



DEWA/GRID-Europe

Bulletin No. 1 - 2007 (January-June)

Volume 9, Issue 1, July 2007

GRID-Europe, chief editor of the EECCA Indicators Compendium

by Ron Witt, Stéphane Kluser & Gregory Giuliani

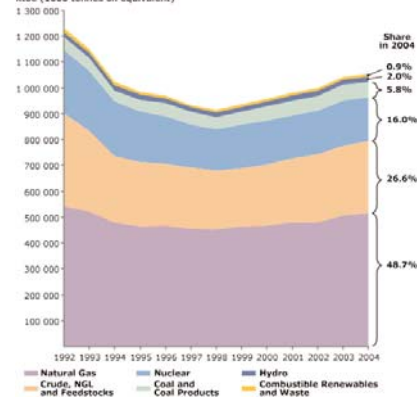
The programme "Technical Aid to the Commonwealth of Independent States" (TACIS) is an institutional restructuring programme implemented by the European Commission to help members of the CIS in their transition to democratic market-oriented economies. As part of the TACIS project accorded to DEWA/GRID-Europe by the European Commission and the European Environment Agency (EEA), and as a companion product to the pan-European environmental assessment produced by the EEA and partners for the Ministerial Conference on Environment held in Belgrade, Serbia, in early October 2007, DEWA/GRID-Europe prepared a set of inputs for the "EECCA Core Set of Indicators Compendium".

The initial work began with the collection of relevant data from international (and national) sources by a joint EEA-UNEP con-

sultant during the summer of 2006. Following this activity, a series of three "mini-workshops" were organised in the Caucasus, Central Asia and Eastern Europe and held on the initial indicators' development, a related UNECE draft document "Guidelines for the Preparation of a Core Set of Indicators (CSI)" methodology document, and the draft Belgrade Report during October 2006.

By the end of March 2007, 15 preliminary indicators had been drafted by DEWA/GRID (Europe and Arendal) staff and consultants. They were made available for download from the GRID-Europe and UNECE websites in order to facilitate a process of consultation (review) by EECCA national partner agencies and EEA and other partners' staff. Comments and updates were taken into account and the final drafts were submitted to the participants to the UNECE/WGEMA 8th session meeting held 12-13 June in Geneva.

2004 total energy consumption in EECCA countries
ktoe (1000 tonnes oil equivalent)



The final version of the EECCA Core Set of Indicators Compendium is to be printed as a volume for distribution following the Belgrade Ministerial Conference, and was also incorporated in the EEA's online Indicator Management Service (IMS) for EECCA during the summer of 2007. ■

Inside this issue

GRID-Europe, chief editor of the EECCA Indicators Compendium

"Réagir": an exhibition for action!

New Departure for EECCA Capacity Development

Launch of PEBLDS website

GEO Data Portal new web services

Hydrological modeling on Lake Balaton

Old aerial photographs

Division of Early Warning and Assessment
Office for Europe

11 ch. des Anémones
1219 Châtelaine
Switzerland

Tel. + 41 22 917 8294

Fax + 41 22 917 8029

Web: www.grid.unep.ch

E-mail: infogrid@grid.unep.ch

Editors: Diana Rizzolio, Ron Witt

"Réagir": an exhibition for action !

by Pascal Peduzzi

A first exhibition, entitled "The changing face of the earth" featuring 40 pairs of satellite images from UNEP's publication "One Planet Many People: an atlas of our changing environment", was displayed at the "Perle du Lac" park, by the Geneva lakeside from June to October 2006. This exhibition, organised in collaboration with the History of Science Museum, met with great success, the clear message provided by the images "before" and "after" leaving no doubt of the significance of the impacts of human activities on the environment.

This is why in 2006 the Botanical Garden of Geneva invited GRID-Europe to collaborate on a second exhibition named "Réagir" (React!) in order to provide not only causes and consequences, but also concrete and easy-to-apply actions that enable anyone and everyone to reduce their impact on the environment.

The exhibition was officially launched on 10 May 2007 by the director of the Botanical Garden (Pierre-André Loizeau), officials

from the city of Geneva (Patrice Mugny), UNEP former Europe Regional Coordinator (Fritz Schlingemann) and by the two main organisers, and was open to the public until 10 October 2007.

