Republic of Turkey
The Ministry of Forestry and Water Affairs

# BSMEFFGS Post Processing with QGIS


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**Research Department, Hydrometeorology Division.**


**28-30 JUN 2016, First Streering Committe Meeting (SCM 1) Black Sea and Middle East Flash Flood Guidance (BSMEFFG) System**
**Tbilisi, Georgia**

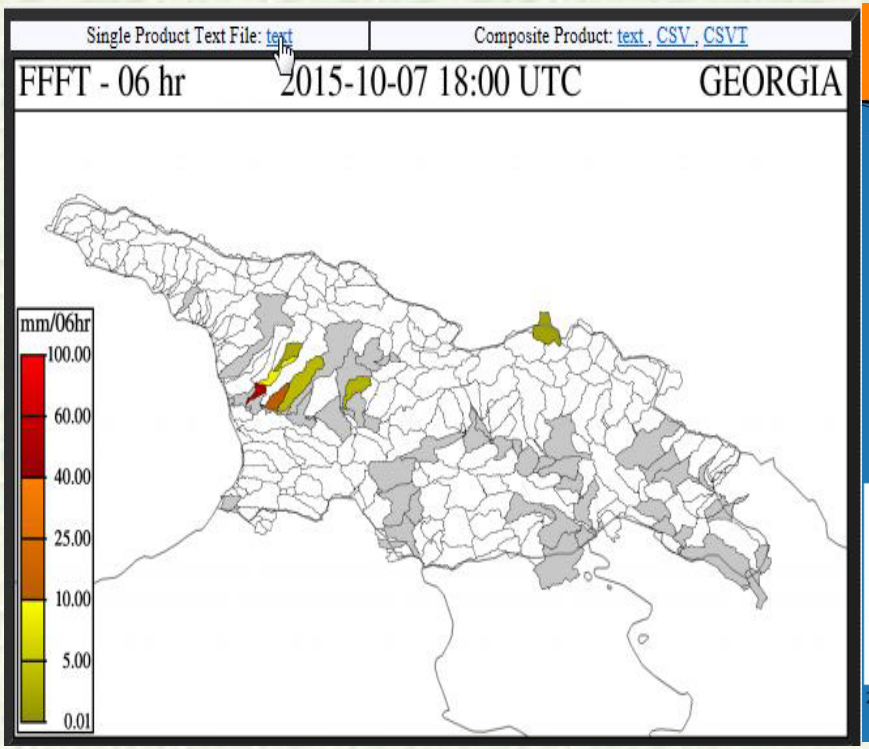
World Meteorological Organization (WMO)

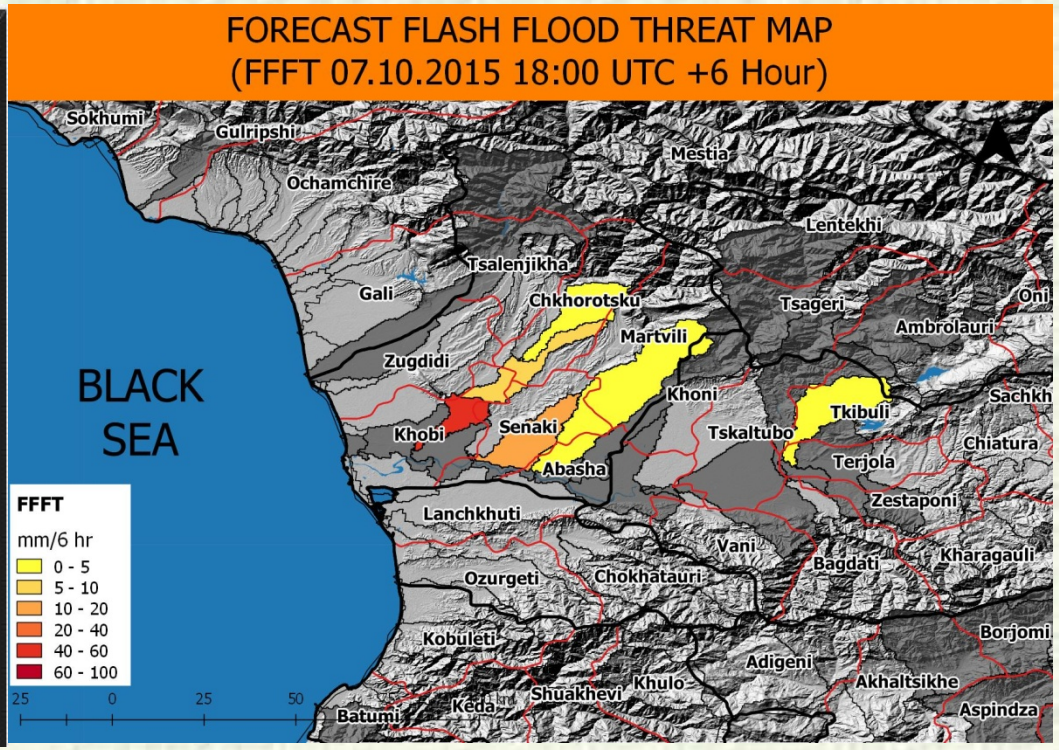
Hydrologic Research Center (HRC)

National Oceanic and Atmospheric Administration (NOAA)

U.S. Agency for International Development (USAID)

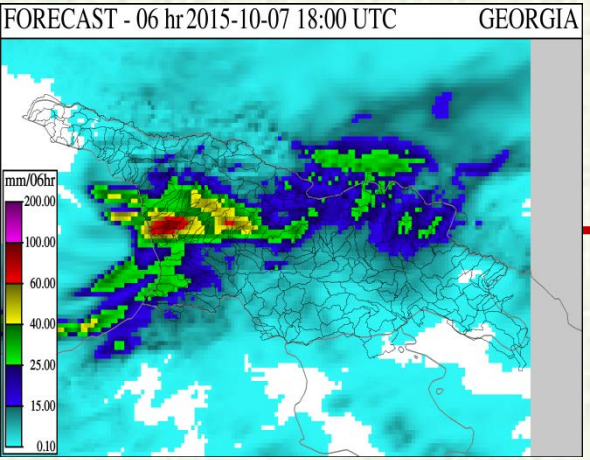
# GOAL

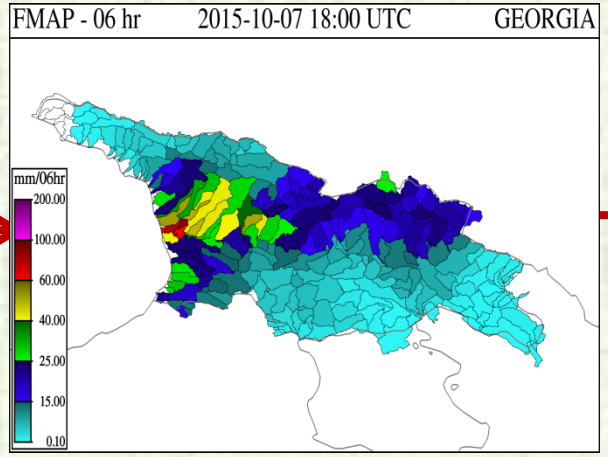


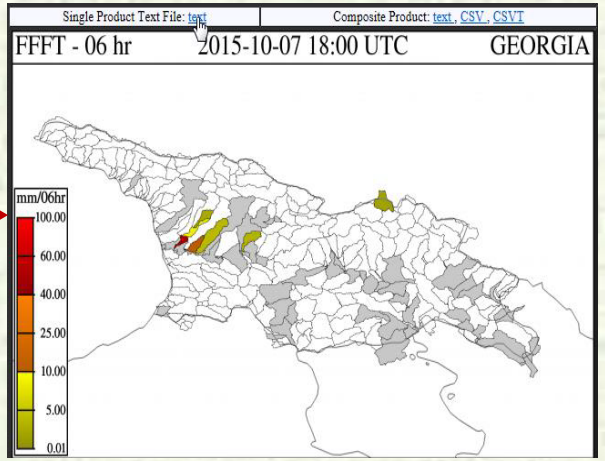



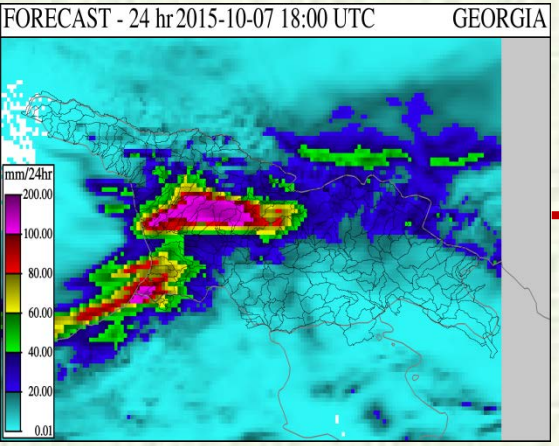

The goal of this study is to prepare maps for post processing of BSMEFFGS products by using QGIS.

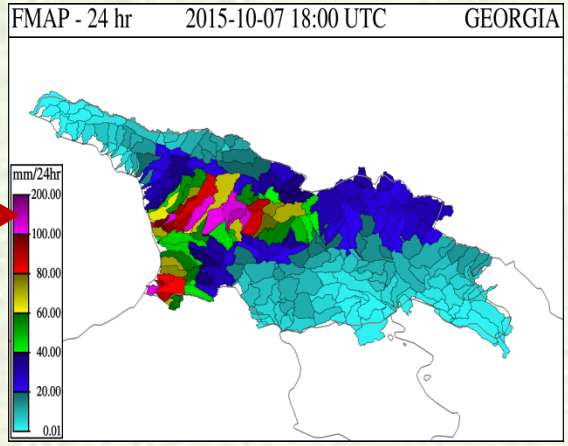
# EVALUATION OF THE CURRENT SITUATION



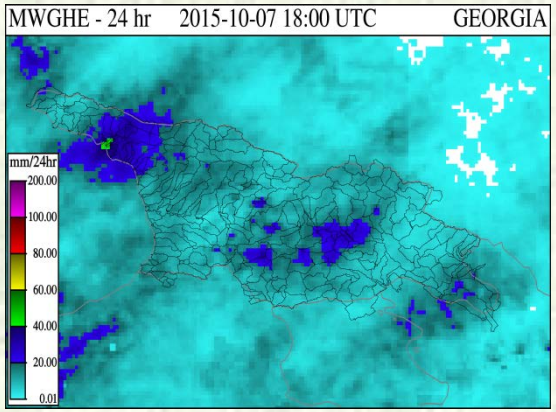



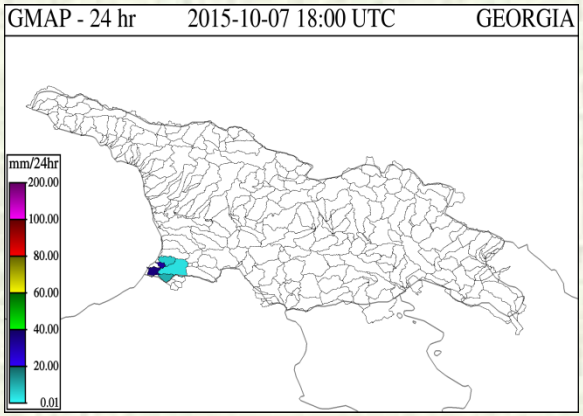



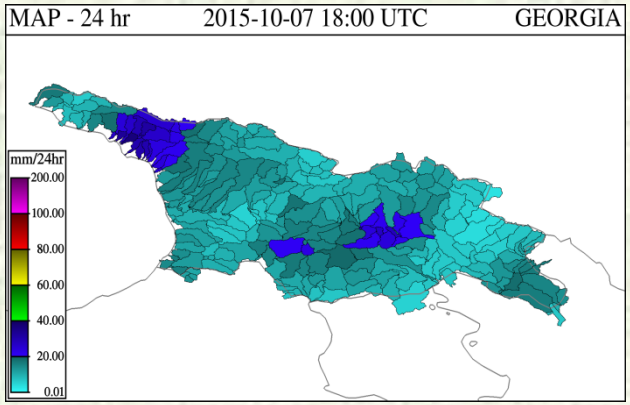



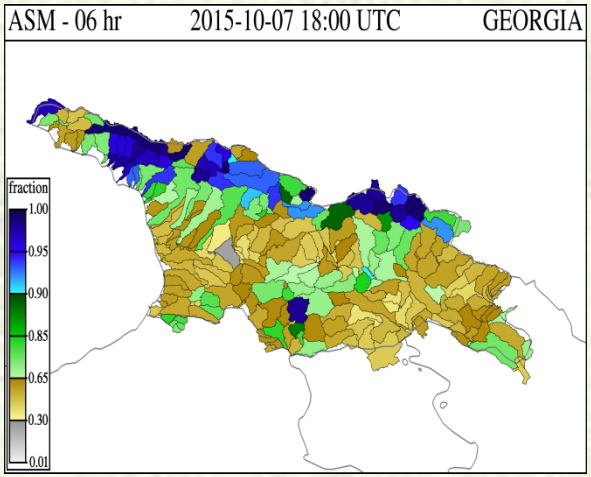

On the left side, the images provide 6-hour and 24-hour totals of forecast precipitation (mm) produced by using numerical forecasts from the Aladin Model. They show heavy rainfall is expected over Georgia. It is important to note that the majority of expected rainfall occcur in the first 6 hours. In particular, there is heavy rainfall prediction in the northwest part.

