



Flood Early Warning System for Drin/Drim, Buna/Bojana Basin

Climate Change Adaptation in Western Balkans

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Climate Change Adaptation in Western Balkan 01/2012- 12/2018

Partners

Albania, Kosovo, Macedonia, Montenegro & Serbia: Ministries of Environment, Hydrometeorological services, communes, municipalities...

Budget

3,500,000 EUR (Energy and Climate Funds, VE 2011 & VE 2012, BMZ)

Objective

Adaptation to climate change in the Western Balkans is particularly improved in the fields of flood and drought risk management.

Components:

1. Drin-Buna Flood Early Warning System

- flood warning system based on real-time info
- hydromet equipment
- Data exchange between countries

2. Climate Change Adaptation Strategies

Support in drafting National or sector Climate Change Adaptation Strategies

3. Local Flood and Drought Management Plans

- Development of 40 communal flood and drought management plans
- implementation of defined measures

4. Regional WRM

Support structures and concepts for regional IWRM (Drin Dialogue, Standing Working Group)

5. Climate Change Adaptation in Urban Areas

Integrating Climate Change Adaptation in urban planning and development in Belgrade, Tirana & Podgorica



Flood 2010

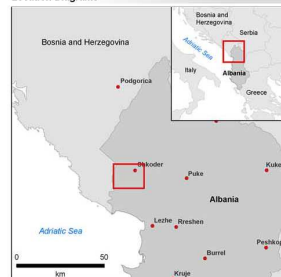




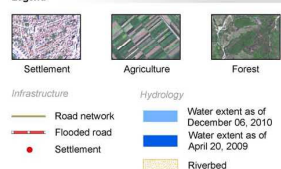
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Product No. 1

ALBANIA - Shkoder **Flood as of December 06, 2010** **Disaster Extent Map - Detail** **Scale: 1:25,000**

Location Diagrams



Legend



Interpretation

Three weeks of heavy rainfall and recent snow melt caused flooding in the northwestern regions of Albania in December 2010. More than 12,000 people have been moved from their homes. The map shows the pre- and post-event water extents around Shkoder as detected on April 20, 2009 using TerraSAR-X data and on December 06, 2010 using RadarSat-2 data. A GeoEye-1 image of April 15, 2009 serves as backdrop.

The roads do not represent the entire transport network. Please note, that the flood extent in urban areas may not be detected properly due to radar imaging geometry.

Cartographic Information

Local projection: UTM Zone 34N, Datum: WGS 1984
Geographic projection: Lat/Lon (DMS), Datum: WGS 84
Scale: 1:25,000 for DIN A1 prints

Data Sources

GeoEye-1 © GeoEye 2010, provided by e-GEOS
RADARSAT-2 © MacDonald, Dettwiler and Associates Ltd. (2010), provided under EOE/SA GSC-DA
TerraSAR-X © Infoterra GmbH
Vector data © OpenStreetMap 2010, Google Earth 2010, DLR 2010

Framework

The products elaborated for this Rapid Mapping Activity are realised to the best of our ability, within a very short time frame, optimising the material available.

All geographic information has limitations due to the scale, resolution, date and interpretation of the original source materials. No liability concerning the content or the use thereof is assumed by the producer. The research leading to these results has received funding from European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 2118802.

The ZKI crisis maps are constantly updated. Please make sure to visit <http://www.zki.dlr.de> for the latest version of this product.

Map produced December 7, 2010 by ZKI
Map updated December 9, 2010 by ZKI
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<http://www.zki.dlr.de>



Center for Satellite Based Crisis Information
- Emergency Mapping & Disaster Monitoring -
a service of DLR

