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(Working Group on Toponymic Data Files and Gazetteers)

Status report on gazetteer developments under European location services

Submitted by Germany**

Summary:

EuroGeographics continues to develop means of serving European users with geographical names and other spatial data derived from national mapping and cadastral authorities from a single access point. The work started by the EuroGeoNames service between 2006 and 2009 was significantly improved through the design of the GeoLocator service under the European Location Framework project conducted from 2013 to 2016 and has continued with the further aim of enabling the operation of European location services until the present. The background information was included in the conference paper submitted to the Eleventh United Nations Conference on the Standardization of Geographical Names.

All EuroGeographics projects are aimed at preparing an up-to-date database for a regional gazetteer with pan-European coverage. The current initiative focuses on the development and publication of a regional gazetteer under the EuroGeographics Open European Location Services project for the period 2017–2019.

The Open European Location Services regional gazetteer will contain data on the most important geographical names in Europe at regional and global scales ranging from 1:100,000 to 1:1,000,000. The name data will be extracted from the harmonized EuroGeographics products EuroBoundaryMap and EuroRegionalMap and should be launched as an open regional gazetteer data set and web service on the Open European Location Services website (https://openels.eu). EuroBoundaryMap and EuroRegionalMap contain a significant number of toponyms of administrative units, populated places, built-up areas and transport and water networks, as well as other topographic themes in Europe.

The toponyms are presented as endonyms. EuroBoundaryMap comprises reference data on all European administrative units for 55 countries and territories. EuroRegionalMap is a

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**Prepared by: Dr. Saulius Urbanas, Service Development Consultant, EuroGeographics, Roman Stani-Fertl (Austria), Jeanette Kretz, Marcus Brühl, Pier-Giorgio Zaccheddu (Germany)

multifunctional topographic reference data set of 44 countries and territories, including administrative borders, water and transport networks, settlements, vegetation, landscapes and other objects.

The Open European Location Services regional gazetteer has been expanded with the inclusion of additional content in the form of exonyms and other variant names commonly used by the United Nations Group of Experts on Geographical Names.

Activities relating to the Open European Location Services regional gazetteer are, among other things, considered a further contribution to the larger-scale product, the GeoLocator service. The data in the GeoLocator service vary from country to country but include highly detailed information from national data sources. The service is operated from a centrally maintained database. It has been set up as an online service and, in addition to its data content, has a function that enables the performance of geocoding and reverse geocoding.

A prototype of the Open European Location Services regional gazetteer with the names of built-up areas was launched by the Federal Agency for Cartography and Geodesy of Germany in 2018. It is expected that the final version will be published in April 2019. Meanwhile the Federal Agency has established a web interface so that the Group of Experts can populate and maintain exonyms in the Open European Location Services regional gazetteer database.

Background

EuroGeographics, the association of European National Mapping and Cadastral Authorities (NMCAs), continuously develops solutions to pan-European users for operating with geographical names and other related spatial information. The major aim for all products is to have a pan-European coverage from the NMCAs from a single access point.

The activities related to geographical names started with the EuroGeoNames (EGN) project between 2006 and 2009, developing a European geographical names infrastructure based upon the decentralized kept and maintained national data bases. Additionally data of exonyms and other variant names (e.g. historical names) were collected and linked to the endonyms through a central EGN service. This EGN service was further developed until 2012 providing geographical names' data from 17 NMCAs. Thus, EGN offered authoritative data including exonyms and variant names in common use representing the 25 languages of the EU and toponyms in minority languages.

The EGN service was accommodated to the GeoLocator service designed as a part of the European Location Framework (ELF) project (2013 - 2016). The goal of this project was to provide up-to-date, authoritative, interoperable, cross-border and reference geo-information for use by the European public and private sectors.
The GeoLocator is a georeferencing application, which utilizes multilingual European geographical names data, addresses and administrative units. Users can harvest GeoLocator through the ELS showcase application /or utilize it as standalone web-service under the license agreement with EuroGeographics.

Following on the ELF project achievements EuroGeographics launched the two years' transition programme (2016 - 2018) from the ELF project into operational European Location Services (ELS). An additional project Open European Location Services (Open ELS) has been launched, focusing on the provision of open data services. Open ELS operates until 30 April 2019. One initiative of the Open ELS project is the production of an Open ELS Regional Gazetteer aiming at a pan-European coverage which can be used as an improved data basis for the GeoLocator.

Open ELS Regional Gazetteer

EuroGeographics' ambition for the Open ELS Regional Gazetteer is to provide a user-oriented service with authoritative geographical names' data from NMCAs from a single access point.

