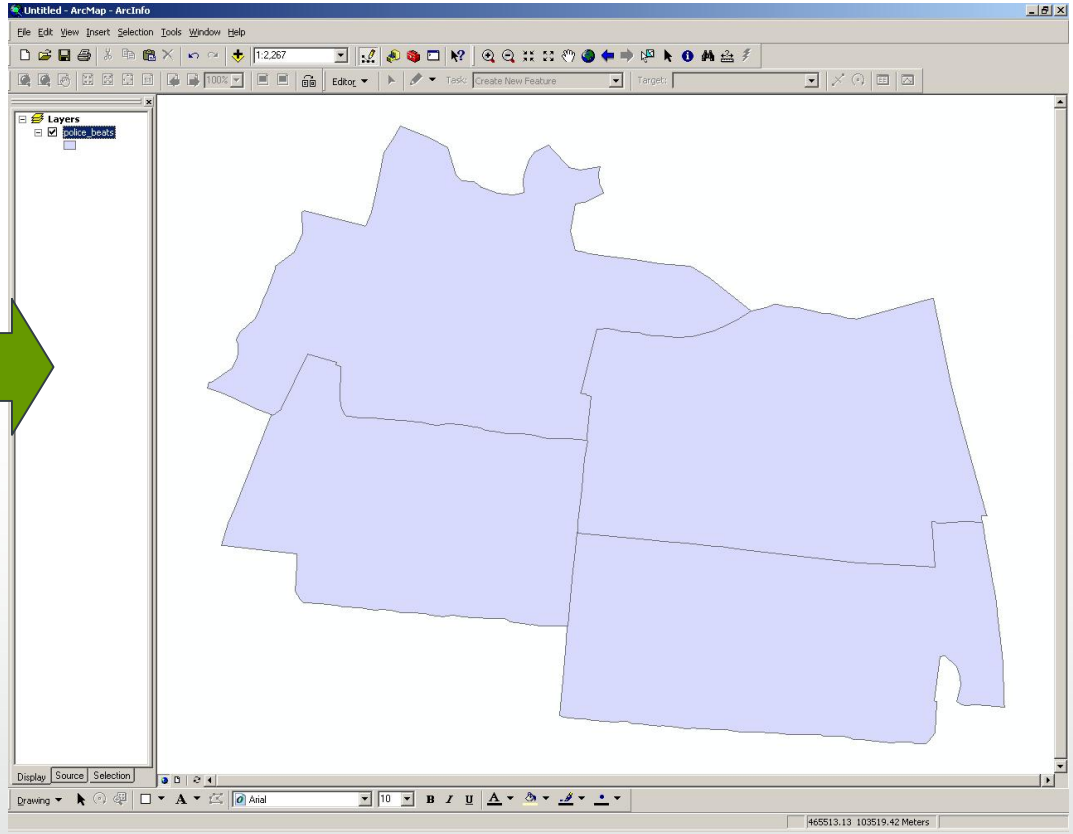
465474,103429
465490,103409
465517,103409
465507,103374
465703,103334
465791,103271
465869,103294
465577,103238
465825,103146
465673,103129



Linking attribute data to boundary data

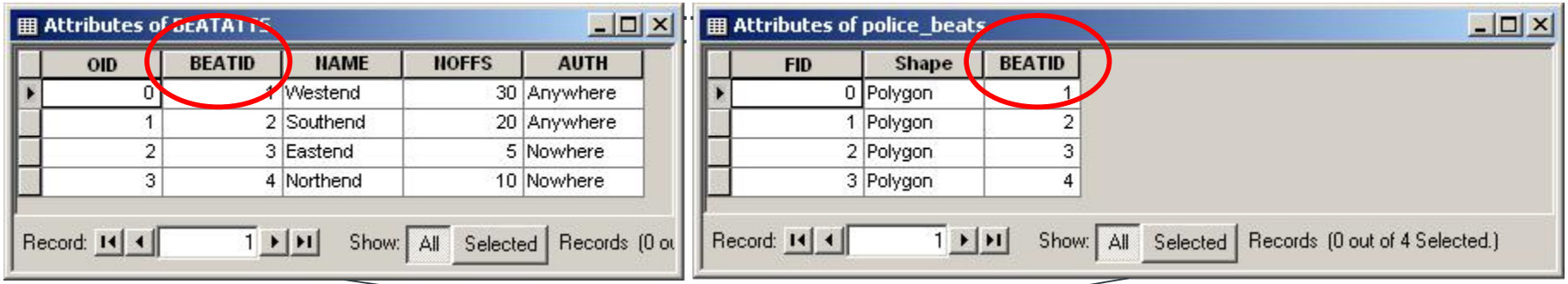
Area-based attribute data





Linking attribute data to boundary data

Define common field in attribute table and in shapefile



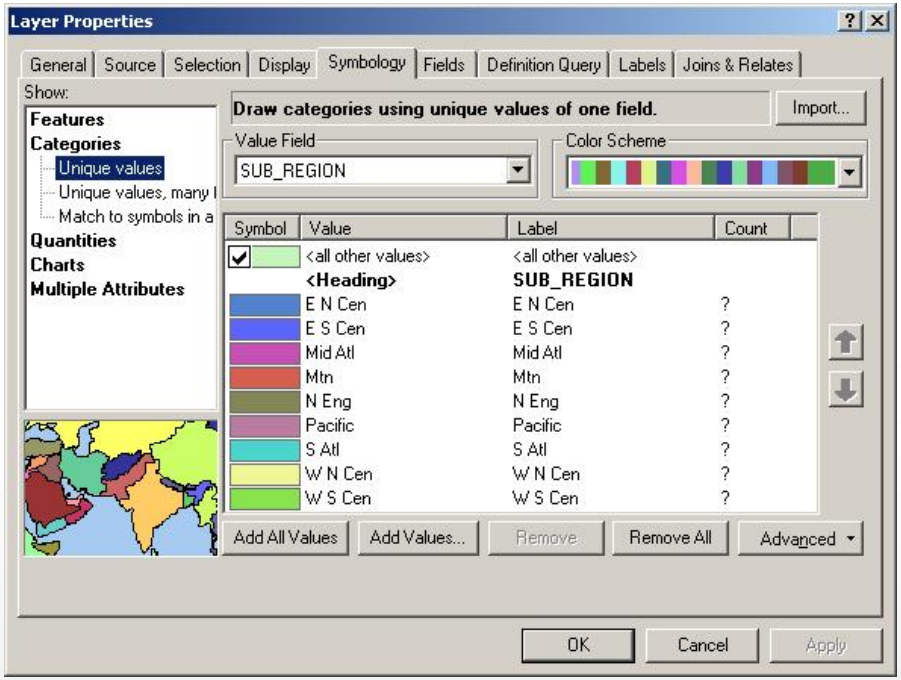
JOIN attributes from a table (based on BEATID)

Attributes linked to boundaries

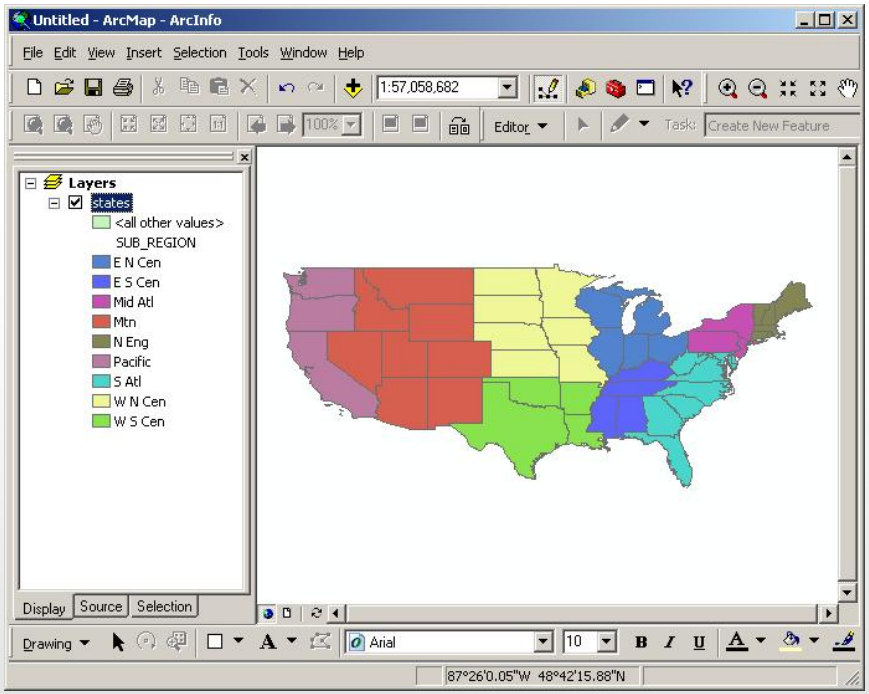
Creating a choropleth/thematic map

- Add layer (shapefile)
- Select variable to map
- Select data type
- (Select classification scheme/class breaks)
- Select colour scheme

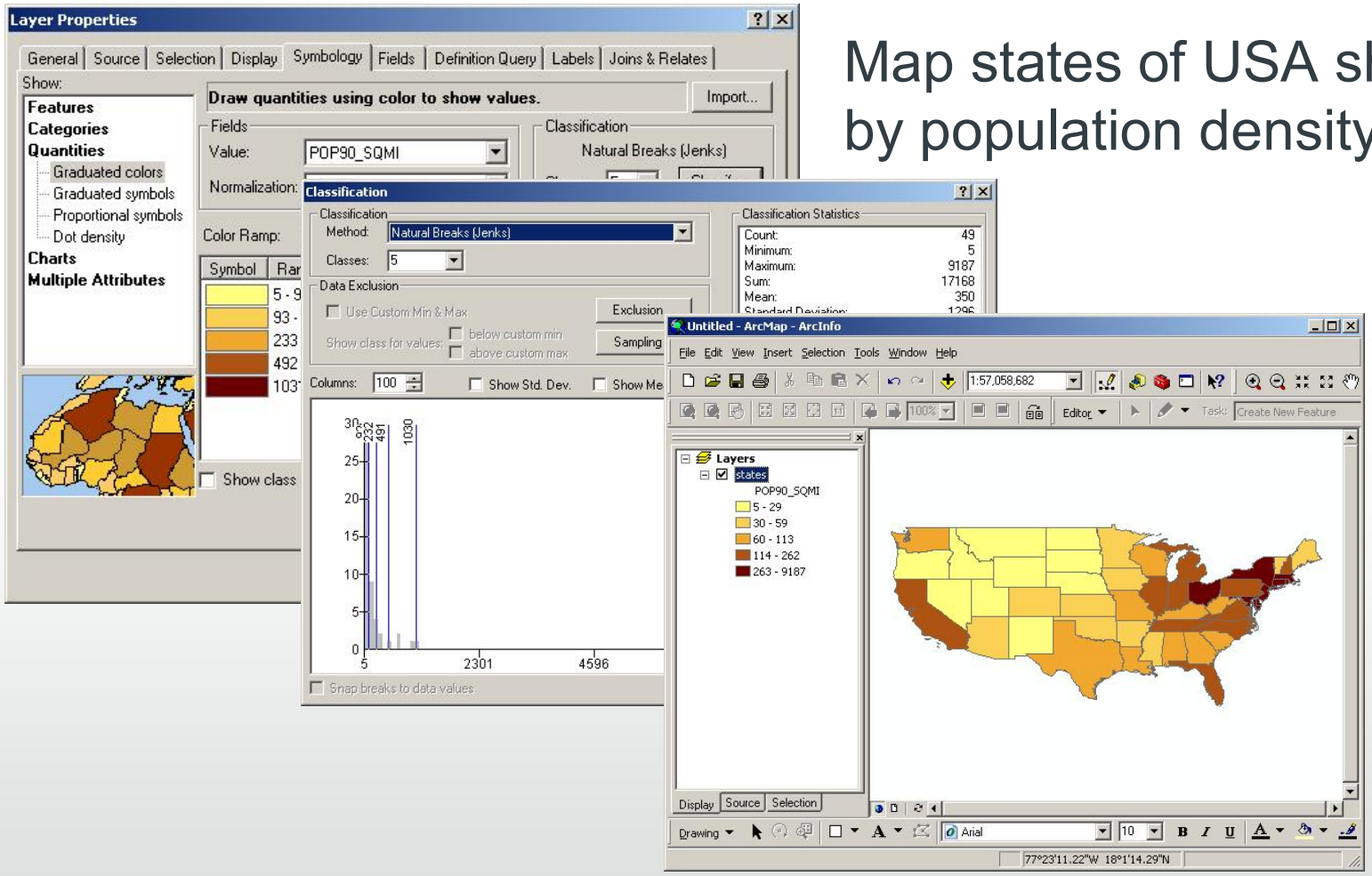
Mapping area data: Categorical



Map states of USA shaded by sub-region



Mapping area data: Continuous



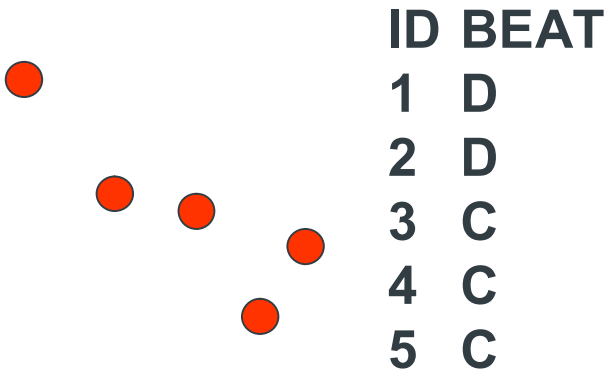
Map states of USA shaded by population density

Spatial data linkage

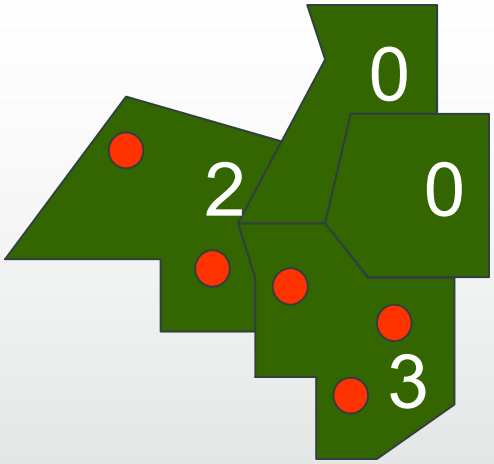
- Where no tabular linkage exists between data
- Can use GIS operations to match points to areas or areas to areas
  - e.g. grid referenced accidents matched to own neighbourhood boundaries
  - e.g. clinic catchment areas to new ward boundaries

Allocation and aggregation

- Allocate
  - e.g. allocate attributes of police beats to car crime locations
- Aggregate
  - e.g. aggregate number of car crimes in each police beat
- Same spatial linkage operation, but different outputs



ID	BEAT
1	D
2	D
3	C
4	C
5	C



Modifiable areal unit problem

- Pattern observed in shaded area census maps are artifact of boundaries used
  - Different boundaries would produce different pattern, even with same population
  - Relationships at one level of aggregation need not hold at any other level (ecological fallacy)

