



# GRID-Geneva Quarterly Bulletin No. 2 - 2000

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## Global Resource Information Database-Geneva

### Preparatory Work on the European Region's Inputs to GEO-3 On-Course

Preparation of the European region's contributions to UNEP's flagship environmental assessment, the Global Environment Outlook (GEO-3) due for release in 2002, is moving swiftly ahead. A GEO-3 European Regional Coordinating Meeting, hosted and organised by GRID-Geneva, which is also the Regional Co-ordinator for UNEP's environmental assessment programme (DEIA&EW) in Europe, was held in Geneva from 21-23 June 2000. Participants from the regional Collaborating Centres (CCs) present at the meeting included the Central European University, Moscow State University, Regional Environment Centre for Central and Eastern Europe and the National Institute of Public Health and the Environment (RIVM). Also in attendance were representatives from other UNEP divisions, including System-

Wide Earthwatch, the Regional Office for Europe and DEIA&EW Headquarters in Nairobi, as well as partner organizations GRID-Arendal and UNITAR.

The meeting charted a "regional road map" for sections dealing with State of the Environment (SoE) reporting and policy analysis and developed a sketch of future regional work for GEO-3 as a whole. Discussions mainly dealt with defining European CCs roles and methods for integrated SoE/policy assessment. In addition, ideas for the "Outlooks" chapter on "scenarios" and "vulnerability to environmental change" were sought. A number of pertinent issues such as relevant GEO-3 working groups, European sub-regional products and a number of global issues such as the targeting of Rio+10 and how to

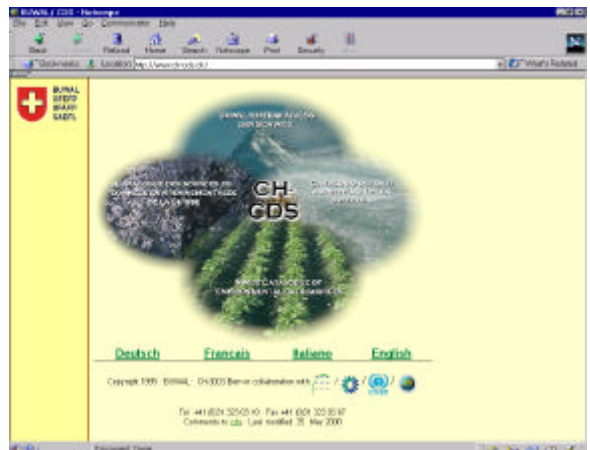
improve the overall GEO process were also examined. A detailed work-plan for GEO-3 CCs was defined and timelines for deliverables confirmed. The next European Regional Meeting is scheduled to be held in early November in Budapest and will deal with scenarios and vulnerability assessment including "hot spots", as well as any issues related to the ongoing drafting and production of SoE/Policy sections. Immediate follow-up steps include the identification by CCs of key issues at the sub-regional and regional levels in order to ensure the continuity of themes between sub-regions and to provide a holistic regional perspective. (see also article on GEO Core-data sets). ?

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### Swiss CDS Launched on the Internet

In the framework of GRID-Geneva's metadata activities, a Swiss Catalogue of Data Sources (CDS) has been developed in collaboration with the Swiss Agency for the Environment, Forests and Landscape (SAEFL) and the Canton of Geneva. The Swiss CDS was inaugurated on 16<sup>th</sup> June at the International Environment House in the presence of Mr. Frits Schlingemann, Director of UNEP's Regional Office for Europe, Mr. Robert Cramer, Head of the Department of Interior, Agriculture, Environment and Energy of Geneva canton, and Mr. Arthur Mohr, Head of the Sustainable Development Division of SAEFL.

The Swiss CDS, available via the Internet, was initiated by SAEFL to increase the transparency and use of environmental data collected by Swiss cantons and cities as well as federal agencies. This Catalogue is euro-compatible and responds to Switzerland's obligations to the Aarhus Convention, to which it is a signatory, on strengthening public access to information. At the technical level, the CDS has been partially implemented by GRID-Geneva. Geneva Canton has also actively contributed to the



The Swiss-CDS website is accessible at: <http://www.ch-cds.ch/>

development of the Swiss CDS Internet site. As part of its meta-data activities, GRID-Geneva is also working on two related CDS projects, the Alpine CDS and CDS Geneva.

