C O N F I D E N T I A L

Flood Risk Reverse Geo-Coding Service

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Contents

1. Overview

This document describes the internet interface to access the UK Environment Agency flood-risk data-set hosted by OSS. The makes it possible to assess whether any location is at risk from flooding in England and Wales.

This data-set is updated as new updates become available.

2. Technical Details

Each request must carry with it either a point location or a polygon defining the area of interest.

The returned data is a simple string as described later.

Each look-up is buffered by a default set distance of 250m for point searches, or 75m for polygon searches. Custom buffer distances can also be set.

Co-ordinate System

Flood risk information can be requested for any particular location in England and Wales by supplying the co-ordinates of that point.

The x-y co-ordinates must refer to the British National Grid (defined by the Ordnance Survey), and should be supplied as the full figure "Eastings" and "Northings".

Example: Trafalgar Square:

Eastings (x) = 530000
Northings (y) = 180500

Transfer Protocol

Requests are made using the Hypertext Transfer Protocol (HTTP/1.1) as defined by the Internet Engineering Taskforce (IETF).

The document defining this protocol may be found at either of the following:

http://www.ietf.org/rfc/rfc2616.txt
http://www.w3.org/Protocols/rfc2616

Either the "GET" or "POST" methods can be used for making requests.

Parameters

A standard http GET method requires the construction of a URL defined as:

URL = "http:" "//" host [":" port] [abs_path ["?" query]]

Host

Two alternative IPv4 addresses are used for fail-over and redundancy in order to increase system reliability. These should be found using dynamic DNS look-ups from the following domains:

mapping1.net (Primary)
mapping2.net (Secondary)

Although RFC 2616 recommends avoiding the use of IP addresses, the current IP addresses may be used in the event of DNS failure. These are:

91.186.17.110 (Primary)
82.69.46.94 (Secondary)

Either of these domains may be used, although the first is considered to be the primary address. If reliability is an important aspect of a system that uses this service, that system should be designed to automatically switch between these if a timely response is not received from any one domain. Typical time-out periods are usually in the range of 30 to 90 seconds. Time-out periods less than this are not recommended.

Port

The default Transmission Control Protocol (TCP) Ports 80 and 443 are used for HTTP and HTTPS respectively. In many cases the port number may be omitted.

Abs_path

This should be the string "**.fld**" (excluding quotation delimiters).

Query

The query should be constructed as a string such as:

Point search:
"userID=<userID>&passKey=<passkey>&x=<x>&y=<y>"

Polygon search:
"userID=<userID>&passKey=<passkey>&polygon=<x_1>,<y_1>,…<x_n>,<y_n>"

(excluding quotation delimiters)

The next table summarises the available fields.

Field Name	Type	Example
userID	String, mandatory.	
passKey	String, mandatory.	
x	Floating point, use when specifying a point.	384309.6
y	Floating point, use when specifying a point.	301874.2
polygon	Floating point, use when specifying a region.	
Buffer	Floating point. Used to over-ride default buffer, in metres. Optional.	100
SessionID	String, optional.	Testsession
Format*	Char string, optional.	Json
Callback*	Char string, optional.	myCallbackFunction

* Not currently implemented.

Note: Only the default CSV format is enabled at present, the other formats will be enabled in due course.

The userID and passKey should be used as supplied. Other parameters are as follows.

There are two formats for the query depending upon whether a point search or a polygon search is being requested.

1. For point searches the query string should be constructed as:

  "userID=<userID>&passKey=<passkey>&x=<Eastings>&y=<Northings>"

        (excluding quotation delimiters)

2. For area searches, the region of interest is defined by supplying the co-ordinates of the vertices of the polygon. The co-ordinates are 2-dimensional Cartesian x,y pairs. The parameters for a polygon of n vertices are passed as follows:-

        $polygon=x_1,y_1,x_2,y_2,x_3,y_3,\ldots x_n,y_n$

The polygon is always considered to be a closed loop, where the nth point is assumed to link back to the 1st point. A triangle will therefore be specified with 3 points.

For a polygon search the query string should be constructed as:

  "userID=<userID>&passKey=<passkey>&polygon=$<x_1>,<y_1>,\ldots<x_n>,<y_n>$"

        (excluding quotation delimiters)

Buffer

Point-based searches are buffered by default to 250m to ensure a risk is identified. Polygon-based searches are buffered by default to 75m. Both of these default values can be set to a custom size by specifying the value with the 'buffer' parameter in each call.

SessionID

This is an optional parameter that can be added to each call to aid session tracking.

For example, &sessionID=testSession123

For full details of this see the document entitled "Session ID Registration Service".

Responses and Exceptions

Correct responses to requests are in the forms described earlier. Any response that it is not in this format is indicative of an error, e.g. incorrect user identification or an exception such as system failure, e.g. server over-load.

With this service the response is one of the following:-

Response	Meaning	Test co-ordinates
zone2 Clear	There are no Environment Agency river or coastal flood zones within the set buffer of the specified location.	Easting: 514432 Northing: 238000
zone2 Risk	There are Environment Agency river or coastal flood zones within the set buffer of the specified location.	Easting: 237000 Northing: 83000

Notes

In order to increase security, the use of source-IP address restrictions will be made wherever possible.

3. Test Examples

The following strings are complete examples that should return the responses indicated. Use the correct <userID> and <passKey> where appropriate.

Example 1: Failed authentication

Request:
http://mapping1.net/.fld?userID=&passKey=&x=514432&y=238000

Response:
Failure to authenticate

Example 2: Point search.

Request:
http://mapping1.net/.fld?userID=<userID>&passKey=<passKey>&x=237000&y=83000
Response:
zone2 Risk

Example 3: Polygon region search.

Request:
http://mapping1.net/.fld?userID=<userID>&passKey=<passKey>&polygon=514200,238100,514240,238100,514200,238140
Response:
zone2 Clear

4. Revision History

Date	Revision	Author	Notes
06 July 2010	1.0 Draft A.	PJH	For review.
13 January 2011	1.0.	PJH	Indication that some formats will be added in the future.
17 January 2011	1.1	PJH	Corrections and addition of 250m.
23 April 2012	1.2	PJH	Polygon search. Optional custom buffer size. Default of 250m buffer for points, 75m for polygons.