Réagir covered five themes: deforestation, desertification, climate change, pollution and biodiversity losses, presented and explained in over 40 panels. Each theme included an introduction explaining causes and consequences, a series of examples and one panel summarising concrete actions to help reduce impacts on the environment. But *Réagir* was more than just "posters in a park". Covering an area of 2500 m², the Botanical Garden of Geneva gardeners created visual displays for each theme: a burned forest using dead trees (to feature deforestation), a sand dune (for desertification), palm trees (featuring global warming), a polluted pond (for pollution) and a strip of vegetation ranging from exuberant jungle to synthetic grass (featuring biodiversity losses). In this way, the visitors were not

Continued page 2

New departure for EECCA Capacity development

by Ron Witt

The first European "Training of Trainers (ToTs)" Workshop in the context of UNEP's Integrated Environment Assessment (IEA) and Global Environment Outlook (GEO) process was held at Central European University (CEU) and its Department of Environmental Science and Policy (DESP) from 25-29 June 2007. Aside from the fact that CEU/DESP is a long-time UNEP partner and collaborating centre (CC) for UNEP's GEO process, Budapest proved to be an ideal location to bring together the core group of persons experienced both with training activities in general and GEO in particular. Some 15 persons from UNEP's GEO CC network, European GRID centres (Budapest and Warsaw), the European Environment Agency, IISD and other close capacity development partners took part in the one-week ToTs Workshop.

The main purpose of holding the IEA/GEO ToTs Workshop was to expose European trainers to the new "GEO

Resource Book (a Training Manual on Integrated Environment Assessment (IEA) and Reporting)" and familiarize them with training techniques in this regard. Other objectives were to discuss how to expand the reach of and resources for IEA training in Europe, and ways to reinforce the IEA network of trainers in Europe; and to facilitate personal contact and build "team spirit" among the European trainers group, while laying the groundwork for a more formal/structured European network of trainers and further capacity development activities to build such capacity in Eastern European, Caucasus and Central Asian (EECCA), and South Eastern European (SEE), countries.

As this was an initial "overview" workshop, the agenda was configured to cover all eight of the modules from the new GEO Resource Book in approximately half-day sessions each, with time built in for related discussions and exercises among all participants. Rather than being purely a "training" exercise *per se*, the idea was to explain to all

participants how they as trainers would use the various modules to instruct others in the IEA/GEO methodology, including background/underpinnings, national IEAs, data and indicators, policy analysis, scenario development, monitoring and evaluation et al. All participants were involved in various sessions as both "trainers" and "trainees" and, given the newness of the course materials, the typical GEO "learning by doing" approach and a facilitative manner were emphasized. Most of the sessions were highly interactive and informally conducted, which led to many excellent exchanges and insights being gained, as well as critiques to improve the dynamic and evolving contents of the GEO Resource Book itself.

Aside from the immediate knowledge benefits gained, the camaraderie that developed among the core training team should serve the future of the networking process well. UNEP and its Assessment Division intend to follow up with concrete training and capacity development activities and related financing in the 2008-09 biennium. ■

"Réagir": an exhibition for action !

Continued from page 1

only informed by easy-to-read scientific information, but were emotionally involved in the landscapes created by the gardeners.

The exhibition "Réagir" also included conferences and special events such the 6th edition of the "fête du développement durable" (week-end on sustainable development) on 9-10 June, usually held in the centre of Geneva, but moved to the Botanical Garden to benefit from the exhibition "Réagir". These events brought tens of thousands of visitors on the top of the usual visitors to the Botanical Garden and many schools visited the exhibition.

This high-visibility event for environmental issues included 40 posters in two languages (English and French) which are available for others to use, should any city be willing to host such an exhibition (contact UNEP/GRID-Europe (infogrid@grid.unep.ch)).

A calendar featuring some posters of the exhibition as well as a summary of the actions and a game for children was made for the year 2008 and can be obtained at UNEP/GRID-Europe as well as at the Botanical Garden of Geneva.

