PROTECT-STREAMS-4-SEA

The newsletter of the Protect-Streams-4-Sea (BSB963)

Issue # 4, July 2022

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The International Workshop on Preventing Water Pollution and Erosion in the Black Sea, Artvin, Turkey, 23rd-25th May, 2022

By Mustafa Tufekcioglu, Mehmet Yavuz, Can Vatandaslar

THE FIRST DAY - PRESENTATIONS (Monday, May 23, 2022)

The International Workshop on Preventing Water Pollution and Erosion in the BlackSea, was organized within the scope of the European Union Project titled "Protecting Streams for A Clean Black Sea by Reducing Sediment and Litter Pollution with Joint Innovative Monitoring and Control Tools and Nature-based Practices" presented under the theme of "Protect-Streams-4-Sea", was held at A. Nihat Gokyigit Congress and Cultural Center, Artvin, TURKEY, May 23-25, 2022.

With more than 140 participants, the workshop attendees were included Artvin Governor Yılmaz DORUK, AK Party Artvin Representative Erkan BALTA, Artvin Coruh University's Rector Mustafa Sıtkı BILGIN, Head of the Artvin AK Party Office Mithat TAHTALI, Artvin Forestry Regional Director Mimar Sinan ÖZKAYA, and guests from government officials, NGOs, academic personnel, students from ACU and members of the BSB963 Project Team.

Figure 1. Dr. George N. Zaimes, Project Coordinator, presented the Project-Stream-4-Sea project.

Figure 2. Dr. Mustafa Tufekcioglu, ACU Project Manager, presented activities and some results from the Arhavi River pilot area.

Figure 3. The Workshops participants from the project partners.

Project funded by EUROPEAN UNION

Protect-Streams-4-Sea

Black Sea CROSS BORDER COOPERATION

This publication has been produced with the financial assistance of the European Union. The contents of this publication are the sole responsibility of Valasia Iakovoglou, Paschalis Koutalakis et Georgios Gkiatas, (IHU SARF) and can in no way be taken to reflect the views of the European Union.

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SECOND DAY - ARHAVI FIELD TRIP (Tuesday, May 24, 2022)

On the 2nd day of the workshop, a field trip to "Arhavi River Watershed" pilot area was held. Along with 18 project members from Greece, Romania, Turkey, Moldova, and Armenia, 37 participants from local governments, NGOs, and ACU Forest Engineering students attended.

During the trip, the surface erosion plot on the hazelnut garden (Fig. 4), a clear cut tea field (Fig. 5), the litter trap site, and the July 22nd flooding event's leftovers (Fig. 6) on the road next to the Arhavi River were visited.

Figure 4. Erosion runoff plot on the hazelnut

Figure 5. Clear cut tea field on the hillslope

Figure 6. The damaged road leftovers from July 22th, 2021 flooding event next to Arhavi River

THIRD DAY - COMMITTEE MEETINGS IN TRABZON (Wednesday, May 25, 2022)

STEERING COMMITTEE MEETING

Each partner afterwards presented what the activities they have implemented till this point. Specifically, Valasia Iakovoglou, IHU-SARF presented the LP activities completed and problems that they have faced. Maria Marinescu, BIWA presented the PP2 activities completed and problems encountered. Luiza Gevoryan, YFU NGO presented the PP3 activities completed and problems resolved. Ilya Trombitsky and Roman Corobov, Eco-TIRAS presented the PP4 activities completed and problems faced. Finally, Mustafa Tufekcioglu and Mehmet Yavuz, ACU, presented the PP5 activities completed and problems encountered (Fig. 7).

Figure 7. The Steering Committee Meeting held on 25 May 2022 in Trabzon, Türkiye.

SCIENTIFIC COMMITTEE MEETING

Figure 8. Dr. Zaimes explaining the current status of the Addendum.

All partners agreed that more time is needed to accomplish all of the project's deliverables in a scientifically sound manner.

FINANCIAL AND ADMINISTRATIVE COMMITTEE MEETING

George N. Zaimes informed all partners that the Addendum had been submitted, and he hoped JTS would approve it (Fig. 8). The meeting came to an end at this point.

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Awareness Events Protect-Streams-4-Sea by IHU-SARF

A. "Tour on the Aggitis Springs/Cave in Greece - Understanding the importance of protecting unique natural water ecosystems".

