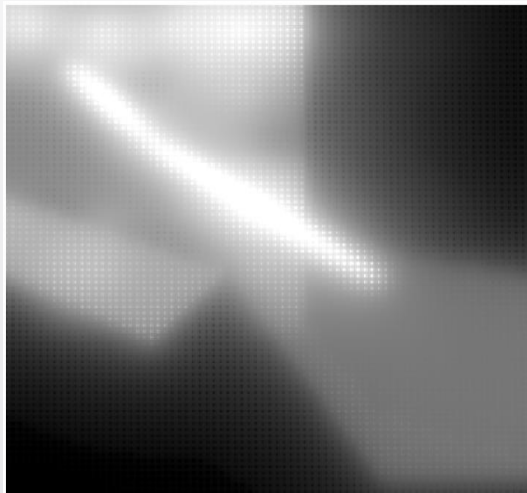


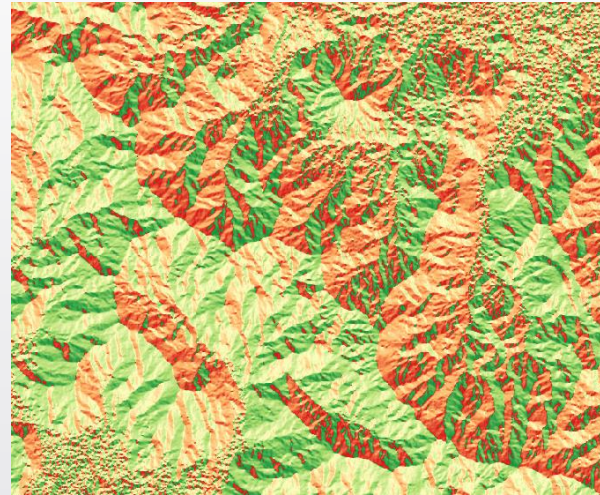


Deriving contours, aspect,  
hillshade and slope

# Contour, Aspect and Slope Derivation from DEM

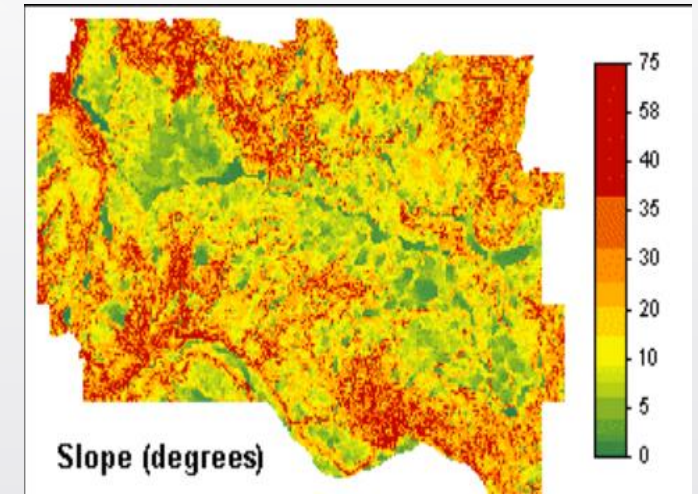


DEM



1. ASPECT

OR



Slope (degrees)