The type of data collected, the methodology used and the contact persons are some of the key information included in the Swiss CDS. The user can make an on-line search based on a selected theme, document or an administrative agency. Answers maybe found to questions such as: Which federal agencies monitor water quality? What type of

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## GEO-3 "Core Data Sets On-line" for Environmental Assessment

As one of the lead UNEP centres for the "data" component of the third Global Environment Outlook (GEO-3) Report due for release in 2002, GRID-Geneva is working on innovative ways to make environmental data directly available to the approximately 35 institutions, known as UNEP Collaborating Centres (CCs), participating in this major environmental assessment. In all corners of the globe, CCs and other partners have been commissioned by UNEP to report on the state and future outlook of the environment in their part of the world. In order to maintain the coherence of the reporting process, it was agreed that the underlying data for the analysis should draw on a common information base for all regions. This in effect means that CCs will be working with the same "core data sets", which is critical for a scientifically sound analysis of the environment at the global level.

Working on this premise, that



Access to the Core Data Sets website is currently limited to UNEP Collaborating Centres and partner organisations.

the goal is to harmonise the reporting process, the GEO-3 "small data working group" proceeded to identify "core data sets" for the nine themes that constitute the building blocks of the GEO-3 report. These are: atmosphere, land, forests, freshwater, coastal and marine areas, biodiversity, urban areas, natural disasters and human health and well-being. The

World Resources Institute's (WRI) data tables, which draw on UN, World Bank and other sources, provide comprehensive global coverage and were deemed to be the most appropriate source of statistical data for the GEO report. Using state-of-the-art information technologies, namely Geographic Information Systems (GIS) and Internet Map

Server platforms, GRID-Geneva proceeded to make the WRI data available on-line via the Internet. To render the data interface user-friendly, maps are automatically displayed to enable the visualisation of statistical data. Users are also able to examine the data by region, theme and time period. On the basis of the request made, a thematic map is automatically displayed on the user's screen. Finally, users will have the choice to download their search results as graphic images, statistical spreadsheets, and as geo-spatial data files for use in GIS analyses. Follow-up steps include incorporation of geo-spatial data sets from various sources.

The "core data sets on-line" tool is now operational and all Collaborating Centres and other GEO-3 partners are welcome to access and use it. ?

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## Internet Gateway on Early Warning

In response to the flurry in natural and human-induced disasters over the past decade, GRID-Geneva has been channelling its efforts to fulfil UNEP's goal of improving early warning prior to the occurrence of such outbreaks. One such endeavour is the "Project for Risk Evaluation, Information and Early Warning" (PREVIEW), which aims to strengthen communication about impending environmental disasters for decision-makers and the general public. As a first step, an internet gateway guiding users to a network of more than one-hundred organisations active in various domains of early warning has been developed. Users may launch queries by type of environmental disaster (e.g. floods, drought, earthquakes, fires, etc.) and navigate through descriptive lists or geographically by using interactive maps.

Follow-up steps include elaborating a dynamic website



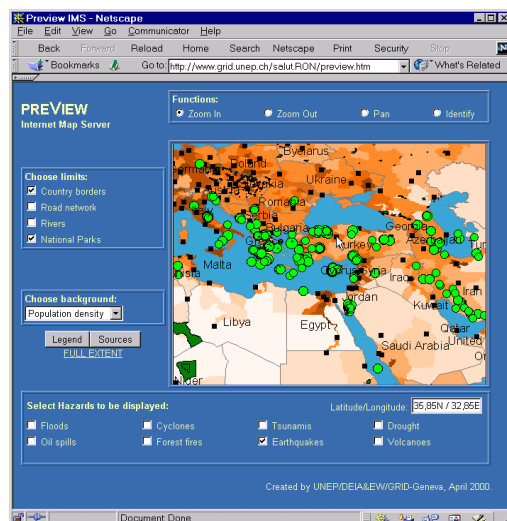
The PREVIEW website may be accessed at: <http://www.grid.unep.ch/preview/>

using Internet Map Server technology. This service would allow users to automatically generate risk maps by integrating information about population vulnerability, frequency and magnitude of the disasters under examination. Thereby, helping to identify potential environmental risks for various

regions of the globe. The ultimate aim of providing such information is to mobilise resources for implementing preventive measures in order to minimise risks in the short, medium and long-term. Finally, reporting on existing and emerging environmental threats as well as developing methods for evaluating the

impacts of natural/complex disaster will also be carried-out. ?

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## Remote Sensing Training for Lebanon's Environment Observatory

Within the context of its project to establish a Coastal Information System for Lebanon, GRID-Geneva organised a two-week training course on remote sensing applications for a member of the Lebanese Environment and Development Observatory (LEDO). Located in the Lebanese Ministry of Environment, LEDO was created in 1999 and in the initial set-up phase is being supported by the United Nations Development Programme and the European Commission. Mandated to develop and co-ordinate an extensive environmental information base for the country, LEDO is a key project partner as once operational, the coastal information system will be handed over to it. The trainee, Mr. Ghassan Mina is a GIS specialist, who was provided with hands-on exercises on the basic principles of remote sensing and carried out image analysis tasks of the project pilot study

area (the coastal zone approximately 50 km north and south of the capital Beirut).

