

Handling Geospatial Data with the UDK

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1. The UDK Data Model

The Umweltdatenkatalog (UDK) in its current version is a metadata catalog that has been used since 1991 as a metadata registry for environmental information (Swoboda, Kruse et al. 2000). It was developed as an information system to be used mainly by government agencies in Germany and Austria. The purpose of the system is to give information providers a tool to create registries of relevant data holdings and key responsible parties. The metadata records were designed to answer questions like: Who holds where what kind of data in which format?

From the beginning, the thematic focus of the UDK was on environmental data. Because adequate international standards for environmental metadata were not available at the time, a specific UDK metadata model was developed. In this model, individual metadata records are stored as addresses (describing individuals and organizations) and the so-called UDK objects. Among the main attributes of an UDK object are an object identification number, an object name, a general description of the object, descriptive key words (taken from an integrated environmental thesaurus), as well as a description of the temporal and spatial coverage of the object:

1. data collection / data base
2. service / application / information system
3. document / report / publication
4. geodata / digital map
5. organisational unit / assignment
6. proposal / project / program

2. Integration in the National SDI

The UDK uses six different object classes to categorize UDK metadata records (see above). Only two of these object classes, namely class 2 (service/application/information system) and class 4 (geodata/digital map) are intended to hold information about geospatial information and related services. This shows that the UDK was initially not designed to reference geospatial data and web services in particular. However, with the ongoing development of regional and national spatial data infrastructures in Germany, it became obvious that the UDK could provide a valuable tool for this purpose. For one, the UDK is well established in almost every German federal state. This includes the necessary organizational infrastructure and the funding necessary to maintain and manage the catalog. Secondly, the UDK object model proved to be flexible enough to handle geospatial data and geo-services. In fact, as of spring 2004, mapping agencies in three federal states (Hamburg, Hesse, and Lower Saxony) already do use the UDK to reference their geospatial data holdings. Therefore it was decided to include the UDK into the evolving national spatial data

infrastructures in Germany, namely the GeoMIS.Bund® (IMAGI 2004a) and the GDI-DE® (IMAGI 2004).

However, to enable interoperability with other data catalogs in the GDI-DE®, and with other spatial data catalogs in general, two modifications were necessary:

1. The UDK metadata model had to be modified to be compatible with the relevant international standards, i.e. ISO 19115, ISO 19119 and ISO 19139, and
2. the system had to be equipped with an OGC compatible catalog service interface.

The necessary modifications of the UDK data model are under way and will be finalized with the next release of the UDK (UDK Version 5.0), which is expected in fall 2004. To minimize the effort necessary to migrate large amounts of legacy data from UDK version 4.3 to version 5.0, only the two “geospatial” object classes (classes 2 and 4 in Table 1) were modified.

In the near future, version 5.0 of the UDK (and consequently, gein® 2.0) will also be equipped with an OGC compatible catalog service interface. The interface will be based on OGC’s CSW 2.0 specification and on an application profile currently being developed by a German special interest group. This group brings together representatives from government agencies and industry on a national level. The purpose of the application profile is to develop an implementation-level specification for catalog services that can be used on a national, and potentially an international level.

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