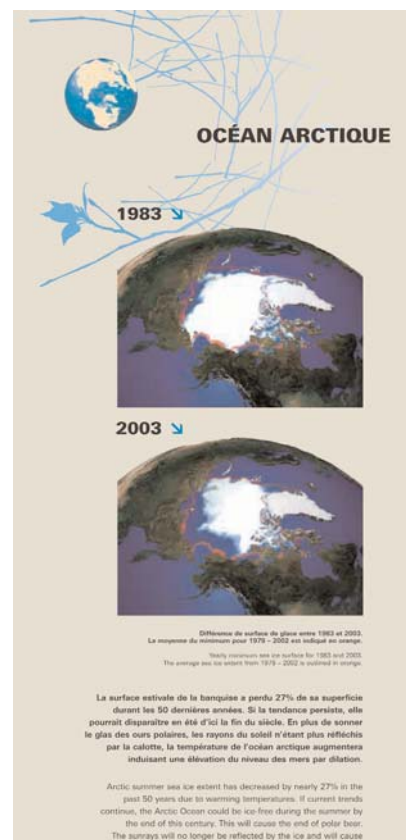
This project would not have been possible without the support of the City of Geneva, the "Conservatoire et Jardin Botaniques de la Ville de Genève (CJBG)".



Réagir exhibition poster

Special thanks go to Didier Roguet (Conservator CJBG), Alexandre Breda (chief gardener at CJBG) and all his team for their fantastic work, Matthieu Berthod (graphist at CJBG), Giselle Visinand (CGBG) and Yves Merz and Stéphane Kluser on UNEP/GRID-Europe's side .

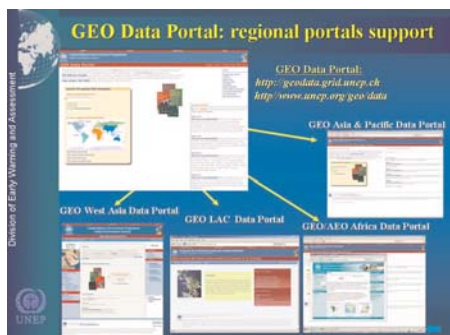
The exhibition can be seen on-line at : www.grid.unep.ch/reagir ■



GEO Data Portal offers new web services

by Jaap van Woerden & Stefan Schwarzer

The GEO Data Portal was developed to help provide UNEP's network of GEO Collaborating Centres, as well as other partners and contributors, with sound scientific and consistent basic data in the preparation of the Global Environment Outlook (GEO) and other environmental assessment reports. The Data Portal was widely used in the final stages of the fourth edition of the GEO report (GEO-4), which was published in October 2007, as well as annual GEO Yearbooks. With the successful development of the (global) GEO Data Portal, various regions have shown interest to develop similar data portals, which would have more detailed information and fill specific regional needs for data and functionality. Various regional GEO Data Portals are now well underway for Africa, Latin America and the Caribbean (LAC), and also Asia and Pacific, and West Asia.



GEO Data regional data portals

Both for efficiency and consistency reasons, the regional Data Portals can draw on the global Data Portal insofar as they provide data from global/international, authoritative data sources, including UN and affiliated agencies and others, for example FAO, World Bank, UN Statistical Division, and the global conventions.

Launch of PEBLDS website

by Yaniss Guigoz & Jean-Philippe Richard

The Pan-European Biological and Landscape Diversity Strategy (PEBLDS) presents an innovative and pro-active approach to stop and reverse the degradation of biological and landscape diversity values in Europe. It is an international mechanism of information sharing for the Convention on Biological Diversity of Rio 92 enforcement.

UNEP/GRID-Europe received a mandate from UNEP/ROE to redevelop the

In order to provide the regional GEO Data Portals with maximum flexibility and technical support, the GEO Data Portal team at DEWA/GRID-Europe, responsible for the global Data Portal, has developed a series of so-called 'web services'. A web service is a software system designed to support interoperable 'computer to computer' interaction over a network.

