

Hydrology of the Transboundary Drini River Basin

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GIS in Water Resources

UT Austin
November 29th 2011

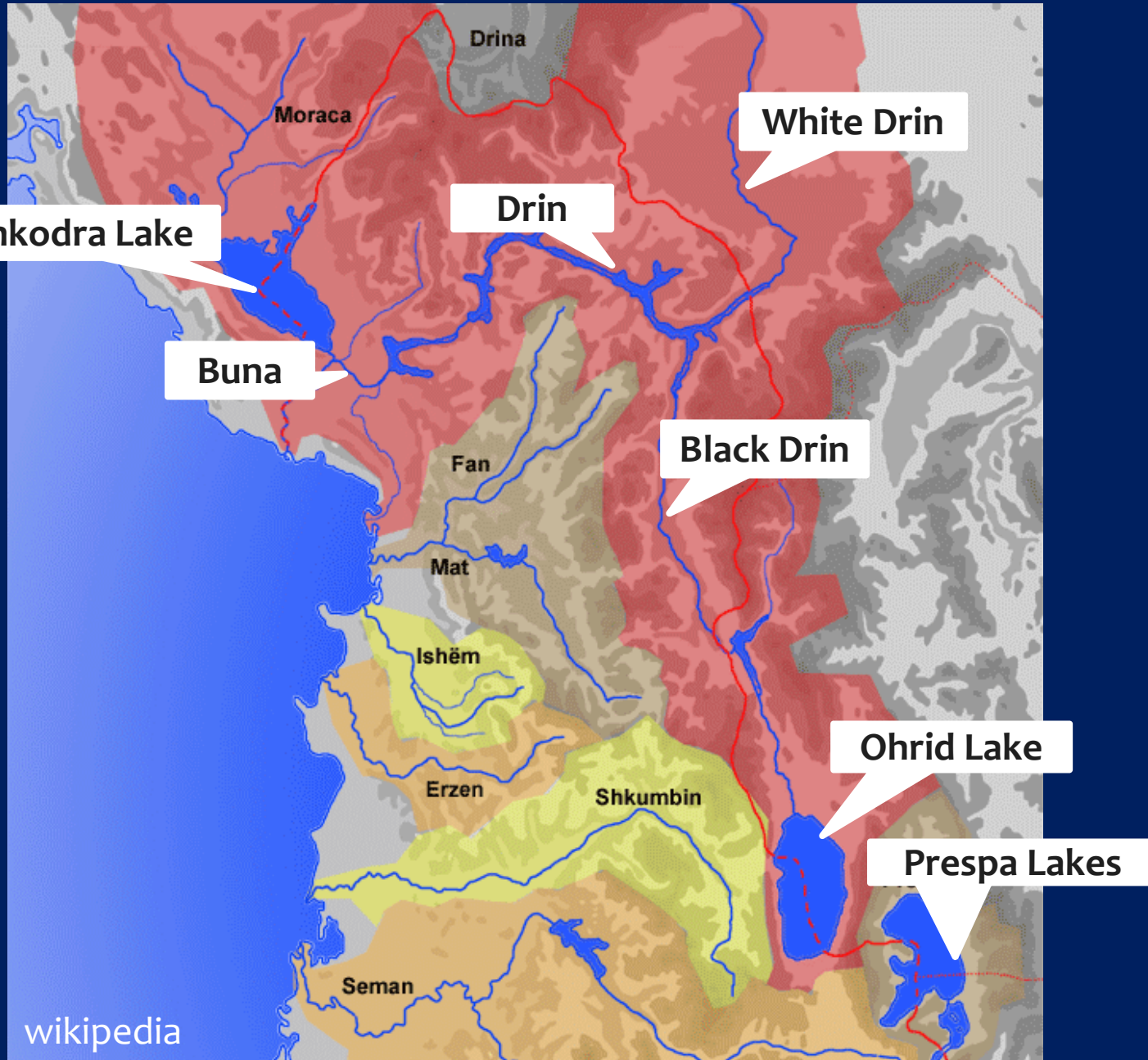
Preview:

- Introduction and Background
- Watershed Delineation
- Volume of Water for Run-Off
- Issues concerning the Basin