2. SLOPE



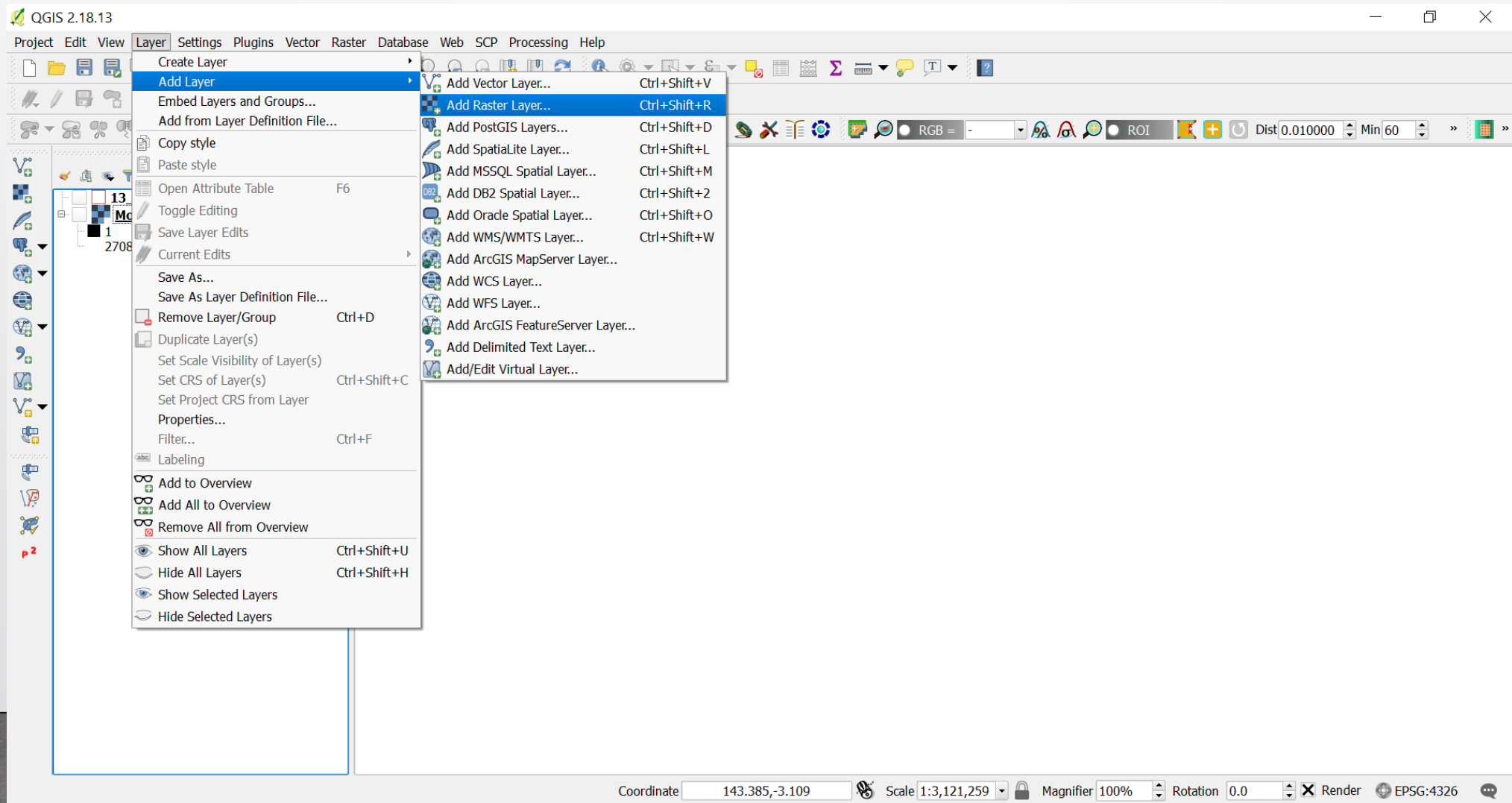
3. Contour



## Data Needed: DEM

- Data filename: MosaicDEM.tif (inside Result folder)
- Data type: Raster (Geotiff)