By Iordanis Kasapidis

Figure 1. Informing the students about the scopes of the program

A visit/tour of students of the 2nd High School of Drama, Greece took place on Tuesday, May 10, 2022 in the springs and the cave of Aggitis River (or Maara), in the Greek pilot area. The event was organized in the context of the Protect-Streams-4-Sea project by the GERi Lab, the Department of Forestry and Natural Environment, School of Geotechnical Sciences, International Hellenic University (IHU) in collaboration with Roots NGO. The students had the opportunity to learn about the impressive river cave (Aggitis Cave) and the route that Aggitis Rivr follows, the activities of the project as wellas nature-based solutions in riparian areas, by the Project Coordinator George N. Zaimes and the cave tour guide Mr. Giannis Alistratinos (Fig. 1 and 2). The IHU research team presented the field equipment that is being used in the project activities (Fig.3). In addition, the students participated in the collection of litter along the riparian area of Aggitis River Mr. Konstantinos Devrikis, Principal of the 2nd High School as well as the teacher Mr. Ioannis Chatzigiannis who accompanied the students also contributed to this event. Please note that a Best Photograph competition took place with awards to the students' best photos that took part in the awareness event. The best photos were determined by voting.

Figure 2. Informing students about the pilot area of Aggitis River Basin

Figure 3. Litter collection in the riparian zone of Aggitis River

B. Understanding the importance of protecting unique natural water ecosystems

By Iordanis Kasapidis

The awareness event took place on May 18th-19th 2022 at the Middle with High School of Nikiforos Drama, in Greece. Specifically on May 18th, students and teachers were briefed on sustainable water management by Iordanis Kasapidis, PhD student in Forestry and Environmental and Natural Resources Management, (through a video-PowerPoint presentation), followed by a discussion on the importance of water, the hydrological cycle, the problem of plastics and microplastics and finally soil erosion. Subsequently, the students participated in a theatrical play organized by philologist Katerina Manousi and the students through cooperation and empathy realized the responsibility we all have to protect the environment (Fig.1).

Figure 1. The Theatrical play on environmental responsibility

Figure 2. Informing the students, teachers and guests about the scopes of the Protect-Streams-4-Sea project.

On May 19th , the Project Coordinator of the project George N. Zaimes informed the students, teachers and guests (Deputy Regional Governor of Drama, Deputy Mayor of Paranesti, Head of the Secondary School of Drama) about the scopes of "Protect-Streams-4-Sea" project to raise its awareness to the target groups (Fig. 2). Next envi-

ronmental activities took place that included planting of aromatic plants (Achilles, rosemary, thyme, etc.) in the school yard to reduce soil erosion and improve aesthetics (Fig. 3). An experimental area was also set up in order to study and understand the soil erosion process based on different land cover in the following years (Fig. 4). The event reached national recognition since it was covered live by a Greek TV station, ERT3 TV during the well-known show "Perimetros" (https://www.ertflix.gr/vod/vod.196110-perimetros-185 46 minute) (Fig. 5). During the implementation of the event te contribution of the research team of Geri Lab and instrumental (The GERi Lab team: Paschalis Koutalakis, Iordanis Kasapidis, Giorgos Gkiatas, George Pagonis, Kostas Krikopoulos and Theodoros Klepountsiotis). The event was organized and implemented by Roots NGO.

Figure 3. The setting up of then experimental plots to study the impact of land-use on erosion.

Figure 4. Students planting of aromatic plants to reduce erosion and improve aesthetics

Figure 5. Live interview by a national Greek TV station ERT3

The 2nd Awareness Event in Turkey

By Mustafa Tufekcioglu, Ahmet Duman and Cengizhan Yıldırım

Figure 1. Showing and informing the students on the construction of the wooden sills on a gully

Mustafa Tufekcioglu, Ahmet Duman and Cengizhan Yıldırım showcased to more than 30 university students and foresters the methodologies implemented in the BSB963 “Protect-Streams -4-Sea” project and other nature based practices on June 11th, 2022 that was held in Artvin and Erzurum, Türkiye. The field study carried out within the scope of the project were shown to include the use of erosion control practices like wire-cage and dry-stone sills, stone barriers, terraces (Fig. 1-2), check dams and storage dams, the use of the streamflow meter and pressure transducer to measure stream stage change and discharge, the erosion pins to measure soil loss in streambanks and gullies, runoff plots to evaluate surface erosion in different land uses, soil sampling within 0-30 cm depth (Fig. 3) for analyzing properties of different types of soil including bulk density, moisture, texture, and organic matter. At the end of the of the event, the students were satisfied with the field trip and were really interested in the scope of work undertaken within the project and volunteered for project participation. During the Awareness Event, the students were also informed various types of ecological and climatic setting found in the both Arhavi River and Coruh River Watersheds; characteristics of climates and ecoregions, vegetation and soil types in both study area. The positive and negative aspects of the hydroelectric power plants constructed in the both watersheds were also discussed.