Several core data sets are being provided by LEDO, including a complete set of scanned 1:20,000 maps of the country. Once georectified, these maps will constitute the topographic base to which all other data layers will be adjusted and overlaid. GRID-Geneva digitised several nautical charts of the Lebanese coastal zone in order to generate a digital bathymetry model (DBM). The DBM will serve to help interpret the satellite imagery. Landsat 7 imagery of Lebanon, recorded in 1999 and 2000, has been supplied by GRID-Sioux Falls and, based on the test exercises, was deemed suitable to map land-derived sources of marine pollution.

Bands 1-4 of Landsat 7 provide a good overview of the degree of turbidity (e.g. river

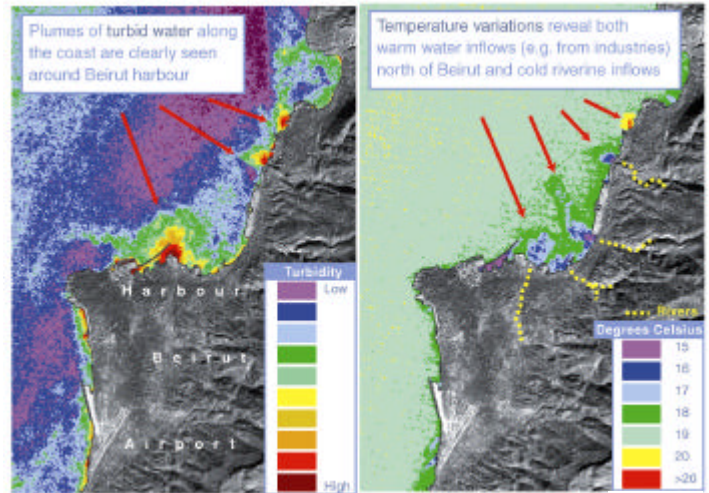


Figure 1

Figure 2

Landsat 7 satellite imagery is being used to monitor environmental pollution in the Eastern Mediterranean sea.

plumes) in the Lebanese coastal waters at a resolution of 30 meters (figure 1), whereas band 6 reveals sea temperature variations (e.g. warm and cold water plumes) at 60 meters resolution (figure 2). Panchromatic Band 8 provides additional visual impression of the land features at a resolution

of 15 meters. Follow-up steps include qualitative analysis of key parameters, namely turbidity and temperature, to locate areas of suspected marine pollution. ?

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## Monitoring Environmental Change in the Tigris-Euphrates Basin and the Arabian Gulf

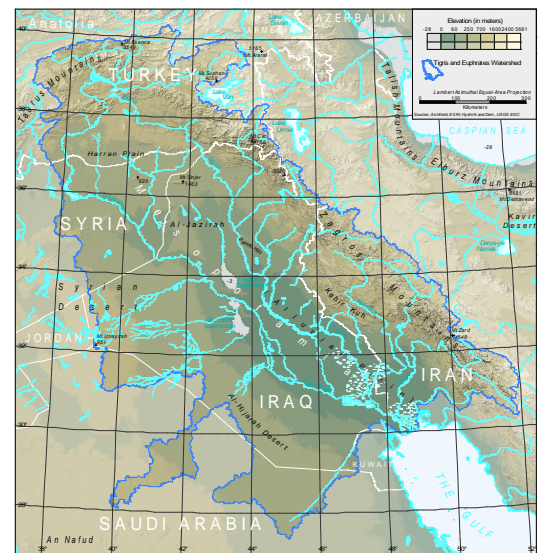
In collaboration with UNEP's Regional Office for West Asia, GRIDs Sioux Falls and Geneva have embarked on a joint study to monitor environmental change in the Tigris-Euphrates drainage basin and the Arabian Gulf. Landsat and Corona satellite imagery, as well as other ancillary data, will be used to assess changes that have taken place in the region over the past 30 years. Shared by four countries, Turkey, Syria, Iraq and Iran, the Tigris-Euphrates river system has attracted growing international attention in recent years due to dire forecasts about water stress in this semi-arid region, and the role that water disputes could play in engendering open conflict between states.

The study's primary focus will be on two main areas in the Tigris-Euphrates basin that have witnessed the greatest changes in the last decade. This includes the headwater region in Turkey where

mountain valleys and terrestrial ecosystems have been inundated by a series of reservoirs created by a succession of large dams. The other area is the Mesopotamian marshlands, located downstream in southern Iraq and extending partly into Iran. Originally covering an estimated area of 15,000 – 20,000 km<sup>2</sup>, these marshlands are of global significance and constituted the largest wetland ecosystem in West Asia, whose flora and fauna are important jewels in the biodiversity crown. Situated in the lower basin, the marshlands are particularly vulnerable to developments upstream and have been devastated by massive drainage schemes.