Location



Location



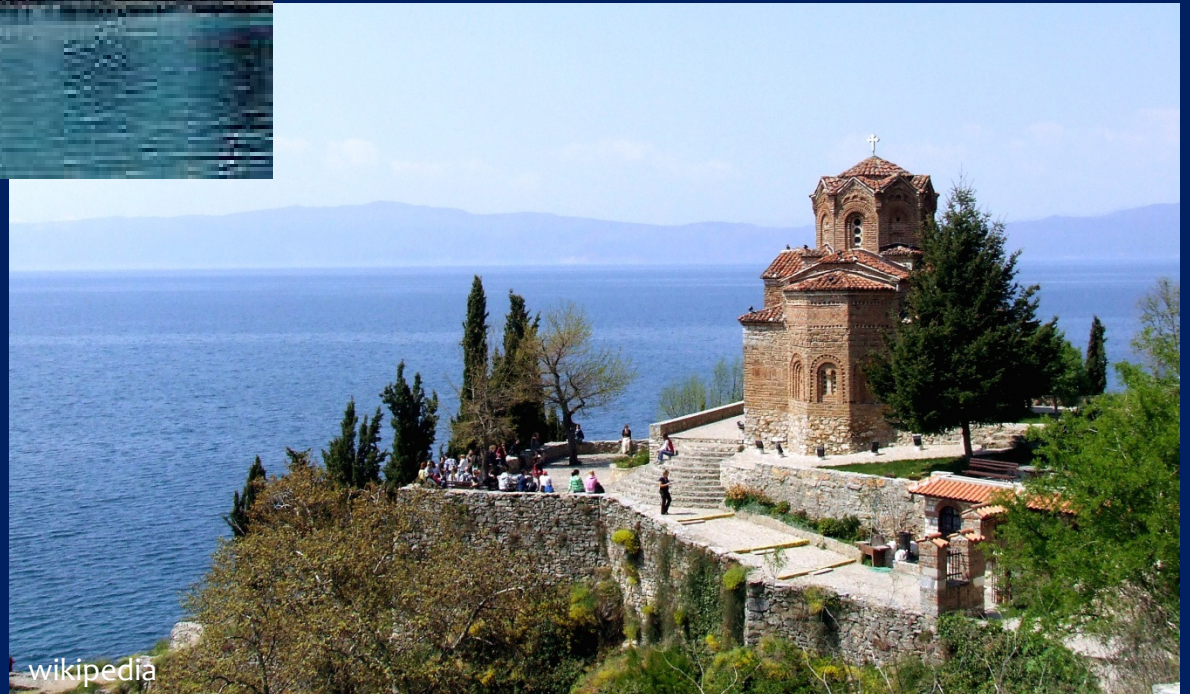
Shkodra Lake



Ohrid Lake



wikipedia



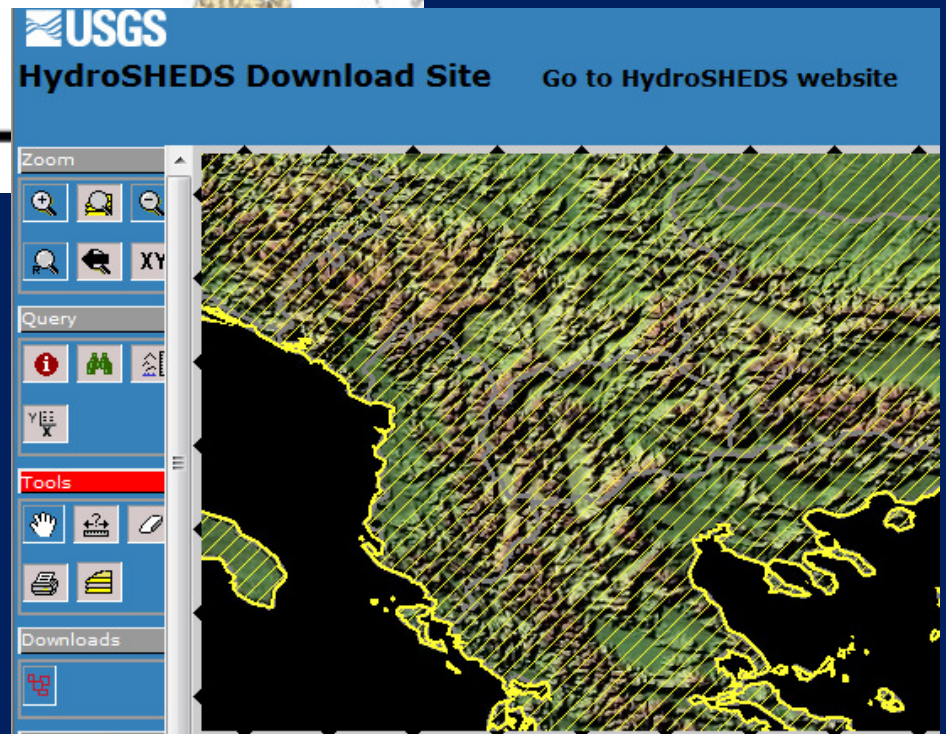
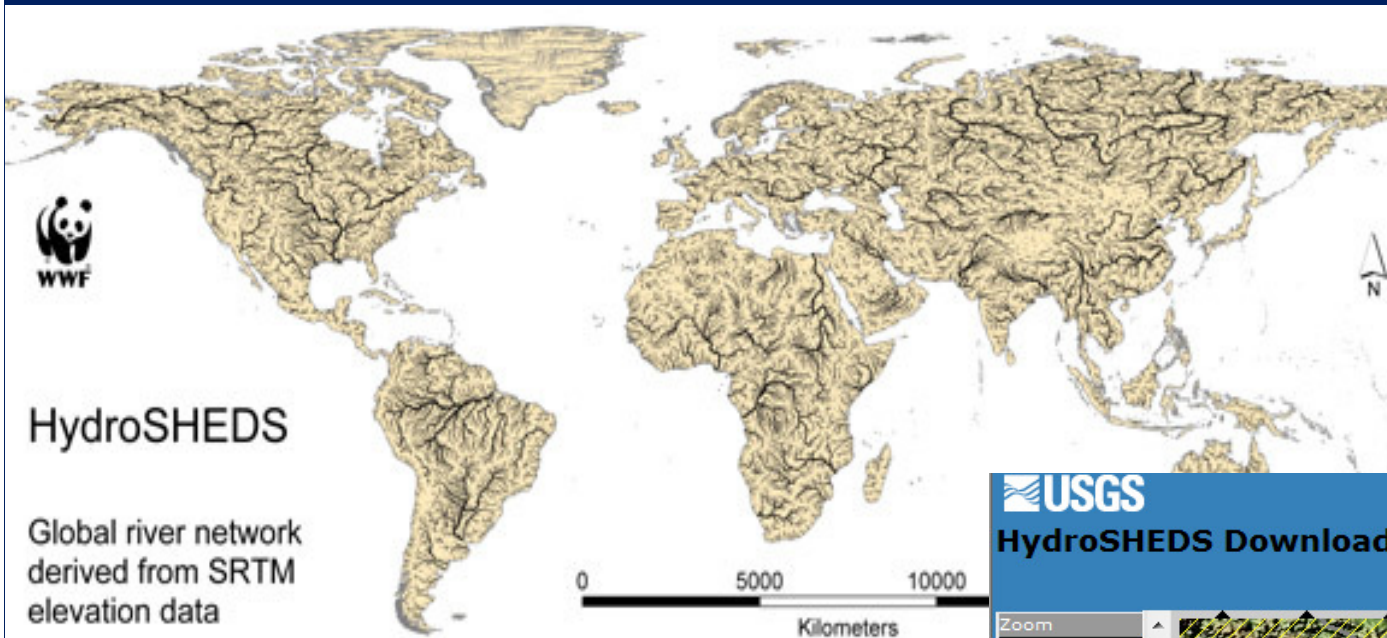
wikipedia