- Data about: DEM (Digital Elevation Model)
- Data CRS: [EPSG:4326]

# Load DEM raster layer

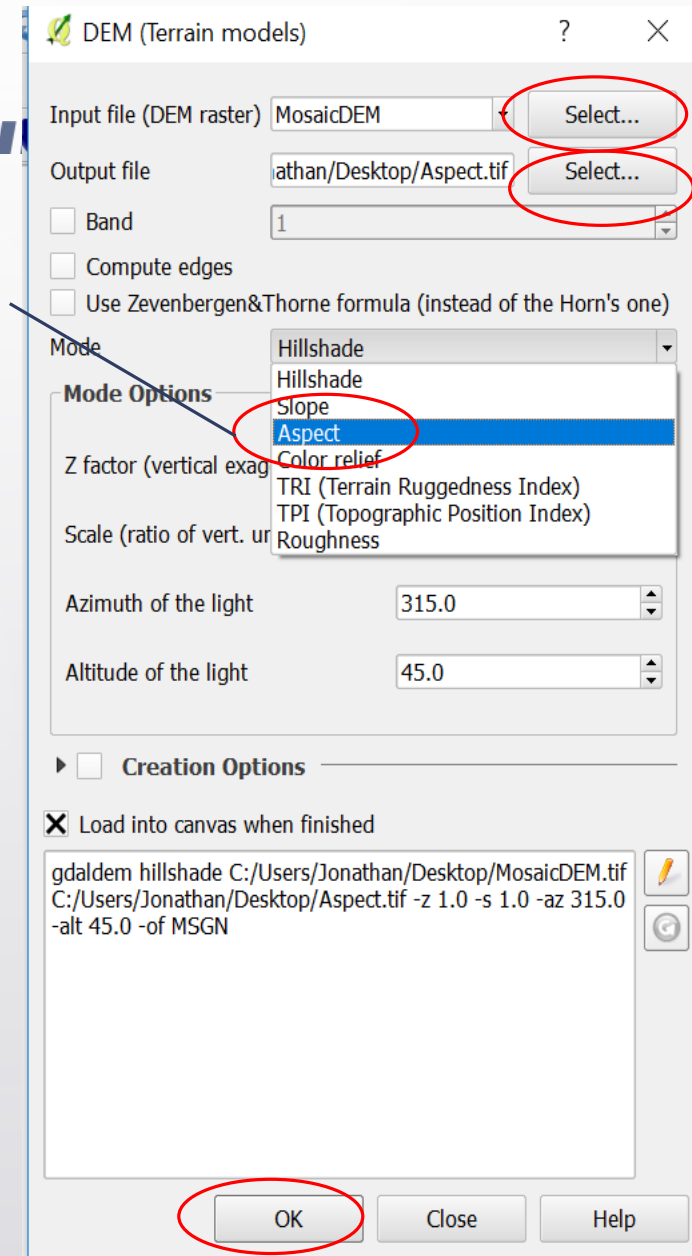
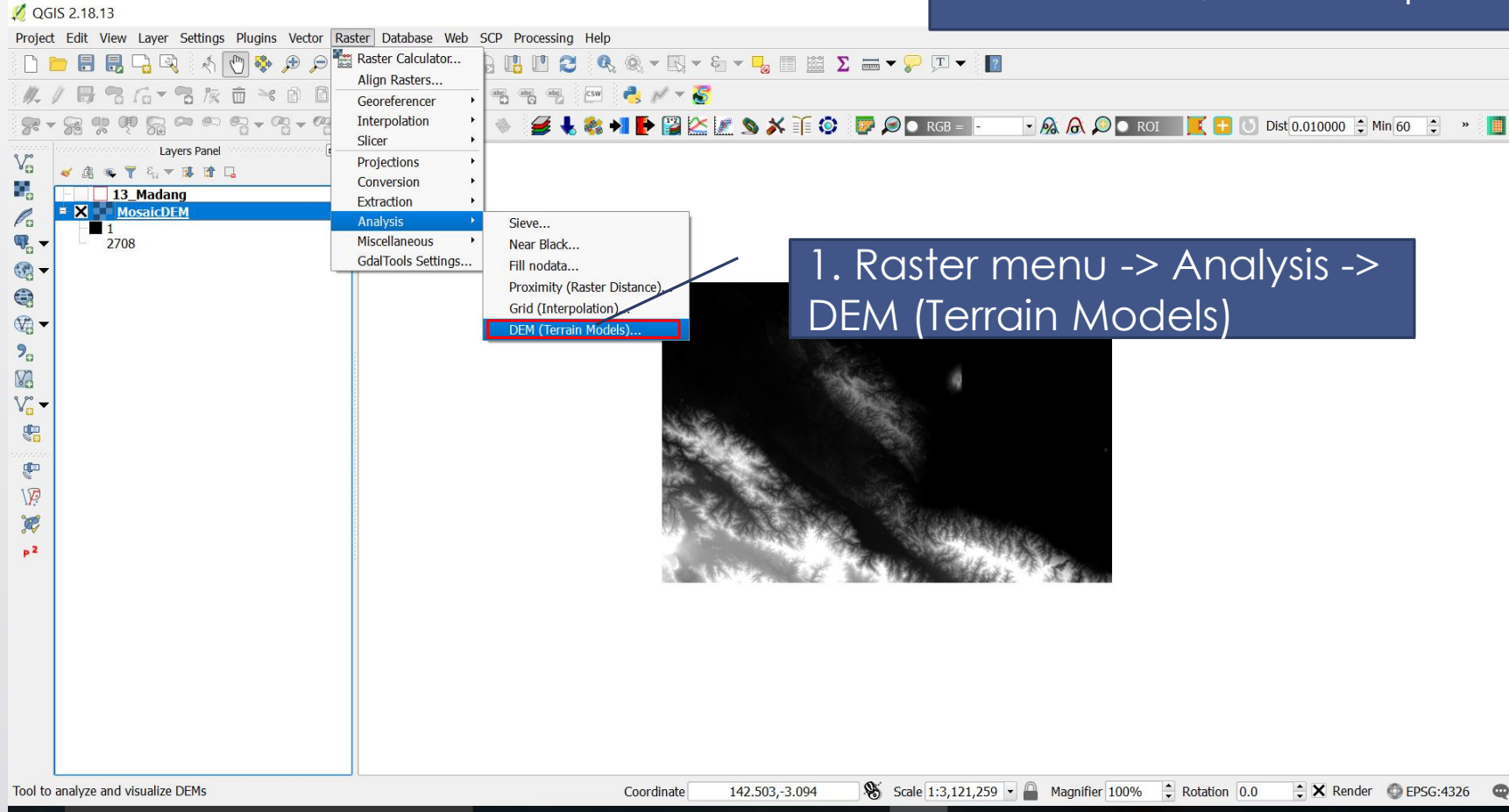