Figure 3. Dr. Tufekcioglu and Dr. Duman showed how to take soil samples at a depth of 30 cm using soil cores

Figure 2. Showing and informing the students on the construction of the dry-stone wall without cement

PROTECT-STREAMS-4-SEA

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Common borders. Common solutions

Current research activities achieved so far-YFU-ARMENIA

By Luiza Gevorgyan

Figure 1. Field activities

A field visit was carried out on the 17th of July which served the purpose of carrying out the 3th subsequent measurement activities of the established plots, erosion pins and Gerlach traps, measurement of water quality parameters and sampling for laboratory analysis. The quantification of erosion was carried out based on RUSLE method for which respective data was acquired. The respective maps were generated based on the equation of A=R*k*LS*C, including R=Erosion potential, k=coefficient of soil erosion, L=slope lengthy, S=Slope steepness and C=vegetation. The method was applied for the period of May, August and November of 2021 based on the vegetation types and their phonological stages. The respective results of the use of the RUSLE method shows that the erosion potential intensified during May and especially in the higher parts of the mountains due to abundance of precipitation and poor vegetation cover. While due to low precipitation and certain phenological stage of the vegetation cover the erosion intensity decreased in August and November.

According to the erosion risk classification, Debed catchment area is dominated by areas with low erosion risk. Medium risk is observed in high mountain and especially near-peak areas, and in separate small areas there are also areas with high risk of erosion, which is mainly caused by the anthropogenic factor. The principal goal was to validate the applicability of the Soil and Water Assessment Tool (SWAT) model to provide a reliable flow prediction for the Debed river basin in Armenia. The principal goal was to validate the applicability of the Soil and Water Assessment Tool (SWAT) model to provide a reliable flow prediction for the Debed river basin in Armenia. Key SWAT procedures included: Creating SWAT databases, Delineation of the watershed and defining the Hydrological Representative Units (HRUs), Creation of a weather database, Creation of SWAT input database, Running the SWAT, Analysis of SWAT outputs

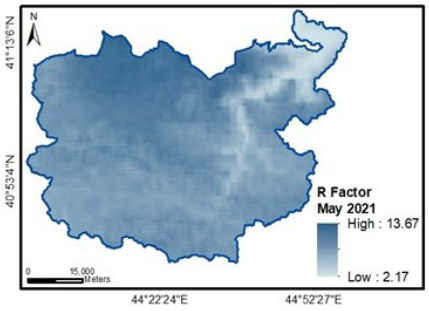

Figure 2. Erosion potential of the precipitations (R)

The watershed delineation for identifying reaches and watersheds of the Debed river basin was carried out in the Arc SWAT environment, using the Digital Elevation Model (DEM).

Reaches were defined as lengths of the river where drainage areas were more than a threshold value that, proceeding from this watershed area (3565.3 km2), was selected by definition equal to 500 ha. According to this threshold and the level of relief roughness (elevations from 3196 to 380 m), 73 sub-basin outlets were automatically defined on each of the reaches upstream of 37 hydrological posts. The area of the Debed river basin was divided into 73 sub-basins using SWAT software application. The climate variables required by SWAT consist of daily precipitation, mean, maximum and minimum temperatures, wind speed, and relative humidity. The model allows imputing these variables from observed data records or they are simulating from averaged monthly values. Because of practically no free access to daily weather information, for simulation of the Debed river basin watershed climatic conditions, the (2019-2021yrs) monthly observations 5 weather stations (Vanadzor, Tashir, Odzun, Stepanavan, and Pushkin) Debed river basin were acquired from the hydrometeorology and monitoring center. In the river basin Debed, in order to assess the channel erosion of rivers, the results of measurements of cross sections over the past four years at 12 hydrological observation points of the river basin were studied. The results have already been generated and will be used in the fingerprinting analysis.

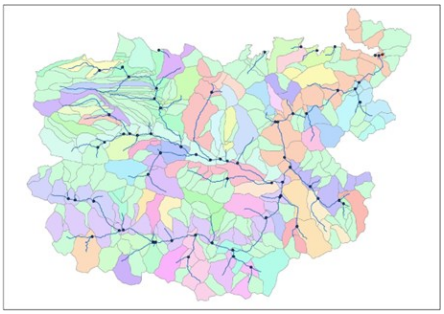

Figure 3. Sub-basins of Debed river basin

PROTECT-STREAMS-4-SEA

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Common borders. Common solutions

Current research activities achieved so far-BIWA-ROMANIA

By Ristea Oana and Constantin Alina

The main diffuse sources identified in the pilot area are plastic waste, activities being focused on collection and sorting of plastic waste, identification of types of plastic waste and studying the presence of microplastic in sediment and water.