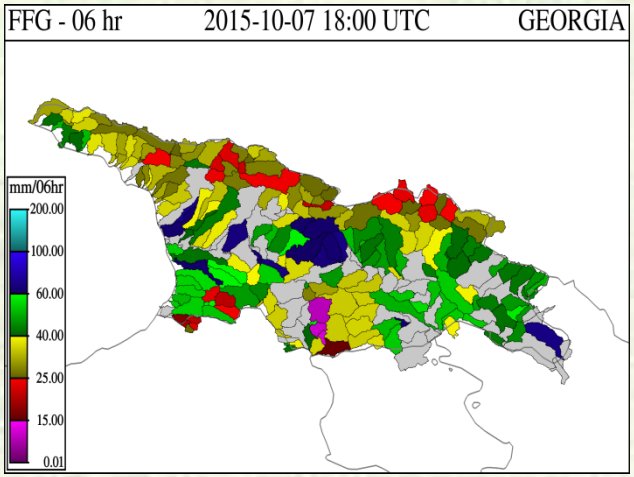
# EVALUATION OF THE CURRENT SITUATION



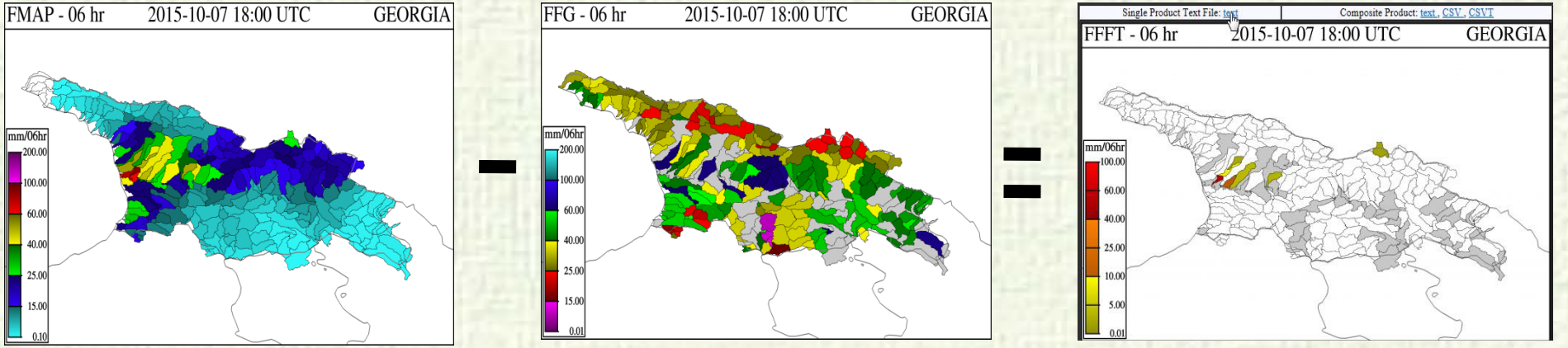




**Georgia received some precipitation in the last 24 hours from the gauge observation and satellite rainfall estimate maps. Accordingly, saturation of the soil moisture was increased while FFG threshold values were declined.**

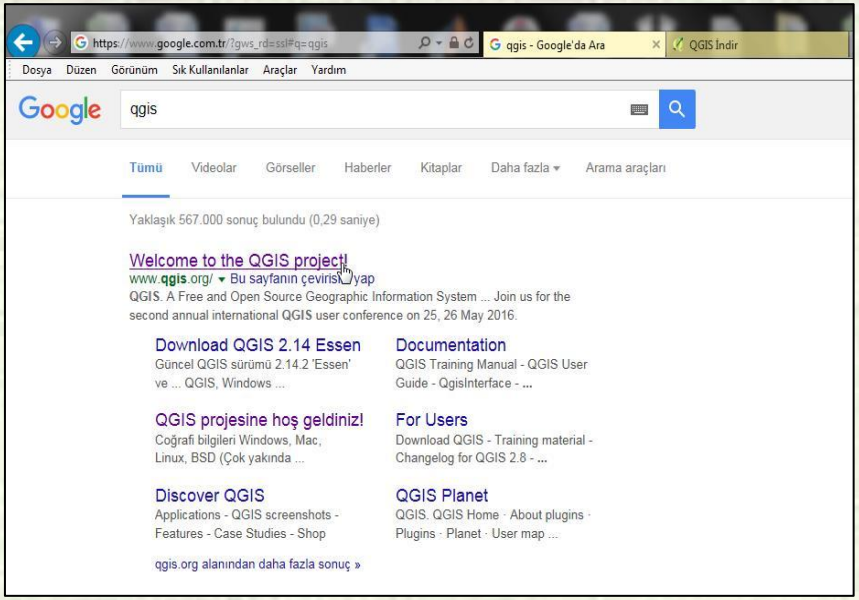
# WARNING DECISION

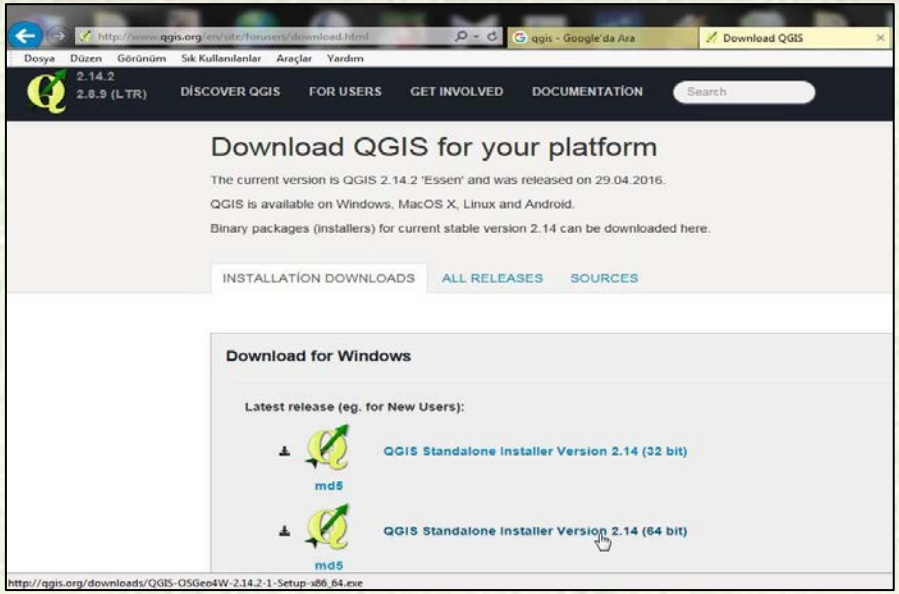


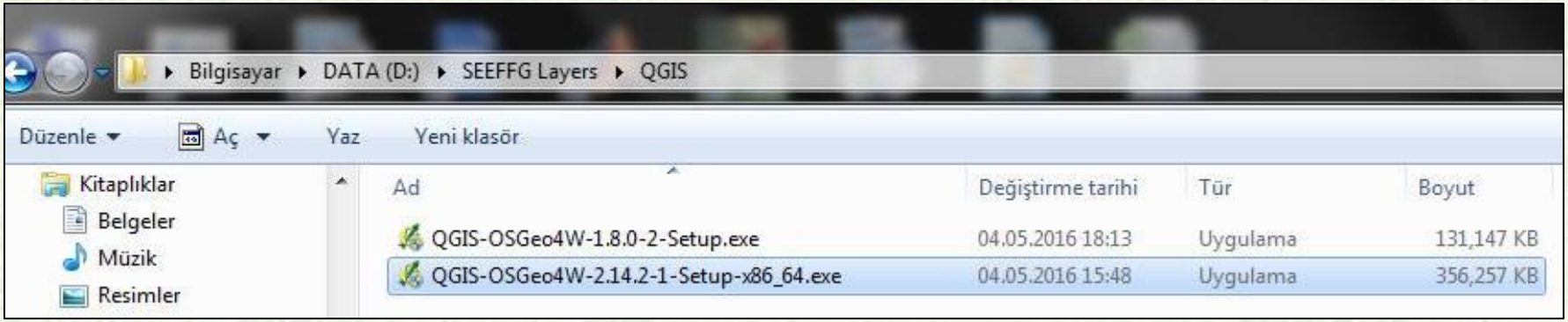

**FMAP – FFG = FFFT**

In the preparation phase of a flash Flood Early Warning Bulletin, One can consider looking at the values of FFFT product (Here, Forecast Flash Flood Threat is equal to FMAP minus FFG). If 1,3,6 hour FFFT maps results in colored sub-basin, it means flash Flood Hazard is highly expected within the next these hours.

# DOWNLOADING AND INSTALLING QGIS



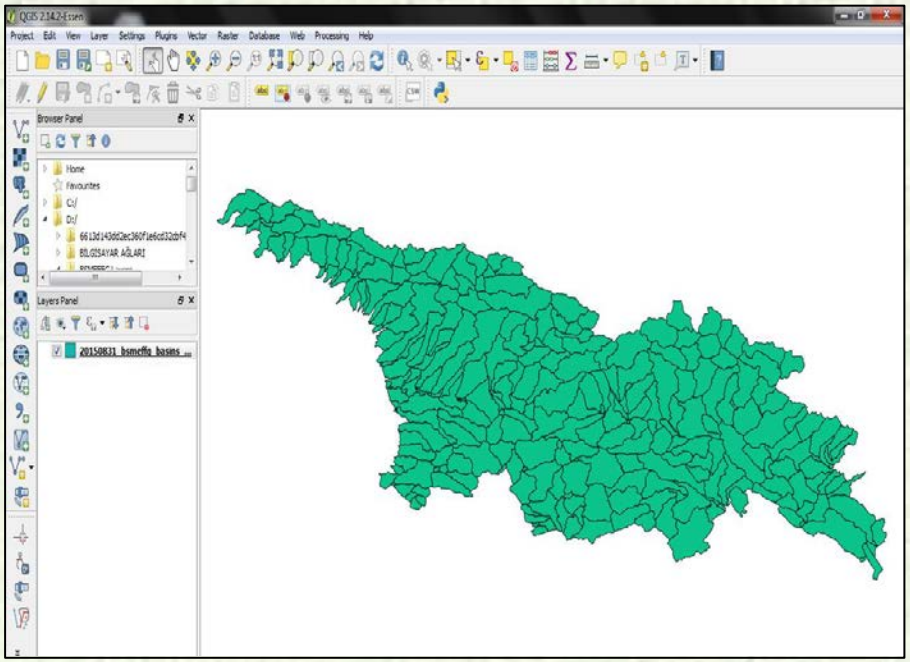




You can find QGIS v.1.8.0-2 at the bottom of Static Resources tab. QGIS installation is quite simple. After QGIS-OSGeo4W-2.14.2-1-Setup-x86_64.exe file is downloaded, it is installed by double-clicking on the next-next.

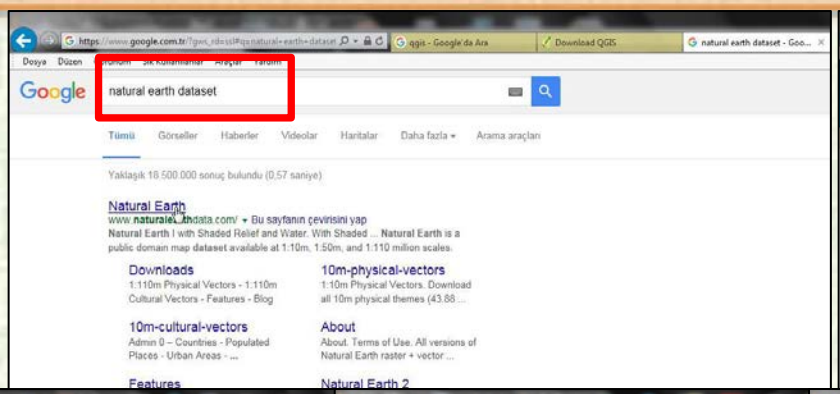
# DOWNLOAD BOUNDRIES OF SUB BASIN

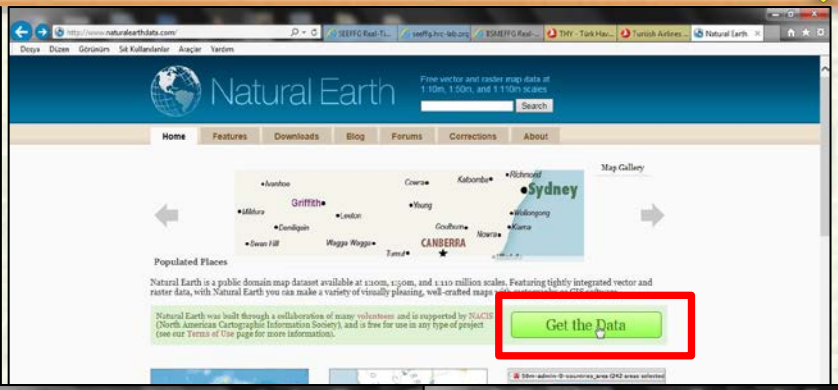
| | | | |
|---|---|---|---|
| GIS Data Layers | Regional (All Nations) Sub-Basin Shapefile (17MB) | BSMEFFG Regional Shapefile | A zipped archive (*.zip) of the shapefile component files that provides Regional basin boundaries for all nations in a single shapefile layer. |
| GIS Data Layers | Armenia National Sub-Basin Shapefile (166KB) | BSMEFFG Armenia Shapefile | A zipped archive (*.zip) of the shapefile component files that provide basins boundaries for the Armenia National export sub-region. |
| GIS Data Layers | Azerbaijan National Sub-Basin Shapefile (641KB) | BSMEFFG Azerbaijan Shapefile | A zipped archive (*.zip) of the shapefile component files that provide basins boundaries for the Azerbaijan National export sub-region. |
| GIS Data Layers | Bulgaria National Sub-Basin Shapefile (606KB) | BSMEFFG Bulgaria Shapefile | A zipped archive (*.zip) of the shapefile component files that provide basins boundaries for the Bulgaria National export sub-region. |
| GIS Data Layers | Georgia National Sub-Basin Shapefile (698KB) | BSMEFFG Georgia Shapefile | A zipped archive (*.zip) of the shapefile component files that provide basins boundaries for the Georgia National export region. |
| GIS Data Layers | Iraq National Sub-Basin Shapefile (1.8MB) | BSMEFFG Iraq Shapefile | A zipped archive (*.zip) of the shapefile component files that provide basins boundaries for the Iraq National export region. |
| GIS Data Layers | Lebanon National Sub-Basin Shapefile (27KB) | BSMEFFG Lebanon Shapefile | A zipped archive (*.zip) of the shapefile component files that provide basins boundaries for the Lebanon National export region. |

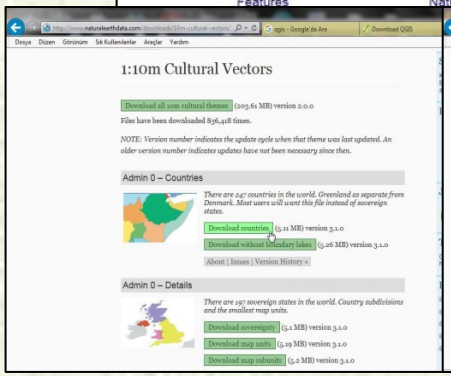


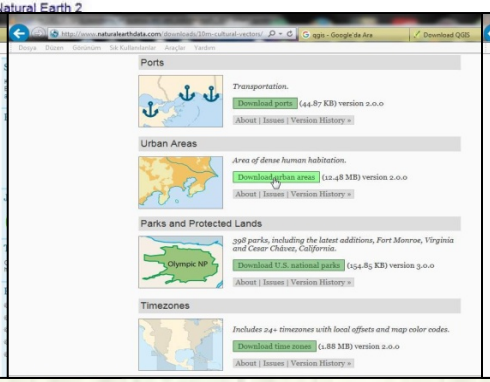
All countries involved in the project have sub-basin boundaries in the shapefile format under the “Static Resources” tab of BSMEFFG interface. These files can be opened by GIS programs after unzipping them.