Implications for some commonly-used datasets

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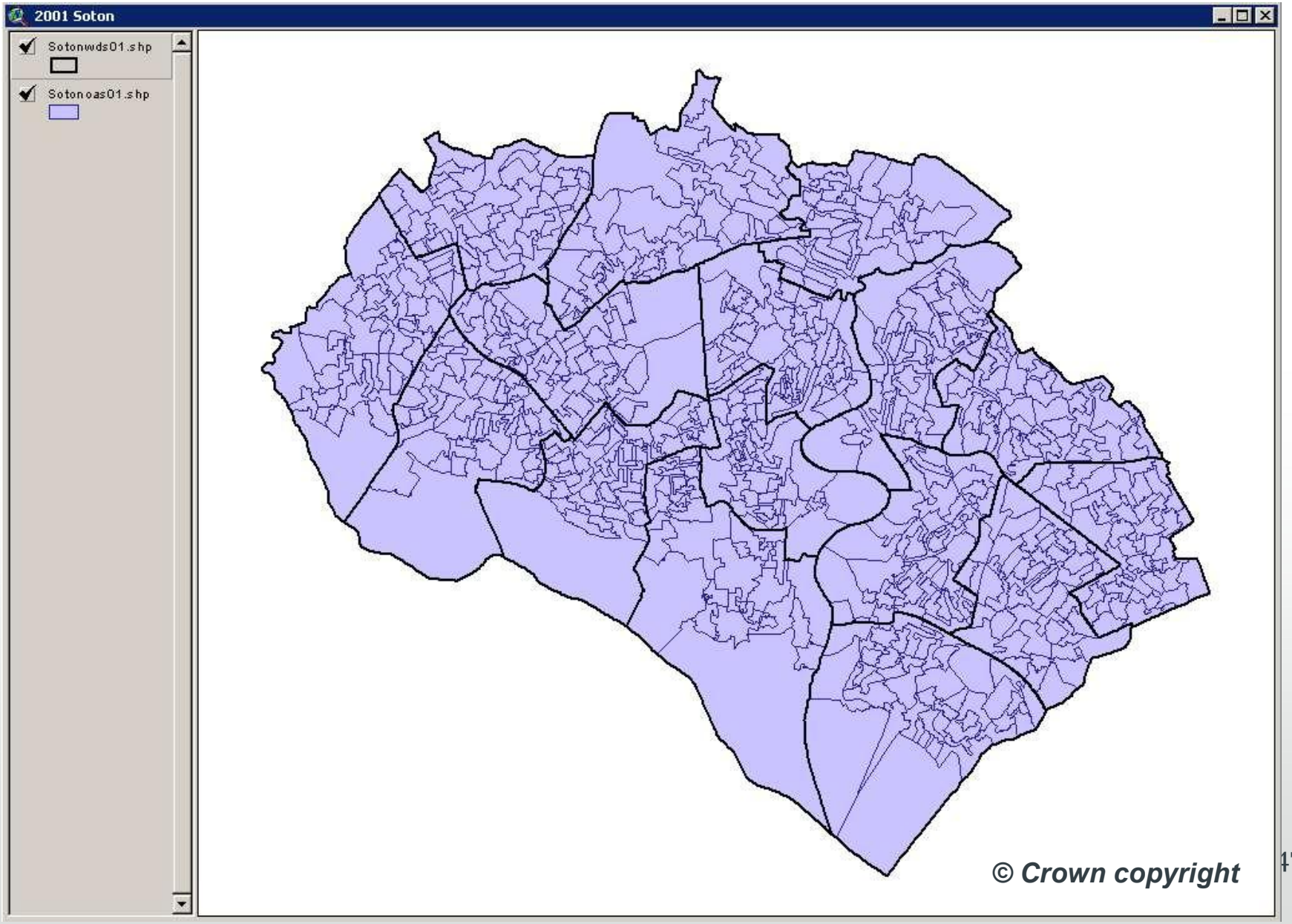
Some very useful geographically referenced datasets

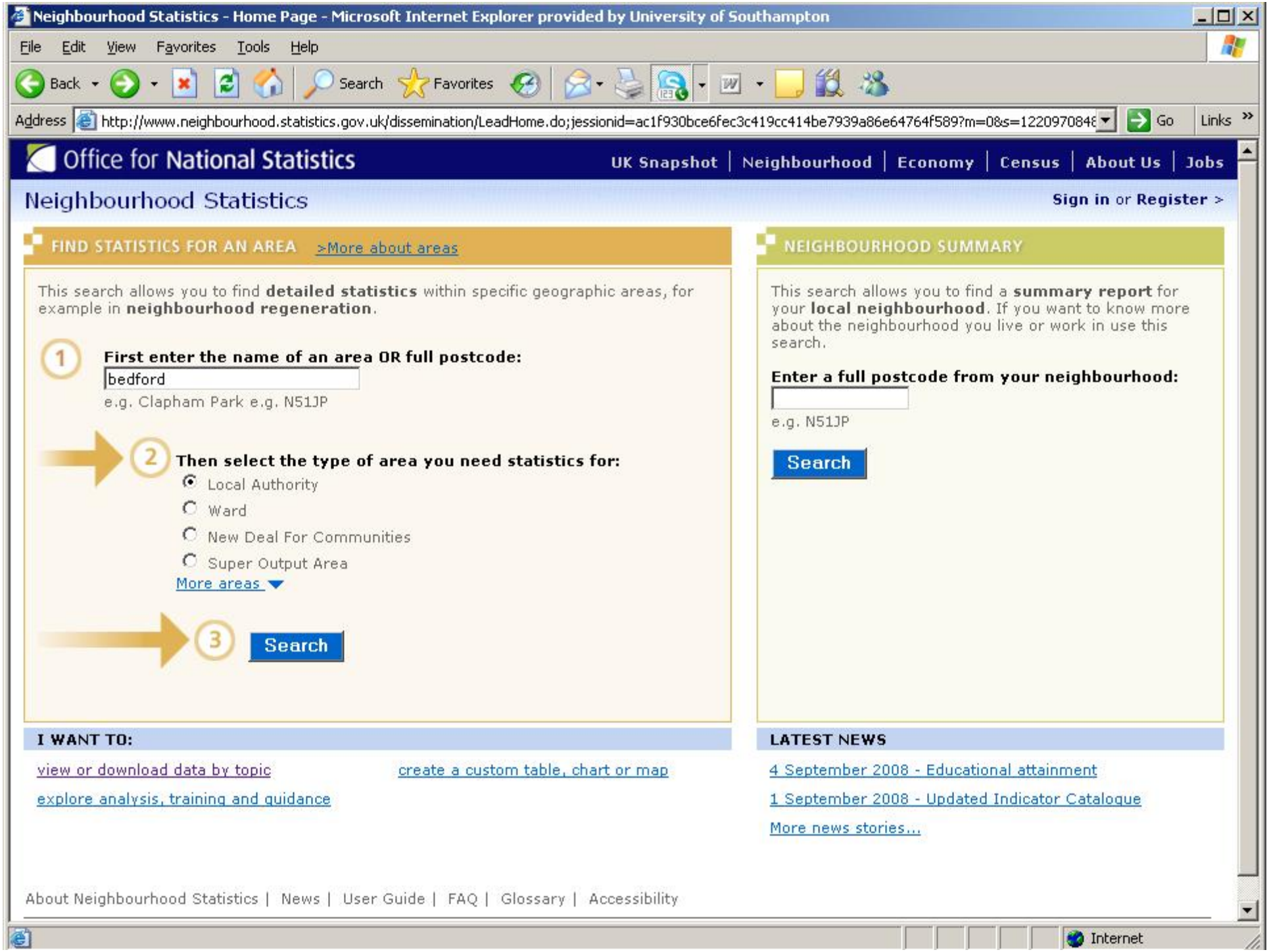
- Demographic data
  - Detailed populations: 2001 census (OA, ward, LAD)
  - Updated populations: mid-year estimates (LSOA)
  - Neighbourhood Statistics (OA/LSOA/MSOA)
- Indicators and classifications
  - Urban/rural codes, OA classifications (OA)
  - Indices of Deprivation 2007 (LSOA)
- Linkage datasets
  - National statistics postcode directory

Southampton: 2001 output areas and wards



Demographic data: census codes and boundaries

- Area hierarchy and codes
  - Output Areas (no names) 25JPUF0005
  - Ward UF
  - LADs (county/district 25JP or unitary authority 00JP)
- Digital boundaries
  - Available all levels from OA upwards
- OAs mostly built up from postcodes
- Census geography changes each decade (until 2011?)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FIND STATISTICS FOR AN AREA >More about areas
This search allows you to find detailed statistics within specific geographic areas, for example in neighbourhood regeneration.
1
First enter the name of an area OR full postcode:
bedford
e.g. Clapham Park e.g. N51JP
2
Then select the type of area you need statistics for:
Local Authority
Ward
New Deal For Communities
Super Output Area
More areas
3
Search
NEIGHBOURHOOD SUMMARY
This search allows you to find a summary report for your local neighbourhood. If you want to know more about the neighbourhood you live or work in use this search.
Enter a full postcode from your neighbourhood:
e.g. N51JP
Search
I WANT TO:
view or download data by topic
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LATEST NEWS
4 September 2008 - Educational attainment
1 September 2008 - Updated Indicator Catalogue
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Internet

Linkage datasets: National Statistics Postcode Directory

- Full list of UK postcodes , updated quarterly
- Dates of introduction and termination
- Ordnance Survey grid references
- Multiple area codes, including
  - Census, neighbourhood statistics, local government, health, electoral

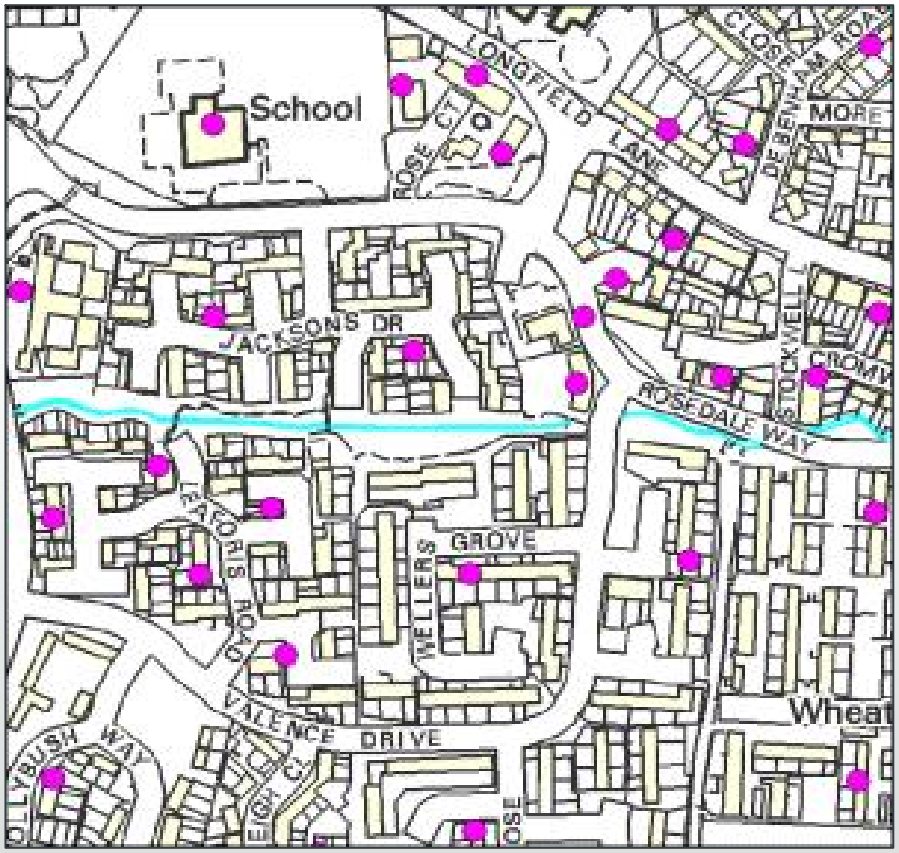
Postcodes: coding structure

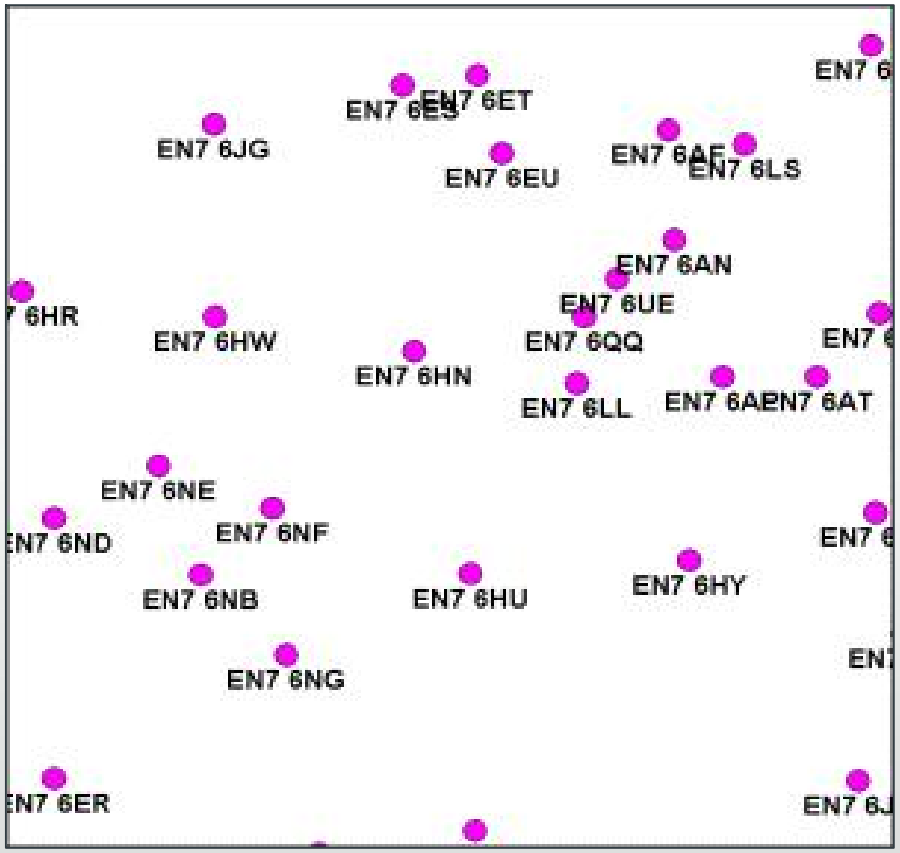
- Smallest standard geographical codes
- Integrated with addressing (listed in Royal Mail PAF)
- Area hierarchy and codes
  - Unit postcode (NOT areas) SO17 1BJ (~15 addresses)
  - Sector SO17 1
  - District SO17
  - Area SO
- Widespread recognition and use

Postcodes: spatial referencing

e.g. Ordnance Survey Code-Point

http://www.ordnancesurvey.co.uk/oswebsite/products/codepoint/





Demonstration of online services: Census.ac.uk, UKBorders, Geoconvert

Census.ac.uk - home - Microsoft Internet Explorer provided by University of Southampton

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Data use

- End User Licence

Home

Census.ac.uk

Census.ac.uk, home of the ESRC Census Programme, provides a one stop gateway to data and support services which allow users and researchers in UK Higher and Further Education to access the 1971, 1981, 1991 and 2001 UK censuses. It also provides access to other important census related resources.

Anyone is welcome to use the open resources of this web site and search metadata and publications, but to access most data registration and acceptance of licence terms relating to access and use of the data is required. The Quick Guide is a useful first step to using census data via Census.ac.uk.

Links to the data are provided in search results, metadata records and guides. Users can also go directly to the individual Programme units.

