AW3D Newsletter Vol.26

April 19th, 2021

Welcome to your AW3D newsletter.

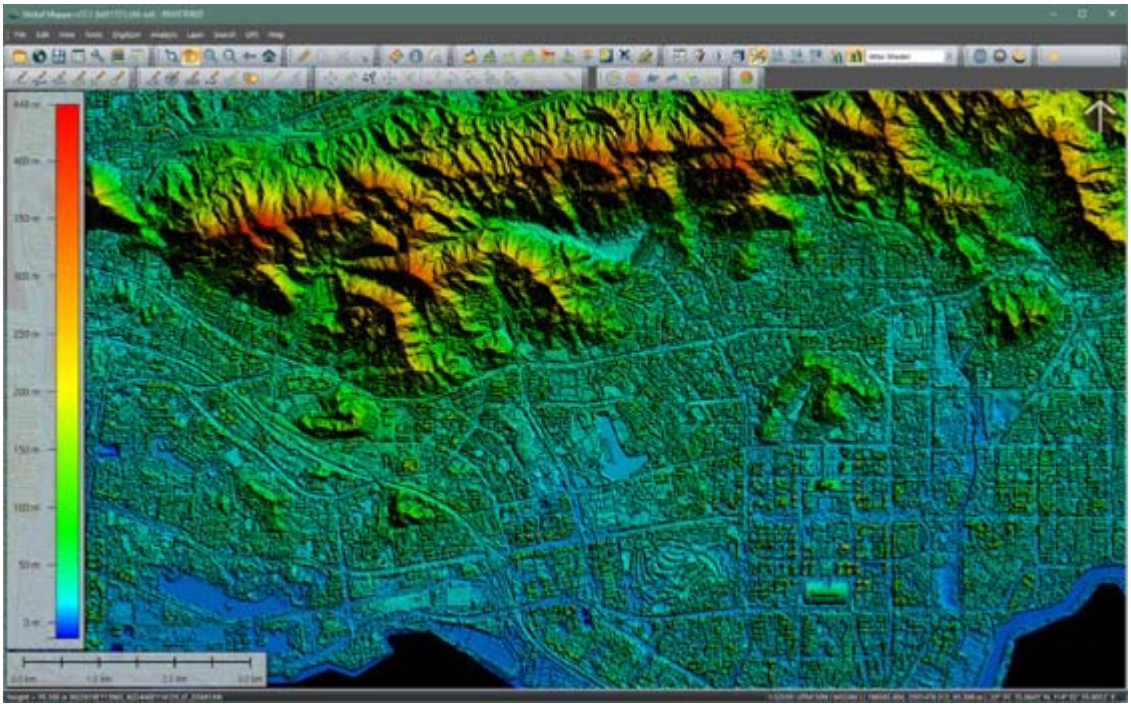
This month's feature is how to create a shaded relief map (also known as hill-shading) in GDAL, one of the best GIS toolsets.

Back in the newsletter vol.19, we took a look to fix the NoData value DEM data by using the tool and QGIS.
The back issue of the newsletter is available here.

Hope you enjoy it.

-AW3D sales team

DEM of the Month



AW3D Enhanced 2m DSM ©NTTDATA included ©Maxar Technologies, Inc.

Shenzhen, China's Silicon Valley with AW3D Enhanced 2m DSM.
AW3D offers the latest topographical data of even a city like Shenzhen, where the development progresses at a tremendous rate.

The image above is viewed with Global Mapper®. AW3D data is compatible with many software packages, including ESRI and Autodesk products (ArcGIS Pro, AutoCAD, Civil 3D, Infraworks), RF simulation tools (Atoll, Planet and ASSET), and many other products like Softree and so on. Please contact us if you want to know our product works with the software you're using and/or the coverage of your interest area.

Tip of the Month: Generating a Shaded Relief Map in GDAL

The Geospatial Data Abstraction Library is known as GDAL (pronounced "gee-dall") is a library of tools used for raster and vector geospatial data. It also includes the number of command line utilities to get information about a raster dataset (gdalinfo), convert the data (gdal_translate), and upsampling/downsampling (gdalwarp), etc.

If you don't have GDAL yet, the easiest way to install & use it on the Windows environment is to install QGIS package with "Long term release 3.16 (64 bit)" or "Long term release 3.10 (64 bit)").

Visit the QGIS page for installation and setup.

After installation is completed, you can find the "OSGeo4W Shell " from the "All apps" list in the Windows Start menu - clicking it will open the command window, where you can type a GDAL command to process your geo-data.