German Remote Sensing Data Center
German Aerospace Center



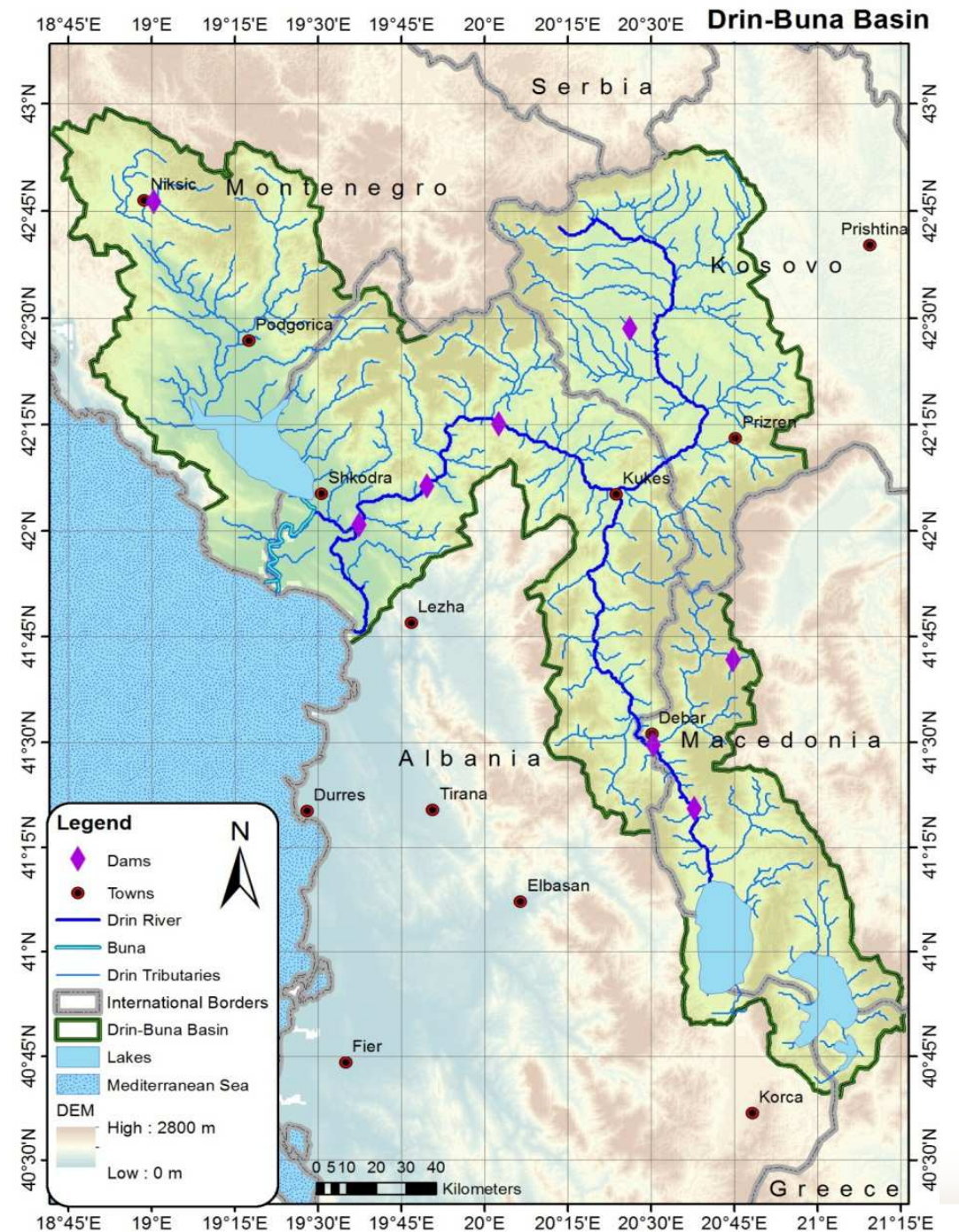
Flood 2013



giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



The Drin/Drim-Buna/Bojana Basin





First Activities and Milestones

1. Agreement by all countries about necessity to develop flood early warning system (September 2012)
2. Gaps and needs study for establishing a flood early warning system conducted
3. First suggestions for hydrometeorological network and IT set-up
4. Ongoing procurement for hydrometeorological equipment (hydro stations, meteo stations, data transmission & capturing)
5. Study visit to Germany