The census outputs are available in a number of forms and there is detailed information about these, their content and how to access the data in the Census.ac.uk guides, especially those covering:

Census Research Projects

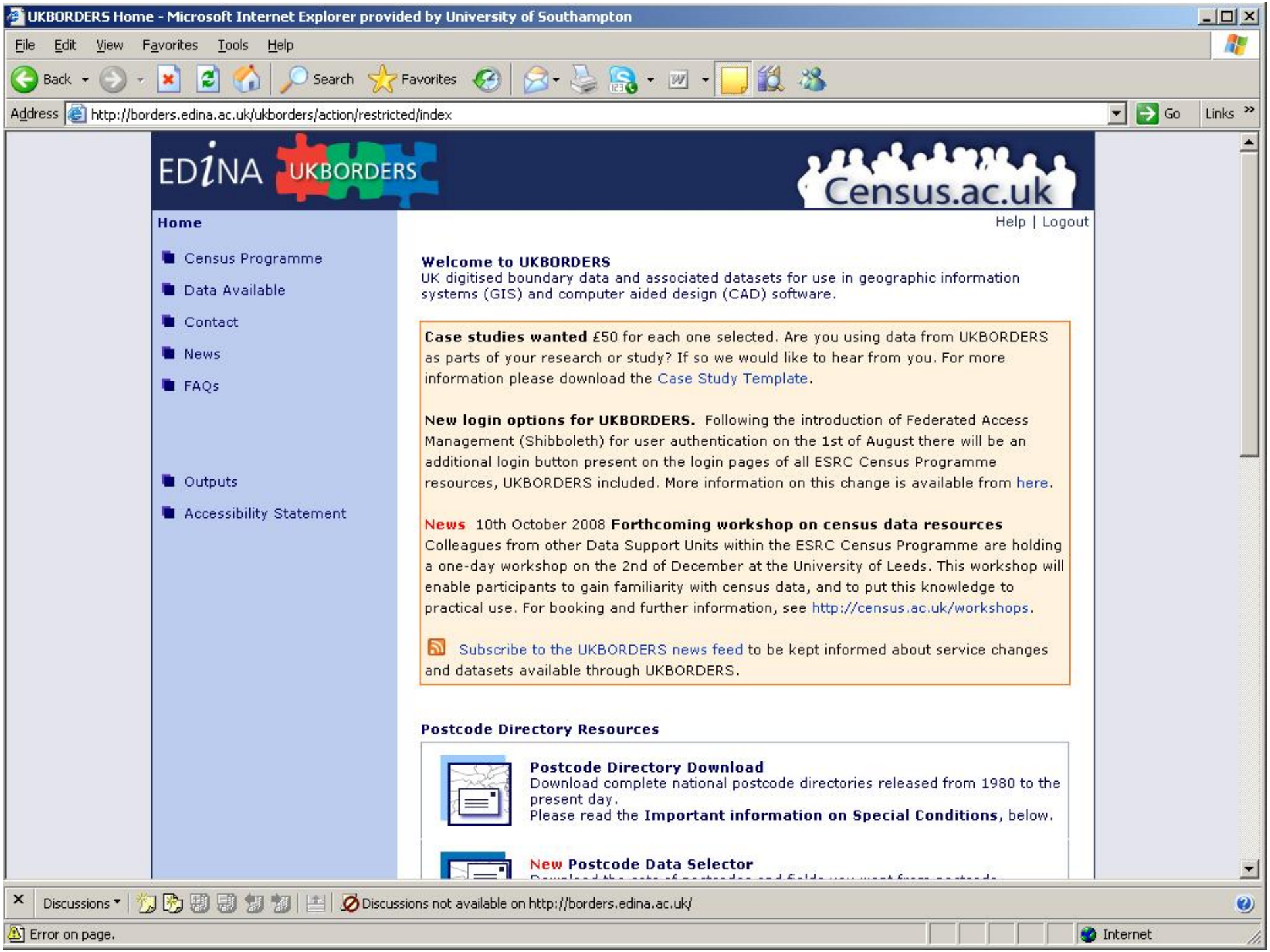
Federated Access Management

Census Workshops

Experian Demographic data

Discussions Discussions not available on http://census.ac.uk/

Internet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Welcome to UKBORDERS
UK digitised boundary data and associated datasets for use in geographic information systems (GIS) and computer aided design (CAD) software.
Case studies wanted £50 for each one selected. Are you using data from UKBORDERS as parts of your research or study? If so we would like to hear from you. For more information please download the Case Study Template.
New login options for UKBORDERS. Following the introduction of Federated Access Management (Shibboleth) for user authentication on the 1st of August there will be an additional login button present on the login pages of all ESRC Census Programme resources, UKBORDERS included. More information on this change is available from here.
News 10th October 2008 Forthcoming workshop on census data resources
Colleagues from other Data Support Units within the ESRC Census Programme are holding a one-day workshop on the 2nd of December at the University of Leeds. This workshop will enable participants to gain familiarity with census data, and to put this knowledge to practical use. For booking and further information, see http://census.ac.uk/workshops.
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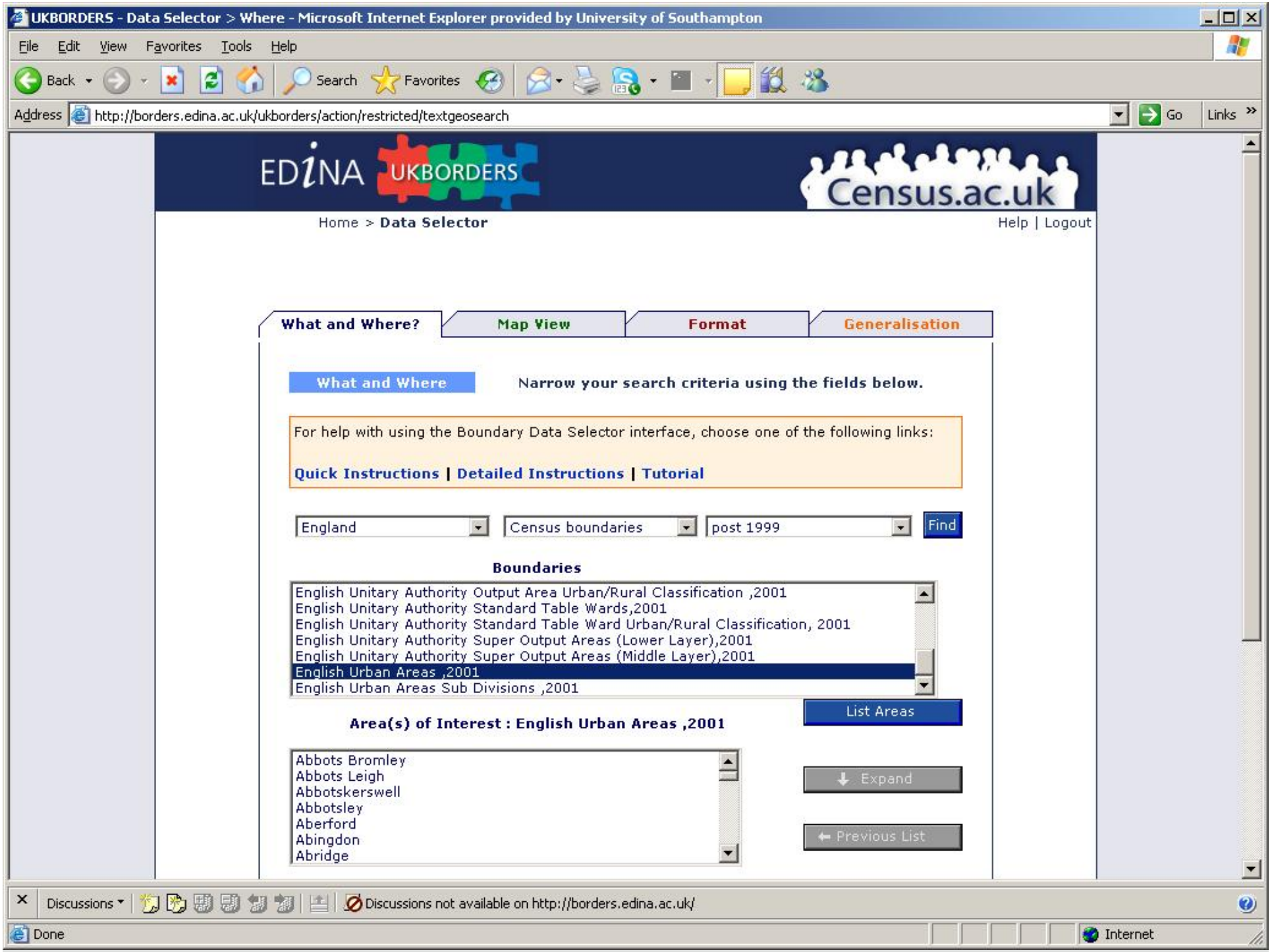
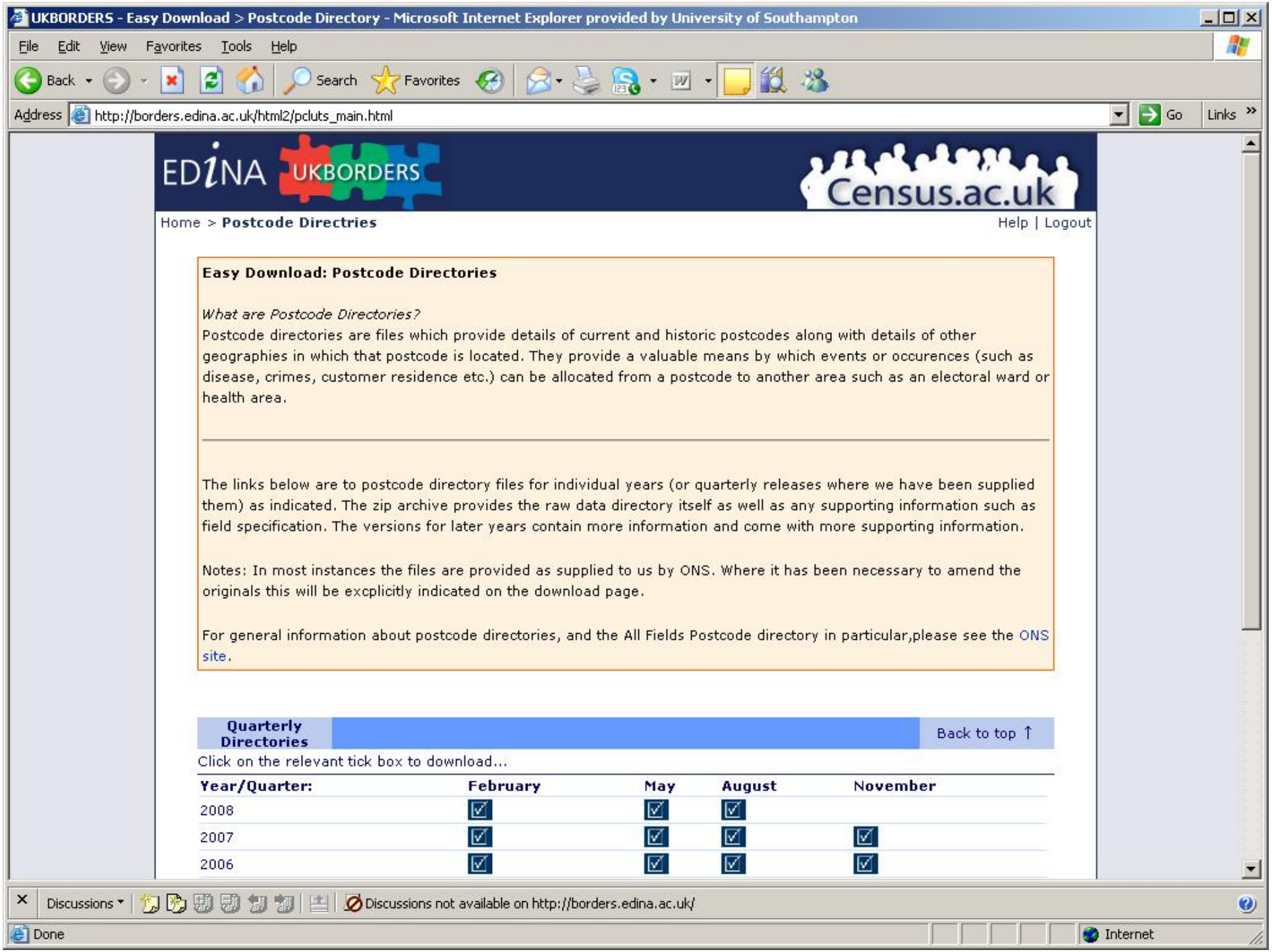
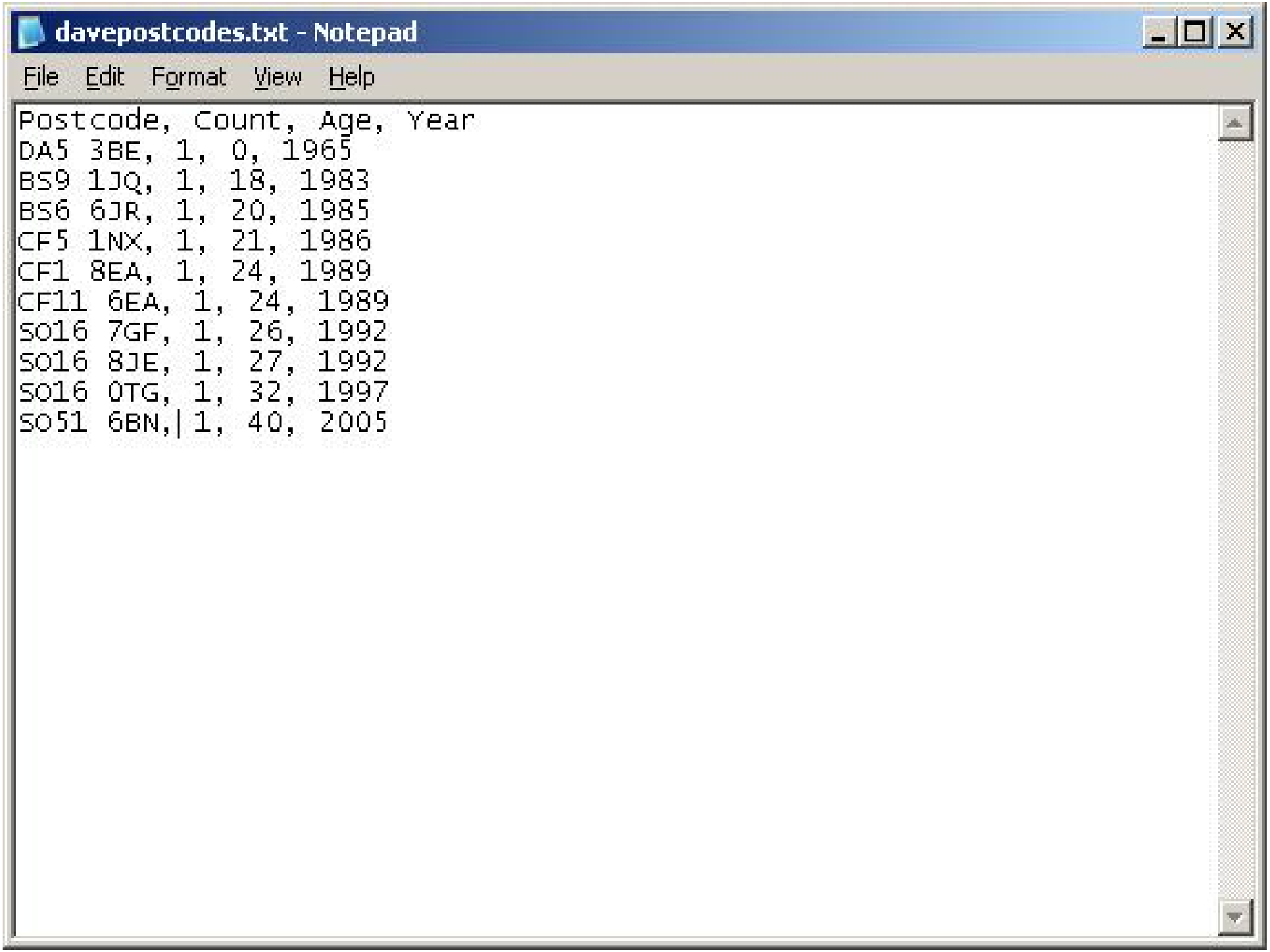
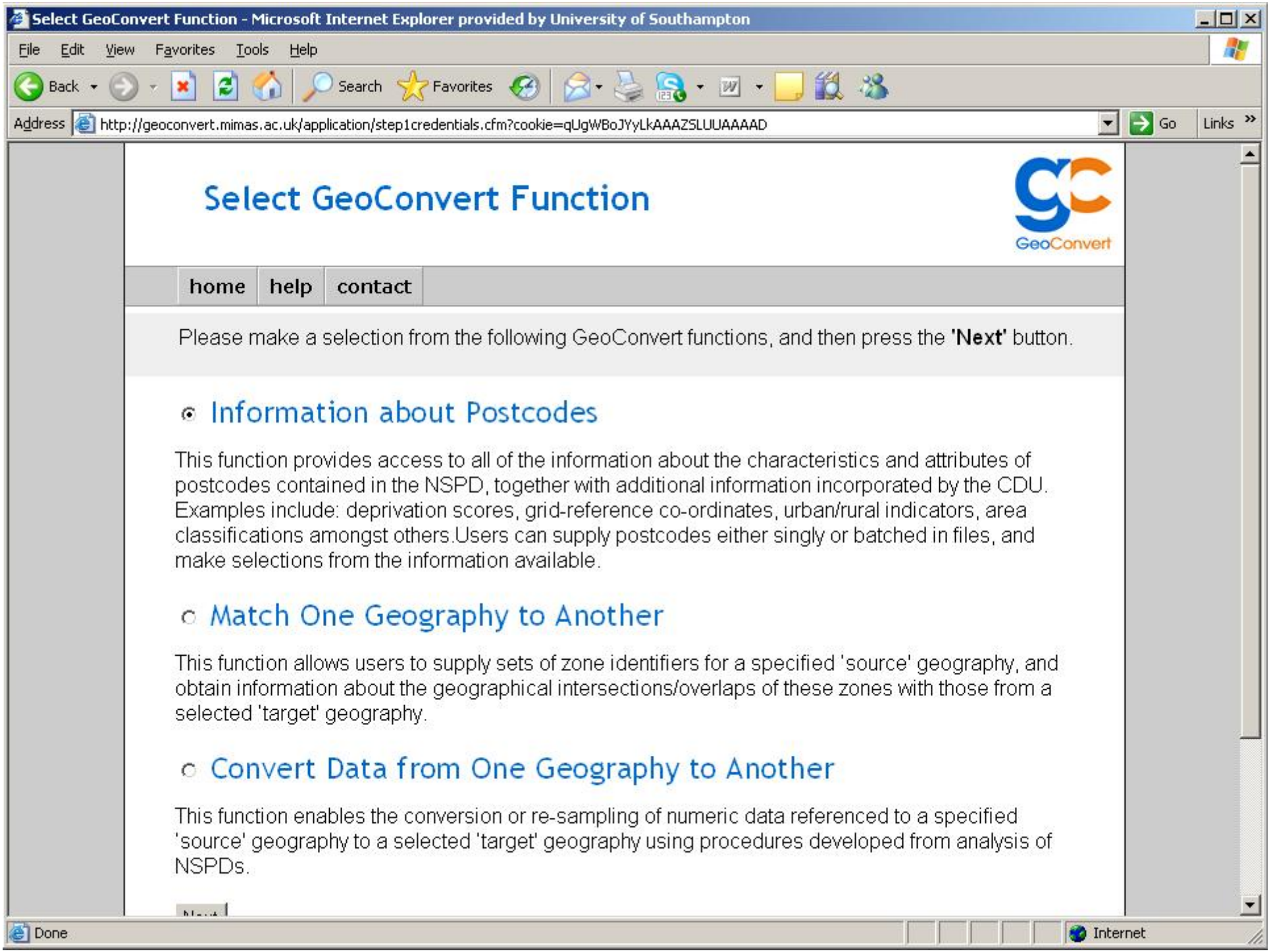
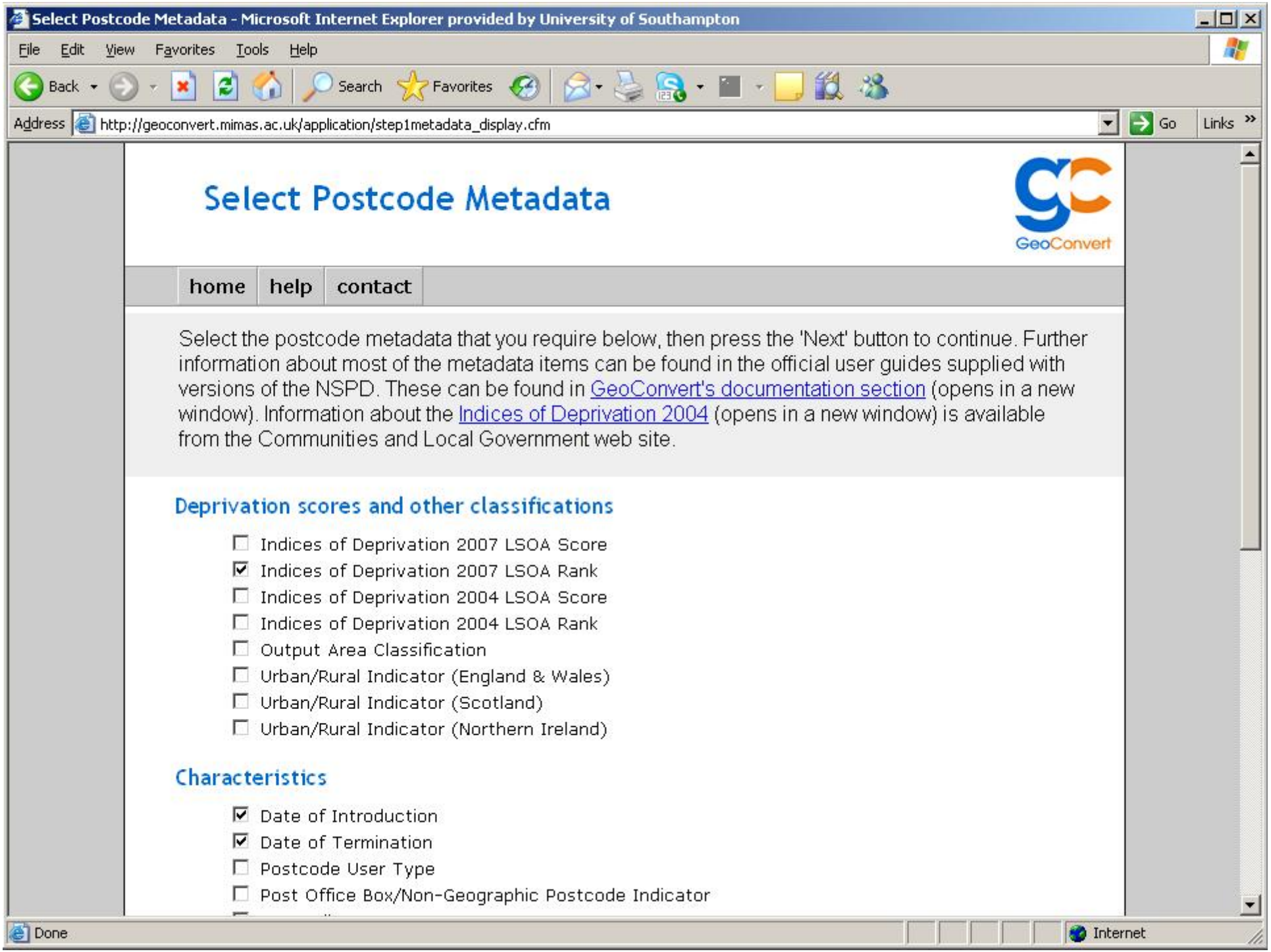

