

# Easing the Way for GIS

The Norwegian University of Life Sciences (UMB), previously the Agricultural University of Norway) is a small institution with 2,600 students and eight hundred members of staff, four hundred in academic posts. The university offers degrees in Life Sciences, as well as Landscape Architecture, Spatial Planning, Geomatics, Agricultural Engineering, Economics, Resource Management and other disciplines. It has been an OGC university member since 1997, supporting standardisation work within the OGC and gaining early access to draft OGC standards.

## Geomatics Section

Ten professors in the geomatics section of the Department of Mathematical Sciences and Technology teach satellite remote sensing, photogrammetry, GIS, geodesy and surveying. The main focus has been on providing a five-year Masters degree course in geomatics, thus supplying the Norwegian public sector and industry with graduates having a broad knowledge of geomatics. The research focus is currently on GNSS and gravimetry, but there is also activity in theoretical and applied GIS and remote sensing.

## Norge Digitalt

Norway was an early adopter of OGC/ISO TC211 standards, and the ISO TC211 secretariat is hosted by Norway. The national spatial data infrastructure, 'Norge Digitalt' offers files in the Norwegian SOSI format and ESRI Shape format. Map images are available through interfaces implementing the OpenGIS® Web Map Service (WMS) Interface Standard. Pending ISO TC211 standardisation of the Web Feature Service (WFS) Interface Standard, the WFS interface will probably provide Norge Digitalt users with direct database access such that users will have no notion of 'files' being transferred. Instead they will see an online GIS data source. Some users will be able to update the data through WFS interfaces.

## Participation

The Ministry of Education has joined Norge Digitalt in providing all universities, colleges and schools in Norway with access to the high-quality data available for all Norway. Our having early access to the OpenGIS standards has been important in enabling us to utilise services available through Norge Digitalt and contributing to the development of Norge Digitalt through active participation in workgroups and national standardisation organisations.

## Courses

The university offers several GIS courses applying OGC and ISO TC211 standards. WMS is introduced in introductory GIS courses, and students can use a WMS client to access map images from Norge Digitalt for their lab work. On the advanced course in geographical database management students learn more about the standards and have the opportunity of building their own applications based on these. Mapserver, Geoserver, PostGIS, FME and ArcGIS software are available to implement and utilise services based on standards.

## Potential

Although most education and research at the university has to do with some aspect of space/geography, only a few enthusiasts have so far been using GIS. We are struggling to make researchers and teachers aware of the potential of GIS in their research and on their courses. With membership of Norge Digitalt offering access to the best possible data for Norway, getting started with GIS in research and education has never been easier.