# Aspect Derivation

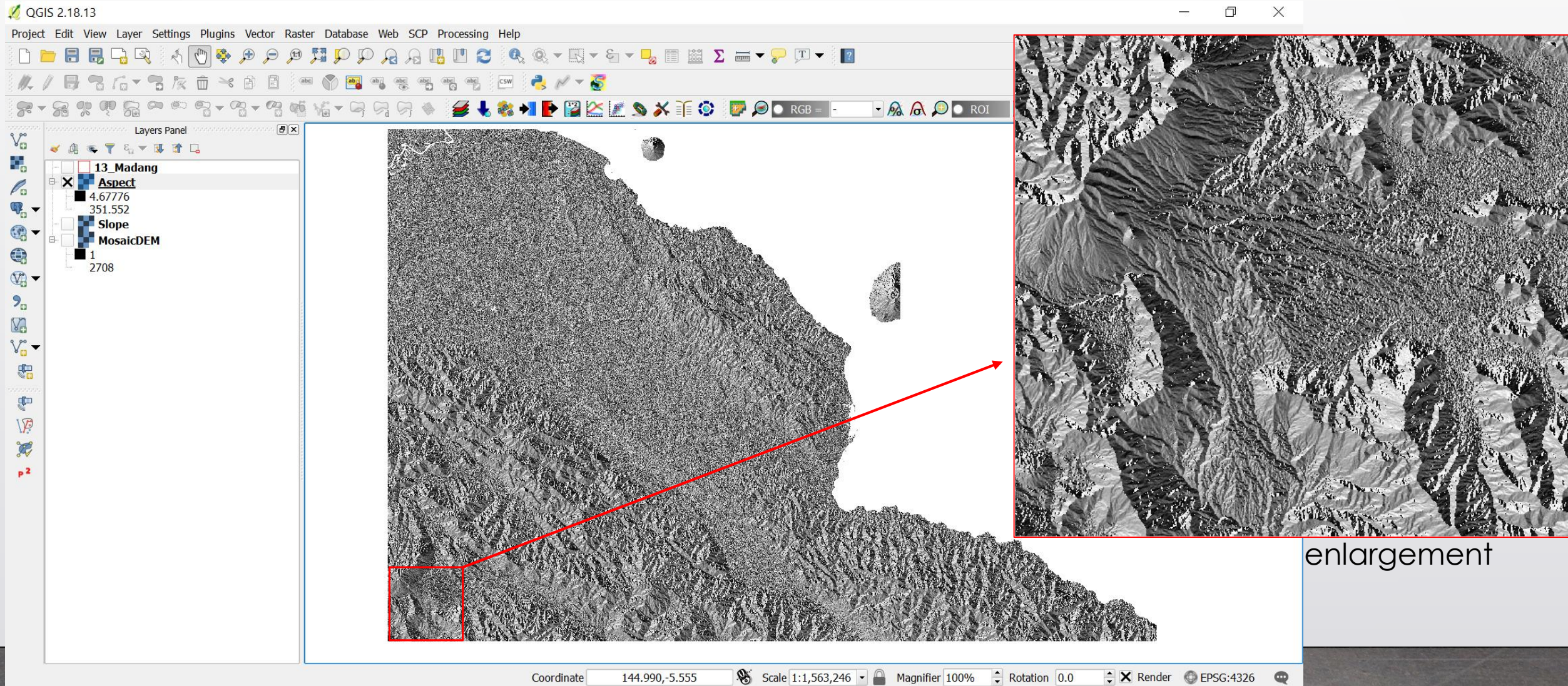
2. In mode, select Aspect

1. Raster menu -> Analysis ->  
DEM (Terrain Models)



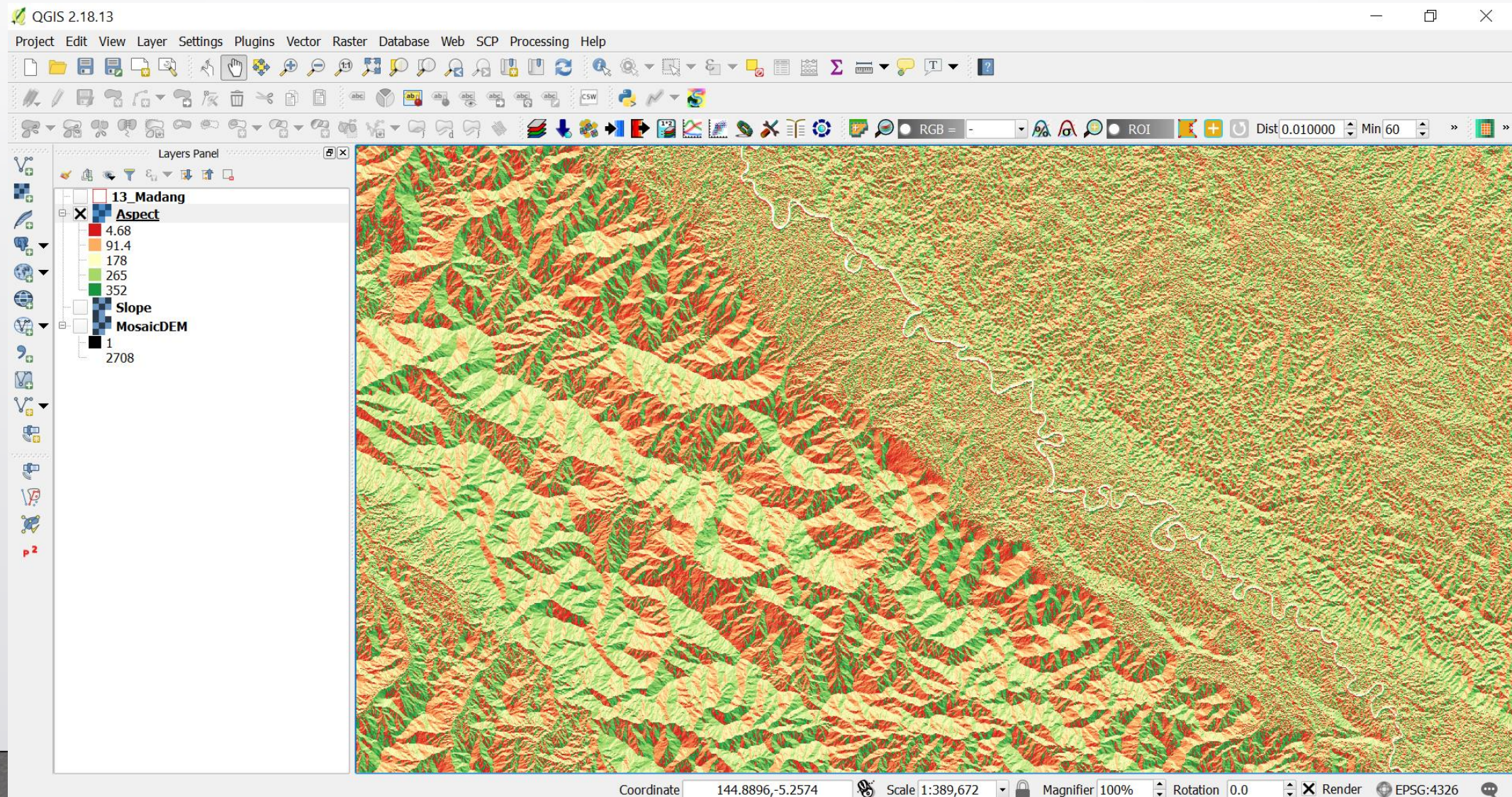


# Aspect Derivation (Result)





# Derived Aspect after changing symbology





# OR (alternative process from GDAL Tool)

The screenshot shows the QGIS 2.18.13 interface. The main window displays a map with a grayscale elevation raster. The Processing Toolbox is open on the right, showing a search for 'aspect'. The SCP Dock is visible at the bottom left, with input fields for 'Input image' and 'Training input'. The Processing Toolbox also shows a list of algorithms, including 'r.aspect' under the 'GRASS GIS 7 commands' category.

