

Centre for Research and Technology Hellas
Information Technologies Institute

Tutorial on Water Transition Zone

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Tutorial Material prepared in cooperation with MSc Katsikis Eleftherios and Dr Ioannis Manakos

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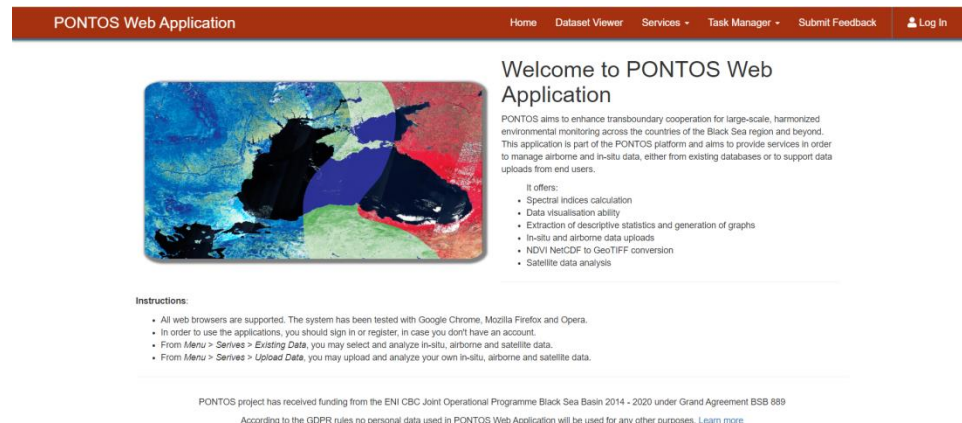
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Step 1: Login to the PONTOS Web Application

Open the PONTOS Web Application from the url: <http://195.250.69.26:7000/>



PONTOS Web Application Home Dataset Viewer Services - Task Manager - Submit Feedback Log In

Welcome to PONTOS Web Application

PONTOS aims to enhance transboundary cooperation for large-scale, harmonized environmental monitoring across the countries of the Black Sea region and beyond. This application is part of the PONTOS platform and aims to provide services in order to manage airborne and in-situ data, either from existing databases or to support data uploads from end users.

It offers:

- Spectral indices calculation
- Data visualisation ability
- Extraction of descriptive statistics and generation of graphs
- In-situ and airborne data uploads
- NDVI NetCDF to GeoTIFF conversion
- Satellite data analysis

Instructions:

- All web browsers are supported. The system has been tested with Google Chrome, Mozilla Firefox and Opera.
- In order to use the applications, you should sign in or register, in case you don't have an account.
- From *Menu* > *Services* > *Existing Data*, you may select and analyze in-situ, airborne and satellite data.
- From *Menu* > *Services* > *Upload Data*, you may upload and analyze your own in-situ, airborne and satellite data.

PONTOS project has received funding from the ENI CBC Joint Operational Programme Black Sea Basin 2014 - 2020 under Grand Agreement BSB 889
According to the GDPR rules no personal data used in PONTOS Web Application will be used for any other purposes. [Learn more](#)

The PONTOS Web Application's services are available only for registered users. To create an account:

- a) select "login" from the menu bar
- b) select "Sign Up" from the login form
- c) fill the register form with the username, e-mail and password and select "Register".
- d) select "Login", fill the form with the username and the password and select "login"

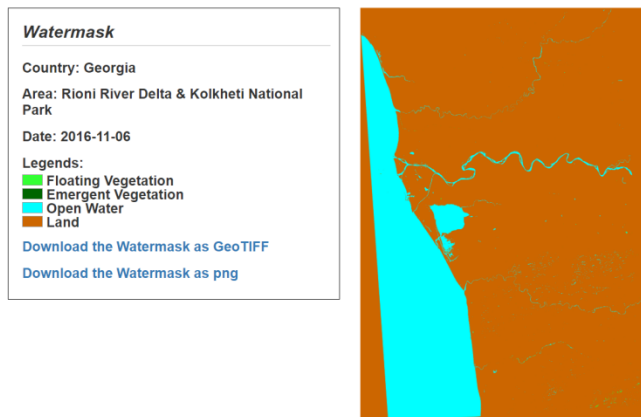
Step 2: Execute Watermarks task on the PONTOS Web Application

- From the menu bar select "Dataset Viewer" to find the available data for each pilot area
- From the menu bar select: Service -> Existing Data -> WaterMasks
- Select area
- Select date in the WaterMasks form and submit. The WaterMask starts being calculated.