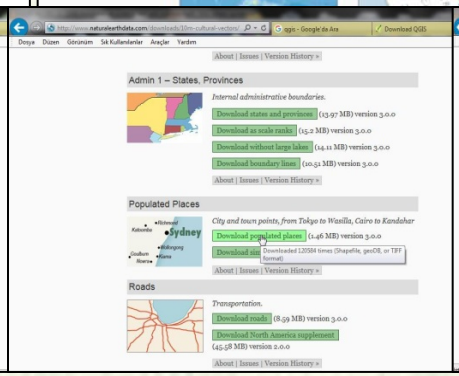
# DOWNLOAD FREE GIS LAYERS

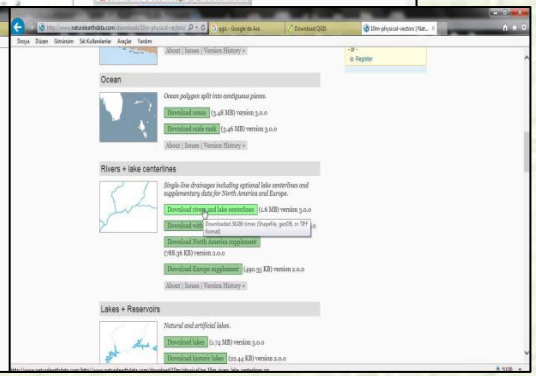


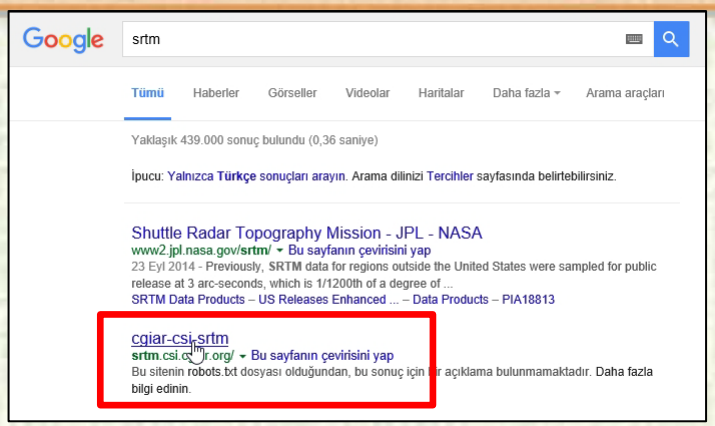



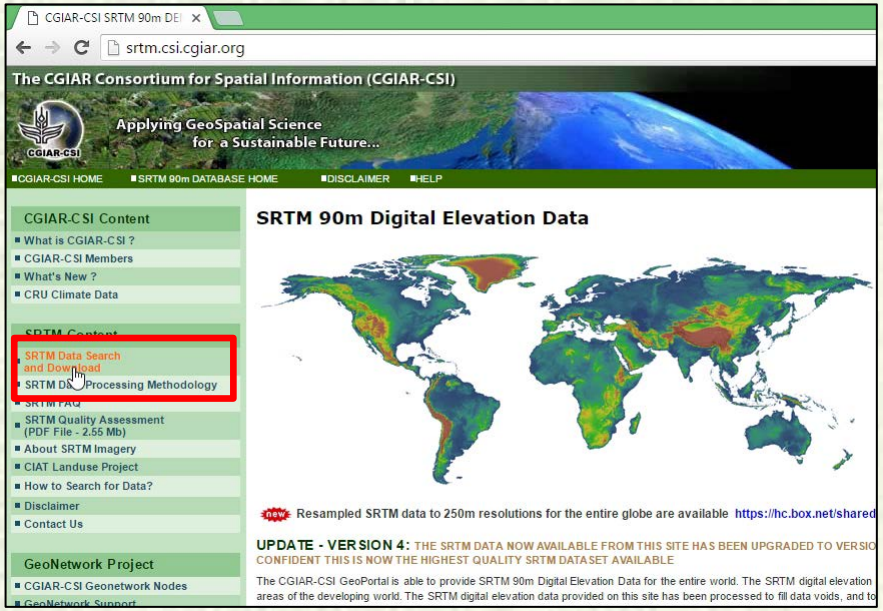



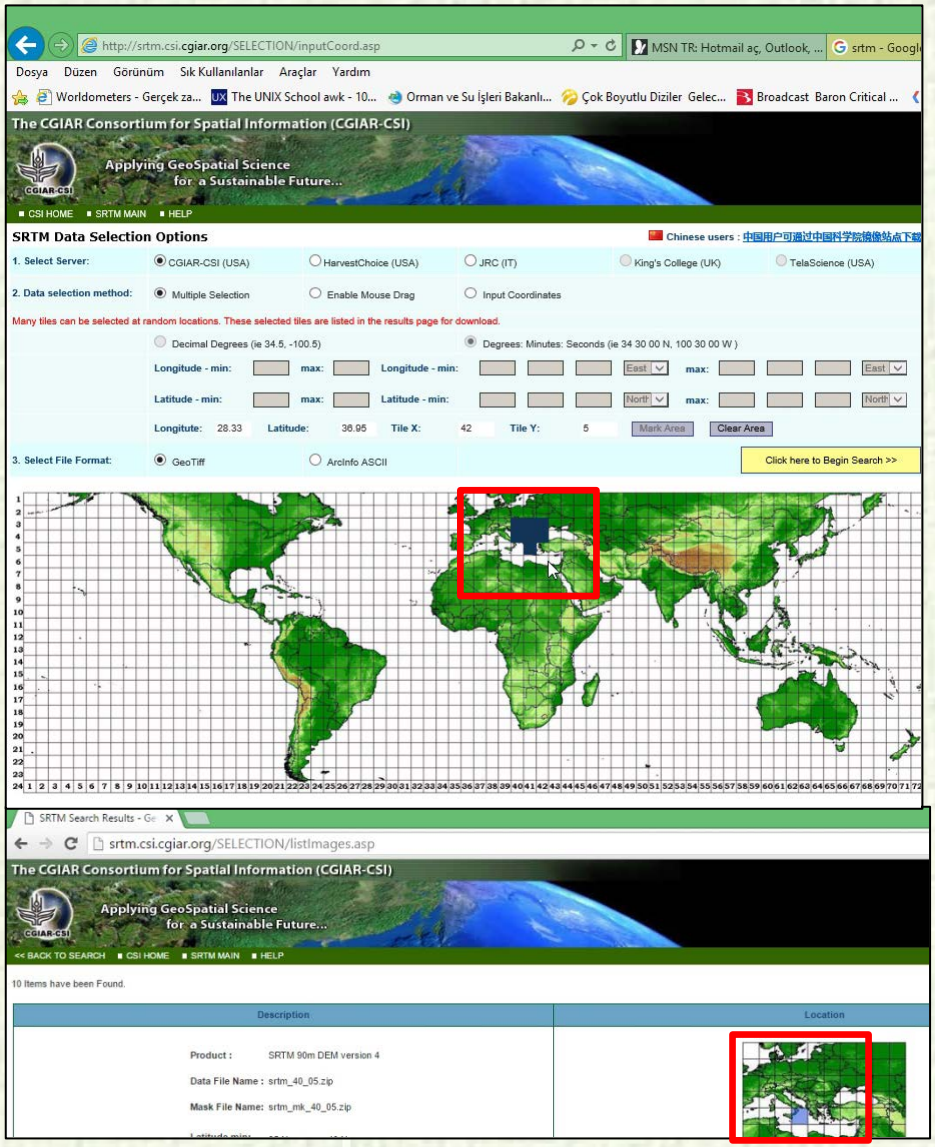




Many vector datasets can be downloaded from www.naturalearthdata.com address for free. There are many layers such as country borders, city centers and borders, such as rivers and lakes.