This is how it works. In the case of the growing GEO Data Portal 'network', regional Portals can, via a small script, launch data and meta-data queries from their website to the global Portal server and receive a response in the shortest time possible (typically milliseconds). The information stored in the response can then be fed into a web page, thus producing a webpage on-the-fly with locally and distant retrieved data. This technique avoids for example the need of duplication of data, or enables the use of existing sources for a single application. This not only raises efficiency, but also assures the use of consistent, harmonized data throughout global and regional environmental analysis, assessment and reporting. For example, all Data Portals use the same up-to-date country population data from the UN, the latest FAO agricultural statistics, the most recent economic data from the World Bank - allowing easy presentation of the best available data in the form of graphs, maps and tables in the various GEO and related assessment reports at global, regional, country or even city level..

To discuss the further development and potential of the global and regional GEO Data Portals, a workshop was organized by DEWA/GRID-Europe (responsible for the global GEO Data Portal) in cooperation with DEWA-LAC and hosted by partner organization CATHALAC (Water Center for the Humid Tropics of Latin America and the Caribbean) in Panama City from 2 to 4 May 2007. The meeting, attended by various regional representatives and also

UNEP/DEWA Headquarters, was as such also a follow-up to a small workshop on the global and LAC GEO Data Portals held at DEWA-LAC in Mexico City in December 2005, which already identified the need to organize a wider meeting to foster the efficient and effective development of a 'family' of GEO Data Portals.



Meeting team in Panama city

During the workshop, one of the main topics presented and discussed was the 'web services' concept and the potential it offers for the various GEO Data Portals. Related to this, many standardization and harmonization issues were also covered such as data set formats, meta-data specifications, and country coding. It was agreed to try to implement the web services technology into the regional Portals to allow more harmonized and effective access to existing data from the very same global or international data sources. ■

entire PEBLDS website and host it. Developed in PHP/MySQL technologies, the website is entirely dynamic and proposes an on-line administrator interface for the PEBLDS administrator.

The website, although just re-launched, contains more than five hundred archive documents that have been uploaded, and updates of the contents will be on-going. ■



www.pebls.org

Hydrological modeling on Lake Balaton

by Bruno Chatenoux & Anthony Lehmann

Following many years of water quality and quantity problems, in the Lake Balaton region (also known as the sea of Hungary), DEWA/GRID-Europe, the Lake Balaton Development Council (LBDC) and the International Institute for Sustainable Development (IISD) launched the "Lake Balaton Integrated Vulnerability Assessment, Early Warning and Adaptation Strategies" project.