The Arabian Gulf is connected to the Tigris-Euphrates river system not only hydrologically through the Shatt-al-Arab, but also through the movement of aquatic species. Many coastal wetlands in the Arabian Gulf have been damaged by urban

The Tigris-Euphrates Drainage Basin - darker area shading and outlined in blue - is one of a growing list of fresh water "hot spots" requiring improved consultation between concerned states .



and agricultural developments, oil spills and military conflict. Examination of the state of the coastal wetlands using satellite imagery will be made by the Regional Organisation for the Protection of the Marine Environment based in Kuwait.

The results of this study are to be published towards the end of this year and will be

accompanied with a series of maps and posters to help raise regional and global awareness about the scale and significance of environmental change in this international river basin and the Arabian Gulf. ?

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## Boosting Transboundary Co-operation in the Geneva Area via Internet

Geneva Canton's Department of Interior, Agriculture, Environment and Energy (DIAEE), commissioned GRID-Geneva in May to develop a web portal for an Environmental Information System for the Geneva Region, known by its French acronym SIEnG. Initiated by the Swiss Canton of Geneva, the SIEnG is a multi-sectoral project involving various government departments, and which is planned to extend to neighbouring French Departments of Ain

and Haute-Savoie. It aims to provide an integrated platform for accessing environmental and energy related information in the Lake Geneva region. The SIEnG was launched in the framework of the Swiss Catalogue of Data Sources on 16 June and is also accessible via the latter's website. ?

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The SIEnG website is accessible at: [www.geneve.ch/sieng/](http://www.geneve.ch/sieng/)

## Swiss CDS on Internet

(Continued from Page 1)

information is available about nature conservation in the city of Saint-Gall? Where can one find data about air quality in the canton of Geneva? Moreover the search is facilitated by a system of automatic translation of key words. The Swiss CDS should enable improved planning and coordination of projects, encourage the use of existing resources and further develop environmental

monitoring. To date, 16 cantons, 19 federal agencies and two cities are participating in the project's development on a voluntary basis. The catalogue currently holds **2,600 addresses** and **3,700 meta-data** descriptions of environmental data sets. Next steps include involving more partner agencies in the Swiss CDS project. ?

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## UNEP/DEIA&EW Gets New Director

The United Nations Environment Programme (UNEP) has appointed Timothy W. Foresman as the Director of the Division of Environmental Information, Assessment and Early Warning (DEIA&EW). In this capacity, Dr. Foresman is responsible for promoting availability of, and enhancing access to, the scientific information needed by decision-makers for improved environmental management and protection - one of UNEP's five areas of concentration.

Dr. Foresman, a United States citizen, comes to UNEP from the University of Maryland where he was research professor and director of the

EarthLab in the Department of Civil and Environmental Engineering. He has extensive experience in remote sensing, Geographic Information Systems (GIS), and field survey techniques, which has been used in the design and implementation of environmental decision support systems for local, state and several national governments. He has also worked with the United Nations Development Programme (UNDP) and the National Aeronautics and Space Administration (NASA) on technological applications and spatial analysis tools to help solve development and environmental problems. ?

## Recent Publications and Other Products

### New Websites

- ◆ Swiss Catalogue of Data Sources website:  
<http://www.ch-cds.ch/>
- ◆ PREVIEW website on early warning activities:  
<http://www.grid.unep.ch/preview/>
- ◆ Environmental Information System for the Geneva Region:  
<http://www.geneve.ch/sieng/>
- ◆ GEO-3 "Core Data Sets On-line"  
(access is currently limited to UNEP Collaborating Centres and partner organisations)

### Posters

- ◆ Satellite Applications for Disaster Impact Assessments
- ◆ Using GIS and Remote Sensing to Develop a Coastal Information System for Lebanon
- ◆ Using Satellite Imagery to Monitor Environmental Change in the Tigris Euphrates Basin

## Calendar of Events, Meetings & Missions Planned (July – September 2000)

### 7 July

Nuit de la Science (Science Night), Geneva, Switzerland.

### 4-6 September

3rd "Euro-GRID" Meeting of European GRID Centres, Arendal, Norway,

### 11-15 September

GEO-3 Meeting on Chapter 3 "Outlooks" Production, Cambridge, United Kingdom

### 28-29 September

ETC-CDS International Symposium 2000, Hannover, Germany