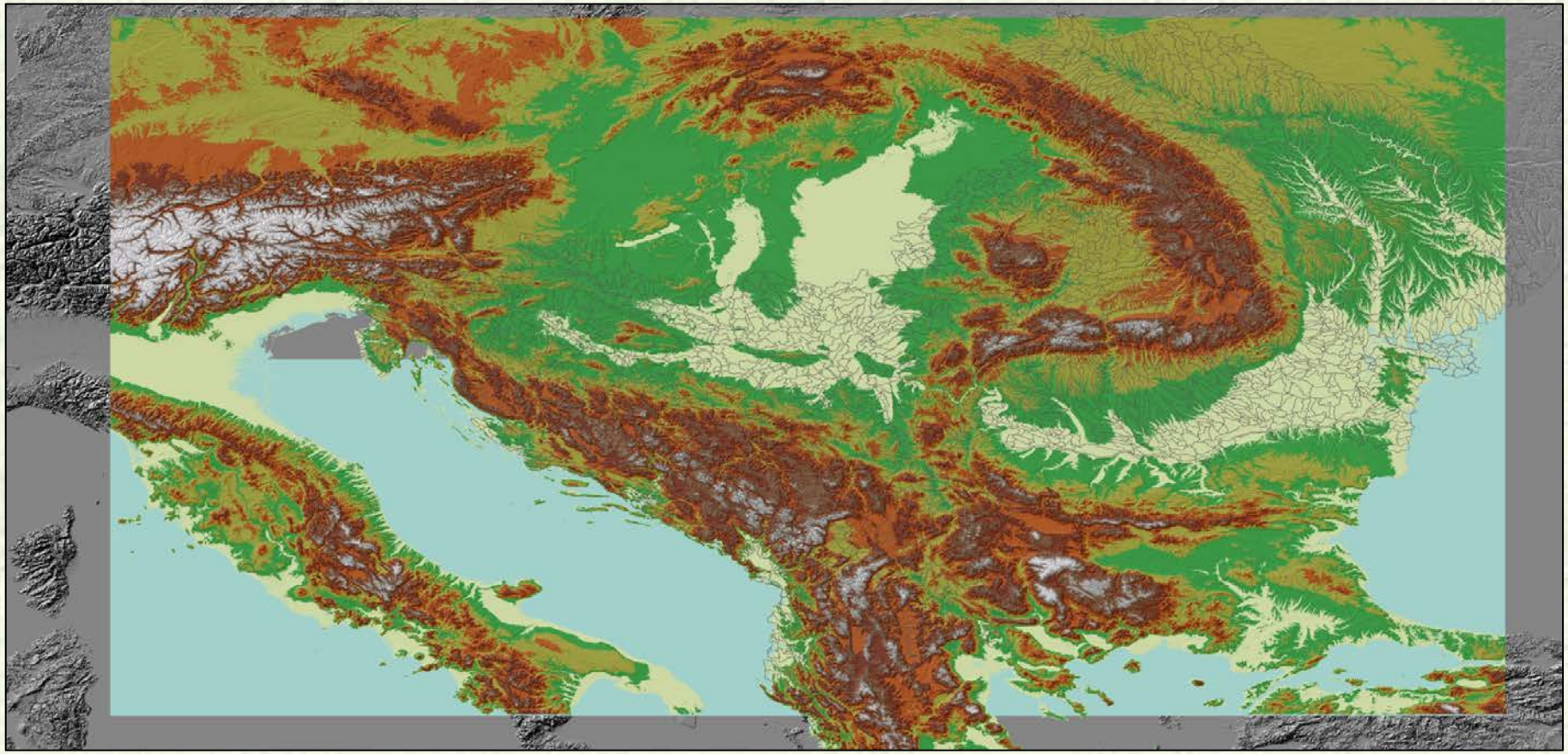
# DOWNLOAD FREE GIS LAYERS



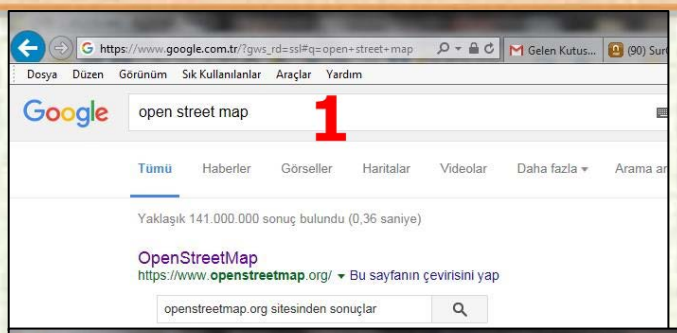



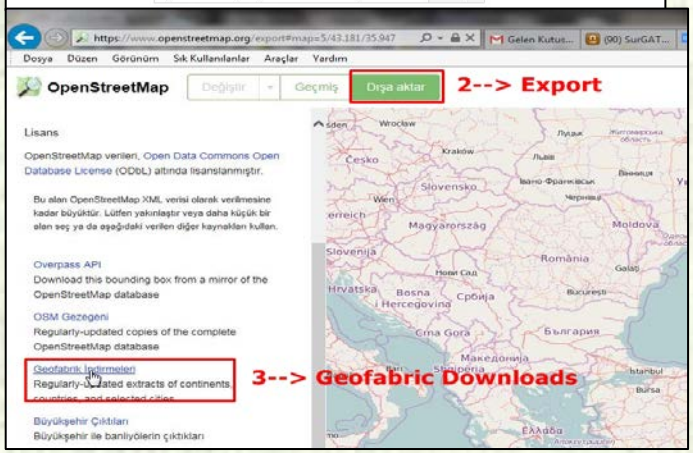
# DOWNLOAD FREE GIS LAYERS

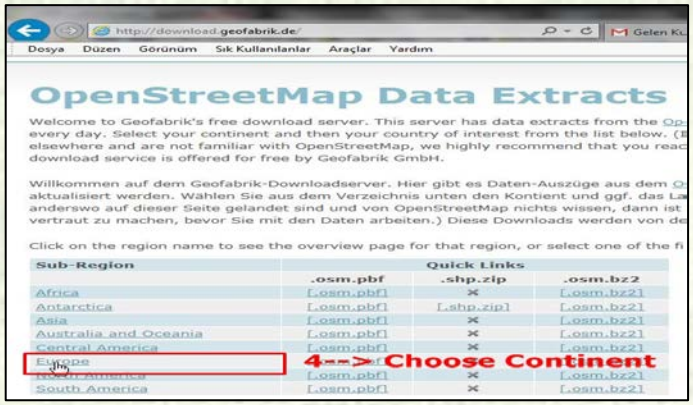


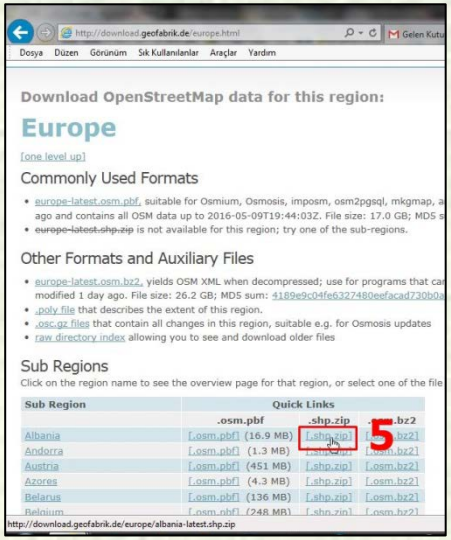
90 meter Digital Elevation Model (source:http://srtm.csi.cgiar.org/) with hillshade

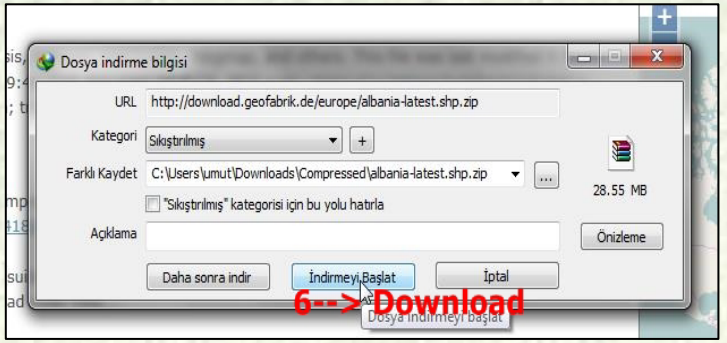
# DOWNLOAD FREE GIS LAYERS

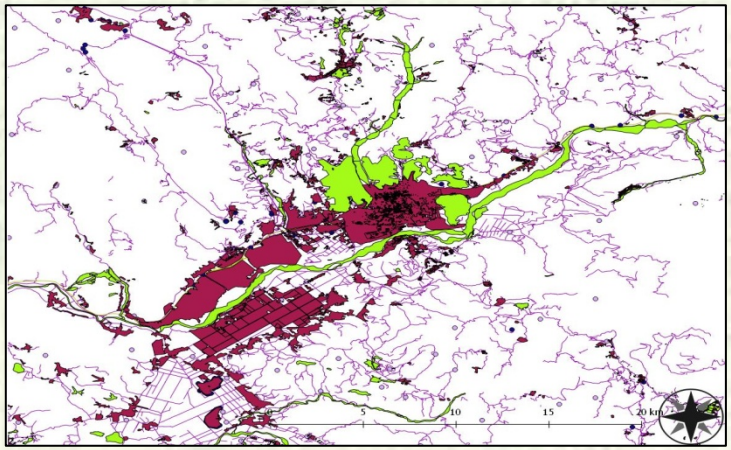


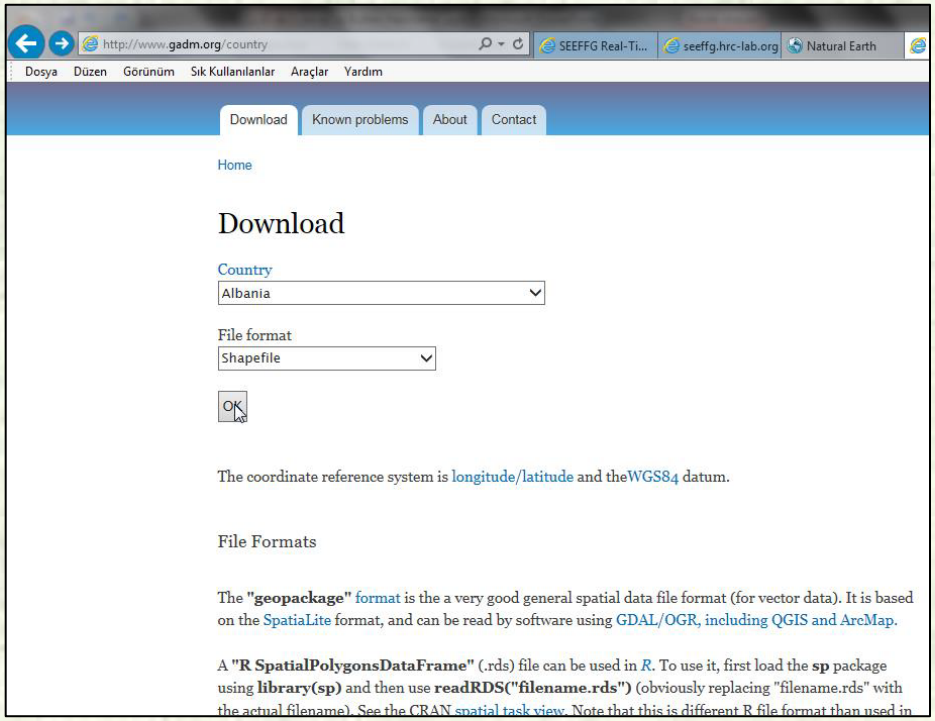



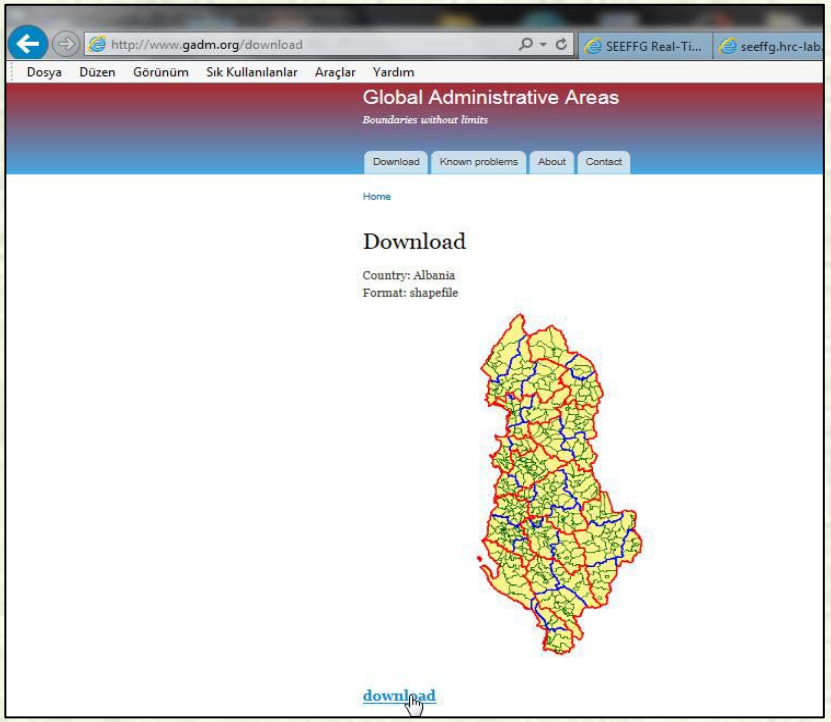



This data contains buildings, landuse, natural, places, points, railways, roads and waterways.

# DOWNLOAD FREE GIS LAYERS



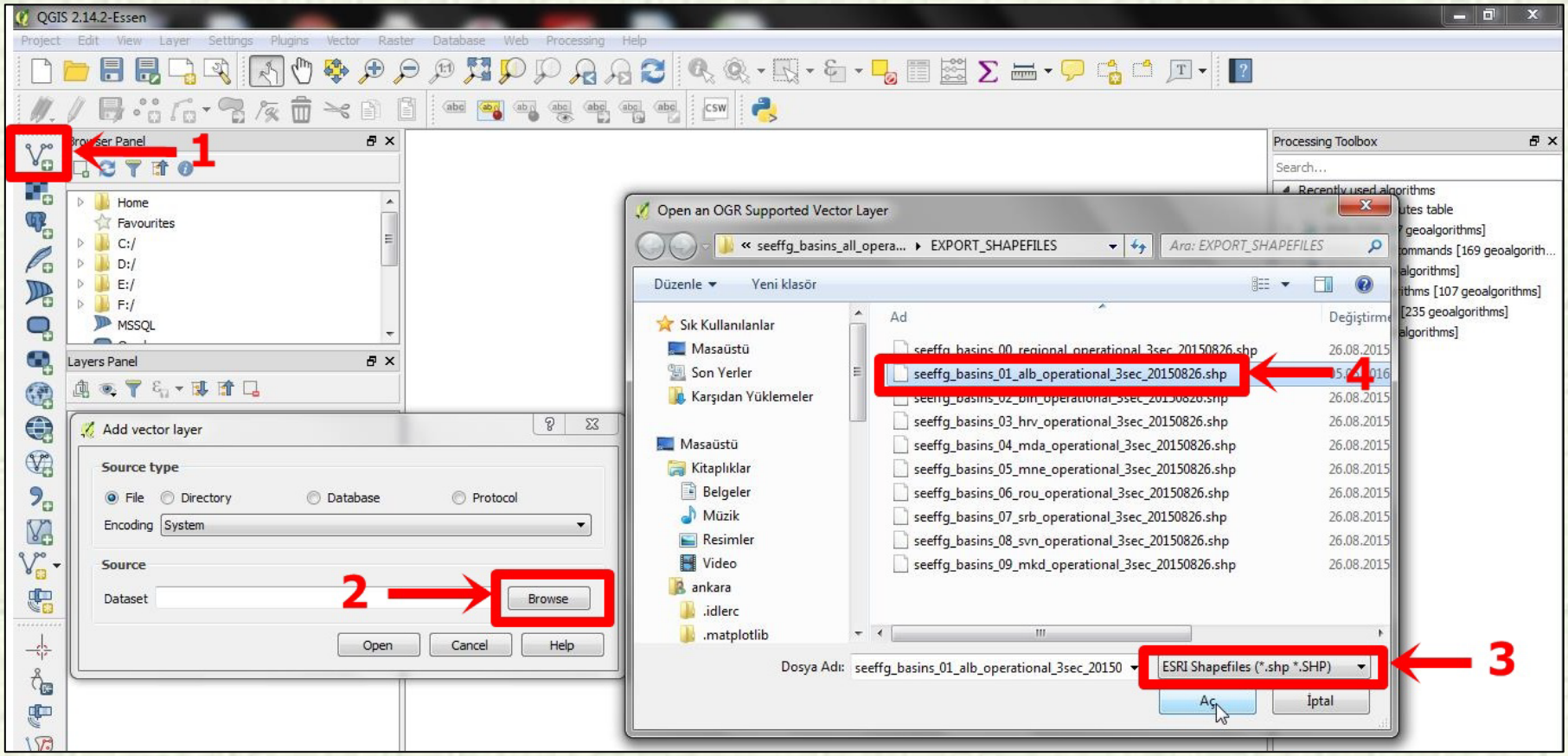

You can download from Global Administrative Areas (www.gadm.org) web address to see the country, provincial, district and town limits in shapefile format.