UKBORDERS - Data Selector > Where - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://borders.edina.ac.uk/ukborders/action/restricted/textgeosearch
Go Links
EDINA UKBORDERS
Census.ac.uk
Home > Data Selector
Help | Logout
What and Where?
Map View
Format
Generalisation
What and Where
Narrow your search criteria using the fields below.
For help with using the Boundary Data Selector interface, choose one of the following links:
Quick Instructions | Detailed Instructions | Tutorial
England
Census boundaries
post 1999
Find
Boundaries
English Unitary Authority Output Area Urban/Rural Classification ,2001
English Unitary Authority Standard Table Wards,2001
English Unitary Authority Standard Table Ward Urban/Rural Classification, 2001
English Unitary Authority Super Output Areas (Lower Layer),2001
English Unitary Authority Super Output Areas (Middle Layer),2001
English Urban Areas ,2001
English Urban Areas Sub Divisions ,2001
List Areas
Area(s) of Interest : English Urban Areas ,2001
Abbots Bromley
Abbots Leigh
Abbotskerswell
Abbotsley
Aberford
Abingdon
Abridge
Expand
Previous List
Discussions
Discussions not available on http://borders.edina.ac.uk/
Done
Internet


UKBORDERS - Easy Download > Postcode Directory - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://borders.edina.ac.uk/html2/pcluts_main.html
Go Links
EDINA UKBORDERS
Census.ac.uk
Home > Postcode Directries
Help | Logout
Easy Download: Postcode Directories
What are Postcode Directories?
Postcode directories are files which provide details of current and historic postcodes along with details of other geographies in which that postcode is located. They provide a valuable means by which events or occurences (such as disease, crimes, customer residence etc.) can be allocated from a postcode to another area such as an electoral ward or health area.
The links below are to postcode directory files for individual years (or quarterly releases where we have been supplied them) as indicated. The zip archive provides the raw data directory itself as well as any supporting information such as field specification. The versions for later years contain more information and come with more supporting information.
Notes: In most instances the files are provided as supplied to us by ONS. Where it has been necessary to amend the originals this will be excplicitly indicated on the download page.
For general information about postcode directories, and the All Fields Postcode directory in particular,please see the ONS site.
Quarterly Directories
Back to top ↑
Click on the relevant tick box to download...
Year/Quarter: February May August November
2008
2007
2006
Discussions
Discussions not available on http://borders.edina.ac.uk/
Done
Internet

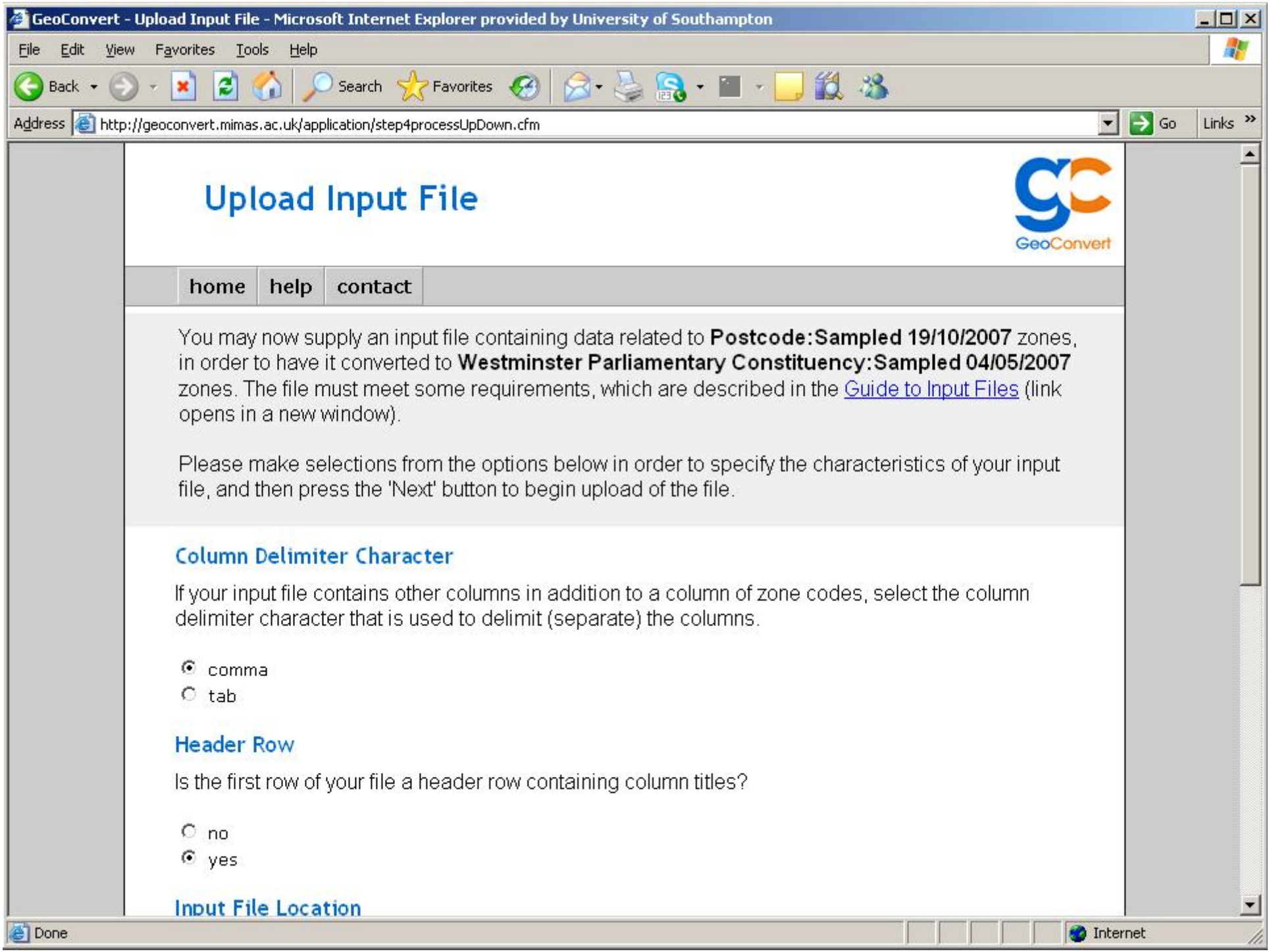

davepostcodes.txt - Notepad
File Edit Format View Help
Postcode, Count, Age, Year
DA5 3BE, 1, 0, 1965
BS9 1JQ, 1, 18, 1983
BS6 6JR, 1, 20, 1985
CF5 1NX, 1, 21, 1986
CF1 8EA, 1, 24, 1989
CF11 6EA, 1, 24, 1989
SO16 7GF, 1, 26, 1992
SO16 8JE, 1, 27, 1992
SO16 0TG, 1, 32, 1997
SO51 6BN, 1, 40, 2005

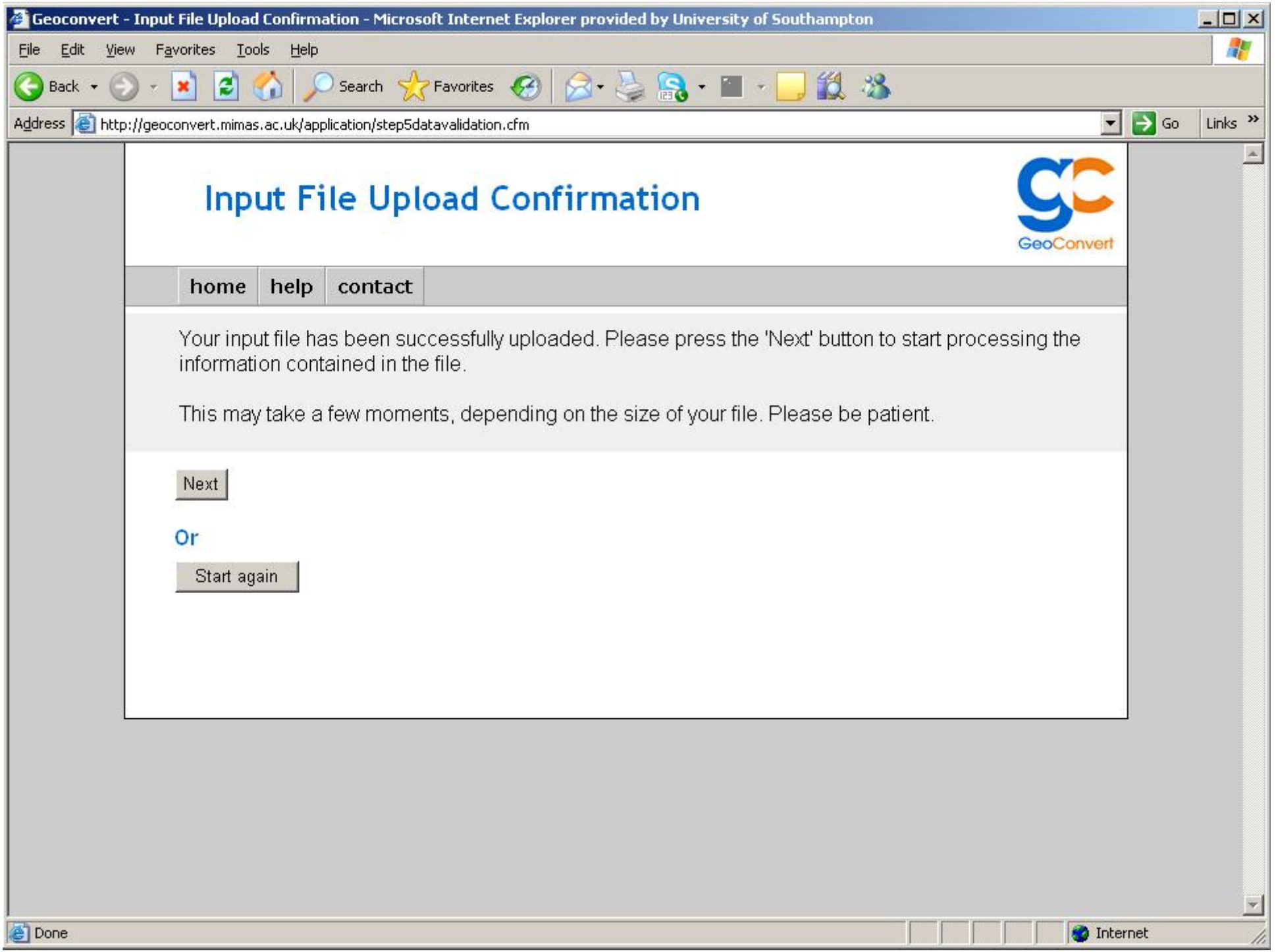
GeoConvert Home Page - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/index.htm
Go Links
Welcome to GeoConvert
GeoConvert
home help news contact
GeoConvert is an online geography matching and conversion tool for UK academics. GeoConvert allows registered users to obtain and manipulate complex geographical and postcode data in a straightforward way. Access to GeoConvert is controlled by Athens or UK Federation authentication.
STOP! If you're new to using GeoConvert, or are having problems logging in, we strongly recommend that you follow the steps in our 'Guide to Logging in to GeoConvert'.
Login to GeoConvert via UK Federation
Login to GeoConvert via Athens
A new system of user authentication was implemented on 31 July 2008 to allow access to our services using federated access management as well as Athens.
Main functions
Obtain postcode metadata (deprivation scores, grid-reference co-ordinates, urban/rural indicators, area classifications, etc)
Obtain details of the geographical relationships (intersections/matches) between zones in different geographies
Re-sample (convert) data from one geography to another
Done
Internet