Prespa Lake

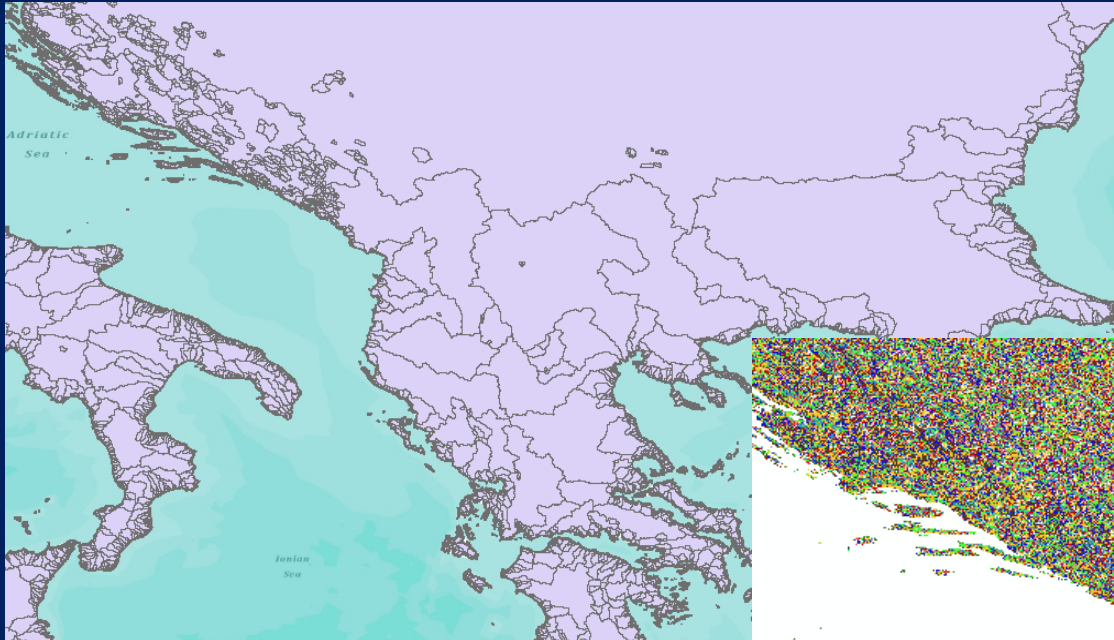


www.spp.gr

Data Sources

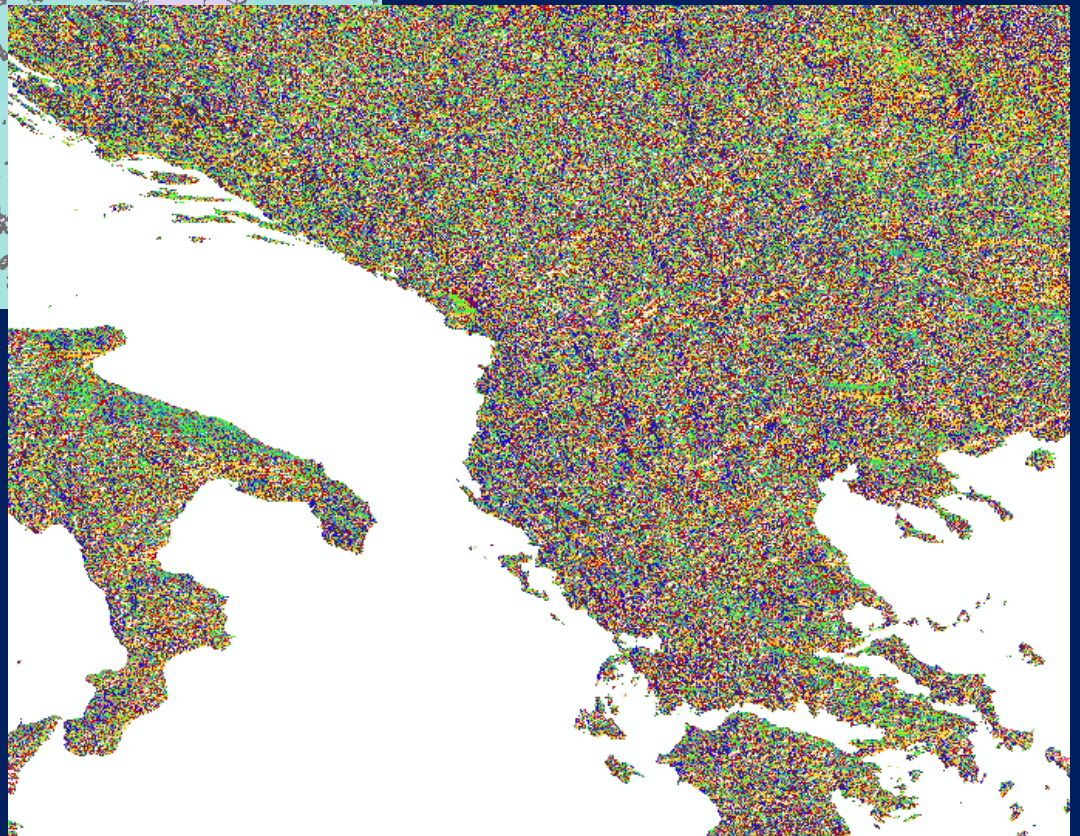


Downloading Data

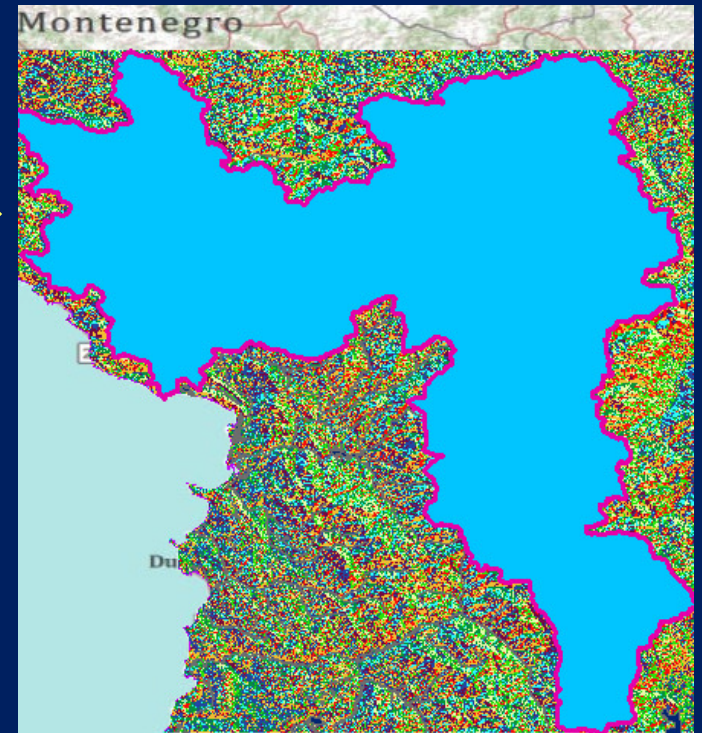
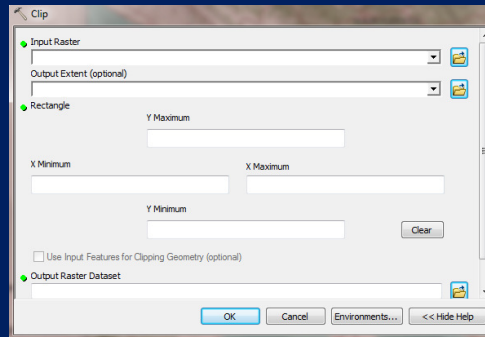