# BEGINNING WORK WITH QGIS

Republic of Turkey
The Ministry of
Forestry and Water
Affairs

# ADD VECTOR DATA ON THE QGIS

METEOROLOJİ

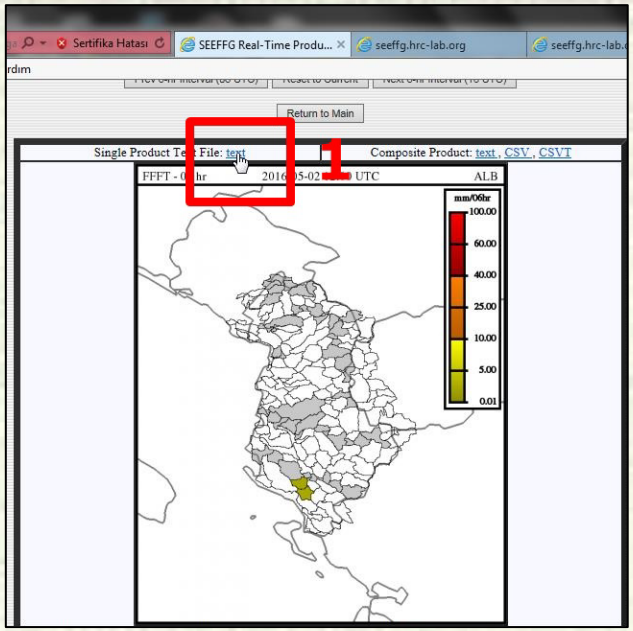


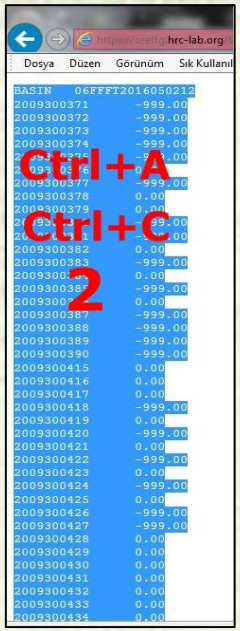
# PRODUCT TABLE

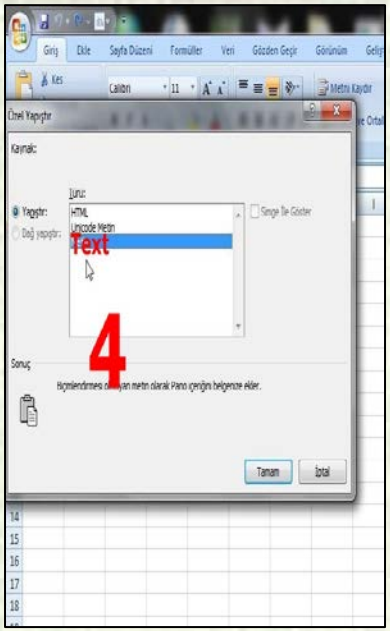
Images of existing products in the modem interface, updated times and data types are summarized in the table below.

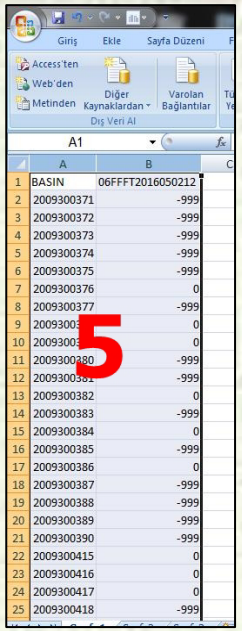
| Product's Name | 01 hr | 03 hr | 6 hr | 24 hr | 4 hr | Numerical Data |
|---|---|---|---|---|---|---|
| RADAR Precipitation | | | | | | |
| MWGHE Precipitation | + | + | + | + | | + |
| GHE Precipitation | + | + | + | + | | + |
| Gauge MAP | | | + | + | | + |
| Merged MAP | + | + | + | + | | + |
| ASM | | | + | | | + |
| FFG | + | + | + | | | + |
| IFFT | + | + | + | | | + |
| PFFT | + | + | + | | | + |
| ALADIN Forecast | + | + | + | + | | |
| FMAP | + | + | + | + | | + |
| FFFT | + | + | + | | | + |
| Gauge MAT | | | + | | | + |
| Latest IMS SCA | | | | + | | + |
| SWE | | | + | | | + |
| Melt | | | | + | + | + |

# BSMEFFGS's TRANSFER DATA TO EXCEL



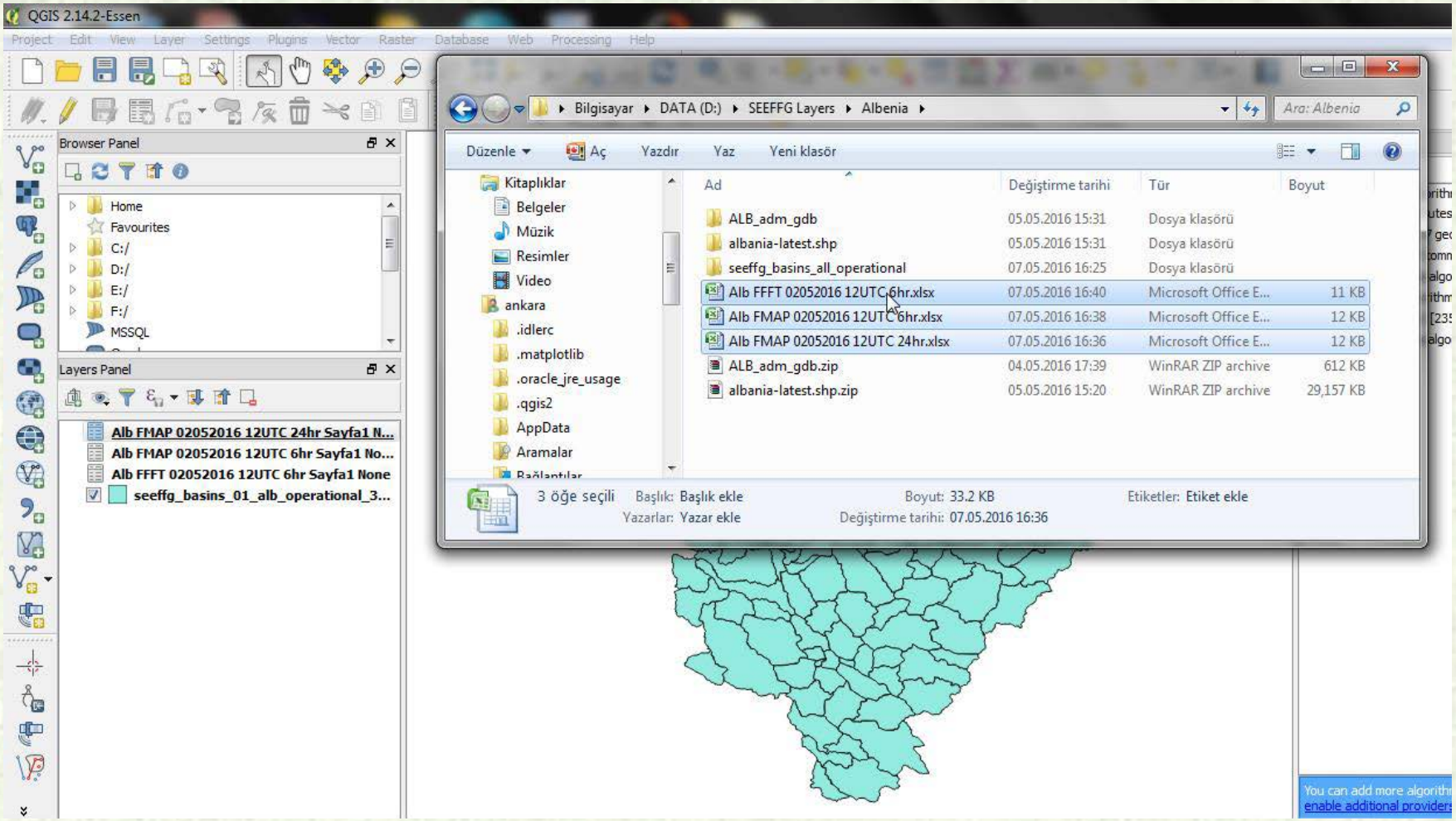





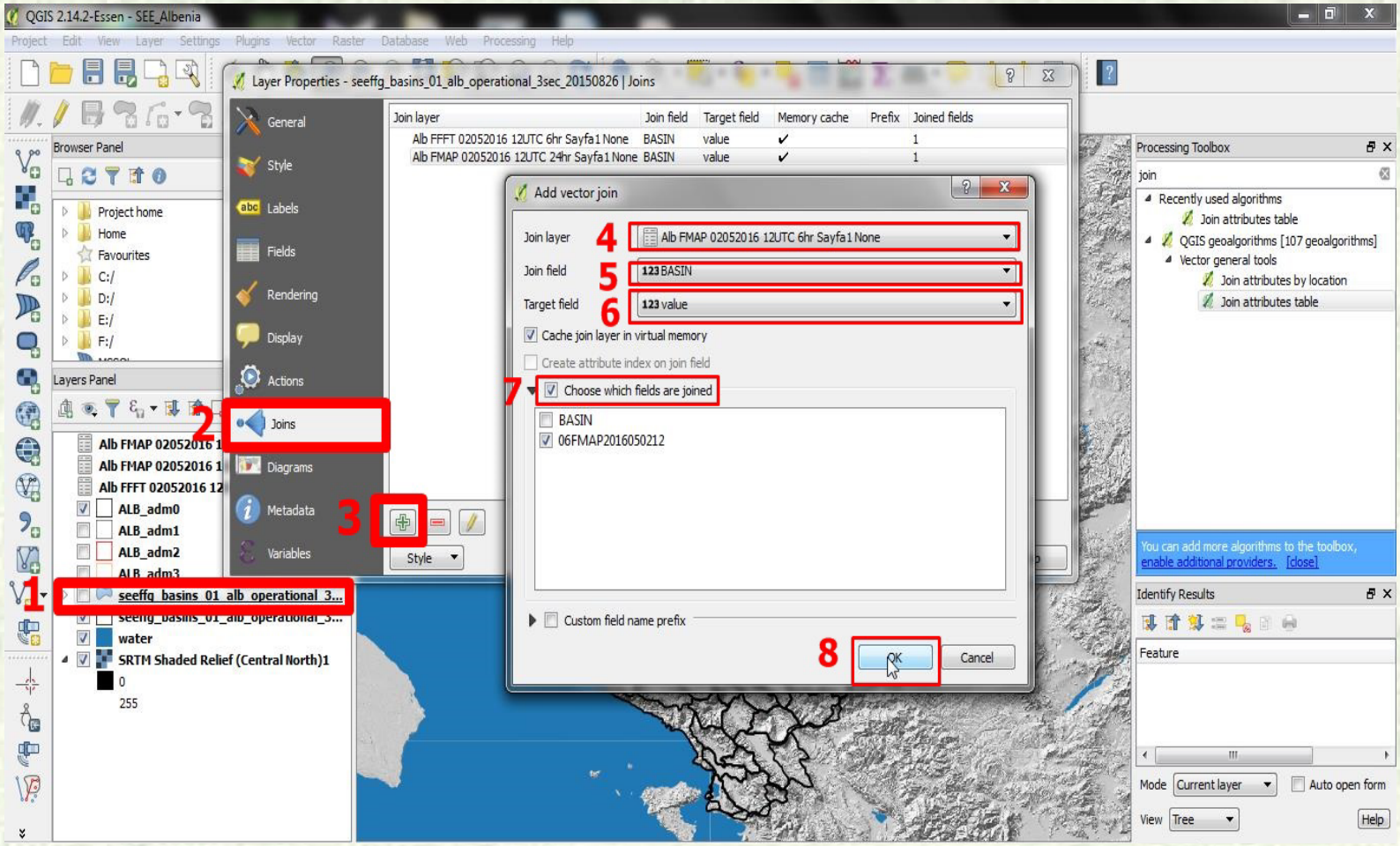

To transfer the data of BSMEFFGS products into the excel file ;

1. Click on product blue txt
2. On the following page, copy data by pressing Ctrl +A and Ctrl +C
3. Right-click on the excel file to copy data with special paste,
4- select Text to paste it.
5. At the end of this process, we have two columns of data (BASIN, data)



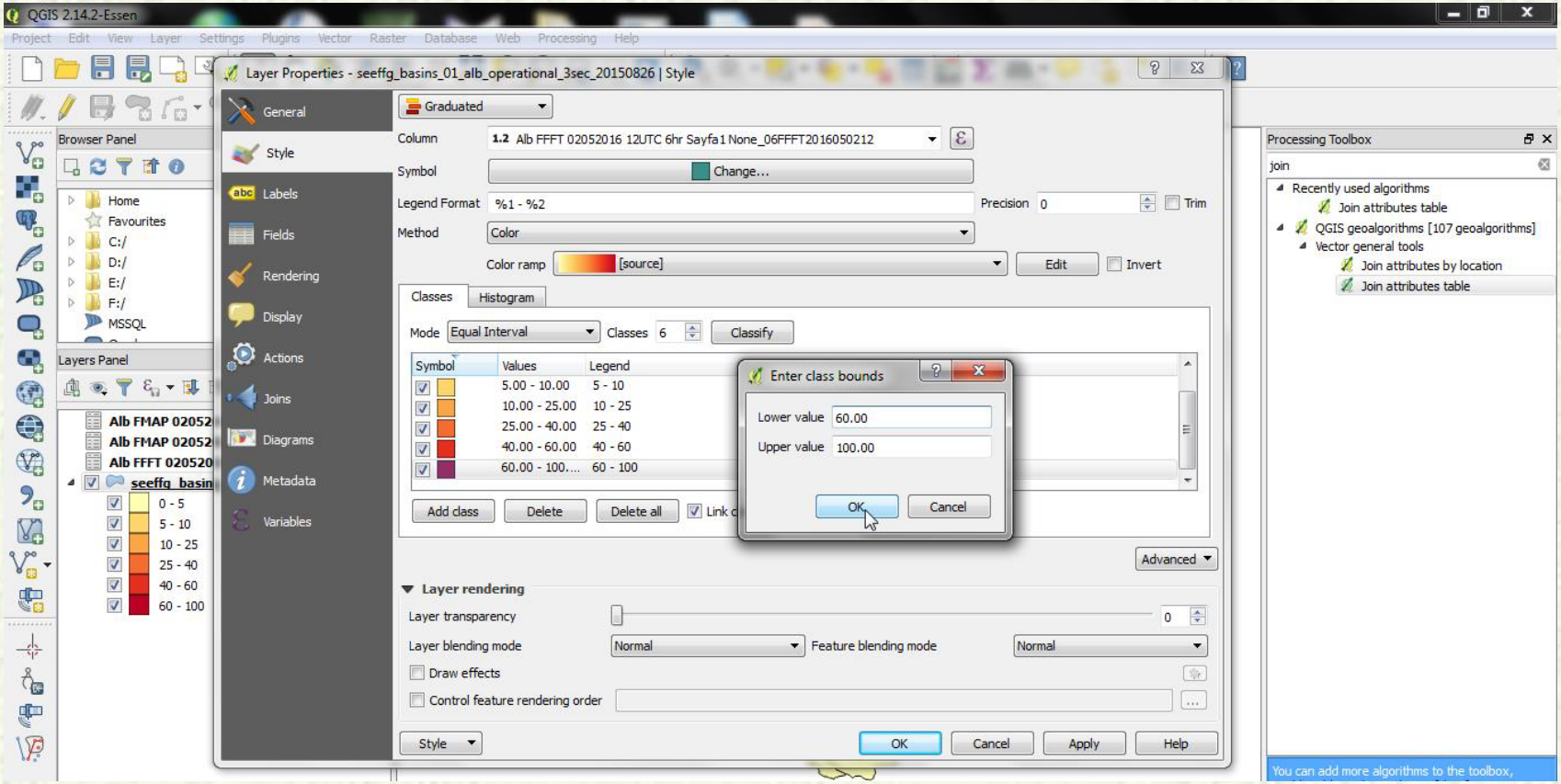

Select some Excel files then, hold and drag over QGIS interface.