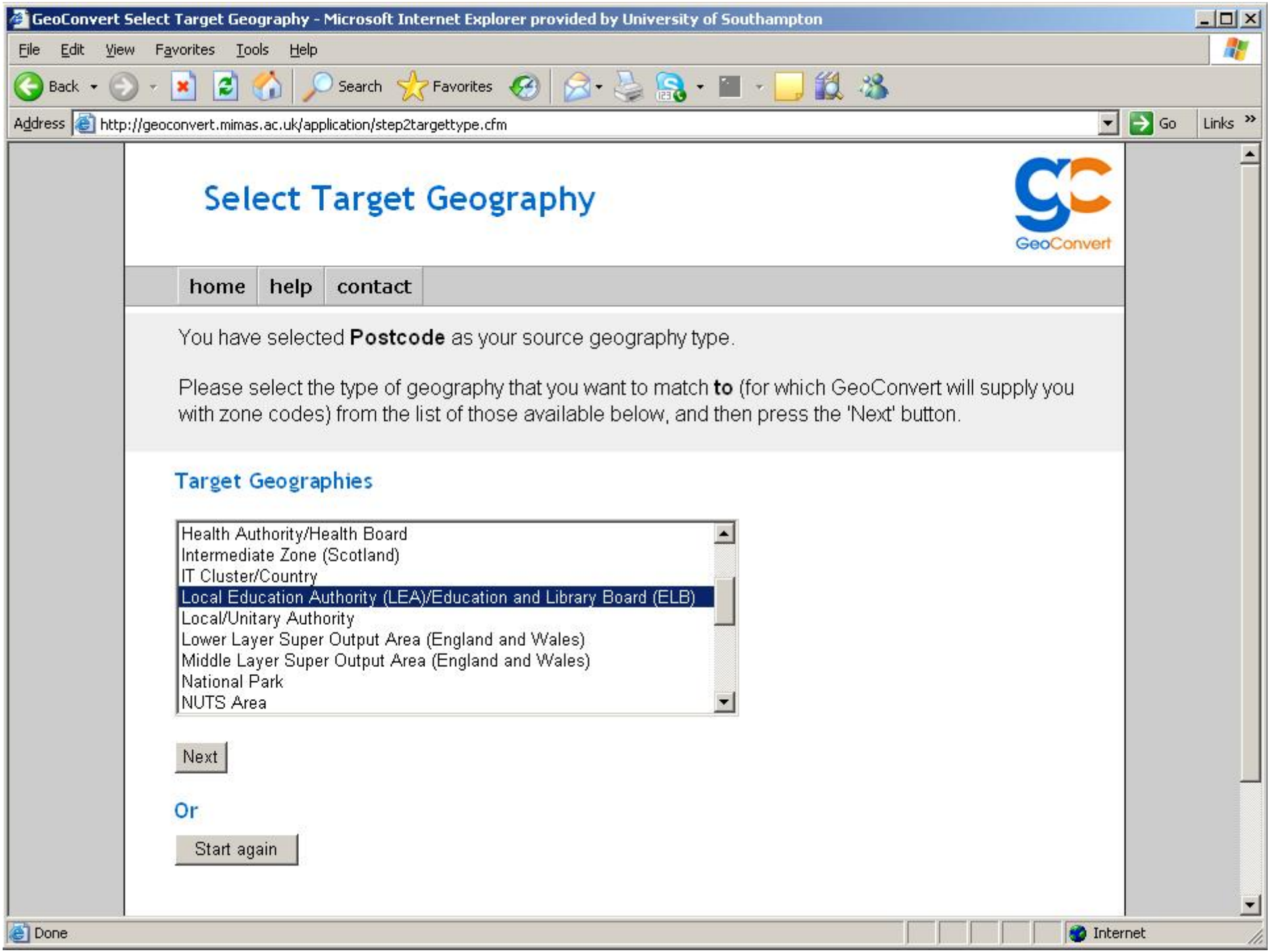

Select GeoConvert Function - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1credentials.cfm?cookie=qUgWBoJYyLkAAAZSLUUAAAAD
Go Links
Select GeoConvert Function
GeoConvert
home help contact
Please make a selection from the following GeoConvert functions, and then press the 'Next' button.
Information about Postcodes
This function provides access to all of the information about the characteristics and attributes of postcodes contained in the NSPD, together with additional information incorporated by the CDU. Examples include: deprivation scores, grid-reference co-ordinates, urban/rural indicators, area classifications amongst others.Users can supply postcodes either singly or batched in files, and make selections from the information available.
Match One Geography to Another
This function allows users to supply sets of zone identifiers for a specified 'source' geography, and obtain information about the geographical intersections/overlaps of these zones with those from a selected 'target' geography.
Convert Data from One Geography to Another
This function enables the conversion or re-sampling of numeric data referenced to a specified 'source' geography to a selected 'target' geography using procedures developed from analysis of NSPDs.
Done
Internet

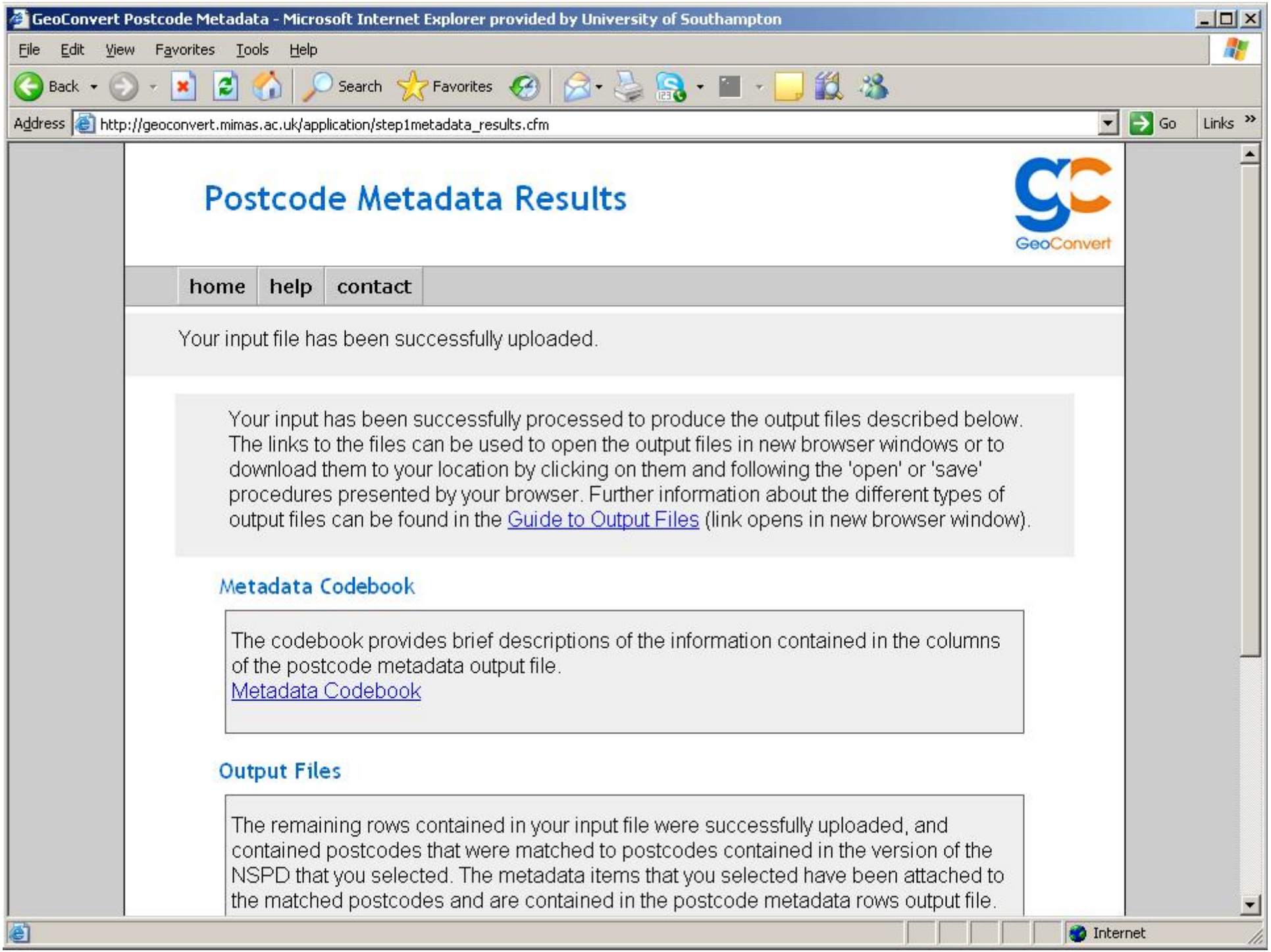

Select Postcode Metadata - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1metadata_display.cfm
Go Links
Select Postcode Metadata
GeoConvert
home help contact
Select the postcode metadata that you require below, then press the 'Next' button to continue. Further information about most of the metadata items can be found in the official user guides supplied with versions of the NSPD. These can be found in GeoConvert's documentation section (opens in a new window). Information about the Indices of Deprivation 2004 (opens in a new window) is available from the Communities and Local Government web site.
Deprivation scores and other classifications
Indices of Deprivation 2007 LSOA Score
Indices of Deprivation 2007 LSOA Rank
Indices of Deprivation 2004 LSOA Score
Indices of Deprivation 2004 LSOA Rank
Output Area Classification
Urban/Rural Indicator (England & Wales)
Urban/Rural Indicator (Scotland)
Urban/Rural Indicator (Northern Ireland)
Characteristics
Date of Introduction
Date of Termination
Postcode User Type
Post Office Box/Non-Geographic Postcode Indicator
Done
Internet

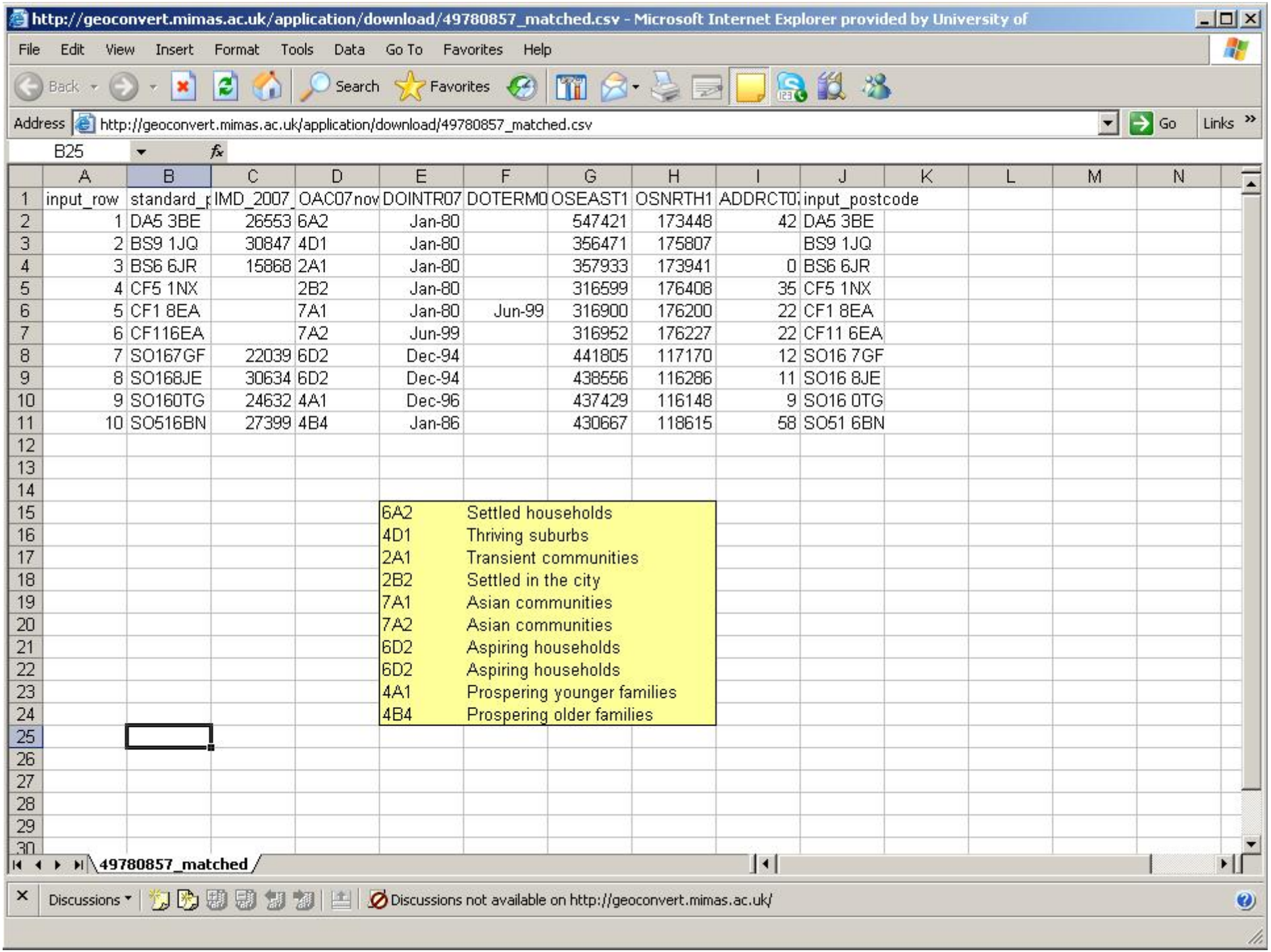
Supply Postcode(s) - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1metadata_input.cfm
Go Links
Supply Postcode(s)
GeoConvert
home help contact
Supply either a single postcode, or a file of the postcodes for which you want to obtain metadata, and then press the 'Next' button to continue. If supplying a file of postcodes, please consult the Guide to Input Files to ensure that it has the correct structure and content, and make selections below to identify what kind of (if any) column delimiter characters it uses, and whether or not it contains a header row.
Supply a Single Postcode
SO17 1BJ
Next
or
Supply a File of Postcodes
Column Delimiter Character
If your input file contains other columns in addition to a column of zone codes, select the column delimiter character that is used to delimit (separate) the columns.
comma
tab
Header Row
Done
Internet


GeoConvert - Upload Input File - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step4processUpDown.cfm
Go Links
Upload Input File
GeoConvert
home help contact
You may now supply an input file containing data related to Postcode:Sampled 19/10/2007 zones, in order to have it converted to Westminster Parliamentary Constituency:Sampled 04/05/2007 zones. The file must meet some requirements, which are described in the Guide to Input Files (link opens in a new window).
Please make selections from the options below in order to specify the characteristics of your input file, and then press the 'Next' button to begin upload of the file.
Column Delimiter Character
If your input file contains other columns in addition to a column of zone codes, select the column delimiter character that is used to delimit (separate) the columns.
comma
tab
Header Row
Is the first row of your file a header row containing column titles?
no
yes
Input File Location
Done
Internet


Geoconvert - Input File Upload Confirmation - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step5datavalidation.cfm
Go Links
Input File Upload Confirmation
GeoConvert
home help contact
Your input file has been successfully uploaded. Please press the 'Next' button to start processing the information contained in the file.
This may take a few moments, depending on the size of your file. Please be patient.
Next
Or
Start again
Done
Internet


GeoConvert Select Target Geography - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step2targettype.cfm
Go Links
Select Target Geography
GeoConvert
home help contact
You have selected Postcode as your source geography type.
Please select the type of geography that you want to match to (for which GeoConvert will supply you with zone codes) from the list of those available below, and then press the 'Next' button.
Target Geographies
Health Authority/Health Board
Intermediate Zone (Scotland)
IT Cluster/Country
Local Education Authority (LEA)/Education and Library Board (ELB)
Local/Unitary Authority
Lower Layer Super Output Area (England and Wales)
Middle Layer Super Output Area (England and Wales)
National Park
NUTS Area
Next
Or
Start again
Done
Internet


GeoConvert Postcode Metadata - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1metadata_results.cfm
Go Links
Postcode Metadata Results
GeoConvert
home help contact
Your input file has been successfully uploaded.
Your input has been successfully processed to produce the output files described below. The links to the files can be used to open the output files in new browser windows or to download them to your location by clicking on them and following the 'open' or 'save' procedures presented by your browser. Further information about the different types of output files can be found in the Guide to Output Files (link opens in new browser window).
Metadata Codebook
The codebook provides brief descriptions of the information contained in the columns of the postcode metadata output file.
Metadata Codebook
Output Files
The remaining rows contained in your input file were successfully uploaded, and contained postcodes that were matched to postcodes contained in the version of the NSPD that you selected. The metadata items that you selected have been attached to the matched postcodes and are contained in the postcode metadata rows output file.
Internet



http://geoconvert.mimas.ac.uk/application/download/49780857_matched.csv - Microsoft Internet Explorer provided by University of