15 sec Drainage Basins

3 sec Drainage Directions



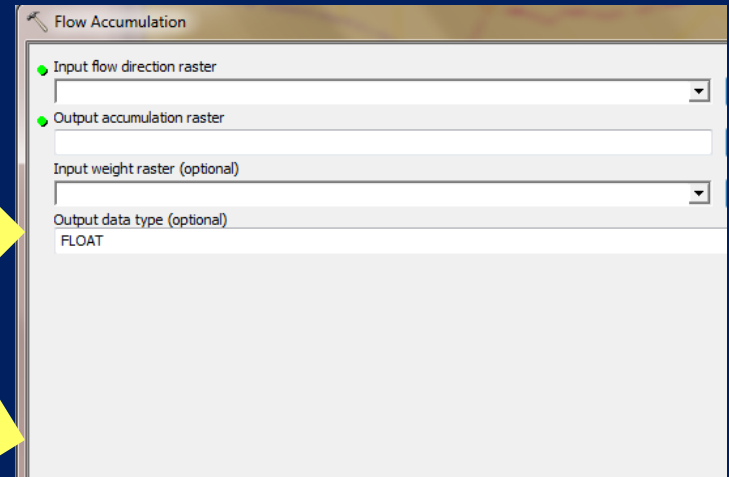
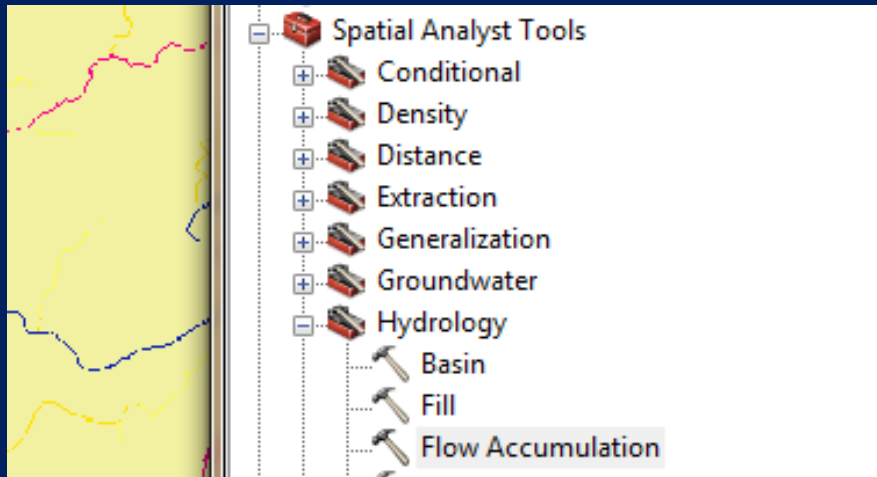
Deliniation of the Drini Basin



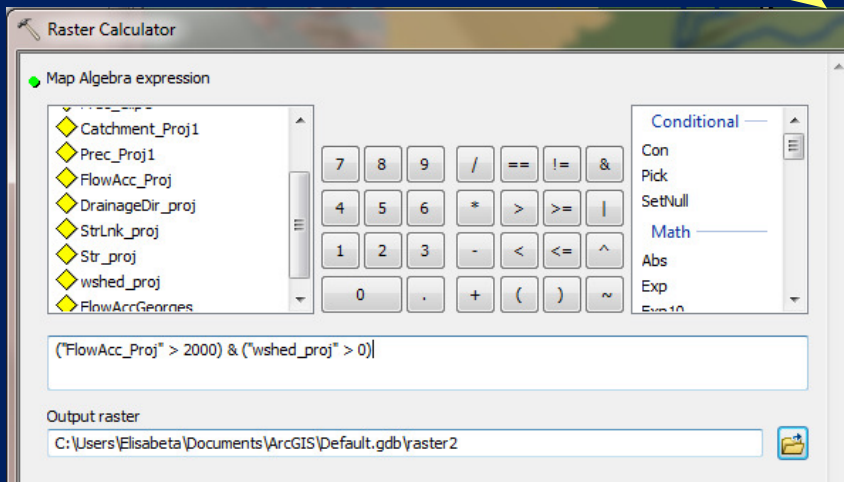
Isolating the Watershed and Defining an Outlet Point