# HOW TO JOIN EXCEL DATA TO A SHAPEFILE ?



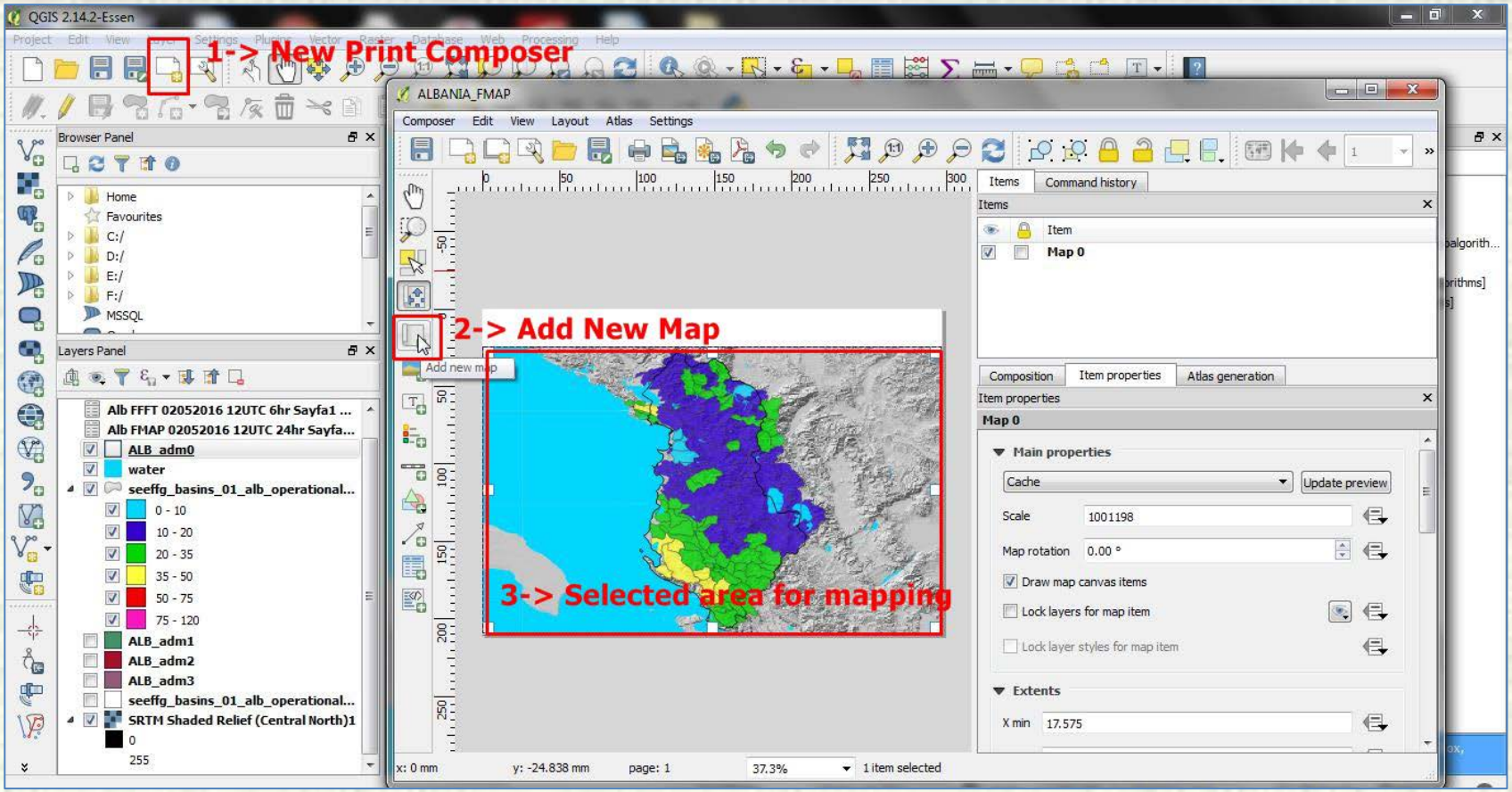

In the Add vector join dialog, select the Join layer. Next we have to select the field with unique ids in both the shapefile and the csv or excell. Select the Join field and Target field respectively. Click OK

# HOW TO SET STYLE ?

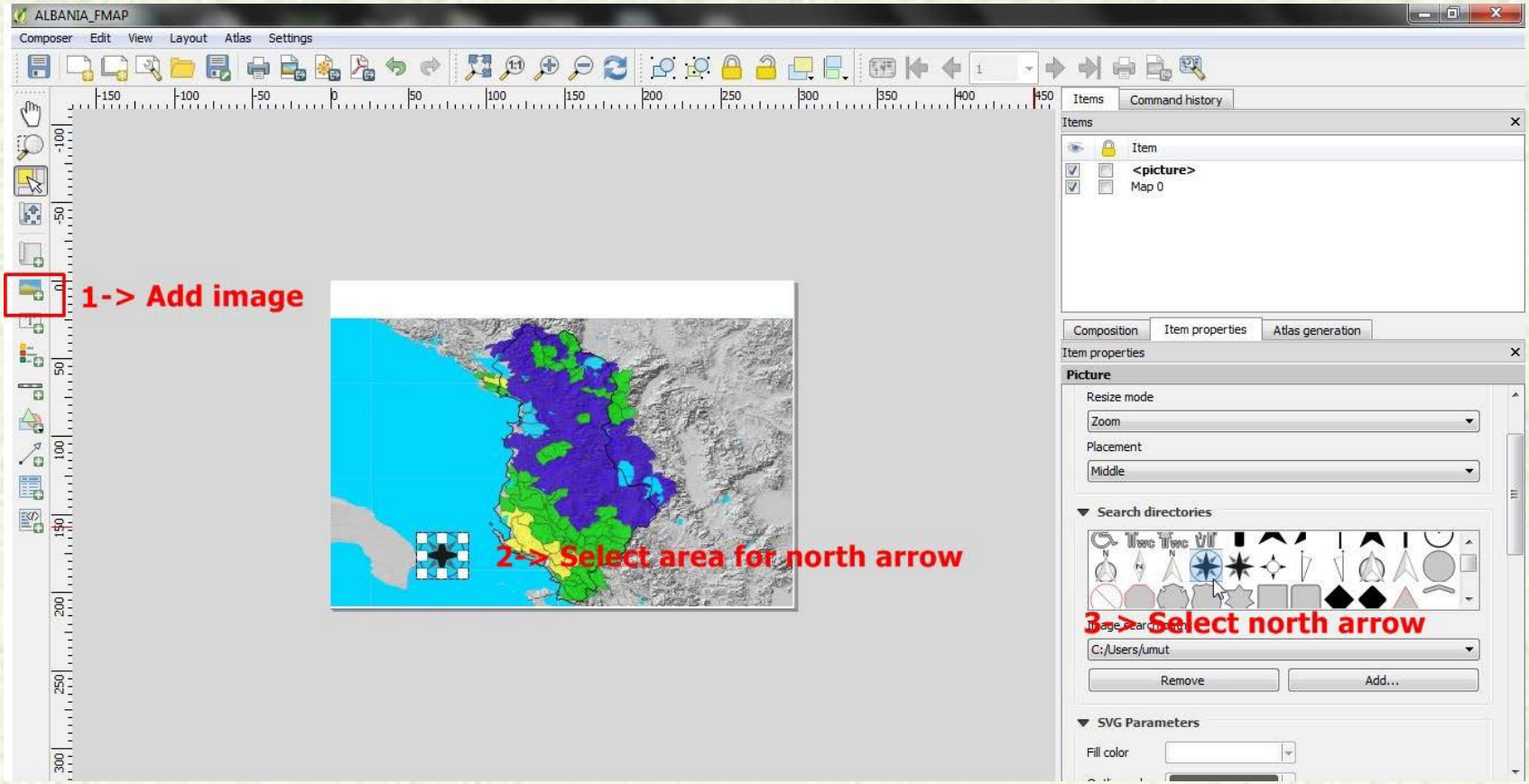



In QGIS, double click on the layer you are dealing with. Then go to the Style menu. In the Style menu, set your classification to “Graduated”. After you can set class bounds and colours.

# EDITING THE MAP OUT



# EDITING THE MAP OUT



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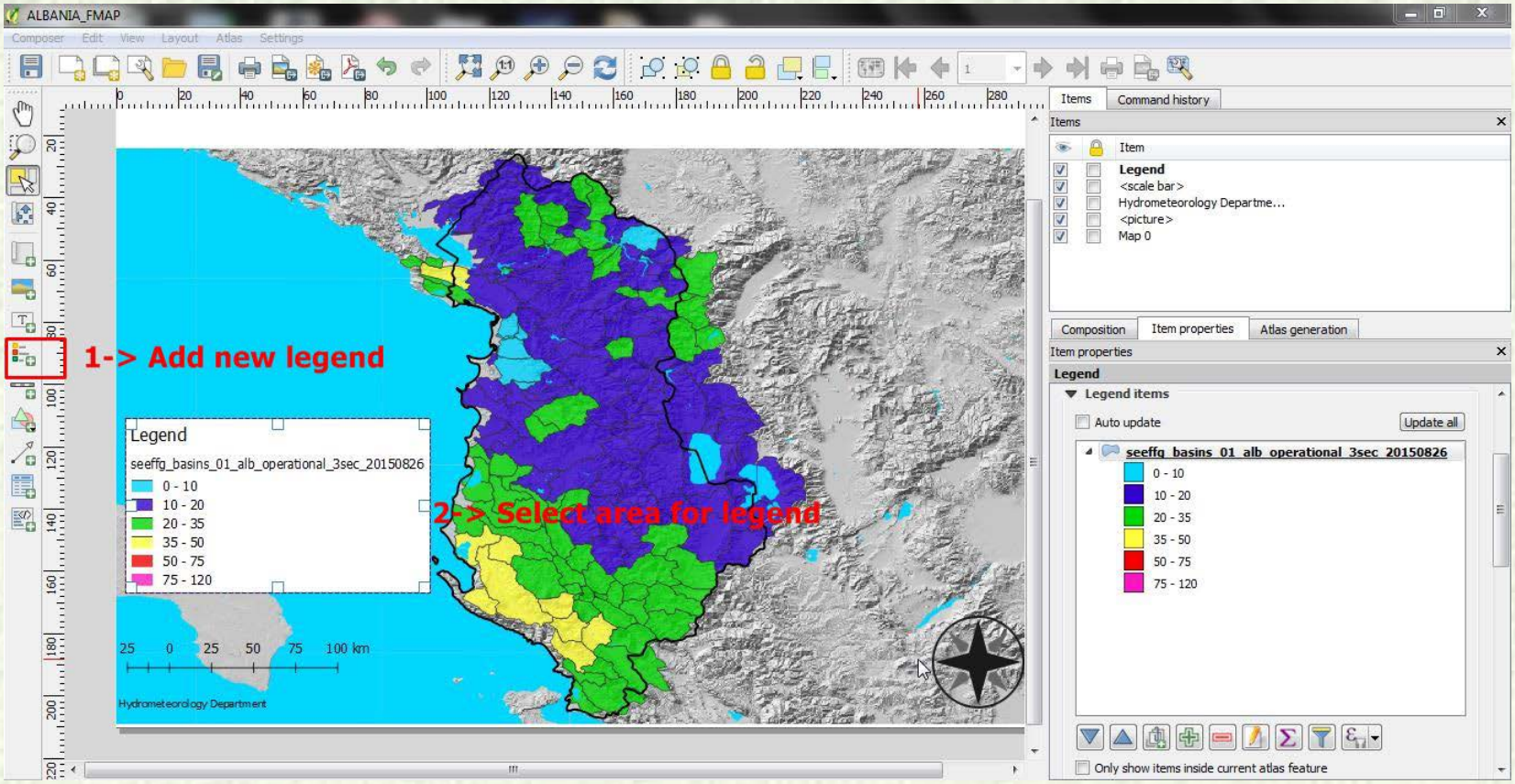