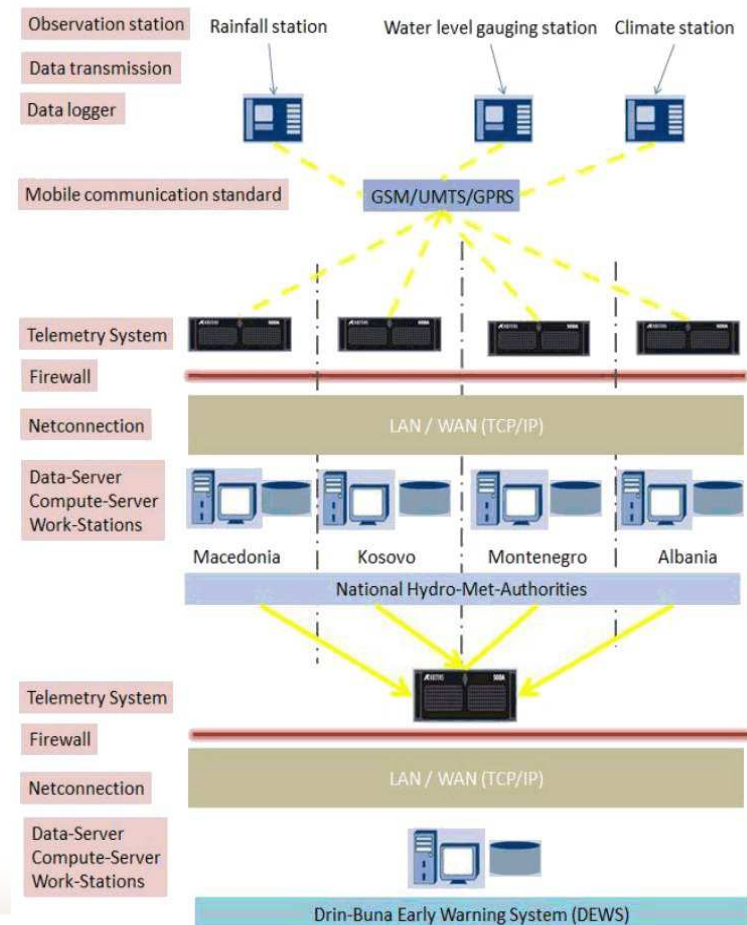
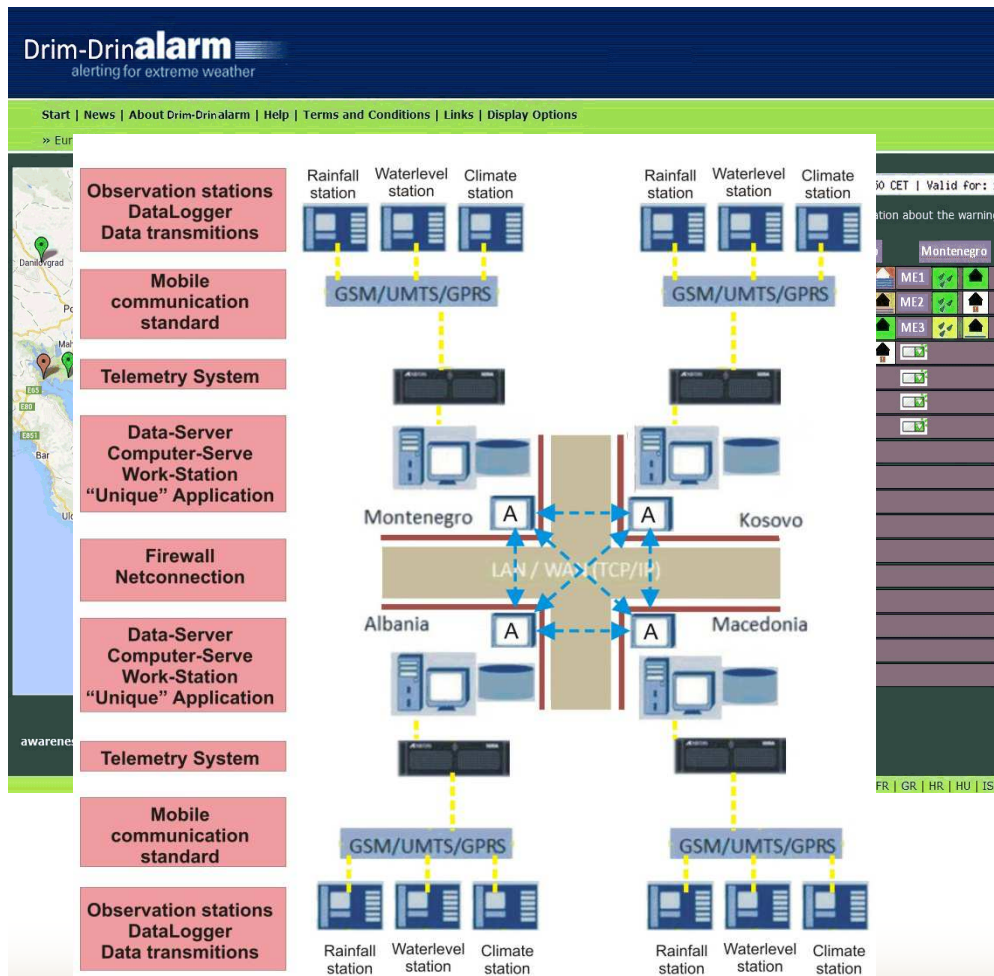


Some results Gaps and Needs study

Macedonia: Present Conditions with Regard to EWS

Country	Meteo-Data / Transmission	Hydrological Data / Hydraulic Data / Transmission	Database (Met&Hyd)	Num. Meteo – Forecast (focus on quant. precip.	Modeling Hydrological / Hydraulic	Flood Forecast	Flood Warning Procedure
Macedonia	About 7 meteo (=climat.) stations (part. gaps; 5 pre- sently in operation), about 30 rain gauges (about 19 presently in operation)	About 20 - 23 stations (11 presently in operation - many located at the lakes (Ohrid & Prespa)); rating curves are missing or need update	Meteo: CliData Hydro: HydroPro (in use 2000- 2005); presently data stored in EXCEL	General forecast by international forecast models (Non-hydrostatic Mesoscale Model - NMM), Global Forecast System (GFS); Europ. Centre for Medium Range Weather Forecast (ECMRW) EUMETSAT images;	No	No quantative flood forecast, but sector of weather forecast gives "adequate" alarm	Only qualitatively by weather forecasters – based on extreme weather conditions; data send to Crisis Management Centre
Evaluation	1 - 2	1 - 2	M: 2, H: 1 - 2	1	0	1	2 - 3
0	1	2	3	4			
not available / not adequate	poor	fair	good	very good			

Step 2: Establishing Regional Early Warning System





Next steps

1. Upgrading and rehabilitating hydrometeorological networks in all countries
2. National IT set-ups
3. Field campaigns (rehabilitation & measurements)
4. Hydrological Model
5. Agree on data sharing protocols
6. Establish regional data exchange and web interface