File Edit View Insert Format Tools Data Go To Favorites Help

Back Search Favorites

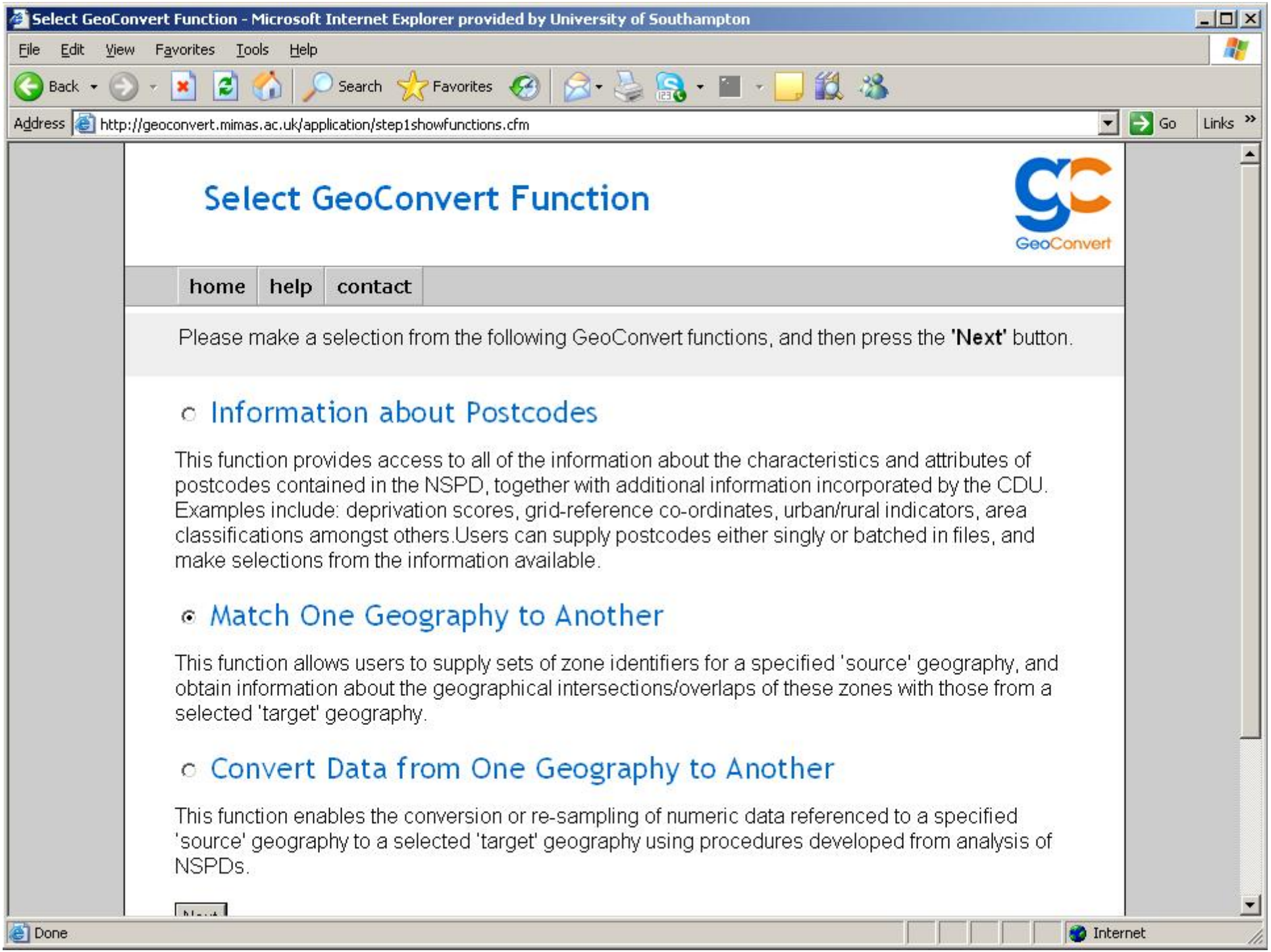
Address http://geoconvert.mimas.ac.uk/application/download/49780857_matched.csv Go Links

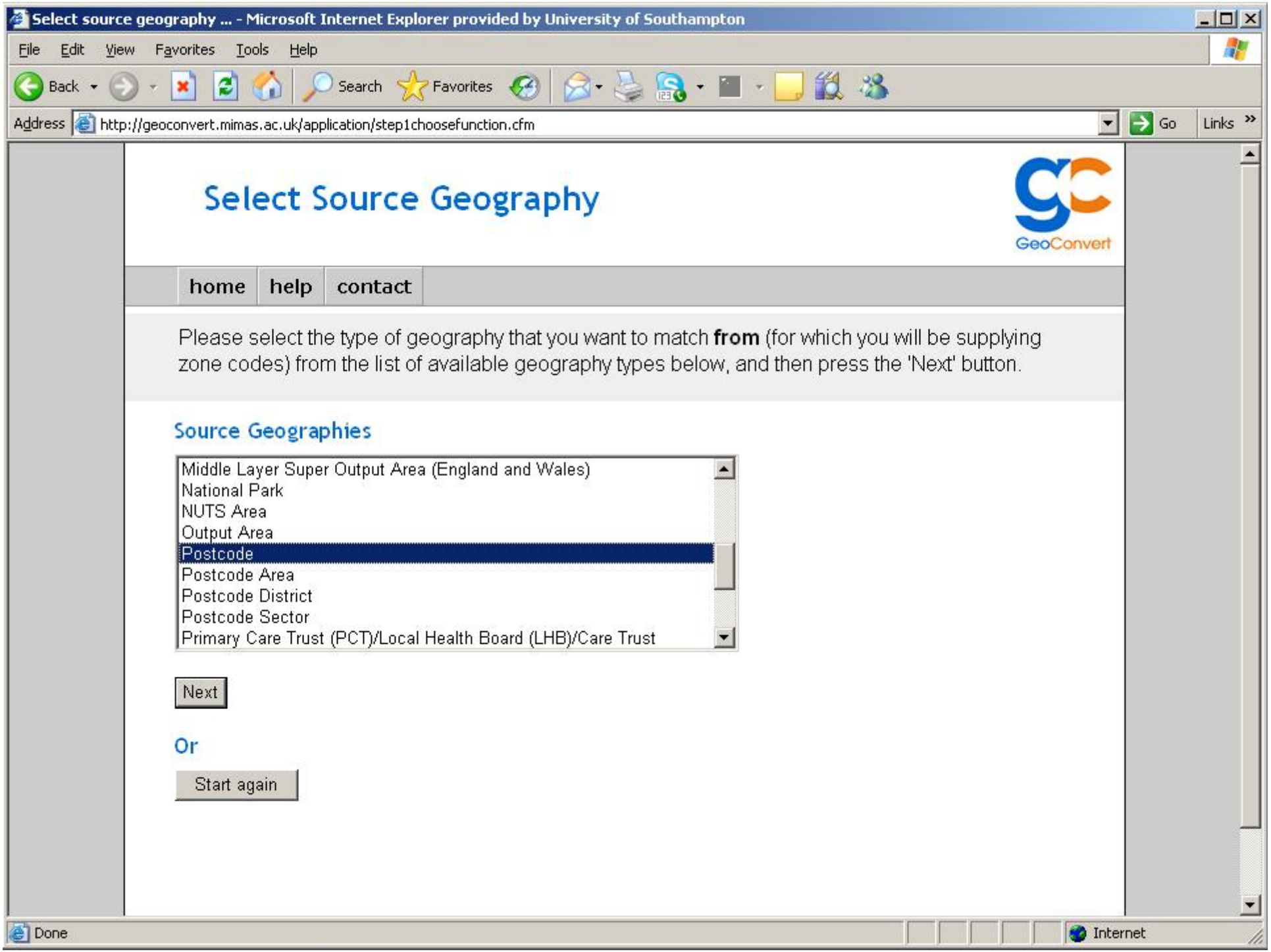
B25

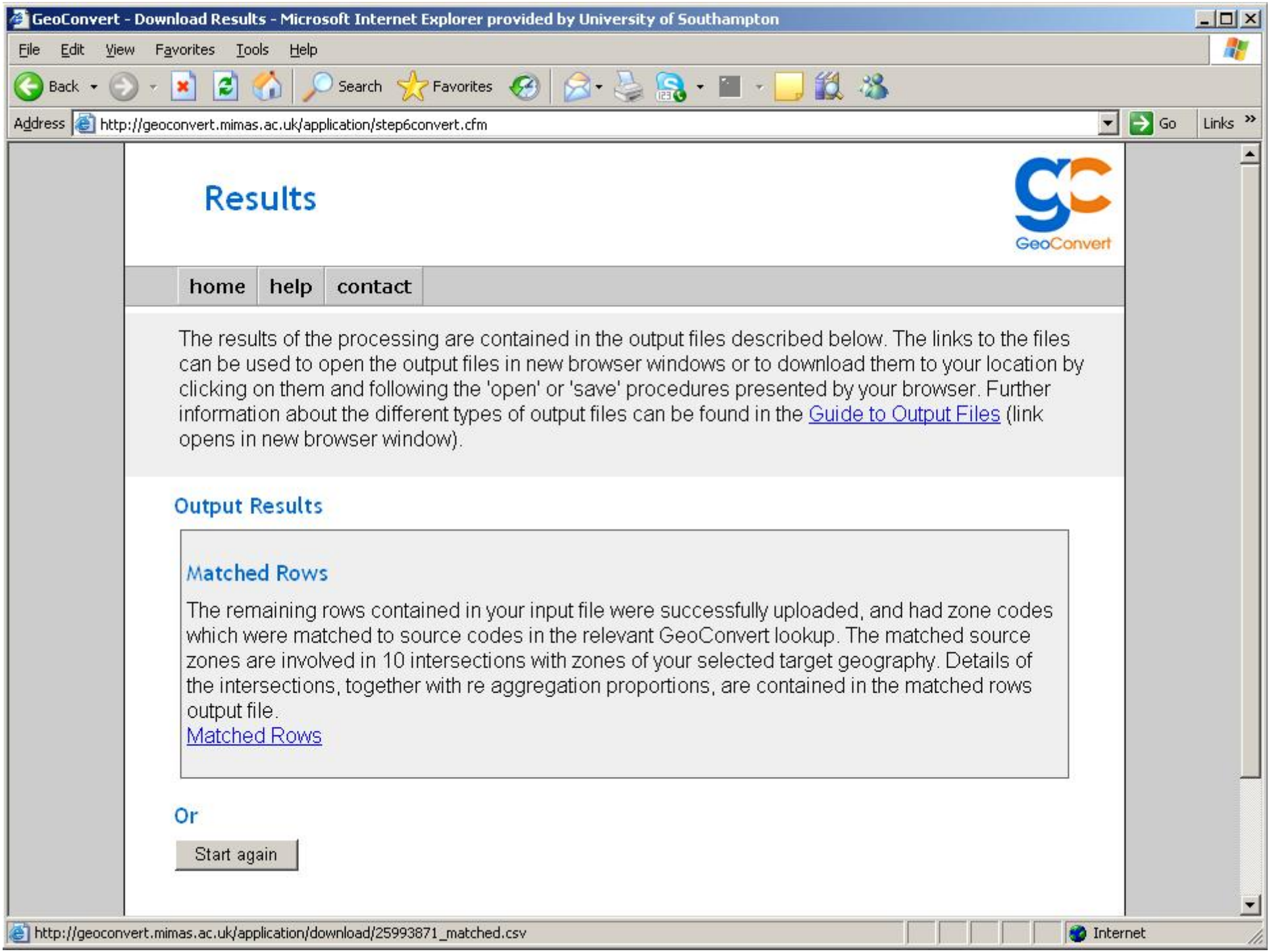
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	input_row	standard_p	IMD_2007_	OAC07nov	DOINTR07	DOTERM0	OSEAST1	OSNRTH1	ADDRCT0	input_postcode				
2	1	DA5 3BE	26553	6A2	Jan-80		547421	173448	42	DA5 3BE				
3	2	BS9 1JQ	30847	4D1	Jan-80		356471	175807		BS9 1JQ				
4	3	BS6 6JR	15868	2A1	Jan-80		357933	173941	0	BS6 6JR				
5	4	CF5 1NX		2B2	Jan-80		316599	176408	35	CF5 1NX				
6	5	CF1 8EA		7A1	Jan-80	Jun-99	316900	176200	22	CF1 8EA				
7	6	CF116EA		7A2	Jun-99		316952	176227	22	CF11 6EA				
8	7	SO167GF	22039	6D2	Dec-94		441805	117170	12	SO16 7GF				
9	8	SO168JE	30634	6D2	Dec-94		438556	116286	11	SO16 8JE				
10	9	SO160TG	24632	4A1	Dec-96		437429	116148	9	SO16 0TG				
11	10	SO516BN	27399	4B4	Jan-86		430667	118615	58	SO51 6BN				
12														
13														
14														
15					6A2	Settled households								
16					4D1	Thriving suburbs								
17					2A1	Transient communities								
18					2B2	Settled in the city								
19					7A1	Asian communities								
20					7A2	Asian communities								
21					6D2	Aspiring households								
22					6D2	Aspiring households								
23					4A1	Prospering younger families								
24					4B4	Prospering older families								
25														
26														
27														
28														
29														
30														

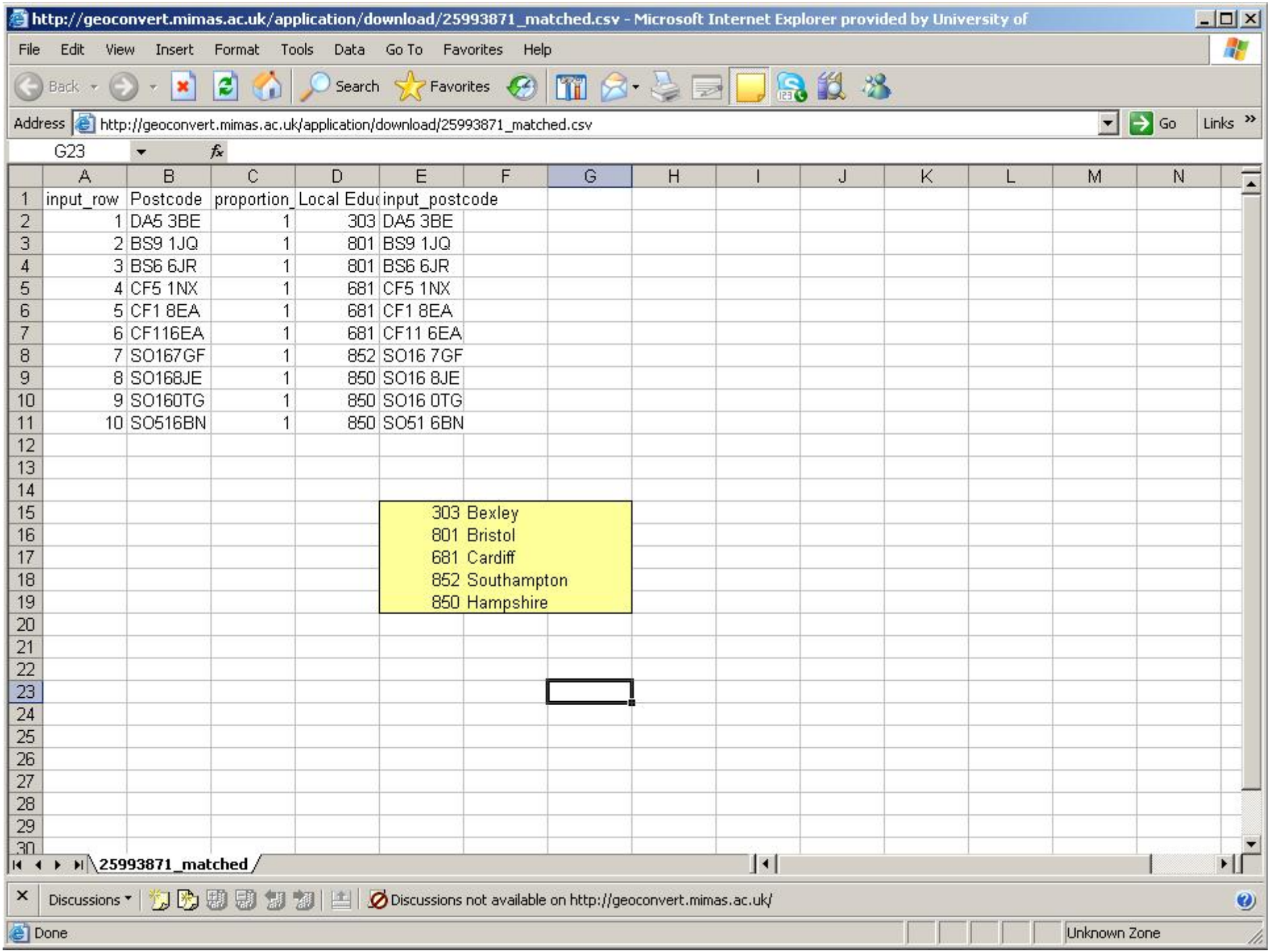
49780857_matched

Discussions Discussions not available on http://geoconvert.mimas.ac.uk/


Select GeoConvert Function - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1showfunctions.cfm
Go Links
Select GeoConvert Function
GeoConvert
home help contact
Please make a selection from the following GeoConvert functions, and then press the 'Next' button.
Information about Postcodes
This function provides access to all of the information about the characteristics and attributes of postcodes contained in the NSPD, together with additional information incorporated by the CDU. Examples include: deprivation scores, grid-reference co-ordinates, urban/rural indicators, area classifications amongst others.Users can supply postcodes either singly or batched in files, and make selections from the information available.
Match One Geography to Another
This function allows users to supply sets of zone identifiers for a specified 'source' geography, and obtain information about the geographical intersections/overlaps of these zones with those from a selected 'target' geography.
Convert Data from One Geography to Another
This function enables the conversion or re-sampling of numeric data referenced to a specified 'source' geography to a selected 'target' geography using procedures developed from analysis of NSPDs.
Done
Internet