The studies focused on investigation of two plastic groups: macroplastic (fragments> 5mm) and microplastic (fragments <5mm). Thus, activities were carried out to detect and investigate the macroplastic in the pilot area based on a methodology drafted within the project.

The litter present in each hotspot in the pilot area was sorted according to the Master List of Categories of Litter Items from Guidance on Monitoring of Marine Litter in European Seas, was filled the Plastic Litter List (adaptation of List of Litter Categories for Marine Macrolitter Monitoring), was completed by noting the type and number of items, categories of litter present and their abundance.

Figure 1. Field measurements

Of the waste collected, plastic waste has the highest share (93%), and of these, 60% are plastic bottles, then the plastic fragments resulting from the breaking of objects, as well as plastic tableware (cup, plate, cutlery).

The collected plastic items were also classified into 2 major groups of items: single use plastics, non-single use plastics. As single-use plastics the following items were considered: shopping bags, drink bottles, food containers from fast-food, plastic tableware (cup, plate, forks, cofee/tea stirrers, straws) 68% are single-use items, and 89% of them are plastic bottles.

An important activity of the study is identification of the MICROPLASTIC fraction (<5mm) present in sediment and water. The microplastic sampling was performed according to the Standard Operating Procedure (SOP) developed within the project. The samples were analyzed microscopically.

Microplastic particles were identified in all collected samples, but their abundance in both, water and sediment samples is relatively low.

The concentrations of microplastic particles identified are relatively uniform from a spatial point of view. The microplastic fragments were counted and were classified by size (particles smaller than 1 mm and larger than 1 mm), morphology (foils, fibers, fragments and spheres) and colors (black, white, yellow, red and blue /green particles). In all samples dominated are plastic fragments smaller than 1 mm, black ones and fiber morphology.

In terms of FTIR spectrophotometric analyzes on plastic fragments, it was proved that they belong to the polymers of polypropylene, polyethylene and polyethylene terephthalate (PP, PE and PET).

Figure 2. Water samples collection and laboratory analysis

PROTECT-STREAMS-4-SEA

The newsletter of the Protect-Streams-4-Sea (BSB963)

Issue # 4, July 2022

Common borders. Common

Current research activities achieved so far-ACU-TURKEY

By Mehmet Yavuz , Mustafa Tufekcioglu, Ahmet Duman, and Aydın Tufekcioglu

Figure 1. Litter trap sampling: separating and weighing the litter in Arhavi River Watershed

The periodic (Spring) measurements of erosion pins on stream/river banks were carried out during the fifth period of field monitoring. Other periodic data collections, such as water and soil samples, were also carried out throughout the watershed. Flow meters are used to measure stream flows on a regular basis. More soil samples have been collected for analysis of finger prints. In the soil lab, soil samples collected for fingerprinting were partially analyzed for texture and other chemical properties.

The litter was collected through litter traps and separated and measured for analysis (Fig. 1).

Furthermore, the Unmanned Aerial Vehicles (UAVs) have been utilized to capture the current conditions of 212 “hot-spots” that were extracted from SENTINEL-2 satellite imagery during 2019-2022 periods.

The ArcGIS Model Builder and Weighted Analysis Tools were utilized to further refine the hotspots. Each UAV images captured on were utilized to create ortho-photos, 3D digital terrain (DTM) and digital elevation (DEM) models of hot-spots within the watershed. Furthermore, size, dimension, and volume of soil loss of each hot-spots were measured from these DTMs. Total of 17 stream reaches were flown over with The UAVs. Within each reach, at least 3 cross-surveys were measured. Total of 51 cross-sections were surveyed. The ortho-photos were also utilized to identify and digitize elements such as stream center-

Figure 3. Stream reach and corridor profiling (cross-section) using drones and 3D software in Arhavi River Watershed

Figure 2. Drone surveying of the hot-spots within the stream corridors and the mountain hills in Arhavi River Watershed

lines, widths, base flow, bankfull length, flood plain, deposited and eroded areas, bank height and bank angle for the GIS Stream Bank Erosion Index. The thermal sensor of the UAV was utilized to map the source and extend of the water within each hot-spot. We also utilized the thermal sensor for delineating base flow line of the streams.