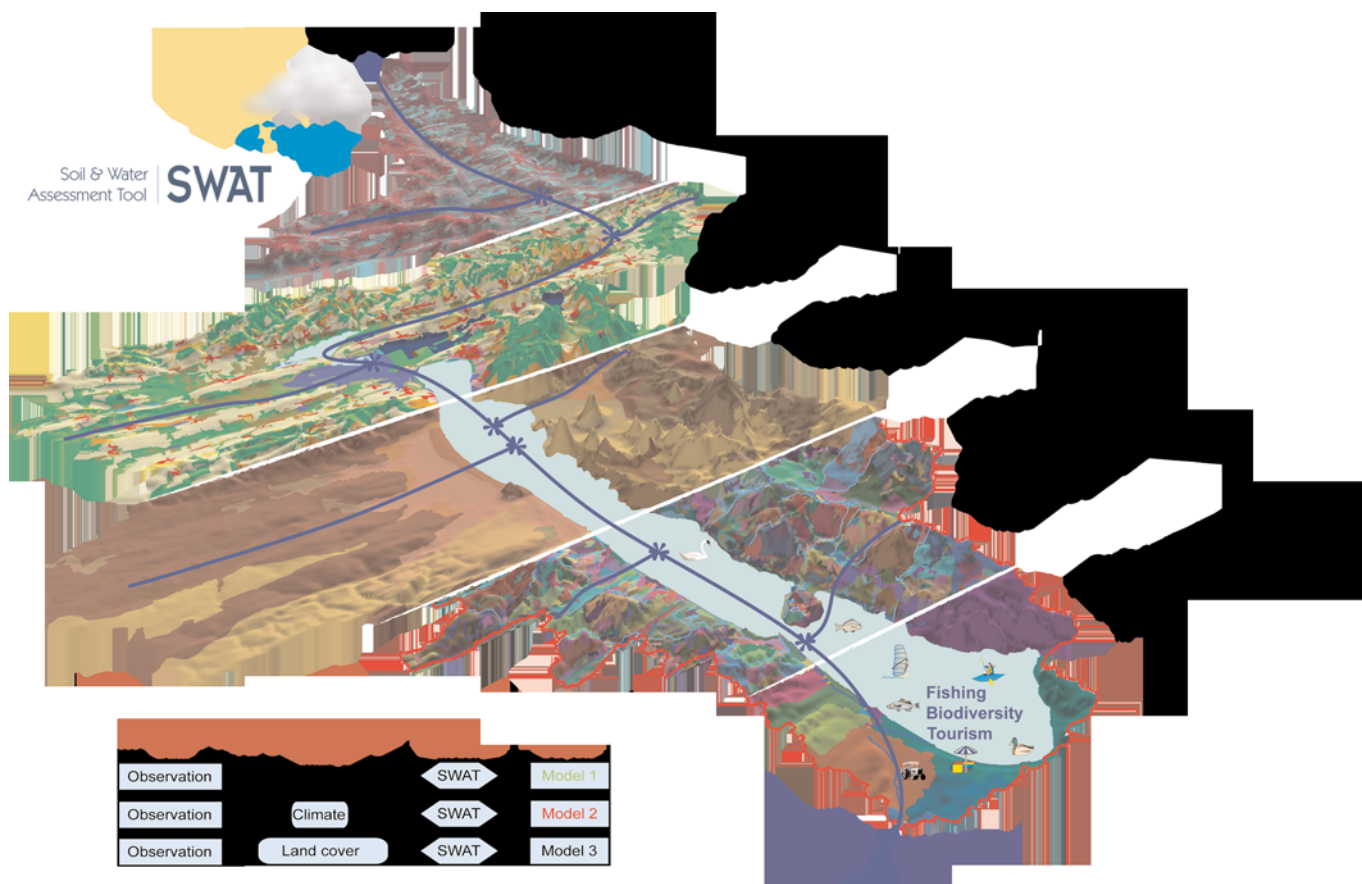
The overall purpose of the project is to contribute to a better understanding of Lake Balaton's ecological and socio-economic system vulnerability and resilience arising from

multiple forces of global and local change, including land use, demographic, economic and climate change, and build capacity for more effective policy-making and adaptation measures in response.

In the first step of the project, GRID-Europe developed an Internet MapServer using ESRI ArcIMS technology with the aim to let implementing partners visualize and access available geo-data. In order to facilitate the access and update the meta-information, a web application has been developed on PHP/MySQL and linked to the IMS.

GRID-Europe is now in the process of simulating hydrological processes using the ESRI ArcGIS extension SWAT (Soil and

Water Assessment Tool) following a set of climatic and land use scenarios. SWAT is a river basin, or watershed, scale physically-based model developed to predict the impact of land management practices on water, sediment and agricultural chemical yields in large, complex watersheds with varying soils, land use and management conditions over long periods of time. The aim of those simulations is to better understand the environmental and socio-economic vulnerability of the Balaton region, related to water quality and quantity towards potential global climatic and land use changes. Finally, the output of the scenarios will be integrated in an existing lake model and related to other non-water indicators. ■



GRID-Europe contribution to GEO Yearbook 2007

by Diana Rizzolio

The GEO Year Book 2007 is the fourth annual survey of the changing global environment, produced by UNEP in collaboration with many world experts in environmental research and action. The report was presented at the Tenth Special Session of UNEP's Governing Council/Global Ministerial Environment Forum in Nairobi, February 2007.

In the 2007 Yearbook a special feature focus analyzes the intersection between environment and globalization where ecosystem services and the human well-being that depends on those services are affected by natural resource exploitation in response to global demands. The chapter also explores some of the innovative policy mechanisms that link global supplies of goods and services with sustainable development objectives.