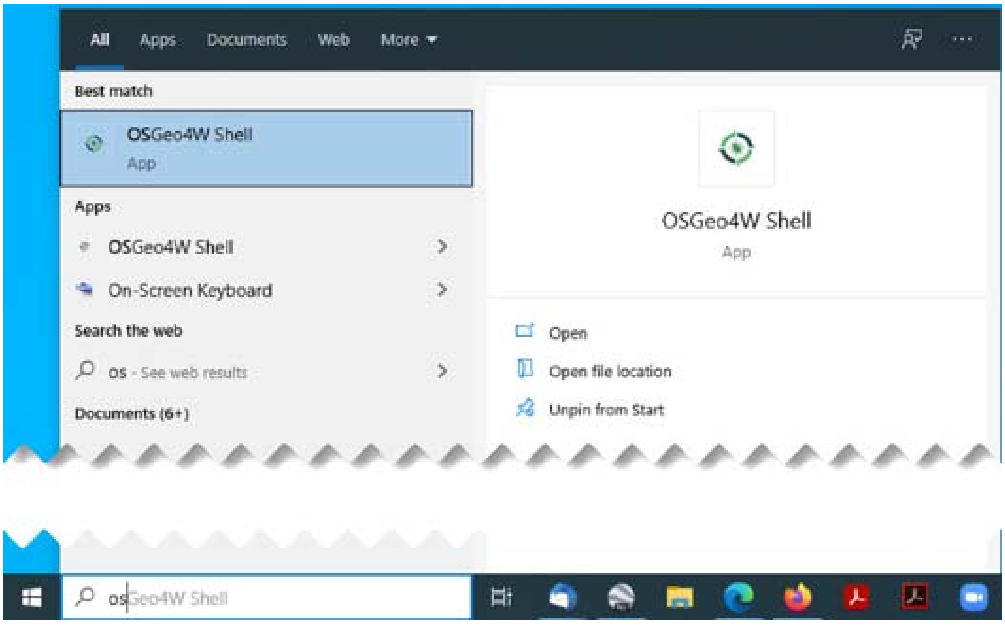


Image:How to find OSGeo4W Shell from the windows start menu

Example -

In general, shaded relief represents the shadow of the ground surface from one point of the light source. It is typically used when you want to express the undulations of the terrain, such as mountains, valleys, and canons, etc. in 2D bitmap.

You can easily generate a shaded relief map with only a few steps by using OSGeo4W Shell. Let's take a look at how to create it.

<Example:>
Opening DSM data from QGIS 3.10

Sample: AW3D Enhanced 0.5m DSM (Location:Fukushima, Japan)
Map Projection: UTM

AW3D data basically comes with GeoTIFF (.tif) file and the image below shows how it looks like when you open the data with QGIS.

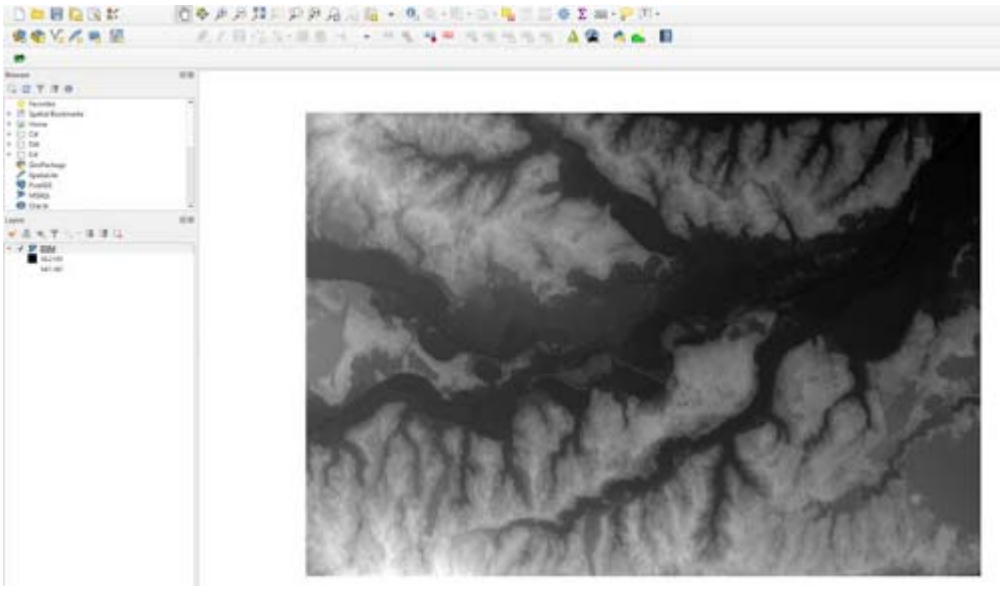


Image: AW3D Enhanced 0.5m DSM data with QGIS 3.10 (before hillshade)

What you need to do next is to open " OSGeo4W Shell " in the Windows Start menu and use "GDALINFO" command like:

C:\>*gdaldem hillshade inputfile.tif outputfile.tif*

We'll use "C:\AW3D_0.5m\DSM.tif " as inputfile.tif and "C:\AW3D_0.5m\DSMrelief.tif" as outputfile.tif for command.