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Common borders. Common solutions

Current research activities achieved so far-IHU-SARF-GREECE

By Georgios Pagonis

A. Measuring stream bank erosion in Greece, Erosion Pins and Cross-Sections

In the Greek pilot area of Aggitis waterhsed erosion pins and cross-sections were installed to measure stream bank erosion. Erosion pins are narrow metal rods installed horizontally used to measure the retreat of the streambanks over time. Each plot had two erosion pin rows, one placed at 1/3 of the bank height (bottom-bank) and the other at 2/3 of the bank height (top-bank) (Figure 1). The Erosion pins were 800 mm long, 8 mm in diameter, made of steel, and inserted perpendicularly into the bank face. Erosion pins are well suited for measuring bank erosion rates for short-time scales and when high resolution is needed.

Figure 1. Height of stream bank to place erosion pins

I addition, bench-marked cross-sections were used to look at contemporary changes in the same plots that have erosion pins. The locations of the three cross sections at each plot were selected as, one meter before the first pins, in the middle of erosion plot and one meter after the last pins (Figure 2). Erosion pin and cross-sections are measured at the same time to compare the two methods.

Based on the latest measurements of the erosion pins and cross-sections, substantial changes and a fairly large erosion of stream bank was recorded. The measurements were conducted March and showed that most plots had erosion while few had deposition. Similarly, the cross-sections in almost all streams show that the morphology has changed since the first time they were measured.

Figure 2. Cross-Sections placement

B. Laser Scanning to Measure Geomorphological Changes in Greece

By Georgios Gkiatas

Using new technologies, such as Laser Scanning, allows to measure and monitor more accurately geomorphogical changes. This is being implemented in Aggitis watershed, the Greek pilot area of the project.

Specifically, this new technology is being used to measure and monitor more accurately the stream bank erosion and deposition. To accomplish, we used the Terrestrial Laser Scanning. Terrestrial laser scanning (TLS) provides data that can be transformed to highly accurate reconstruction of the surface and geometry of an object. TLS was originally developed for structural engineering applications, especially for buildings. Nowadays, TLS have been utilized widely in environmental sciences and for riverine environments including capturing stream banks and beds to monitor to detect geomorphologic changes. TLS has many

Figure 3. Stream bank Laser scanning

advantages in contrast to traditional topographical surveys as the labor intensity significant lower compared to traditional methods, spatially faster data acquisition and increased accuracy of measurements. The main disadvantage is that TLS is an expensive tool. In Greece we scanned 3 different torrents so we will be able to monitor the stream bank erosion and deposition. The torrents are: a) Kallifitos, b) Aggitis and c) Mavrolefki. We choose specifically these 3 torrents because of the different geomorlogical characteristics they have. The first measurements (scanning) were taken in February while the second measurements will be taken in July.