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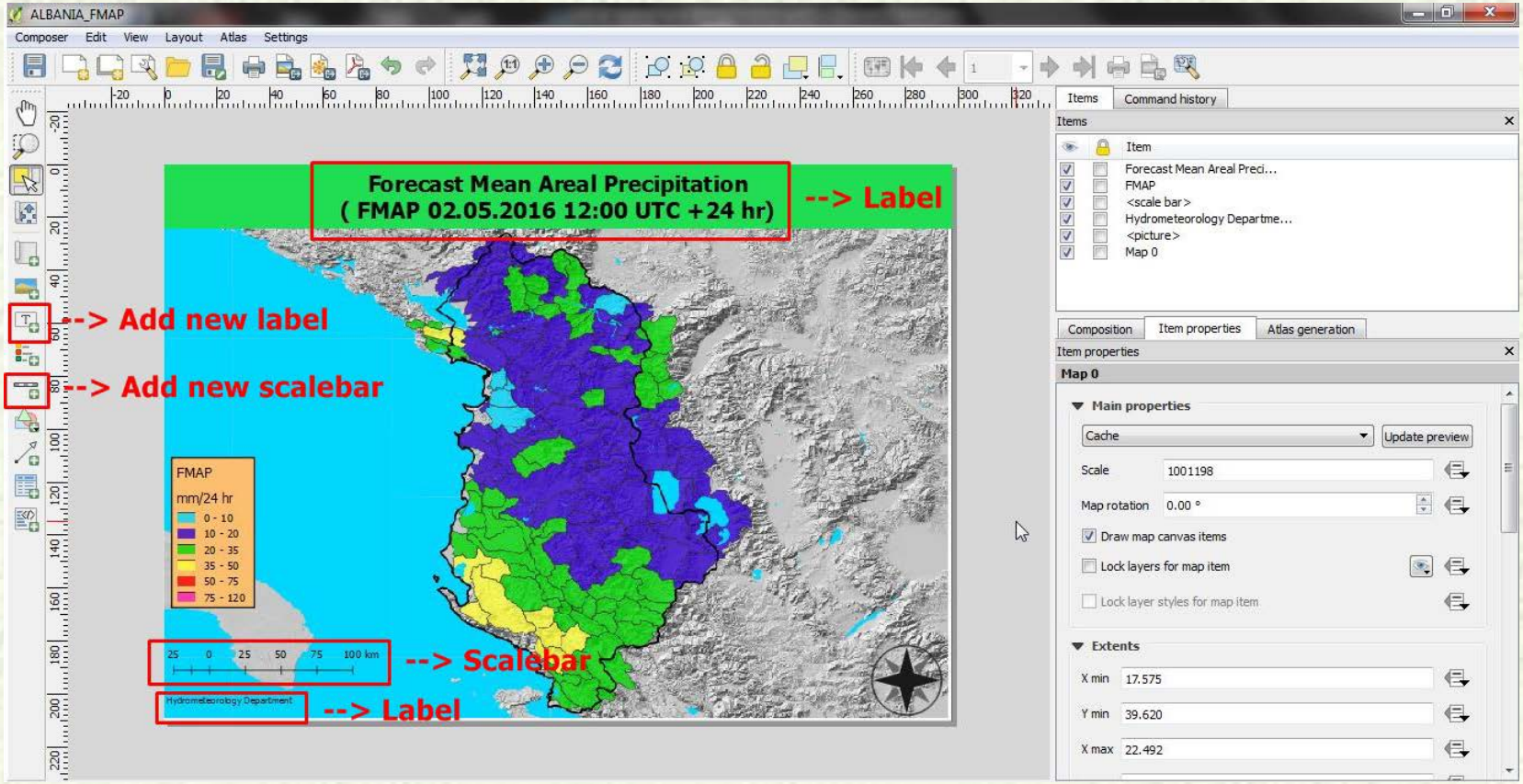
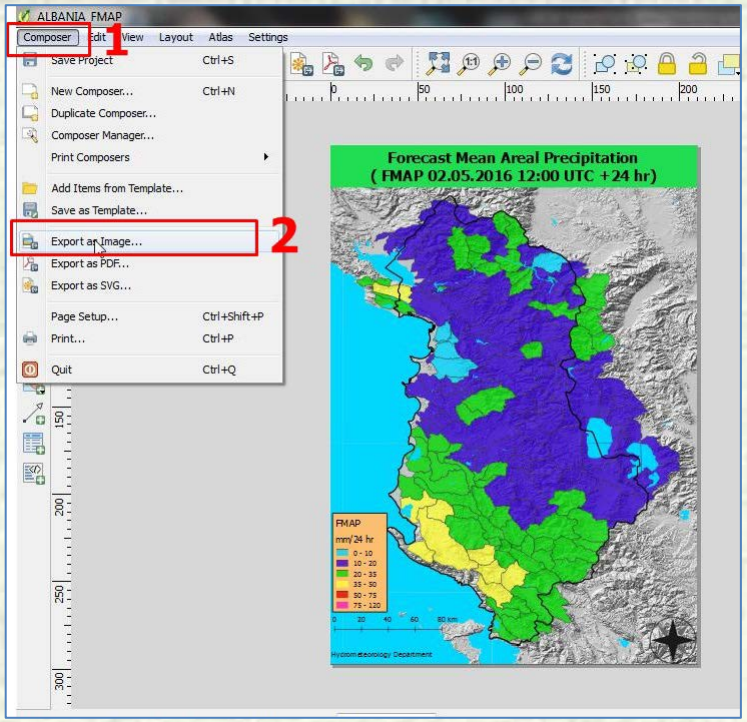
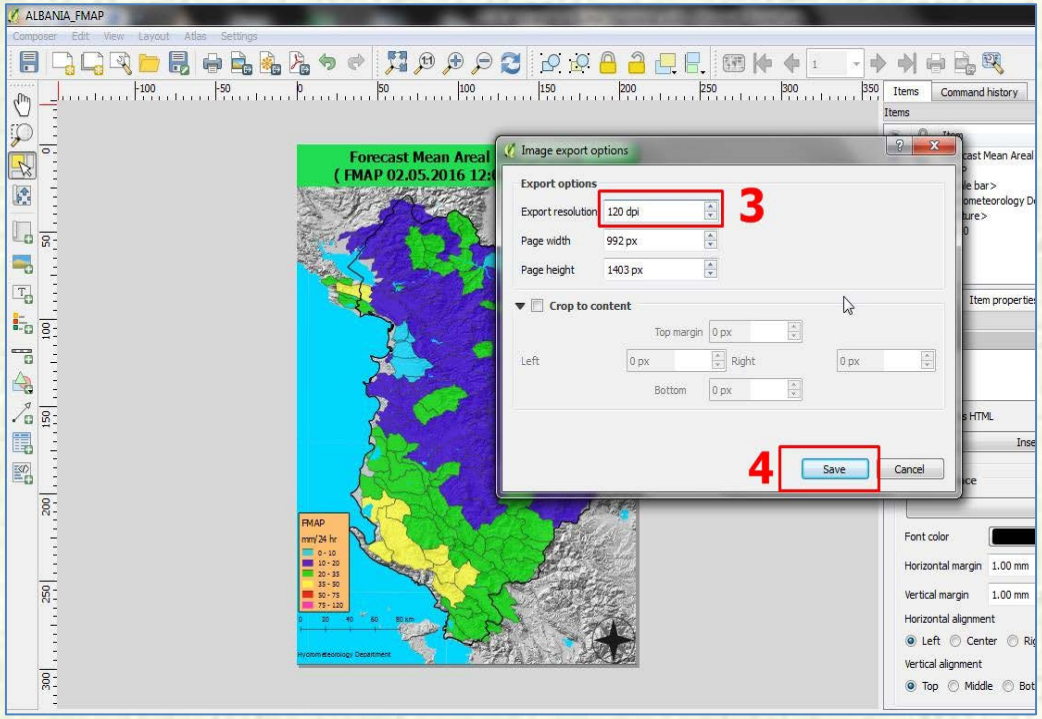


# EXPORT THE MAP



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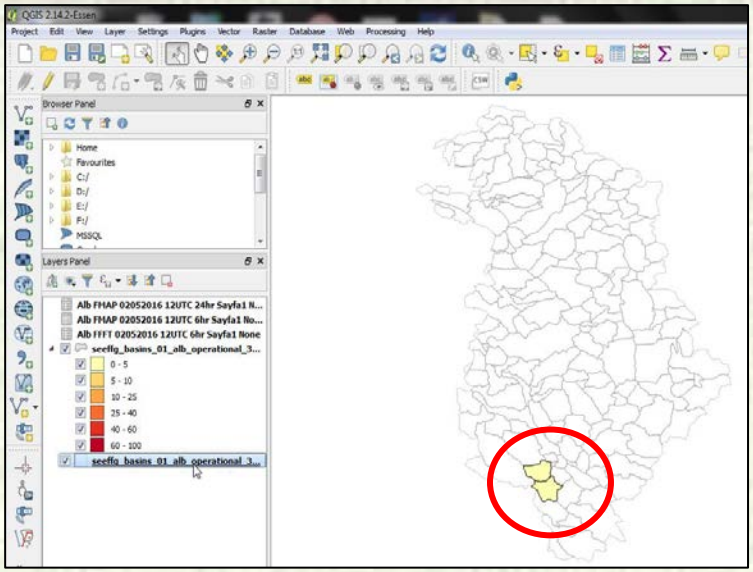
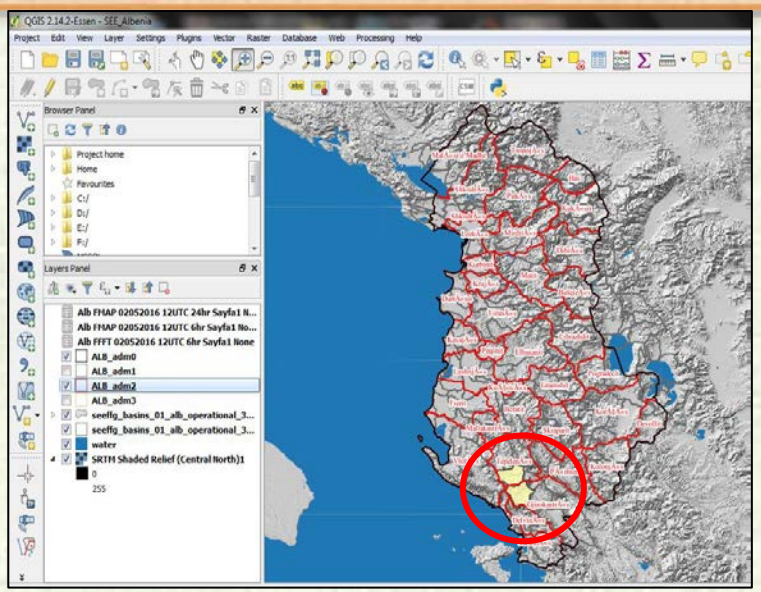
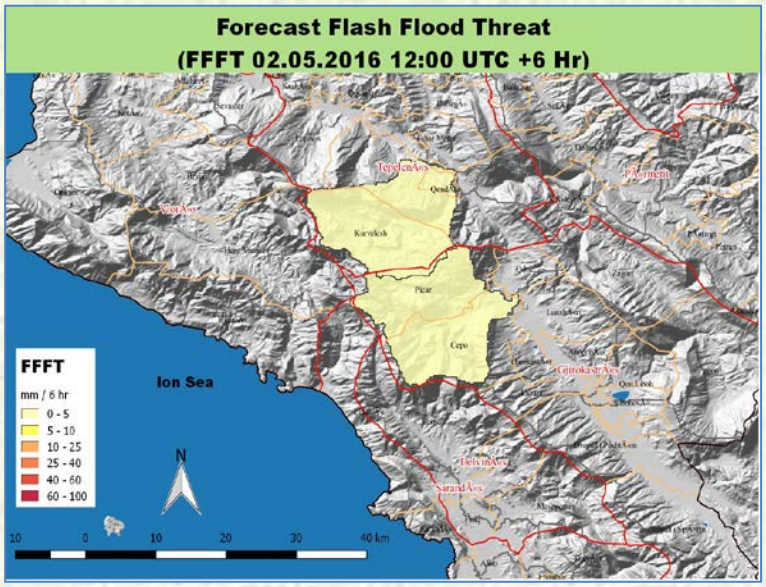
# ZOOM TO THREAT AREA