The rationale in Europe, considering the Infrastructure for Spatial Information in Europe (INSPIRE) being implemented by all EU Member States, would have been to assemble the national INSPIRE geographical names (GN) services to a central GN service for Europe. This would become a progression of the former EuroGeoNames (EGN) infrastructure and service. The technical infrastructure has been already implemented with the European Location

Services (ELS). A central ELS platform with national GN services provided by some NMCAs and assembled by the GeoLocator is already available as a testbed.

EuroGeographics has identified some issues with this approach. The national GN services are published with a variety of license conditions, the content is different and a cascading architecture has technical shortcomings. Notwithstanding the technical and semantical challenges and obstacles, the main issue is the lack of coverage, as it will be difficult to assemble an ELS GN service based on INSPIRE GN services for the whole extent of Europe in short time.

In order to create a pan-European gazetteer service resolving the mentioned issues, EuroGeographics has decided to reuse the toponyms of already existing harmonized EuroGeographics products with European coverage. Those products are EuroBoundaryMap (EBM) and EuroRegionalMap (ERM), which will serve as basis for the Open ELS Regional Gazetteer. Additionally the gazetteer service will be extended with exonyms and variant names.

The Open ELS Regional Gazetteer will be published as web feature service (WFS) as well as database on the Open ELS website (accessible by https://openels.eu/ and www.eurogeographics.org). The data content will contain the most important geographical names corresponding to regional level of detail (medium scale, starting from 1:100 000). The gazetteer will be published as open data product.

The GeoLocator will be the default application to utilize the gazetteer. But the gazetteer can be used by any application designed for GN services.

Data content and structure

The Open ELS Regional Gazetteer is derived from the EuroGeographics products EBM and ERM. These data sets contain a huge amount of toponyms for all topographic feature types with full European coverage. EBM contains reference data of all European administrative units for 55 countries and territories. ERM is a multifunctional topographic reference dataset of 44 countries and territories, including administration borders, hydrography, transport features (road and railway network), settlements, vegetation and landscapes. So the European coverage of the gazetteer is identical with the coverage of EBM and ERM. Therefore it comprises all countries which are marked in the following figure.

Figure 1: Coverage of the Open ELS Regional Gazetteer

Concerning the technical approach all feature types with geographical names are transformed into the INSPIRE GN data model. Reference points are used as geometry. That means, all EBM and ERM features with line or area geometry are simplified to points. The coordinates in the gazetteer are provided as two-dimensional geodetic coordinates (latitude and longitude) based on ETRS89. The thematic completeness and the positional accuracy are considered as sufficient for a European gazetteer.

The feature types in the gazetteer are administrative units, populated places (settlements), transport networks (e.g. harbours, railroad stations and airports) and hydrography (lakes, rivers and islands). ERM contains further geographical names of themes like national parks, woods and caves. It has to be analysed, if this content has a significant European coverage and if these names are useful for the gazetteer.

As the Open ELS Regional Gazetteer is published as an Open ELS service, all providers of data to EBM and ERM have been asked to sign the ELS Data Provider Agreement. If this permission is not available, the countries are temporarily excluded from the gazetteer.

EuroGeographics is currently negotiating with all members to provide a regional gazetteer with full coverage.

Roles and responsibilities

The EuroGeographics Head Office supervises the progress of the gazetteer as part of the Open ELS products activity. This includes clarity on licence conditions and promotion of the gazetteer among key users.

The Federal Agency for Cartography and Geodesy of Germany (BKG) is responsible to specify and draft the product and production work flow, to analyse the EBM and ERM name content and its transformation to INSPIRE GN data model as well as linking the exonyms to the national toponyms (endonyms). Additionally BKG is responsible for the maintenance of the Open ELS Regional Gazetteer following EBM and ERM update cycles and for setting up the Open ELS Regional GN WFS as well.

One UNGEGN expert is supposed to regularly update and enhance the exonyms and variant names and link those to the geographical names derived from EBM and ERM.

Integration of exonyms and variant names

The project EuroGeoNames (EGN) has created a comprehensive database of exonyms and variant names. This initial dataset will be updated and extended for the EBM/ERM toponyms used for the gazetteer. The focus of exonyms is on toponyms of features with major topographic relevance.

The collection of relevant data takes place in co-operation with experts from the Working Group on Exonyms of UNGEGN and all European Divisions of UNGEGN. Sources for exonyms and other variants of toponyms are very heterogenous and ranging from officially published lists of national names authorities to geographical publications (atlases) published by local editors but recommended by toponymic experts. At the first stage the gazetteer service comprises exonyms and variant names for populated places (settlements) in 44 European languages. In the following step this data set will be extended by names of administrative units and transport networks. At the moment the service contains more than 4 000 entries of exonyms.