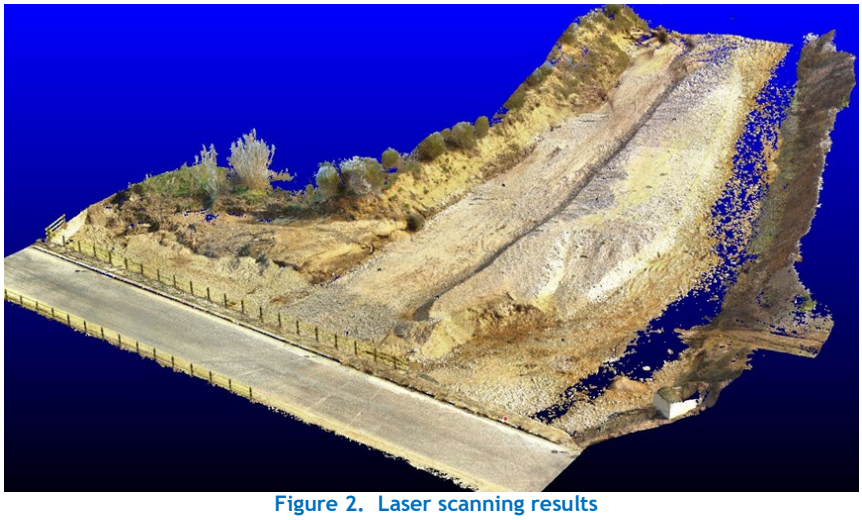


Figure 2. Laser scanning results

Current research activities achieved so far-Eco-TIRAS

By E.Kuharuk, R.Corobov and Gh. Sirodoev

The erosion pins experiment was executed on the banks of the small River Baltata

Figure 1. erosion pins in Balabanesti

At the beginning of May, the parameters of the river flowing near the experiment were measured, and they were 1.95 m, and on June 26, due to low rainfall and partial drying, they were 1.20 m. Erosion processes were not observed during this time due to low precipitation. A detailed analysis of the soil cover of the commune was carried out and a cartogram of the slopes of the village Balabanesti was compiled for specific anti-erosion measures. For the project study area, specific measures have been developed to prevent soil erosion in the riparian areas. Considering the existing ravines in the southwestern part of the settlement, one can see what form the ravines formed. To prevent the growth of ravines, it is necessary to design near-ravine forest belts. In this area we have three ravines with a length of 1300 m, 1700 and 1200 m. To wash away the soil from the ravined areas, specific anti-erosion forest plantations project has been developed to prevent soil erosion and pollution of water sources.

WEPP in Moldova: the first steps

Serious environmental and economic problems generated by soil erosion are considered as one of the most significant processes related to surface hydrology. Modeling and quantification of soil loss and sediments, caused by erosion, is a permanent challenge in natural resources and environmental planning that needs a comprehensive understanding of hydrological and physical processes driving these processes. On the way to solving this task the different process-based mathematical and hydrological models are becoming more and more popular. One of such models, the Water Erosion Prediction Project model (usually referred as WEPP) is included in the BSB965 project activities.

WEPP model is the result of researches on erosion prediction in the US. It incorporates the fundamentals of up-to-date soil hydrologic and erosion science, consolidating climate, soil infiltration, water balance, plant growth and residue decomposition to predict surface runoff, soil loss, deposition and sediment delivery over a range of timescales, including monthly and yearly totals or their average annual values. The erosion processes, represented in the WEPP, relate to sheet and rill erosion, as well as to

erosion occurring in channels due to hydraulic shear. Through the model's erosion components, all three stages of erosion (detachment, transport and deposition) are quantified, using the rill-inter-rill concept of describing sediment detachment. Later, there was developed GeoWEPP — a geospatial interface to the WEPP, which now functions within the ArcGIS 9 system.

Figure 2. Drone image of reservoirs in the Baltata riverbed

In the framework of this project the WEPP model is tested to estimate the soil loss and sediment deposition in the Baltata River watershed. At present, due to an intensive anthropogenic load, this tributary of the Dniester River is completely transformed and its natural flow has significantly changed, practically almost completely accumulating in three artificial reservoirs in the riverbed (Fig. 1). Therefore, it was quite natural to assume the larger part of pollutants and sediments formed in the watershed settles and accumulates in these reservoirs. Generally, WEPP application includes four steps for the watershed simulation based on a Digital Elevation Model (DEM): Import of a DEM and its preprocessing for the WEPP database scale, Channel and watershed delineation and its discretization for modeling scale, Input of the model's parameters and its run for the soil loss and sediment prediction, Mapping model results and their post-processing. Additionally, to DEM, input parameters for the WEPP modeling include: Soil: soil texture, depth and erodibility, Land use (surface cover, management), Climatic information. One of the most important conditions in preparing the data for using the GeoWEPP model was their converting into ASCII files. This procedure for landuse and soil was carried out in ArcMap (Fig. 3).

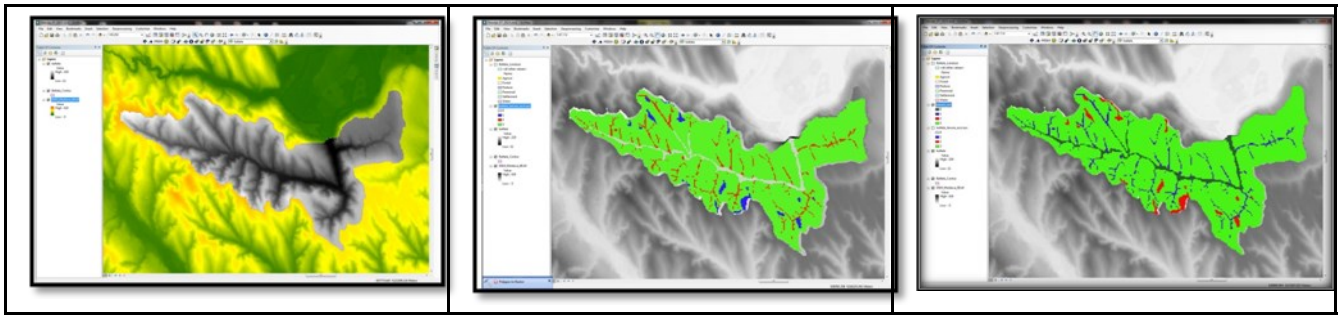
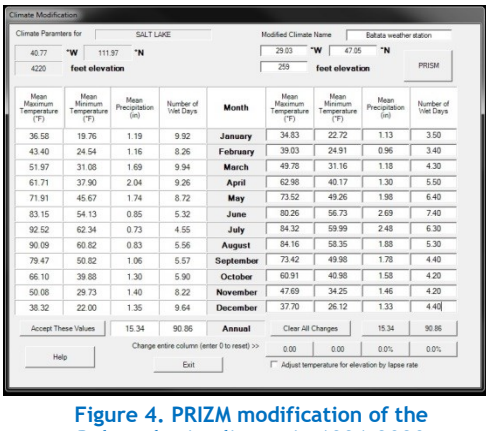