1. Processing → Toolbox

2. Type in "aspect" here and ENTER

3. Double click on "aspect"

4. Aspect window will pop up. Just input necessary data



# Slope derivation (be illustrating GDAL tool here)

The image shows the QGIS 2.18.13 interface with several components visible: the main map area, the Layers Panel on the left, the Processing Toolbox on the right, and the SCP Dock at the bottom. A dark blue overlay with white text provides step-by-step instructions for deriving slope.

**1. Processing → Toolbox**

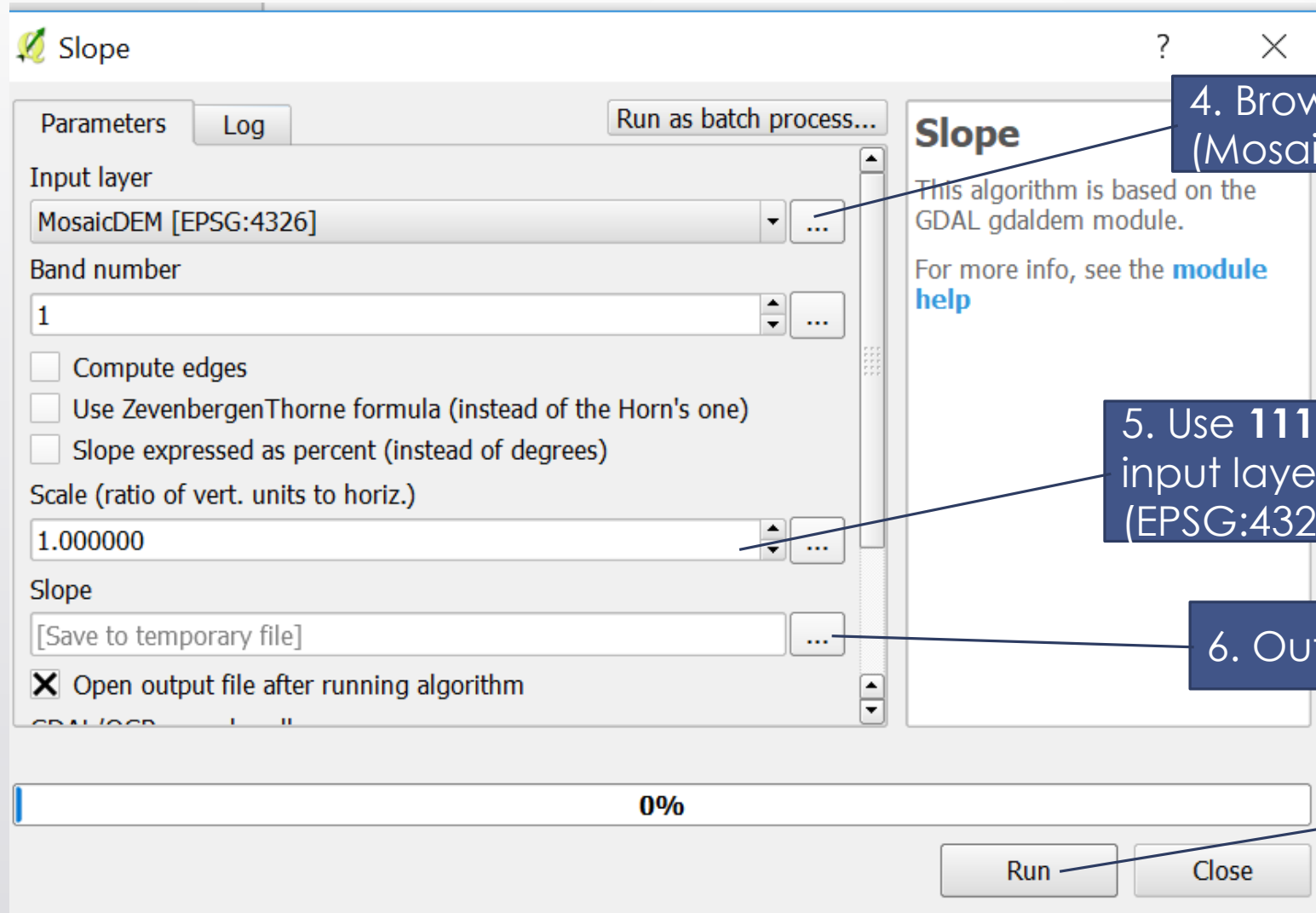
**2. Type in "slope" here and ENTER**

**3. Double click on "slope"**

The Processing Toolbox search results for "slope" are displayed, showing the following structure:

- Recently used algorithms
  - Slope
  - GDAL/OGR [48 geotools]
    - [GDAL] Analysis
      - Slope**
  - GRASS GIS 7 commands [315 geotools]
    - Raster (r.\*)
      - r.slope - Generates raster maps of slope from an elevation raster map.
      - r.slope.aspect - Generates raster layers of slope, aspect, curvatures a...
  - SAGA (2.3.2) [324 geotools]
    - Image analysis
      - Vegetation index (slope based)
    - Raster filter
      - Dtm filter (slope-based)
    - Raster visualization
      - Aspect-slope grid
    - Simulation
      - Diffusive hillslope evolution (adi)
      - Diffusive hillslope evolution (ftcs)
    - Terrain Analysis - Hydrology

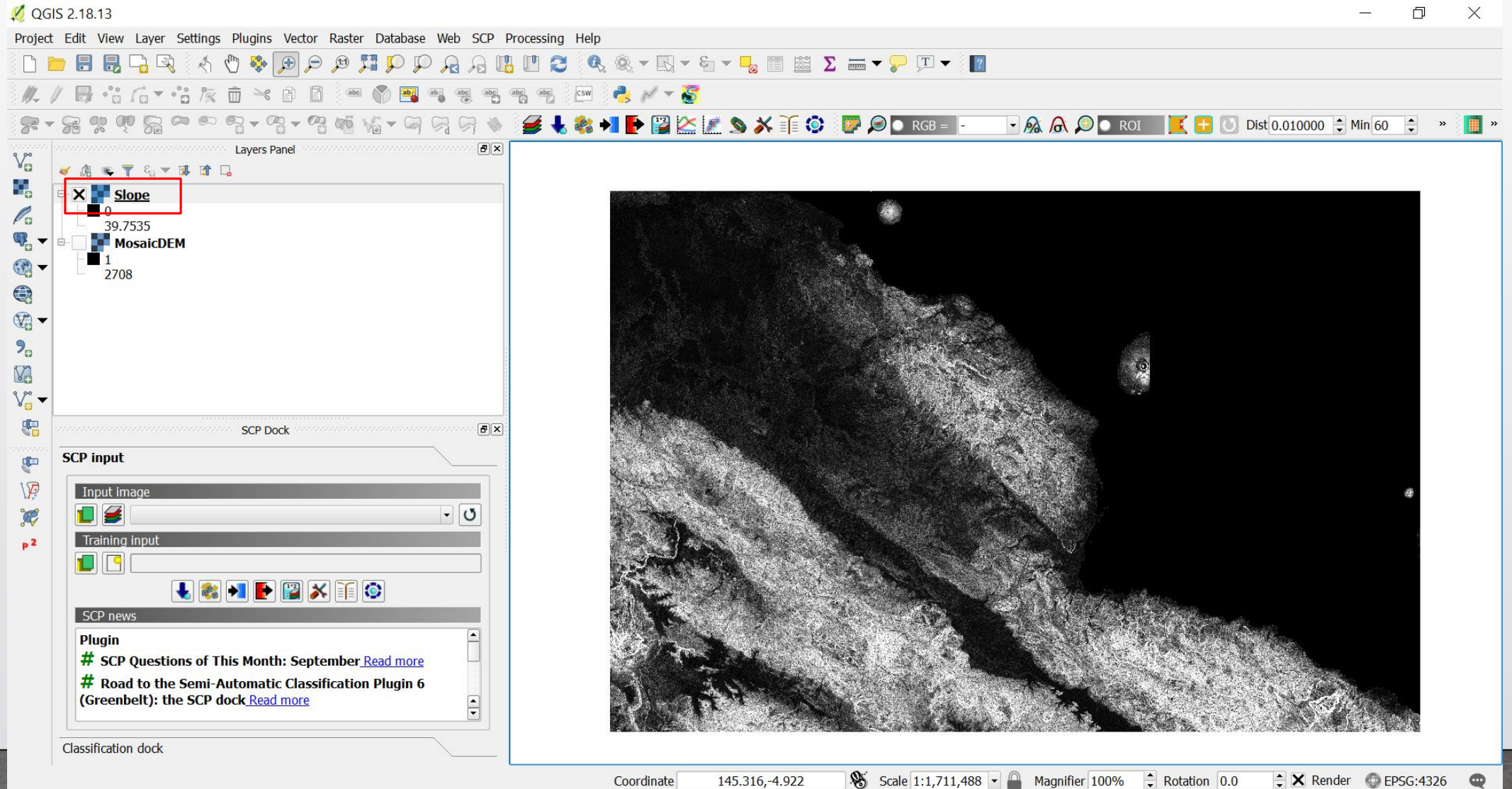
# Slope derivation



Note: For number 5, Scale can be 1.00 if input layer is in metric unit.



# Derived Slope



# Contour Derivation: (Use the same DEM data – MosaicDEM)

QGIS 2.18.13

Project Edit View Layer Settings Plugins Vector Raster Database Web SCP Processing Help

Raster Calculator...  
Align Rasters...  
Georeferencer  
Interpolation  
Slicer  
Projections  
Conversion  
Extraction  
Analysis  
Miscellaneous  
GdalTools Settings...

13\_Madang  
Aspect  
4.68  
91.4  
178  
265  
352  
Slope  
MosaicDEM  
1  
2708

Builds vector contour lines from a DEM

Coordinate 145.156,-4.200 Scale 1

### Contour

Input file (raster) MosaicDEM Select...

Output file for contour lines (vector) Desktop/contour Select...

Interval between contour lines 100.000

☒ Attribute name  
If not provided, no elevation attribute is attached.