Select source geography ... - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1choosefunction.cfm
Go Links
Select Source Geography
GeoConvert
home help contact
Please select the type of geography that you want to match from (for which you will be supplying zone codes) from the list of available geography types below, and then press the 'Next' button.
Source Geographies
Middle Layer Super Output Area (England and Wales)
National Park
NUTS Area
Output Area
Postcode
Postcode Area
Postcode District
Postcode Sector
Primary Care Trust (PCT)/Local Health Board (LHB)/Care Trust
Next
Or
Start again
Done
Internet


GeoConvert - Download Results - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step6convert.cfm
Go Links
Results
GeoConvert
home help contact
The results of the processing are contained in the output files described below. The links to the files can be used to open the output files in new browser windows or to download them to your location by clicking on them and following the 'open' or 'save' procedures presented by your browser. Further information about the different types of output files can be found in the Guide to Output Files (link opens in new browser window).
Output Results
Matched Rows
The remaining rows contained in your input file were successfully uploaded, and had zone codes which were matched to source codes in the relevant GeoConvert lookup. The matched source zones are involved in 10 intersections with zones of your selected target geography. Details of the intersections, together with re aggregation proportions, are contained in the matched rows output file.
Matched Rows
Or
Start again
http://geoconvert.mimas.ac.uk/application/download/25993871_matched.csv
Internet



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	input_row	Postcode	proportion_	Local Edu	input_postcode									
2	1	DA5 3BE	1	303	DA5 3BE									
3	2	BS9 1JQ	1	801	BS9 1JQ									
4	3	BS6 6JR	1	801	BS6 6JR									
5	4	CF5 1NX	1	681	CF5 1NX									
6	5	CF1 8EA	1	681	CF1 8EA									
7	6	CF116EA	1	681	CF11 6EA									
8	7	SO167GF	1	852	SO16 7GF									
9	8	SO168JE	1	850	SO16 8JE									
10	9	SO160TG	1	850	SO16 0TG									
11	10	SO516BN	1	850	SO51 6BN									
12														
13														
14														
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16														
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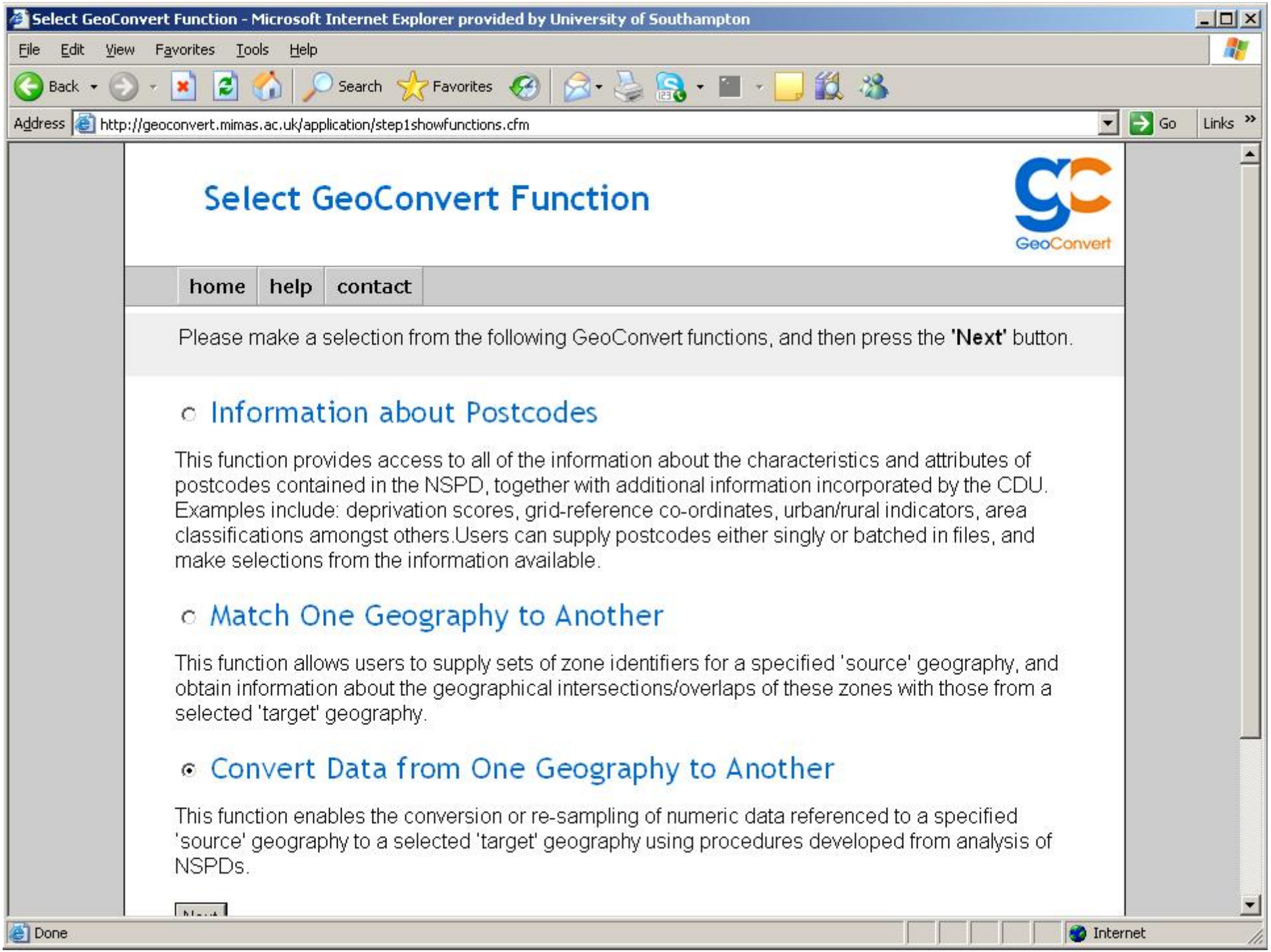
Select GeoConvert Function - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1showfunctions.cfm
Go Links
Select GeoConvert Function
GeoConvert
home help contact
Please make a selection from the following GeoConvert functions, and then press the 'Next' button.
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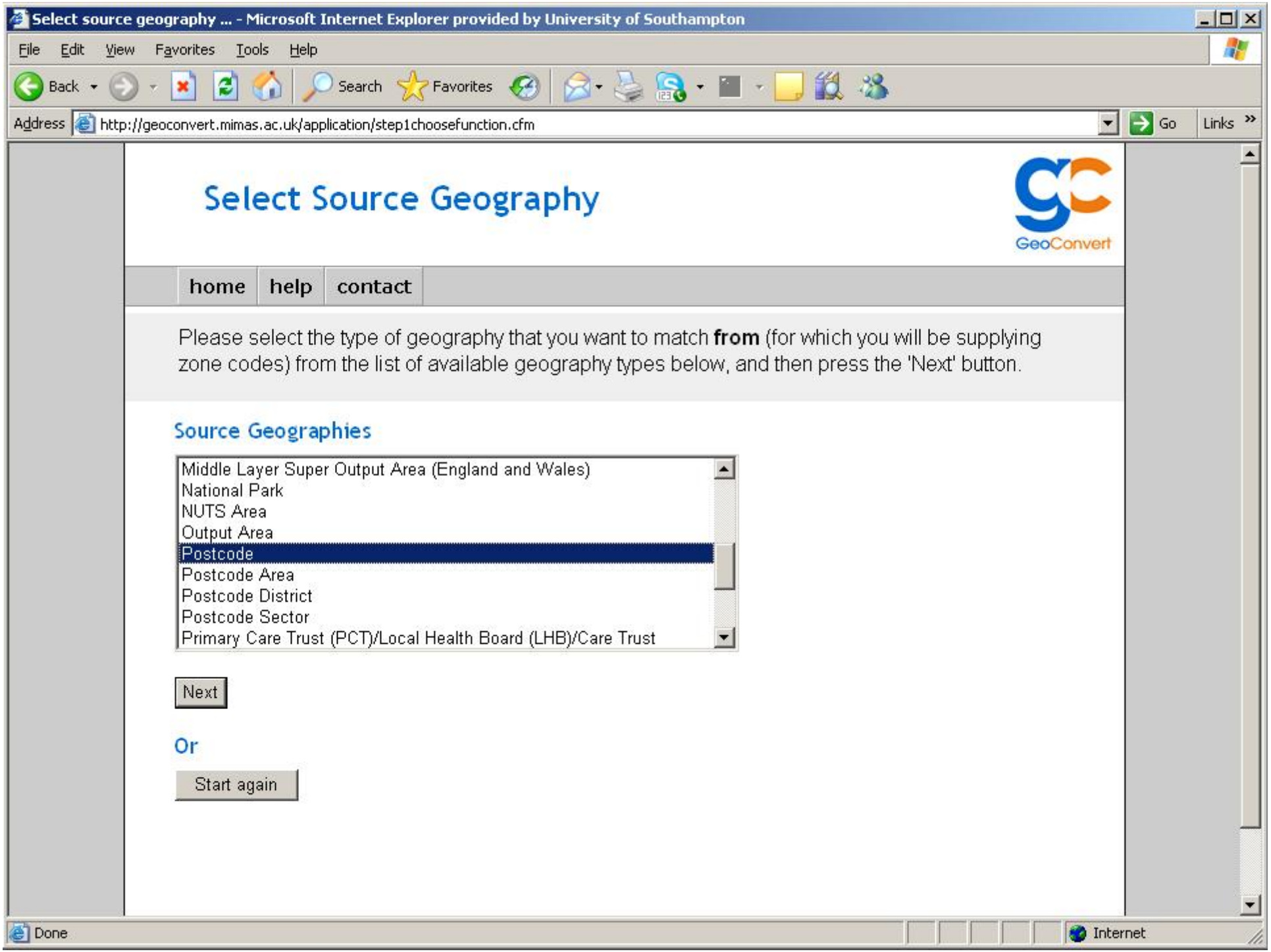
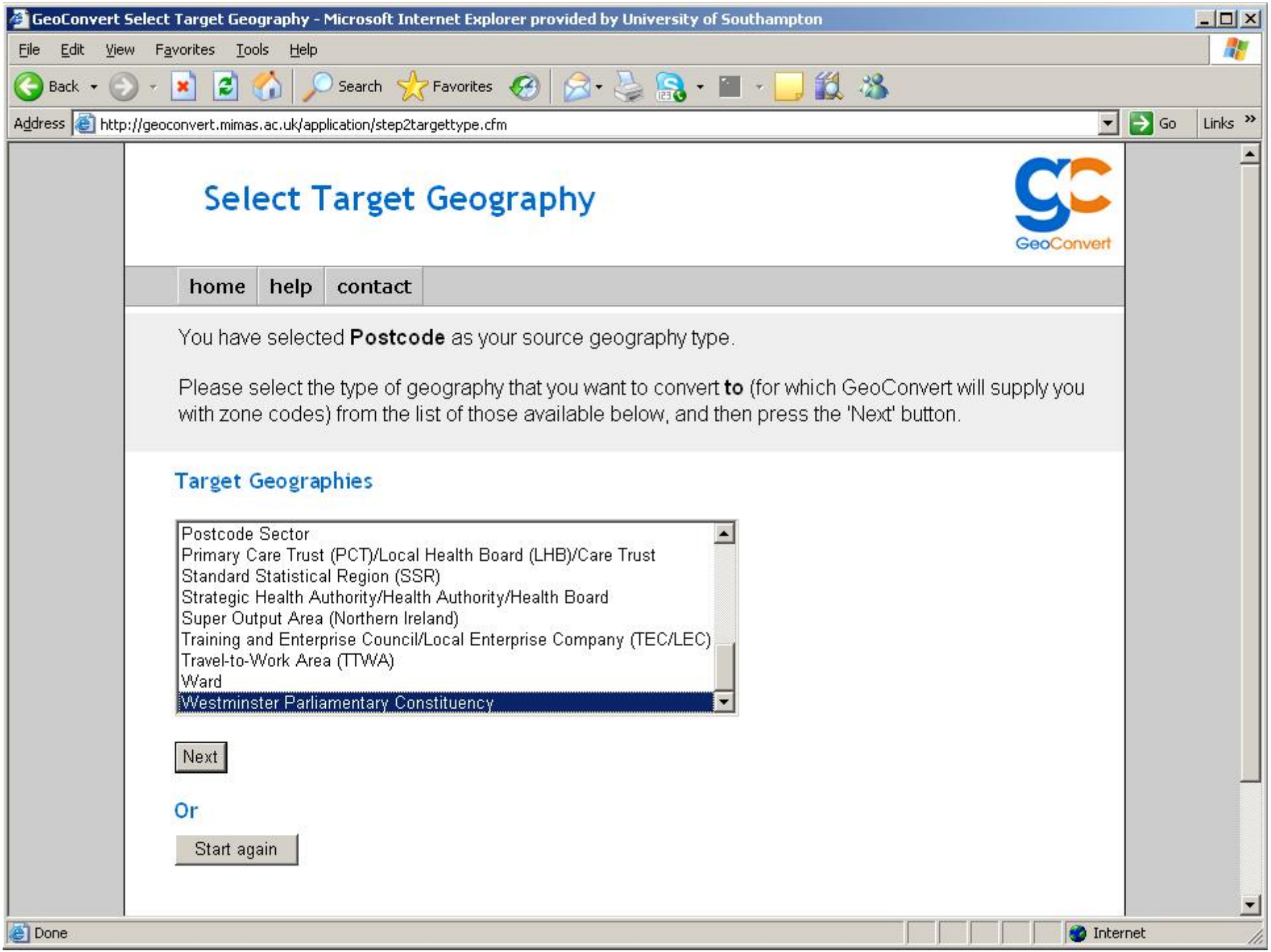
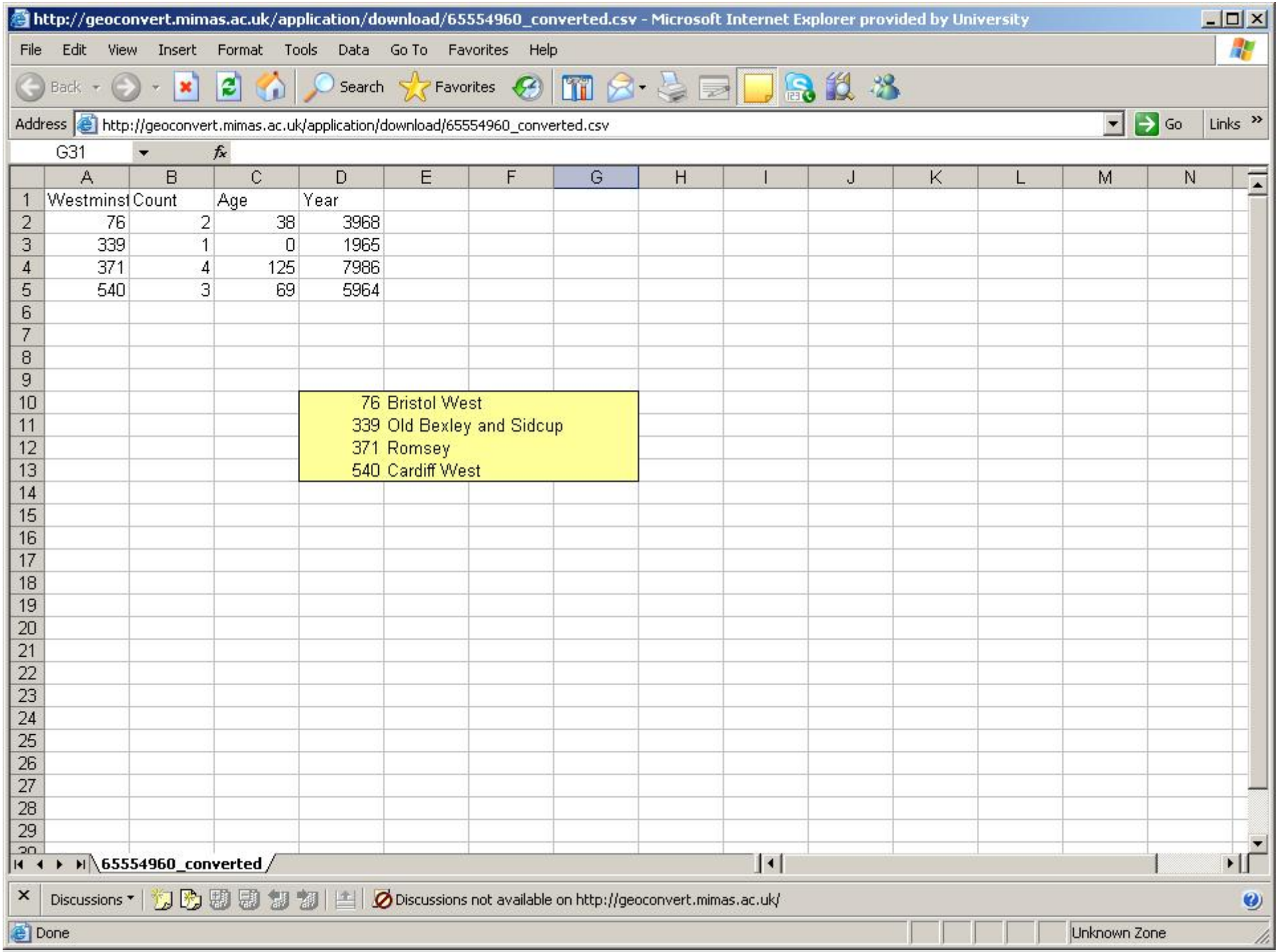
Convert Data from One Geography to Another
This function enables the conversion or re-sampling of numeric data referenced to a specified 'source' geography to a selected 'target' geography using procedures developed from analysis of NSPDs.
Done
Internet