Figure 3. DEM, landuse and soil maps of the Baltata River watershed in ASCII formats (from left to right)

Climate data for WEPP simulation include monthly mean maximum and mean temperatures, precipitation and number of wet days. In our case, there was used information from the Baltata weather station, located practically in the centre of the study area. The necessary WEPP modification of climate files was addressed by the Parameter-Regressions on Independent Slopes Model (PRISM) tool (Fig. 4).



Month	Mean Maximum Temperature (°F)	Mean Minimum Temperature (°F)	Mean Precipitation (in)	Number of Wet Days
January	34.83	22.72	1.13	3.50
February	39.03	24.91	0.96	3.40
March	49.78	31.16	1.18	4.30
April	62.98	40.17	1.30	5.50
May	73.52	49.26	1.98	6.40
June	80.26	56.73	2.69	7.40
July	84.32	59.99	2.48	6.30
August	84.16	58.35	1.88	5.30
September	73.42	49.98	1.78	4.40
October	60.91	40.98	1.58	4.20
November	47.69	34.25	1.46	4.20
December	37.70	26.12	1.33	4.40
Annual	15.34	90.86		

Figure 4. PRIZM modification of the Baltata basin climate in 1991-2020

The Baltata watershed channel is generated using two parameters: the Critical Source Area (CSA) and the Minimum Source Channel Length (MSCL). The CSA is the minimum area needed to generate a channel; the MSCL is the shortest distance needed for a channel to converge with another one. Depending on the Baltata DEM resolution, these parameters were setting as 100 ha and 3000 m, respectively (Fig. 5).

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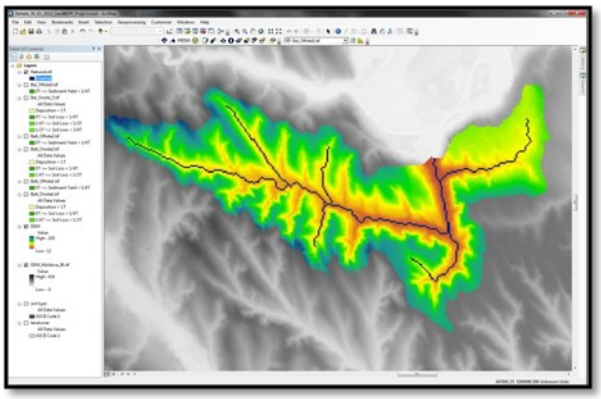

Figure 5. The Baltata watershed network with CSA of 100 ha and MSCL of 3000 m

The watershed delineation ends with selecting an outlet point, as a cell with only one channel flowing into it. Since in the Baltata River channel there are three reservoirs formed by dams, the sediments, created in the watershed, are also transported and accumulated in these reservoirs. Therefore, our study aims to estimate separately the volume of sediments accumulation in each of the reservoirs and in the river channel free from them. The implementation of each of these tasks has required the allocation of appropriate outlets (Fig. 5a). Each channel within these sub-watersheds has up to three hillslopes flowing into it (left, right, and source (e.g., Fig. 5b). In the process of further work, it is planned to run the WEPP model to assess soil erosion and sediments for each reservoir and for the river as a whole.