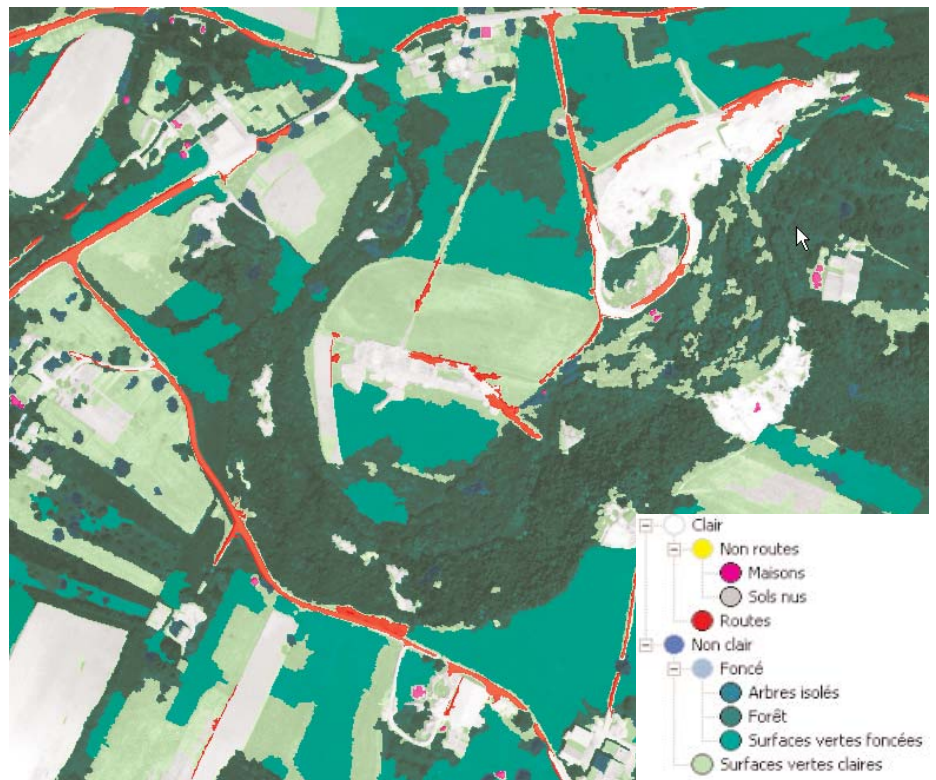
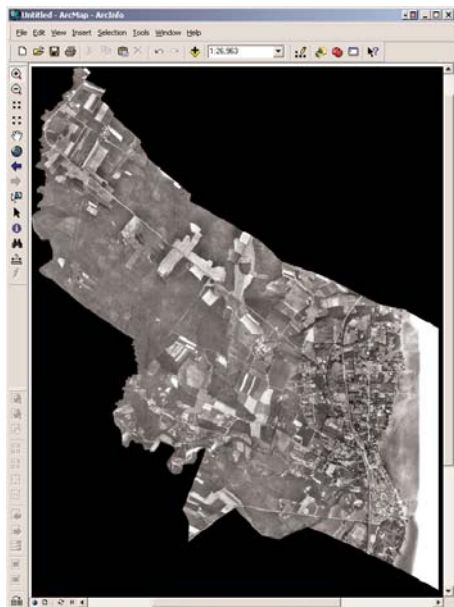
The core set of GEO Indicators included in the report (prepared by GRID-Europe) present global headline trends in major environmental issues such as climate change, biodiversity, forests and governance. Together they present a snapshot of humanity's progress in sustainably managing our planet's habitat. ■

What to do with old aerial photographs?

by Jean-Philippe Richard

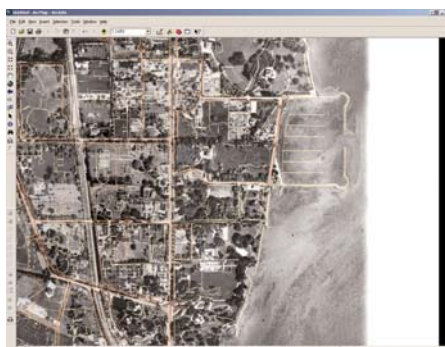
GRID-Europe received a mandate from Direction Cantonale de la Mensuration Officielle (DCMO) of Geneva Canton to carry out a pilot study with rectification of old aerial panchromatic photographs. DCMO owns hundreds of aerial photographs, already digitized, but not orthorectified. Complete coverage of the Canton is available since 1937. The pilot study was done for 1937 on a northern portion of the Geneva territory (Versoix).