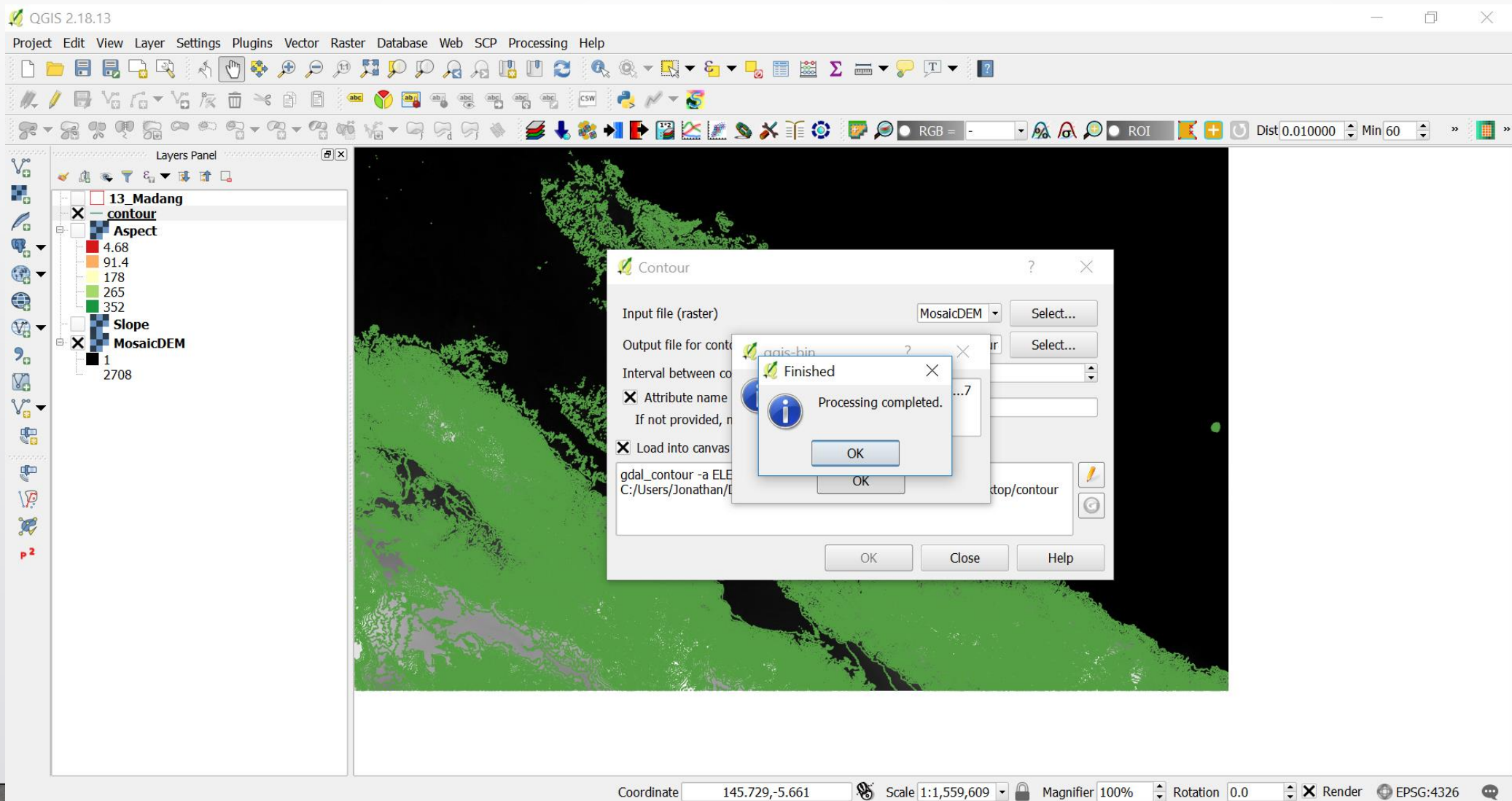
☒ Load into canvas when finished

gdal\_contour -a ELEV -i 100.0 -f "ESRI Shapefile"  
C:/Users/Jonathan/Desktop/MosaicDEM.tif C:/Users/Jonathan/Desktop/contour