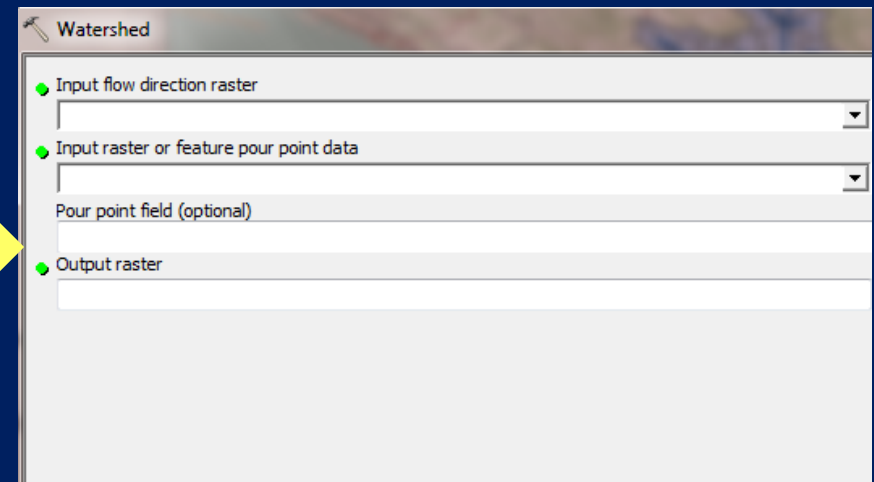
Flow Accumulation



Stream Definition



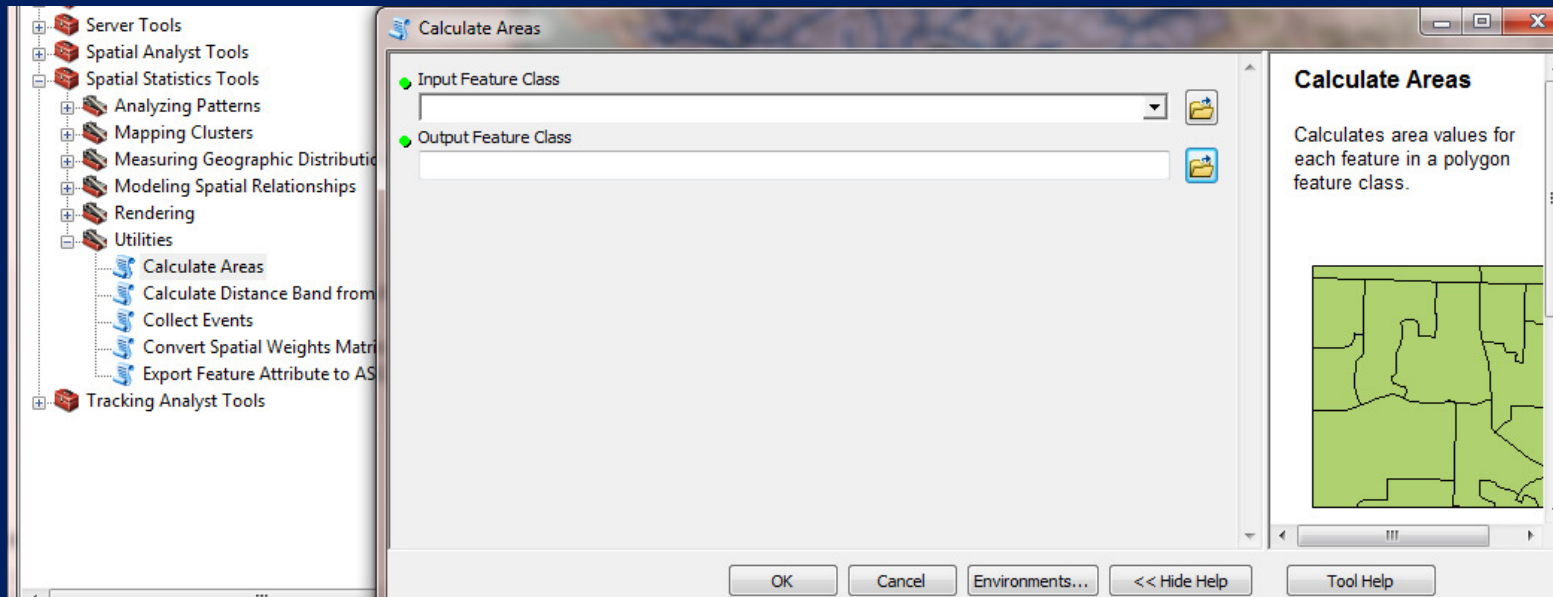
Delineating Catchments



Drini River Basin Delineated



Drini Basin Area



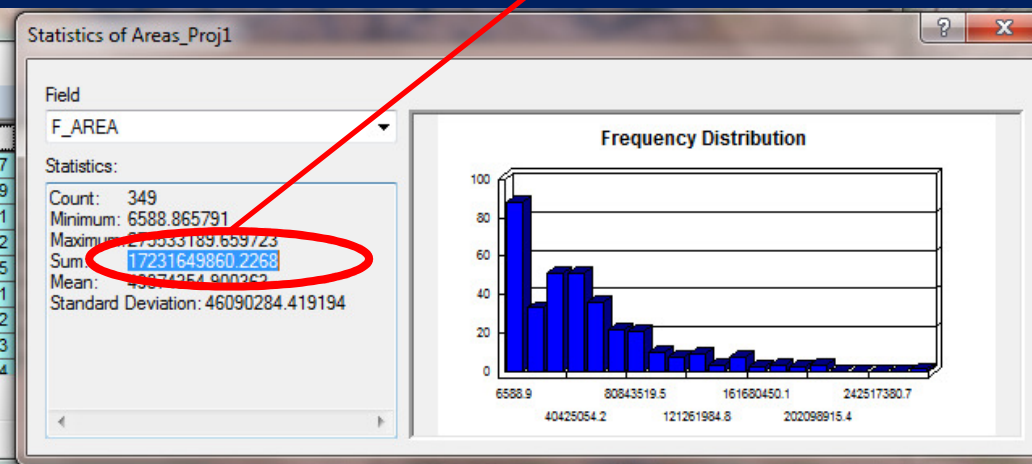
17,232 sqkm

Table

Areas_Proj1

OBJECTID*	Shape*	Id	grid_code	F_AREA
1	Polygon	1	6	42880338.569647
2	Polygon	2	8	32707129.787909
3	Polygon	3	7	46029816.417881
4	Polygon	4	5	96731138.681772
5	Polygon	5	10	2339047.355905
6	Polygon	6	11	34532245.612091
7	Polygon	7	2	202554912.155512
8	Polygon	8	12	64241441.464983
9	Polygon	9	9	23627672.727524

(0 out of 349 Selected)