Select source geography ... - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step1choosefunction.cfm
Go Links
Select Source Geography
GeoConvert
home help contact
Please select the type of geography that you want to match from (for which you will be supplying zone codes) from the list of available geography types below, and then press the 'Next' button.
Source Geographies
Middle Layer Super Output Area (England and Wales)
National Park
NUTS Area
Output Area
Postcode
Postcode Area
Postcode District
Postcode Sector
Primary Care Trust (PCT)/Local Health Board (LHB)/Care Trust
Next
Or
Start again
Done
Internet


GeoConvert Select Target Geography - Microsoft Internet Explorer provided by University of Southampton
File Edit View Favorites Tools Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/step2targettype.cfm
Go Links
Select Target Geography
GeoConvert
home help contact
You have selected Postcode as your source geography type.
Please select the type of geography that you want to convert to (for which GeoConvert will supply you with zone codes) from the list of those available below, and then press the 'Next' button.
Target Geographies
Postcode Sector
Primary Care Trust (PCT)/Local Health Board (LHB)/Care Trust
Standard Statistical Region (SSR)
Strategic Health Authority/Health Authority/Health Board
Super Output Area (Northern Ireland)
Training and Enterprise Council/Local Enterprise Company (TEC/LEC)
Travel-to-Work Area (TTWA)
Ward
Westminster Parliamentary Constituency
Next
Or
Start again
Done
Internet

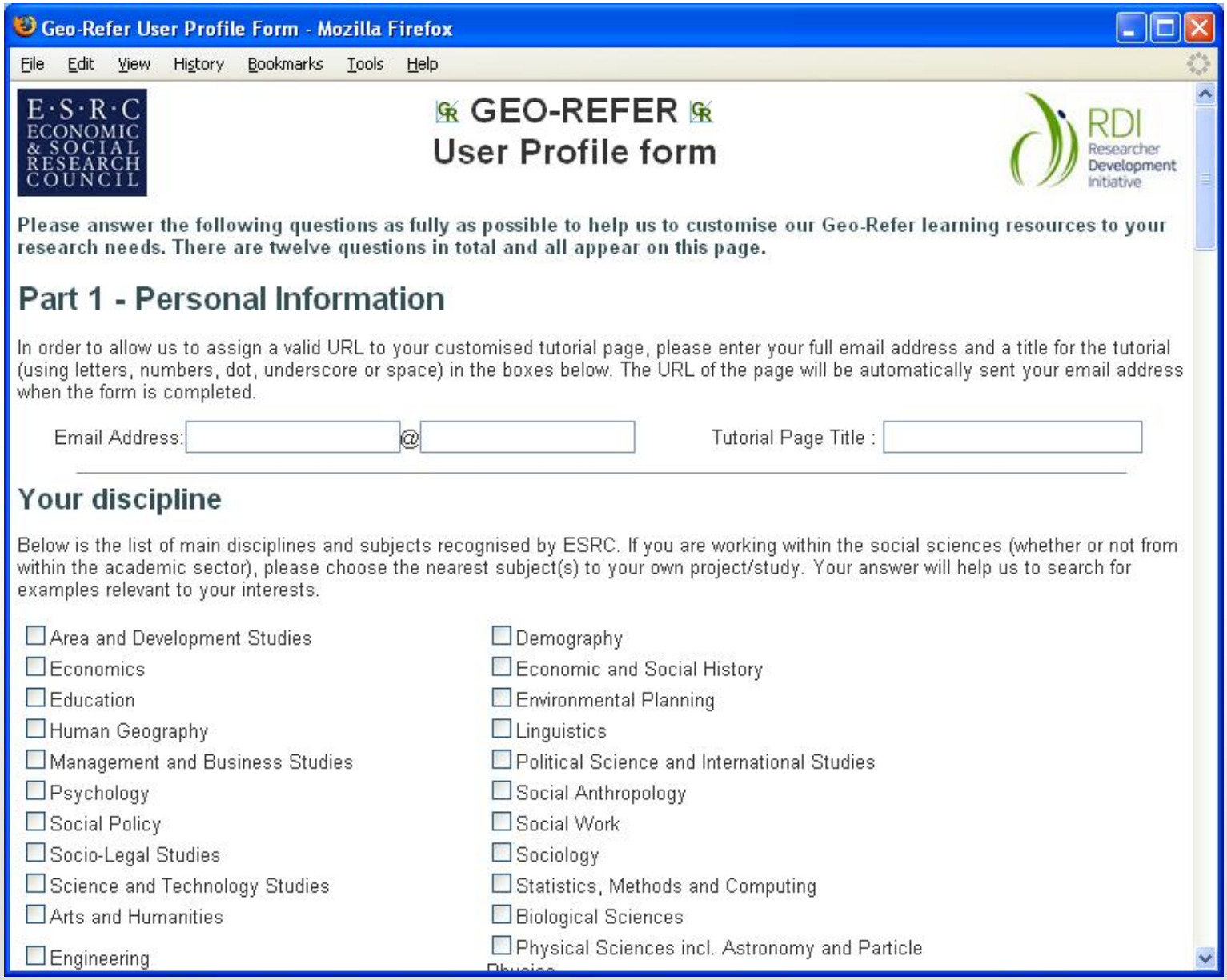

http://geoconvert.mimas.ac.uk/application/download/65554960_converted.csv - Microsoft Internet Explorer provided by University
File Edit View Insert Format Tools Data Go To Favorites Help
Back Search Favorites
Address http://geoconvert.mimas.ac.uk/application/download/65554960_converted.csv
Go Links
G31
Westminst Count Age Year
76 2 38 3968
339 1 0 1965
371 4 125 7986
540 3 69 5964
76 Bristol West
339 Old Bexley and Sidcup
371 Romsey
540 Cardiff West
65554960_converted
Discussions
Discussions not available on http://geoconvert.mimas.ac.uk/
Done
Unknown Zone

Getting more help: how to use the Geo-Refer online resources

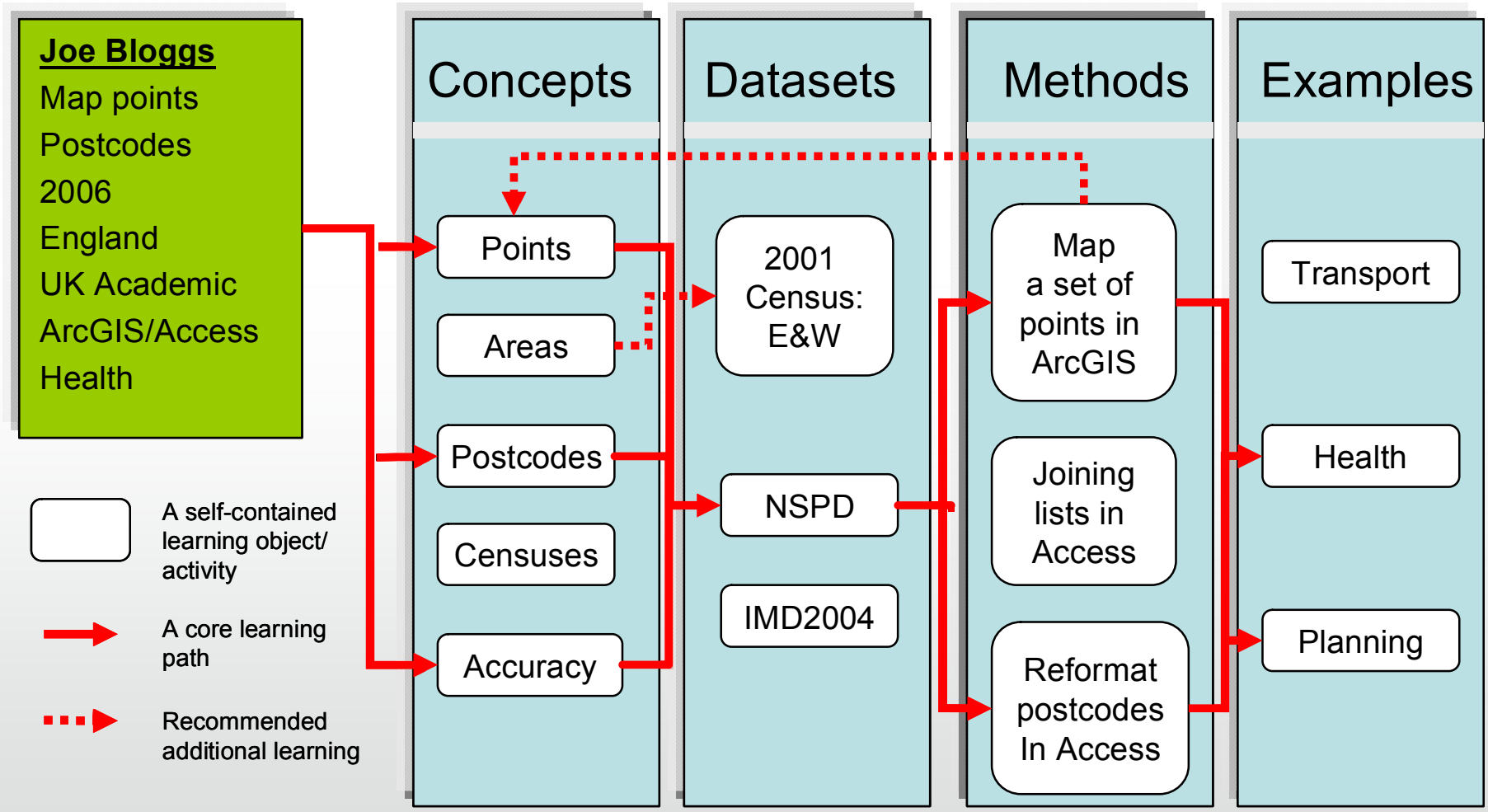
Using the Geo-Refer resources

- URL - http://www.geog.soton.ac.uk/geo-refer
- Two options for using the site:
  - Complete the user profile form to specify own profile and Geo-Refer will best-match learning materials
  - Browse the resources, for an extensive list of concepts, methods, datasets and examples

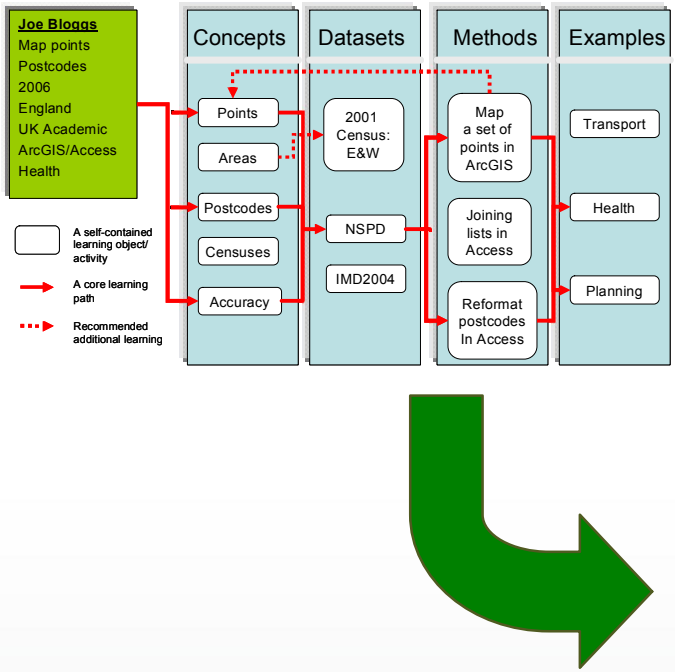
Geo-Refer user profile form



Customised set of learning resources



Customised online tutorial



Really useful tools/datasets

ONS Beginners Guide to UK Geography

Online explanatory material about contemporary UK boundary systems

Includes census, postal, administrative, electoral, health and other geographies

Useful links to other resources

Very clear – written for general audience

Good reference for students!

Does not cover historical datasets: essentially describes the post-2001 census situation

No downloadable data, just explanatory guidance

Freely accessible from ONS website

http://www.statistics.gov.uk/geography/beginners_guide.asp

National Statistics Postcode Directory

Postcode

Ordnance Survey Grid Reference

Dates of introduction and termination (if applicable)

Delivery point count

2001 Census geography codes

1991 Census geography codes

Numerous other codes, esp. changing health geographies

Numerous derived lookup tables

AKA All Fields Postcode Directory, Central Postcode Directory, Postzon file…

Used in GeoConvert

Downloadable from UKBORDERS; registration required

http://ukborders.census.ac.uk

UKBORDERS Digital Boundary Data

Coordinates of area boundaries downloadable in various GIS and mapping formats

Primarily census-derived, covering whole UK

Census, administrative, health and electoral geographies

Includes some historical (pre-1971 boundary sets e.g. 1951 local government

Need to understand which zones are needed

Need suitable software to load the boundaries

Large data volumes and further manipulation often required

No attribute data

Downloadable from UKBORDERS; registration required

http://ukborders.census.ac.uk

Neighbourhood Statistics Services

Wide range of easily downloadable social data

Includes basic 2001 census datasets and administrative data derived from government departments

Searchable by many different georeferences

Some online mapping and analysis

Simple – general audience

Only covers most basic datasets

No lookup tables or boundary data downloadable, just statistics for areas

Data formatting can be frustrating for serious user

Freely accessible from ONS, GROS, NISRA websites; registration increases functionality

http://www.neighbourhood.statistics.gov.uk

Other useful sites…

Royal Mail Postcode Finder and Address Finder http://www.royalmail.co.uk	> Registration required and limited number of uses
CASWEB http://census.ac.uk/casweb	> Downloadable census statistics (1971-2001) through an online interface. Boundary data only for 1991. Registration required.
Digimap – Ordnance Survey mapping, inc. historical www.edina.ac.uk/digimap	> JISC-funded subscription service at Edina
Google Earth and Microsoft Live Search Maps www.earth.google.com www.maps.live.com	> Street mapping and aerial photography (and many others)