Aerial photographs are geometrically distorted for several reasons, such as lens aberration, irregularities of the flight line and the height of the objects. If today these problems are solved through recording of camera properties and flight parameters, this was not the case 70 years ago: the lack of available information implies that it is not possible to use automatic orthorectification operations. The best solution is to apply geometric corrections through mathematical transformation functions. This method implies selecting a large number of control points, both on the image to be rectified and on a reference image. To this end, a modern orthophoto of 2005 with corresponding vector layers was used to determine hundreds of points. Geometric rectification was carried out either through a polynomial fit or by "rubber-sheeting". After this phase, the rectified images were joined as a mosaic to cover the entire commune of Versoix.



Preliminary classification obtained for the region of Versoix in 1937 on the basis of a rectified panchromatic aerial photograph

Vector layers of the SITG (Geneva Territorial Information System) can now be overlaid onto this raster layer. The precision obtained is between 1 to 10 meters in some areas. The variation of this precision is due to the method used. The worse distortion was identified in areas having characteristics such as an important altitude gradient, a lack of control points in forest and cropland, or being at the edge of photos, where optical distortions are strongest.



Aerial panchromatic photographs rectification of Versoix

Aerial panchromatic photographs, once rectified and georeferenced represent potential sources of landcover information. Although they do not have multi-spectral information (colour), which is degraded as gray levels, they yield information such as intensity (light to dark), texture, form and context. With the help of the eCognition software, it is possible to segment the image in an object mode. These objects are then classified using various criteria. For example, roads can be identified as objects having high reflectance, important asymmetry and specific shape ratio, whereas forest can be classified as dark-toned, with a non-homogeneous texture.

Figure 3 shows a provisional land cover map with seven classes. This result includes errors, which could be minimized in an iterative process including re-segmentation and re-sampling with further descriptors (such as texture and neighbourhood).

This pilot study shows the potential of these old aerial images, which represent huge sources of information for past decades before the advent of modern satellite and aerial imagery. ■



**Read GRID-Europe
Environmental Alert Bulletins,
available at www.grid.unep.ch**

www.unep.org

United Nations Environment Programme
DEWA/GRID - Europe
Ch. des Anémones 11, CH-1219 Châtelaine
Tel: +4122-9178294
Fax: +4122-9178029
infogrid@grid.unep.ch



GRID-Europe's latest outputs & major contributions

- Nuclear waste: is everything under control?** - Environment Alert Bulletin 9 - UNEP/GRID-Europe - Six pages
- Déchets nucléaires: la situation est-elle sous contrôle?** - Bulletin d'Alerte Environnementale 9 - PNUE/GRID-Europe - Edition 6 pages
- Déchets nucléaires: la situation est-elle sous contrôle?** - PNUE/GRID-Europe - Poster
- Europe's shrinking glaciers: status of Swiss glaciers** - UNEP/GRID-Europe - Poster
- Genomes MapServer** - UNEP/GRID-Europe - Poster
- Lac Balaton (Hongrie): Modéliser la vulnérabilité aux changements climatiques** - PNUE/GRID-Europe - Poster
- Lake Balaton (Hungary): Modelling vulnerability to climate changes** - UNEP/GRID-Europe - Poster
- Versoix en 1937: mosaïquage de photos aériennes** - PNUE/GRID-Europe - Poster
- Europe's Shrinking glaciers** - UNEP/GRID-Europe - Poster
- Cartography of the glaciers cover in the Cordillera Blanca (Peru) with Satellite images** - UNEP/GRID-Europe - Poster
- Iraqi Marshlands: Steady Progress to Recovery** - UNEP/GRID-Europe - Poster
- Annual Pastoral Migration Routes in Sudan** - UNEP/GRID-Europe - Map
- Nile Sub-Basins, Dams and Hydroelectric Schemes** - UNEP/GRID-Europe - Map
- Protected Areas of Sudan** - UNEP/GRID-Europe - Map
- Sudan Average Annual Precipitation** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan Average Annual Temperature** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan Elevation Map** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan Hydrological Basins** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan Major Agricultural Schemes** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan Oil Industry** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan Political Map** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan Population Density** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map
- Sudan UNEP Fieldwork Routes** - Sudan Post-Conflict Environmental Assessment - UNEP/GRID-Europe - Map

