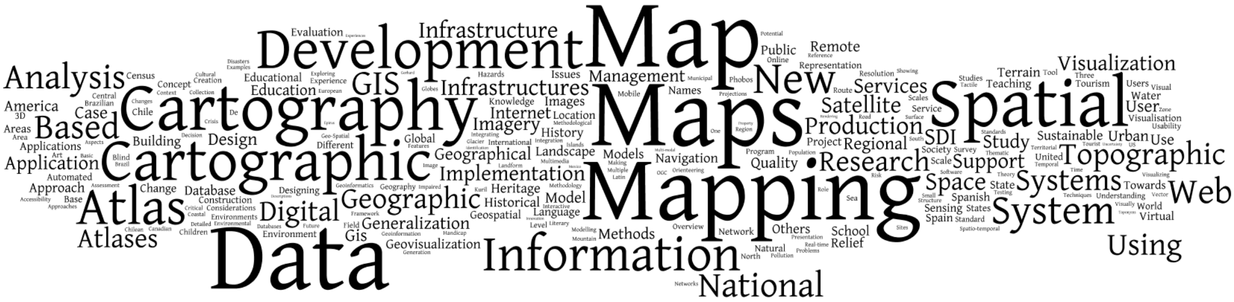
CO-243

# MAPLE - A WEB MAP SERVICE FOR VERBAL VISUALISATION USING TAG CLOUDS GENERATED FROM MAP FEATURE FREQUENCIES

*HAHMANN S., BURGHARDT D.*
*Institute for Cartography, DRESDEN, GERMANY*

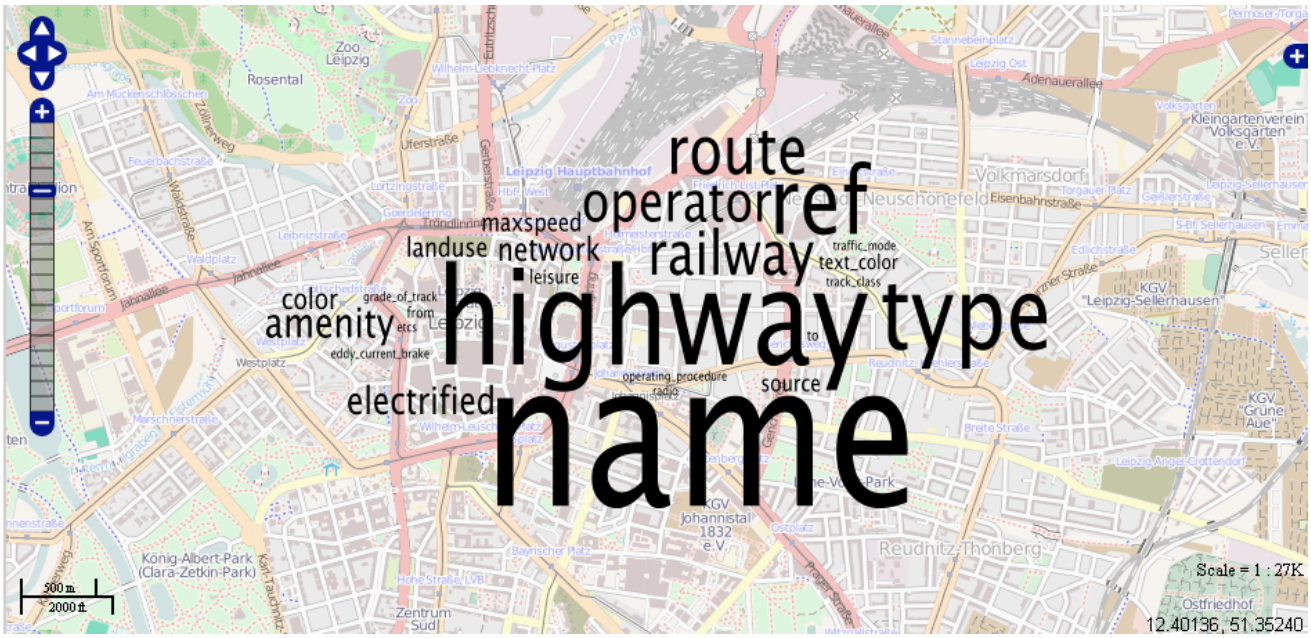
Tag cloud visualisation has been introduced in the seventies. In current Web 2.0 applications this method has become a very popular visualisation technique. Tag clouds are easy to read and by their nature do not suffer from the labelling problem of bar charts, tree maps or bubble charts. Furthermore they are able to present the gist of corpus of word or tags. Figure 1 shows the result of a word cloud visualisation of the titles of the presentations held at ICC 2009.




Also for cartographic applications this method has already been used. In an introductory section we present the origin of the tag cloud visualisation technique and recent publications in cartographic context. We will show that these applications focus on using the tag cloud visualisation technique to visualise landmarks and context information on maps.

In the following sections we present our approach that uses this technique to visualise the semantics of a cartographic dataset. Our method augments cartographic representations with additional verbal content, which is one of the strongest instruments available to cartographers to communicate spatial information. The idea is that only few words extracted from the semantics contained in the features of the underlying map are suitable to characterise the map section as a whole. Thereby it is possible to analyse both object types and object values.

To demonstrate the approach we have used the OpenStreetMap dataset. In order to allow a variety of web map clients to use the results of the method, we realised the prototype by implementing it as a Web Map Service (WMS) based on the according Open Geospatial Consortium (OGC) specification.

Figures 2 and 3 show results of our approach. Figure 2 presents a map and an overlaid word cloud, which is computed for the area of the “Neustadt” district of the German city of Dresden. It shows the frequency of occurrences of tag values associated with map features having the key “amenity”. The fact that Dresden Neustadt is a nightlife district is quickly deducible even for a map user who does not know the area, because “pub” and “restaurant” show up in a big font size.

A word cloud processed from the key frequencies within the centre of the German city of Leipzig is shown in Figure 3. It illustrates why the OpenStreetMap project really deserves StreetMap being a part of its name. The tags “higway” and “name” that normally co-occur on street features in this dataset are the biggest keys within this cloud. It has to be mentioned that the keys “created_by” and “address” have been filtered.