So, it's going to be like:
C:\>gdaldem hillshade C:\AW3D_0.5m\DSM.tif C:\AW3D_0.5m\DSMrelief.tif , then hit the enter button.

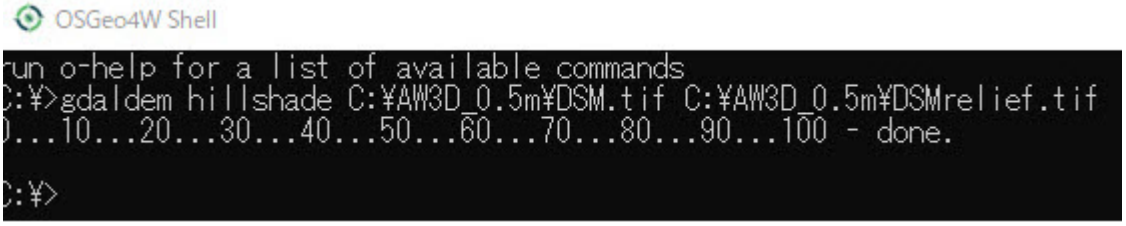


Image: command example in OSGeo4W Shell

Notes:
The map projection of the DSM used in the example above is UTM.
Generating a shaded relief map from Lat/Lon GeoTiff data, please make sure to add the scale "-s 370400 (if elevation is in feet)or scale=- s 111120 (if elevation is in meters)"before inputfile.tif outputfile.tif.

command example (for Lat/Lon data:
C:\>gdaldem hillshade -s 111120 inputfile.tif outputfile.tif

The OSGeo4W Shell window shows the image like above when the command worked successfully.
Now, the newly generated file "DSMrelief.tif" must be a shaded relief map. Let's open it from QGIS to see if it worked.

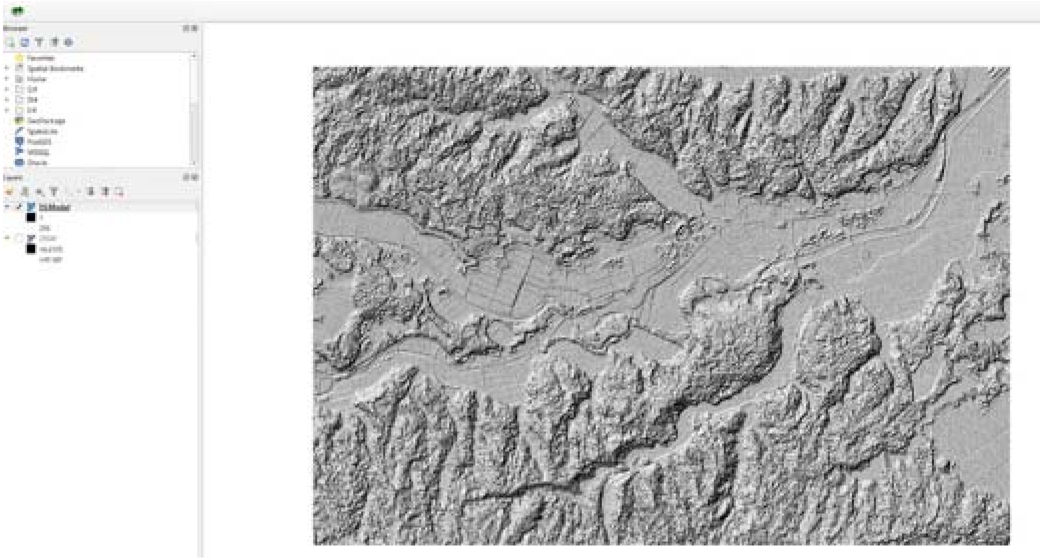


Image: AW3D Enhanced 0.5m DSM data with QGIS 3.10 (after hillshade)

You might get some error messages when the name of the input/output file is wrong.
In that case, rename the file and try it again.

AW3D team commits to support the majority of industry standards to make our data are widely compatible with GIS process chains, including GDAL.

Please let us hear your voice if we can improve our data format to support your workflow better.

- -

Any questions, comments, or suggestions are always welcome. We can be reached via here.

Thanks for tuning in,

The AW3D sales team

- -