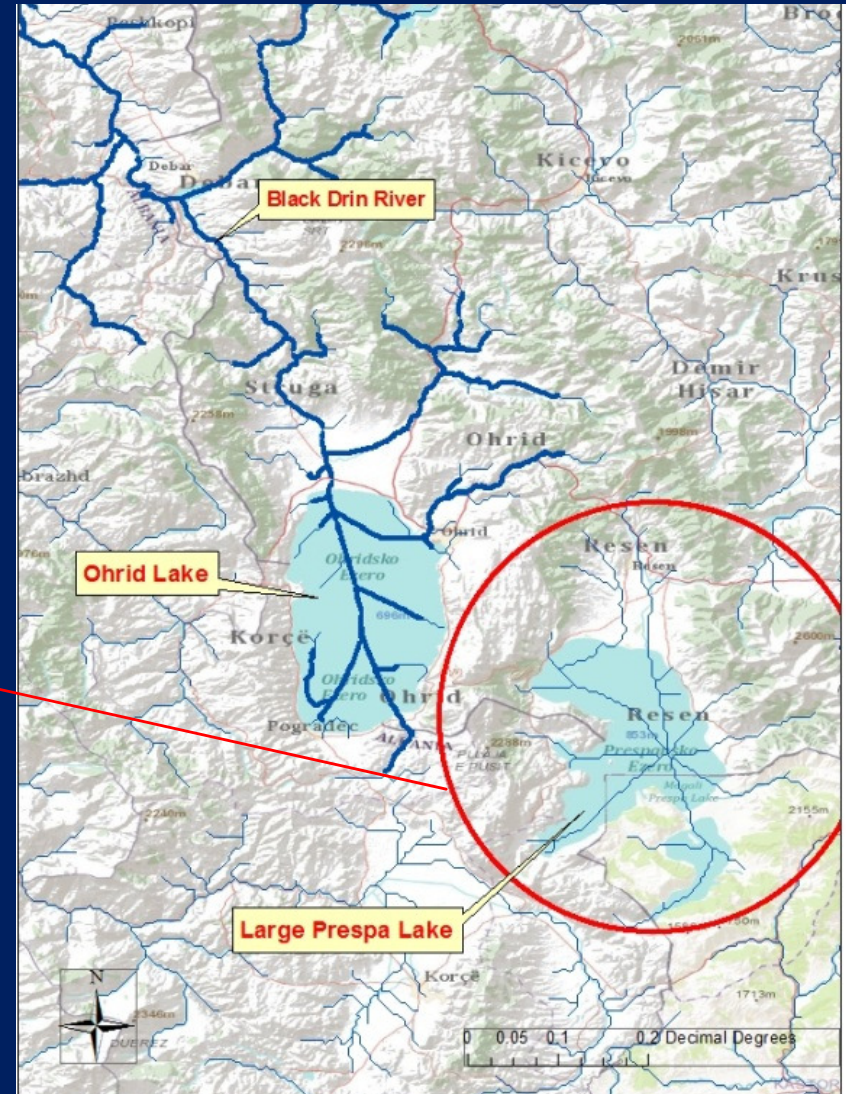


Drini Basin Area

Literature vs. **Me**

19,686 sqkm vs. **17,232 sqkm**

17,232 + **2,519** = 19,751sqkm



Subwatersheds of each Country



Natural Earth

Free vector and raster map data at
1:10m, 1:50m, and 1:110m scales

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« [1:10m Cultural Vectors](#)

Admin 0 – Countries

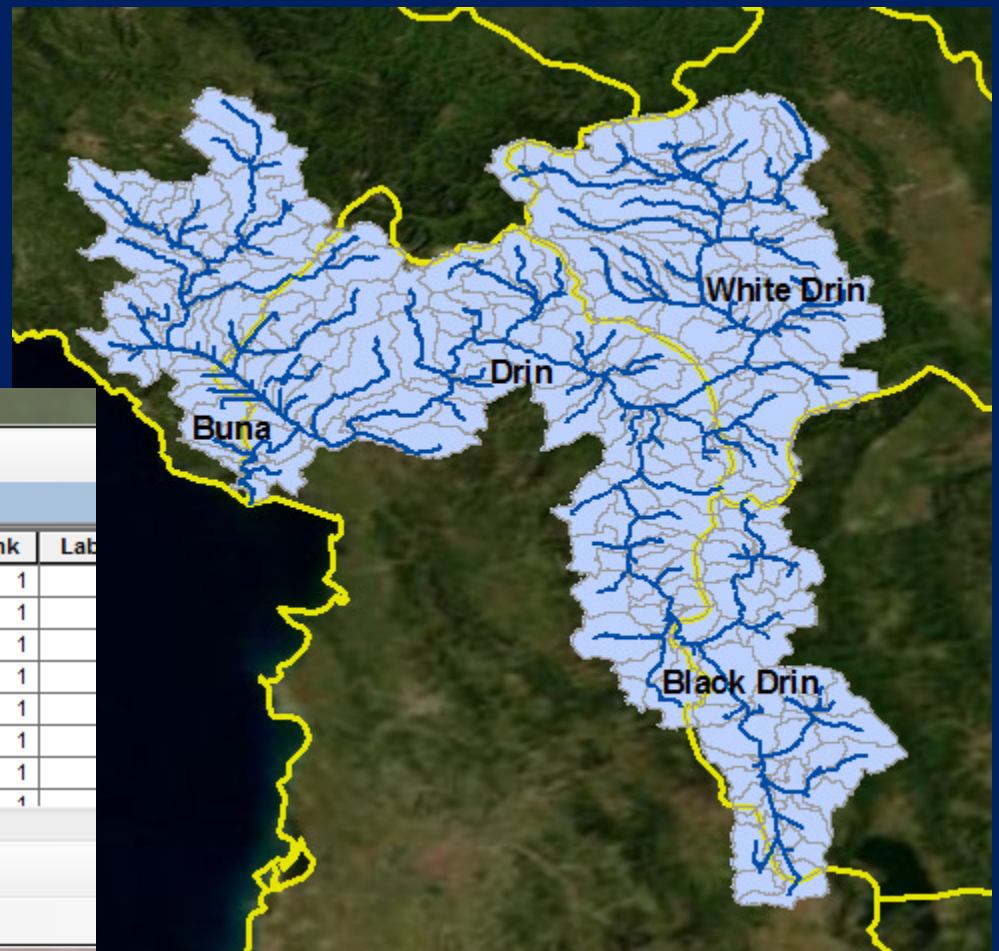
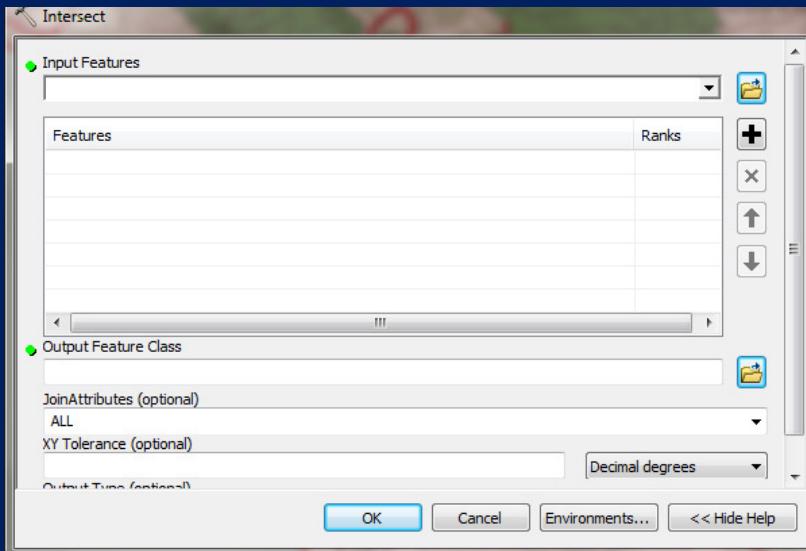