Step 3: Download the Watermarks from the PONTOS Web Application

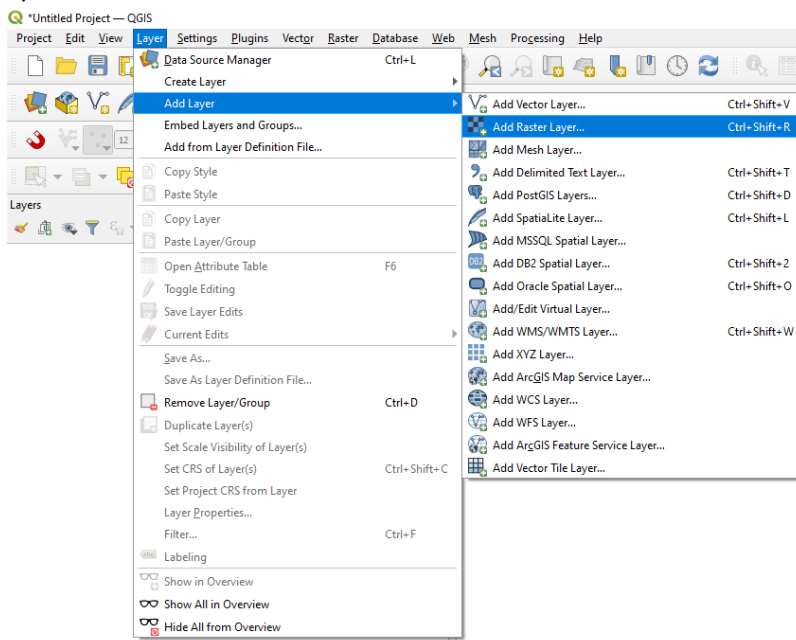
The WaterMask is available to be downloaded when the submitted task is completed. To find the results:

- From the menu bar select: Task Manager -> WaterMasks
- Select "Details" from the requested task
- Select "Download the WaterMask as GeoTIFF"



Step 4: Insert the Watermarks to the QGIS software

- Open the QGIS software and from the menu bar select: Layer -> Add Layer -> Add Raster Layer
- Select “browse” and open the downloaded WaterMasks
- Select “add”

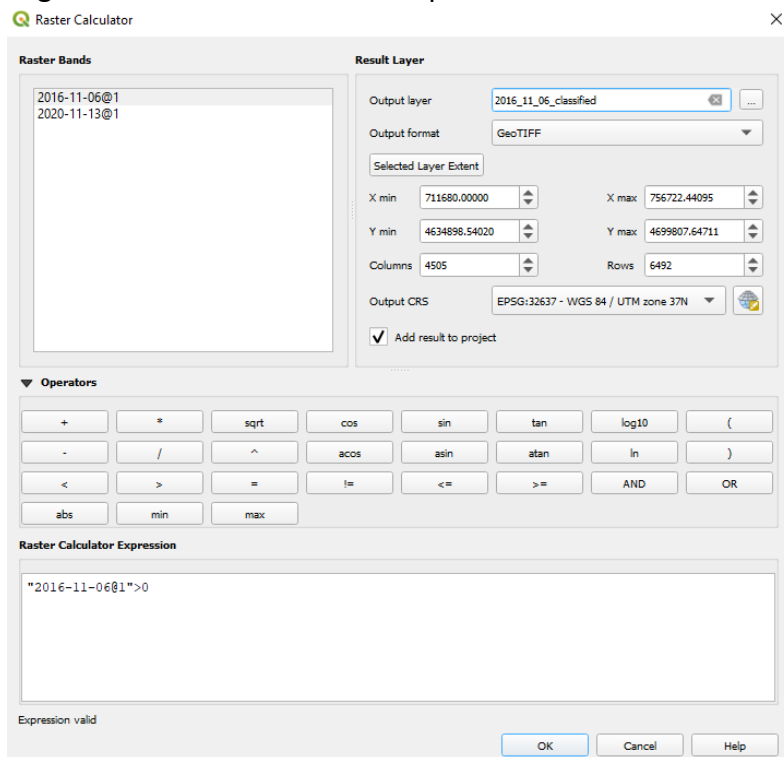


Step 5: Classify the WaterMasks in two classes (land/water)

The WaterMasks generated on the PONTOS Web Application have 4 different values (0:land, 1:open surface water, 2: emergent vegetation, 3: floating vegetation)

- From the menu bar select: Raster -> Raster Calculator
- Add the expression: “2016-11-06@1”>0 and set the output layer as “2016-11-06_classified”. With this expression, the values greater than 0 get the value 1 in the new layer. In the output

layer the value 1 includes the open surface water, the emergent vegetation and the floating vegetation. We follow the same process for the other WaterMask (2020-11-13)



Step 6: Remove WaterMasks' errors

Sometimes Watermask maps have errors due to clouds, dark areas or shadows. To remove the errors from the map follow the steps:

- a) Open the SCL band to the QGIS
- b) Select Raster -> Raster calculator
- c) Add the expression ("SCL_2016-11-06@1" = 4 OR "SCL_2016-11-06@1" = 5 OR "SCL_2016-11-06@1" = 6)*"2016_11_06_classified@1" and name the output layer as "2016_11_06_clear"

Step 7: Water Transition Zone map generation

The new classified WaterMasks consists of 2 different values (0:land, 1:water). To generate the Coastal Erosion map, open the "Raster Calculator" (Step 5a) and add the expression:

```
("2016_11_06_clear@1" = 0 AND "2020_11_13_clear@1" = 0)*1 +
("2016_11_06_clear@1" = 1 AND "2020_11_13_clear@1" = 0)*2 +
("2016_11_06_clear@1" = 0 AND "2020_11_13_clear@1" = 1)*3 +
("2016_11_06_clear@1" = 1 AND "2020_11_13_clear@1" = 1)*4
```

and set the output layer as "transition_zone".

Step 8: Classify the unique Transition Zone values:

The purpose of this step is to create a better visualization of the Transition Zone map

- a) Double click to the raster -> Symbology
- b) From the Render type choose "Paletted/Unique values"
- c) Select "Classify"
- d) Double click to each value to change the colors

