# Map-based Internet information services
## -Examples of GIS utilization in off-line mode

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**Abstract**

The strength of communication inherent in a picture, on the one hand, and the georeferences of the majority of available information, on the other hand, makes a map the fundamental way of presenting information in environmental issues. If it is a digital map, then it can also become the basis for a user interface, permitting intuitive access to all kinds of information concerning the structures to be found on the map. The user interface tools standard is an Internet browser; thus, map-based Internet information services are presently an oft-used solution. Some services use tools solutions offered by GIS producers as motors for map presentation[2]. There are also examples of Internet GIS working together with the databases of classic GIS systems offered by independent producers[3]. Finally, there are services based on vector and/or raster graphics not possessing an operational link with GIS databases, though they can also be, in a greater or lesser degree, automatically generated on the basis of the database content. [4] In this article, two examples of such services will be presented.

The first design is a solution showing the possibilities for utilization of a map as a source of information about the nationwide measurement network in the area of hydrology and meteorology. This is essentially a meta-database about measurement stations, permitting users to obtain information about the location of measurement points, scope of measurements, observation periods available in databases, etc. This design is presently at the demo stage, and its implementation as an element of the Institute of Meteorology and Water Management's information service is being considered.

The second example is oriented toward assistance of local specialists responsible for operational activities in flood protection. The idea behind it is to prepare an information resource in the form of a database describing the consequences of exceeding locally-identified threshold values (precipitation and/or water level) from the viewpoint of risk to inhabitants and of crisis response. The base has the task of integrating graphics (maps,

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[2] Examples: ESRI's Internet Map Server (www.esri.com/software/internetmaps), Intergraph's Geomedia Web Server (www.intergraph.com/gis/gmwm) or Autodesk's MapGuide (www.mapguide.com).

[3] e.g. Java-based solutions (openmap.bbn.com, www.jshape.com).

raster images) and text information, among other things, and permit presentation of maps. This example is presently entering the pilot phase of execution in the Kłodzko Valley, an area at risk for flash floods located in southwestern Poland[5].

The aforementioned services are based on an interactive vector map which, aside from the possibility of choosing of active layers, zoom and pan functionalities, provides access to attribute data associated with objects placed on the map. The services were generated in large measure automatically on the basis of data from the information layers of the GIS database. To present the maps, the Scalable Vector Graphics format was utilized. A service prepared in this manner can be disseminated via www server or via distribution of the files forming it (e.g. on CD); on the part of the user, all that is necessary is a browser (presently the best is Internet Explorer), supplemented with Adobe SVG Viewer[6].

In the article, the aforementioned examples will be presented close-up as the result of user needs analysis. Their functional characteristics will be presented without developing tools issues.

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[4] Examples of tools can be found in, among other places, the following: www.alta4.com, www.geocomm.com/channel/webmap, www.carto.net (solutions available at the last address are the tools basis for the examples presented).

[5] This example is an element of IMWM work in the OSIRIS Project, financed partially in the 5th Framework Program of the European Union.

[6] A free expansion (plug-in) for use of SVG files, available on the Adobe server (www.adobe.com/svg/viewer/install). Scalable Vector Graphics (www.w3.org/Graphics/SVG) is a language for describing two-dimensional graphics in XML (a W3C recommendation).