OK Close Help



# Derived Contours



# Derived Contours

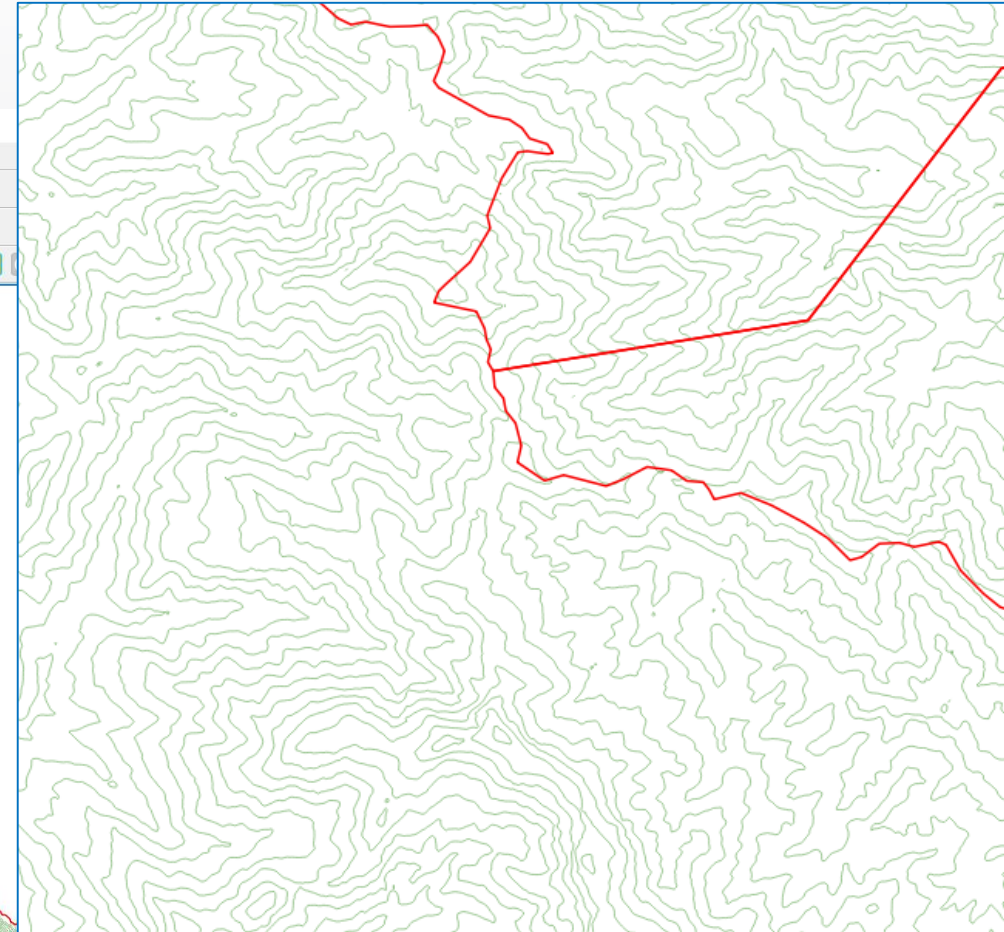
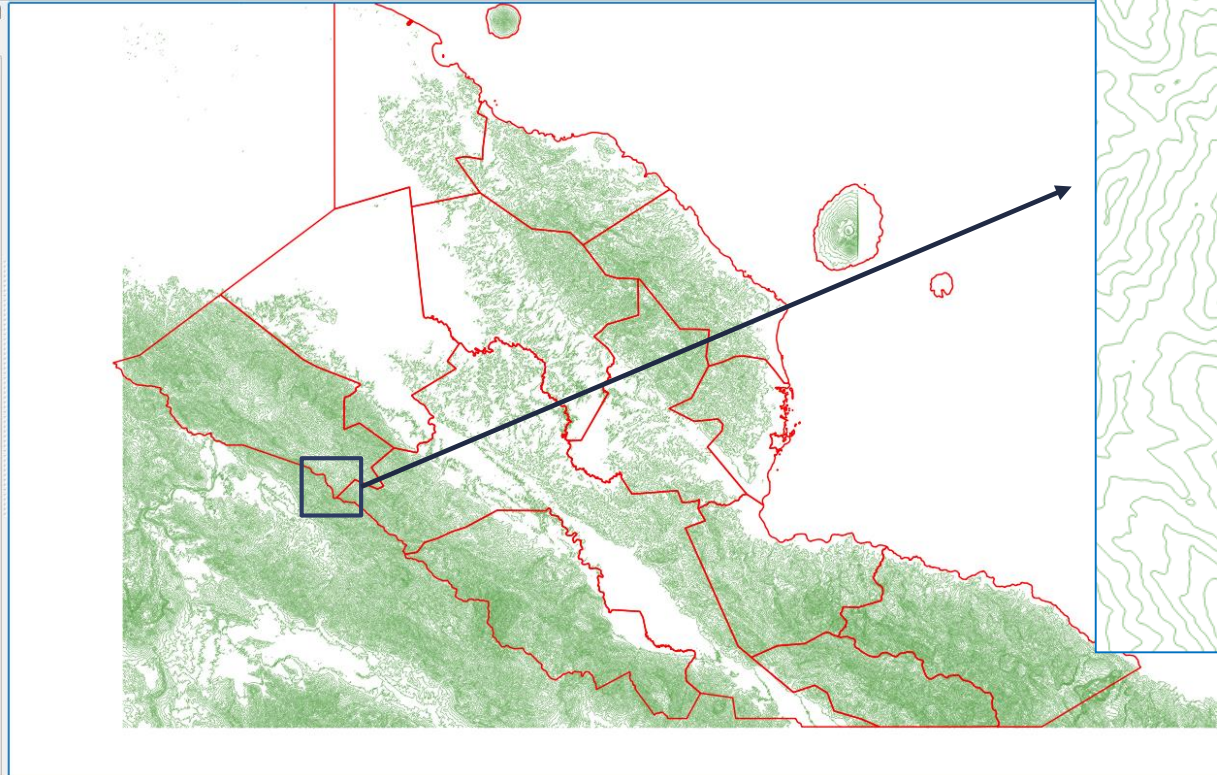
QGIS 2.18.13

Project Edit View Layer Settings Plugins Vector Raster Database Web SCP Processing Help



Layers Panel

- 13\_Madang
- contour
- Aspect
  - 4.68
  - 91.4
  - 178
  - 265
  - 352
- Slope
- MosaicDEM
  - 1
  - 2708



enlargement

Coordinate 144.786,-5.076 Scale 1:1,562,286 Magnifier 100% Rotation 0.0 Render EPSG:4326





Thank you!