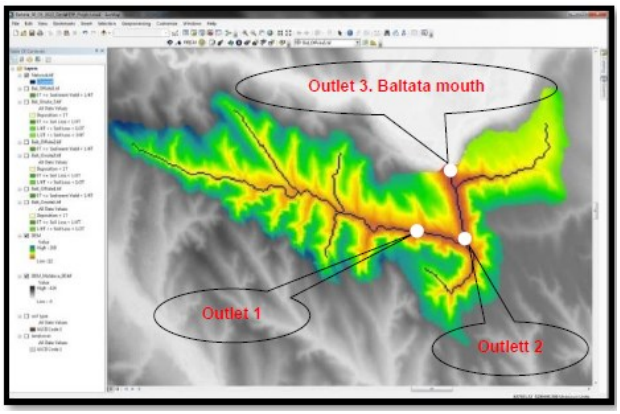

Figure 5a. Outlet points, selected to estimate the volume of sediments in the Baltsata river basin

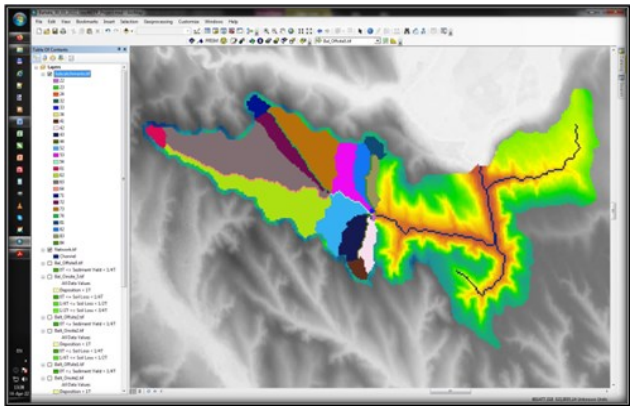

Figure 5b. Hill slopes (in colors) in the sub-watershed catchment, formed by Outlet 1.

The 2nd Press Conference in Turkey (Friday, June 10, 2022)

By Mustafa Tufekcioglu, Mehmet Yavuz, Aydın Tufekcioglu

Figure 1.The press conference participants from the news agencies

The 2nd press conference, attended by 15 people from various news agencies (Fig. 1), was held in the Artvin Coruh University's guesthousef. The conference lasted around one hour and was followed by a dinner. It was also highlighted in the local newspaper, 08ajans (www.ajans08.com), and on the website of Artvin Coruh University (www.artvin.edu.tr).

International and local conferences

- George Zaimes and Valasia Iakovoglou from IHU-SARF presented results at the WaSec Tester Workshop on 13th March 2022 in Tulkarm, Palestine.
- Valasia Iakovoglou, G.N. Zaimes, P. Koutalakis, G. Gkiatas, G. Pagonis. The title of the presentation was "Nature-based solutions to mitigate pollutants and climate change impacts at the Black Sea region" International Conference: Earth Science and Climate Change, 27th-28th April 2022, that was held online.
- Koutalakis, P., Pagonis, G., Kasapidis, I., Gkiatas, G., Iakovoglou V. and Zaimes, G.N. "Using instream pins in order to monitor soil erosion, sediment deposition and water degradation on the river courses of the Black Sea Basin. International conference "Not just eight (countries) use the Black Sea", 19th-20th May 2022 in Costanza, Romania.
- Daniel Diaconu, Mirela Marinescu, Zaimes George and Tarziu Radion. The title of the presentation was "Water surface debris collection technologies" International conference "Not just eight (countries) use the Black Sea" , 19th-20th May 2022 in Costanza, Romania.
- Paschalis Koutalakis, Georgios Gkiatas, Iordanis Kasapidis, Valasia Iakovoglou, Georgios Pagonis & George N. Zaimes. The title of the presentation was "VULNERABILITY OF KALLIFYTO TORRENT ON FLOODS AND BANK EROSION WITH TRADITIONAL AND MODERN METHODS." 15th Panhellenic Conference organized by Hellenic Hydrotechnical Union on 2nd-3rd June 2022 in Thessaloniki, Greece.

Presentations

- George Zaimes, presented an overview to the master students of the Man, Biosphere and Climate Change of the National & Kapodistrian University of Athens and the International Hellenic University on 6th May 2022 that was held online.
- George Zaimes, presented an overview to the master students of the "Analysis and Management of Anthropogenic and Natural Disasters" Program of the Greek Fire Academy and the International Hellenic University (http://mandisastermsc.teiemt.gr/) on 7th May 2022 that was held in person and online.

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New Videos

Please check out the new videos on our Youtube channel:

a) Activities so far... GREECE,
b)Protect-Streams-4-Sea as we have only-one- earth! World Environment Day 2022,
c) 1st Awareness event January 14th 2022, TURKEY,
d) Workshop 1st day 23th May 2022, TURKEY,
e) Workshop, field trip pilot area 24th May 2022. TURKEY,
f) Workshop Field trip May 2022, TURKEY
g) 2nd Awareness Event June 11th 2022, Turke
h) Workshop in Romania - organizeR BIW - Siriu Reservoir-Buzau River (4th-5th July 2022)

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