There are 247 countries in the world. Greenland as separate from Denmark. Most users will want this file instead of sovereign states.

[Download countries](#) (6.68 MB) version 1.4.0



Subwatersheds of each Country



Table

IntersecCatch_Proj1

OBJECTID *	Shape *	FID_ne_10m_admin_0	ne_10m_adm	ScaleRank	Lab
1	Polygon	4	ALB	1	
2	Polygon	4	ALB	1	
3	Polygon	4	ALB	1	
4	Polygon	4	ALB	1	
5	Polygon	4	ALB	1	
6	Polygon	4	ALB	1	
7	Polygon	4	ALB	1	
8	Polygon	4	ALB	1	

(0 out of 423 Selected)

IntersecCatch_Proj1

Precipitation Data

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Global Average Annual Precipitation, 1950-2000

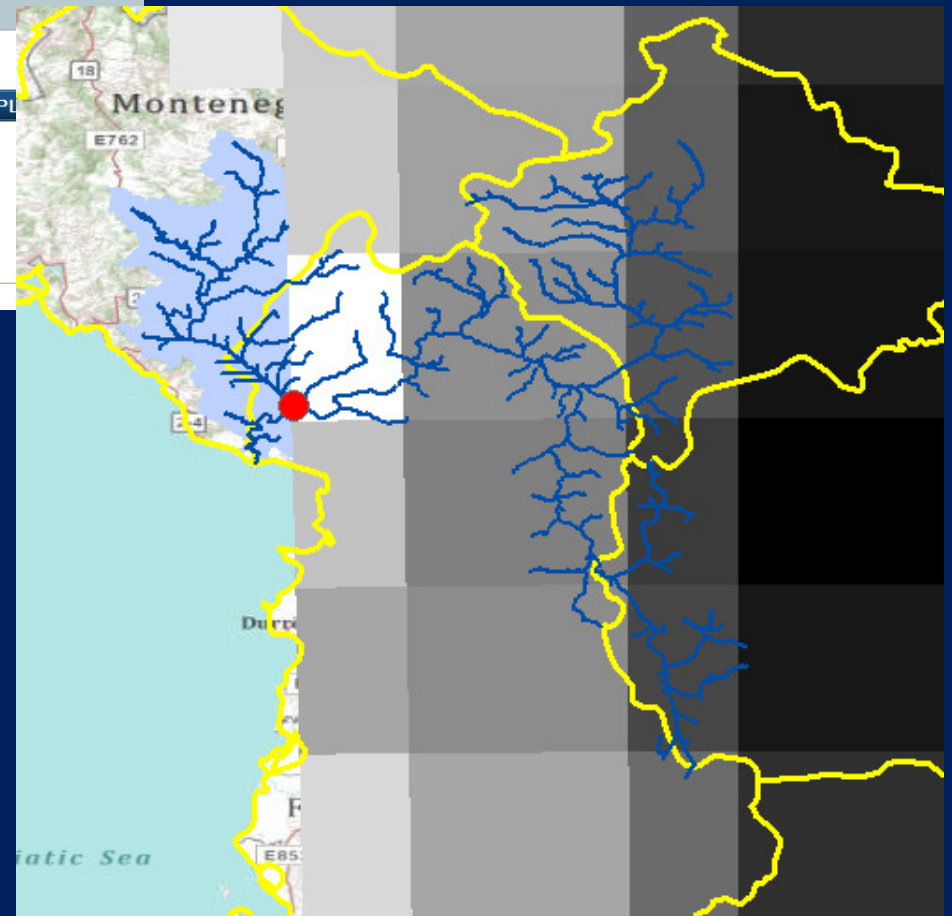


 Conservation Biology Institute
Uploaded Jul 1, 2010 (Last modified Jul 2, 2010)