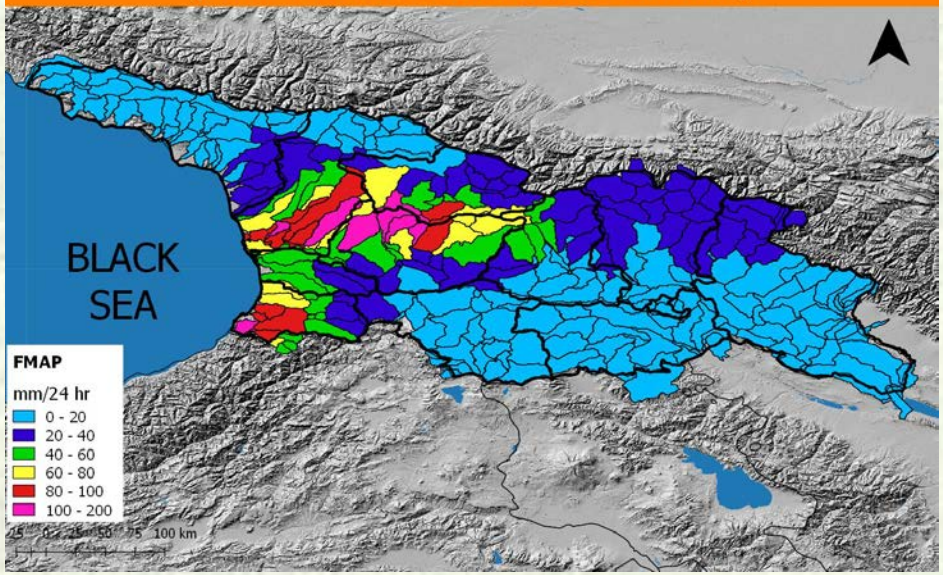


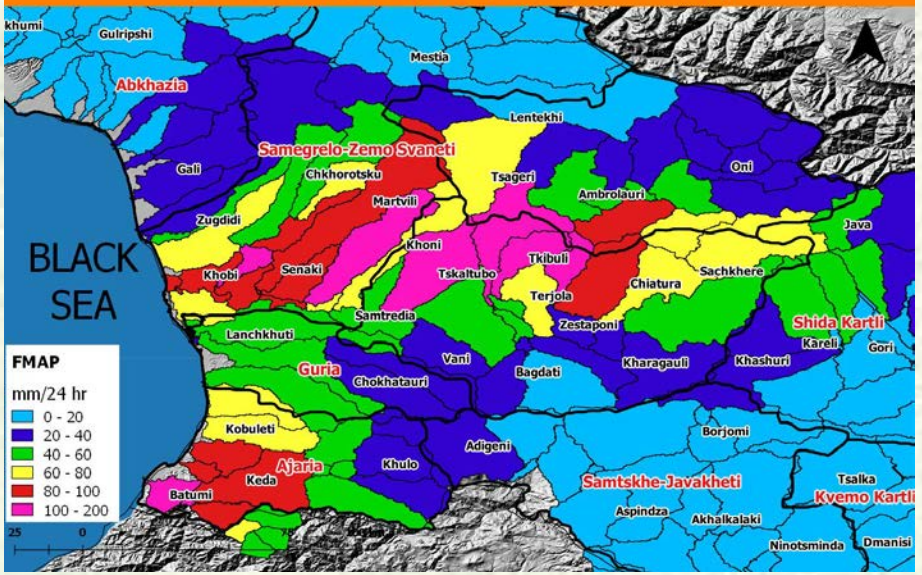



# OTHER MAPS

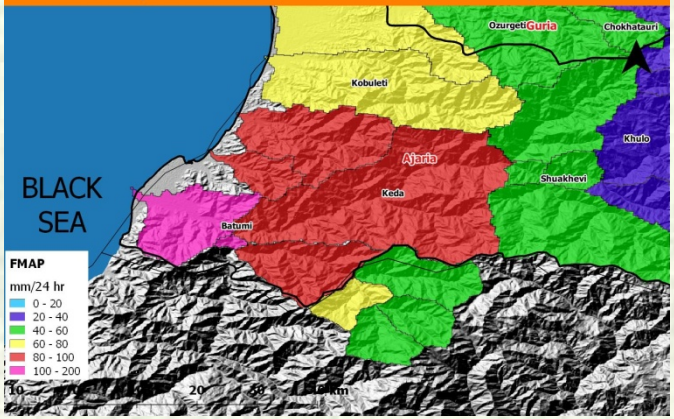
FORECAST MEAN AREAL PRECIPITATION MAP
(FMAP 07.10.2015 18:00 UTC +24 Hour)




FORECAST MEAN AREAL PRECIPITATION MAP
(FMAP 07.10.2015 18:00 UTC +24 Hour)




FORECAST MEAN AREAL PRECIPITATION MAP
(FMAP 07.10.2015 18:00 UTC +24 Hour)



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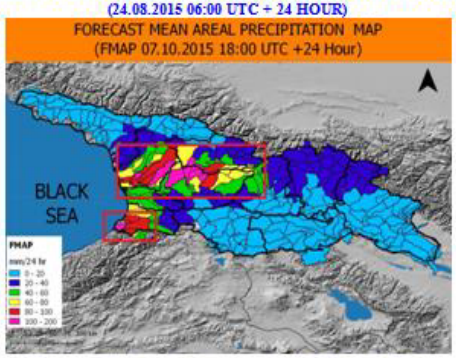
# FLASH FLOOD GUIDANCE BULLETIN

METEOROLOJİ

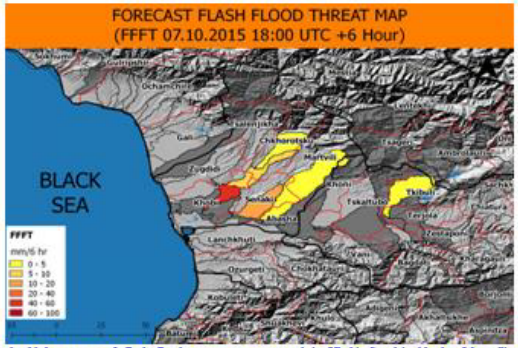
GEORGIAN METEOROLOGY SERVICE

FLASH FLOOD BULLETIN
07 OCTOBER 2015
( 18:00 UTC)

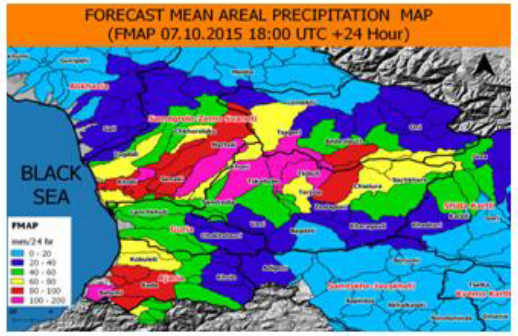
BSMEFFG SYSTEM FORECAST MEAN AREAL PRECIPITATION MAP
(24.08.2015 06:00 UTC + 24 HOUR)




It is expected that heavy and intensity precipitation may cause flash flood events in 24 hours according to BSMEFFG system's Forecast Mean Areal Precipitation (FMAP) map.




It should be aware of flash flood events are expected in Khobi, Senaki, Abasha, Martvili and Chkhorotsku districts of Samegrelo-Zemo Svaneti province and also Tkibuli districts of Imereti province for next 6 hours since forecasted heavy and intensity precipitation with respect to BSMEFFG system's Forecast Flash Flood Threat (FFFT) map.




Citizens should be cautious for any flash flood event because of expected heavy and intensity precipitation in 24 hours who lives in Samegrelo-Zemo Svaneti, Emereti, Guria province and Ajaria province according to BSMEFFG system's Forecast Mean Areal Precipitation (FMAP) map.

GENERAL EVALUATION

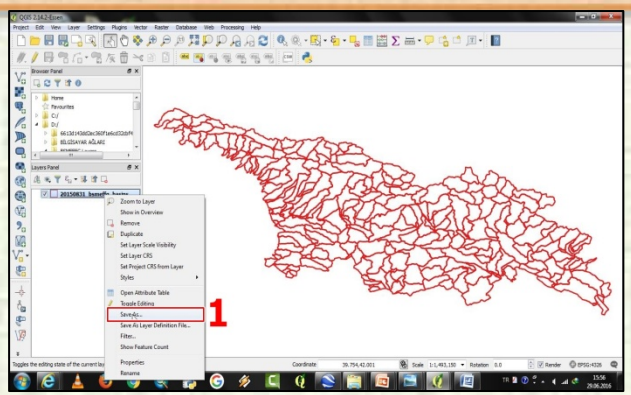
(07.10.2015 18:00 UTC + 6 Hour)

It should be aware of flash flood events are expected in Khobi, Senaki, Abasha, Martvili and Chkhorotsku districts of Samegrelo-Zemo Svaneti province and also Tkibuli districts of Imereti province for next 6 hours since forecasted heavy and intensity precipitation with respect to BSMEFFG system's Forecast Flash Flood Threat (FFFT) map.

(07.10.2015 18:00 UTC +24 Hour)

Citizens should be cautious for any flash flood event because of expected heavy and intensity precipitation in 24 hours who lives in Samegrelo-Zemo Svaneti, Emereti, Guria province and Ajaria province according to BSMEFFG system's Forecast Mean Areal Precipitation (FMAP) map.

# SHAPE TO KML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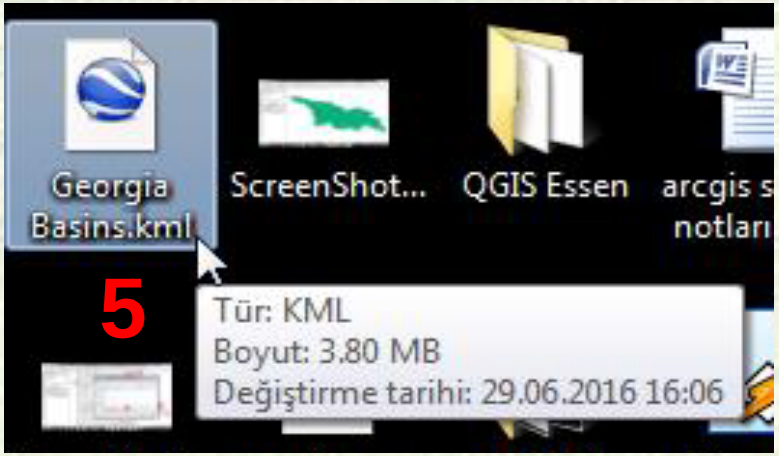
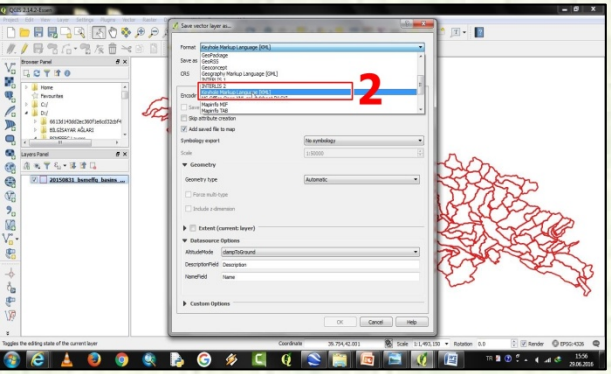

Georgia Basins.kml
ScreenShot...
QGIS Essen
arcgis s notları
5
Tür: KML
Boyut: 3.80 MB
Değiştirme tarihi: 29.06.2016 16:06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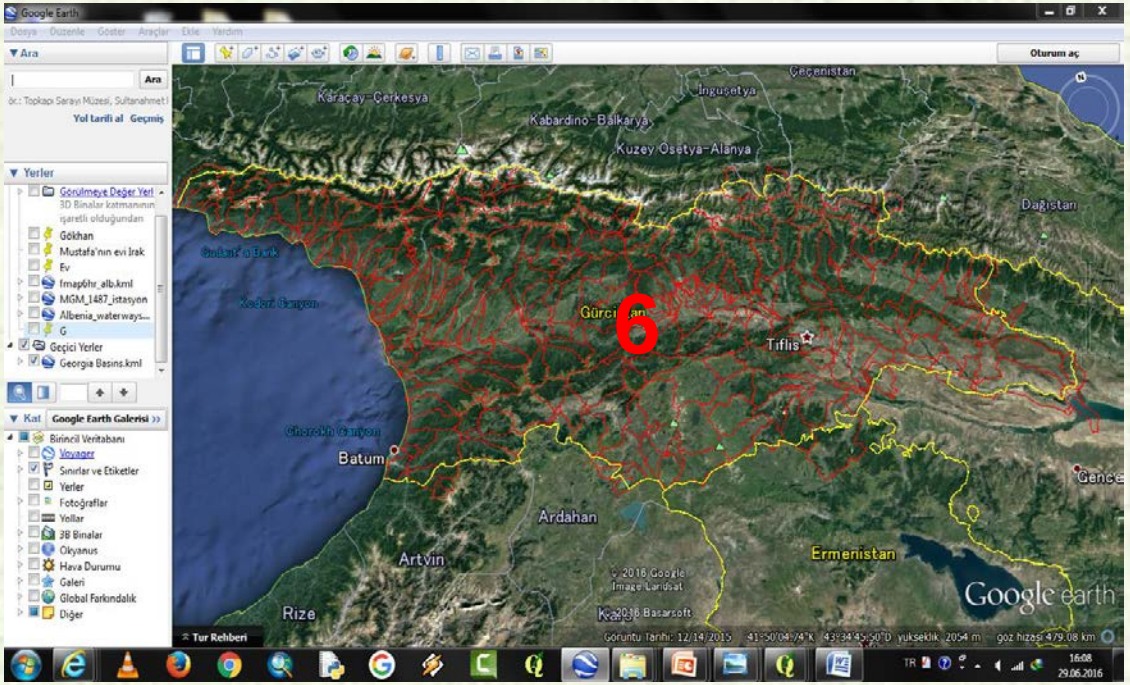
Google Earth
Karaçay-Çerkesya
Kabardino-Balkarya
Kuzey Osetya-Alanya
Dağıstan
Tiflis
6
Batum
Ardahan
Artvin
Rize
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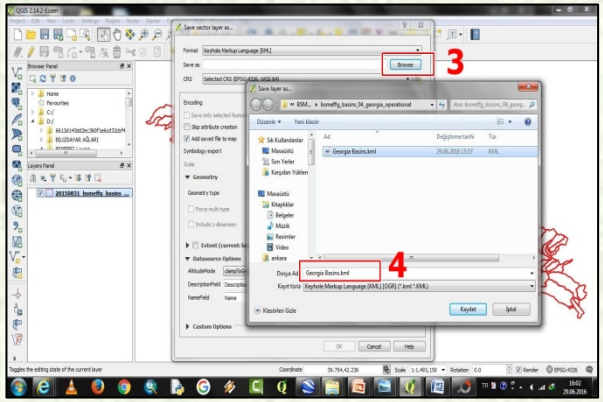
Google earth


3
4

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**Thank you for your attentetion**