All exonyms and variant names are connected with their official endonym(s). In compliance with the Inspire directive all toponyms show at least the attributes NamedPlaceType, NameStatus, and NativnessValue

Meanwhile BKG has launched a web interface for internal use to enter and edit exonyms into the Open ELS Regional Gazetteer database. With this web interface it is also possible to display the names with attributes like language and name status as shown exemplary in the figure below.

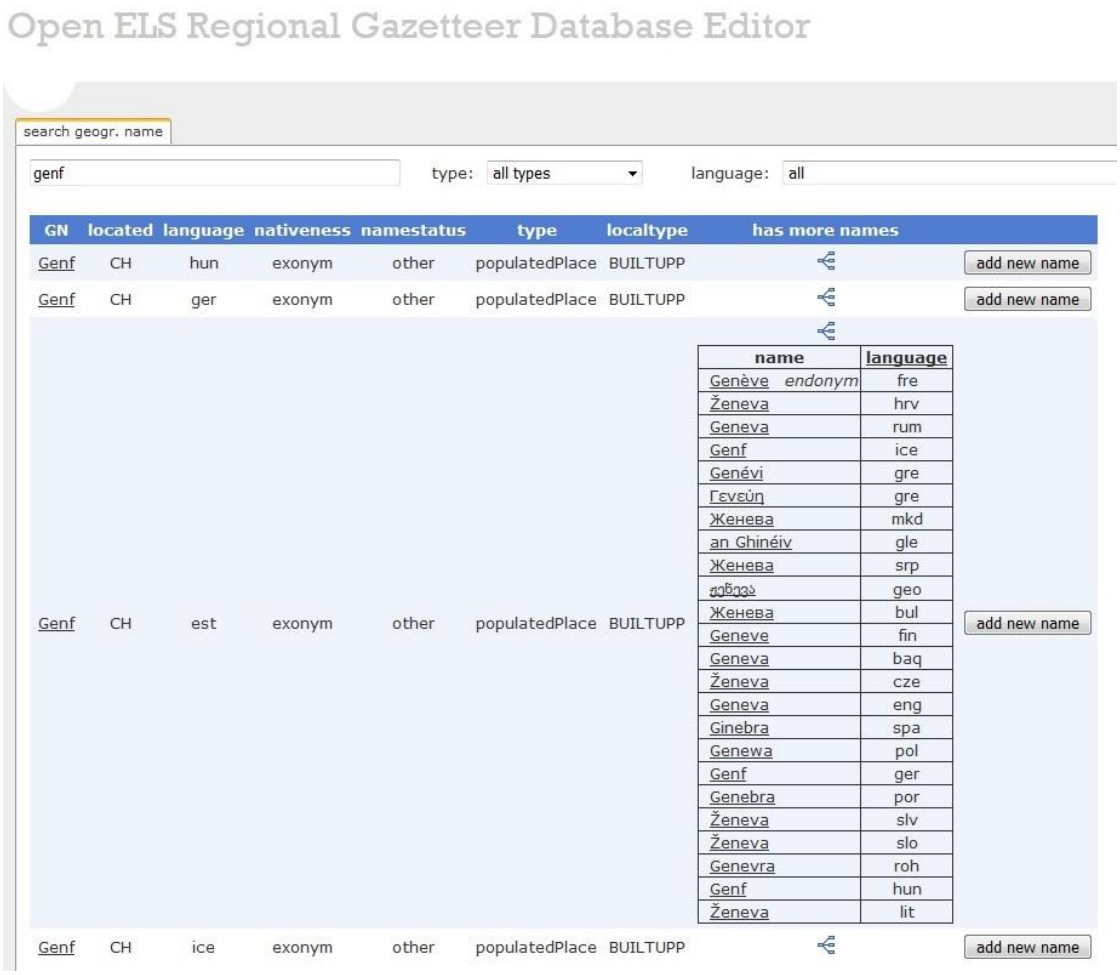

Figure 2: BKG's web interface

Current status

In conclusion, the Open ELS project will deliver Open ELS Regional Gazetteer as one of its open data products. This gazetteer will be compliant with the INSPIRE GN specification, will have a medium scale level of detail, will be open data and most important will have a harmonised full pan-European coverage.

The preparations are ongoing. The feasibilty of the concept has been validated with a prototype of the Open ELS Gazetteer with names of settlements. The final version of the Open ELS Gazetteer will be launched in April 2019. After the end of the Open ELS project on 30.04.2019, the gazetteer will be developed further and will be regualrely updated-

Points for discussion

The Group of Experts is invited to:

(a) Take note of the report and progress made by EuroGeographics towards a Regional Gazetteer for Europe
(b) Express its views on the way forward concerning concept, the development as well as the envisaged implementation of the Open ELS Regional Gazetteer