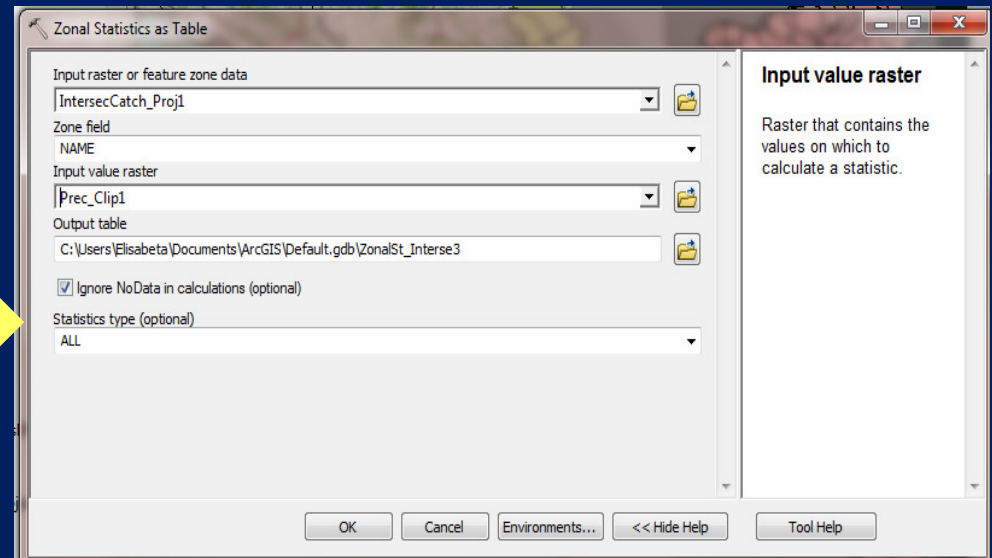
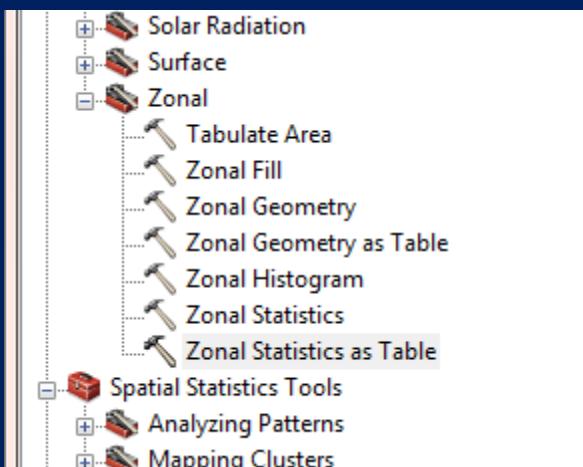
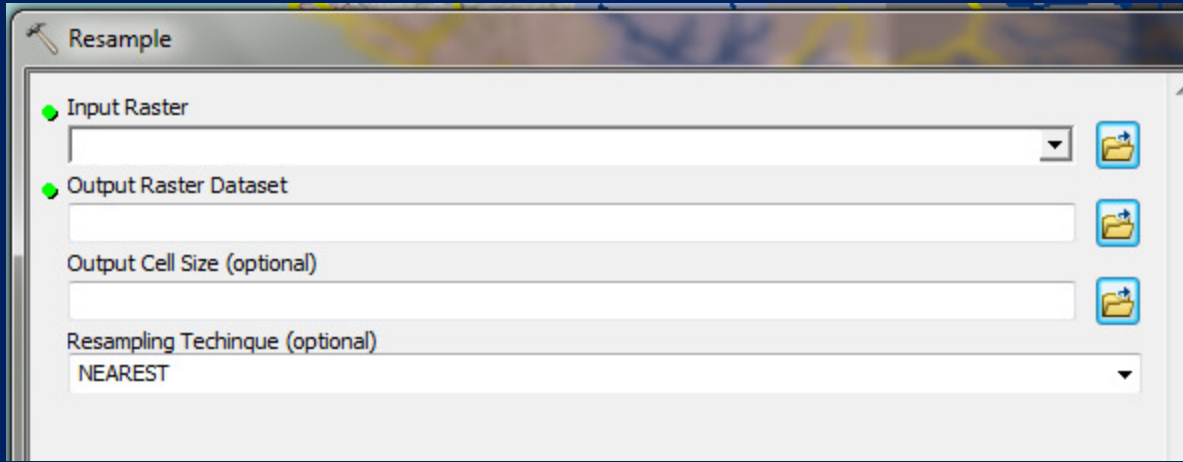
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Precipitation Data



Volume of Run-Off

Table

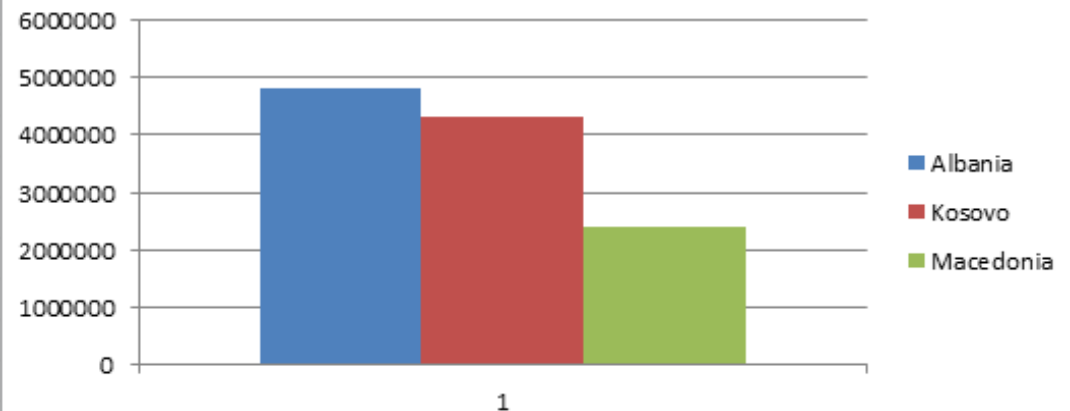
zonal_stat1

Rowid	NAME	ZONE-CODE	COUNT	AREA	MIN	MAX	RANGE	MEAN	STD	SUM	VARIETY	MAJORITY	MINORITY	MEDIAN
1	Albania	1	5	4318116900	1001	1289	288	1116.2	141.09061	5581	2	1001	1289	1001
2	Kosovo	2	5	4318116900	859	1041	182	996.59998	70.522621	4983	3	1041	859	1041
3	Macedonia	3	3	2590870000	825	966	141	919	66.46804	2757	2	966	825	966

Contribution to the Watershed



Mean Annual Precipitation by country (km³)



Issues concerning the Basin

- Upstream discharges of untreated wastewater and waste disposal;
- Overuse of Water Resources and Biodiversity threatening;
- Upstream interferences with Hydrological Processes related to Hydro-energy production plans;
- Illegal constructions at Coastal Areas;
- Soil Degradation, Land Erosion and alterations of land uses;
- Increase frequency of Flooding and the negative impacts of Sediments Deposition;
- Weak Institutional Management Structures;
- Low Participation of Stakeholders in Decision Making;
- Lack of Legislation Enforcement;

sharing **WATERS**

sharing **OPPORTUNITIES**

sharing **RESPONSIBILITIES**

Faleminderit = Thank you