



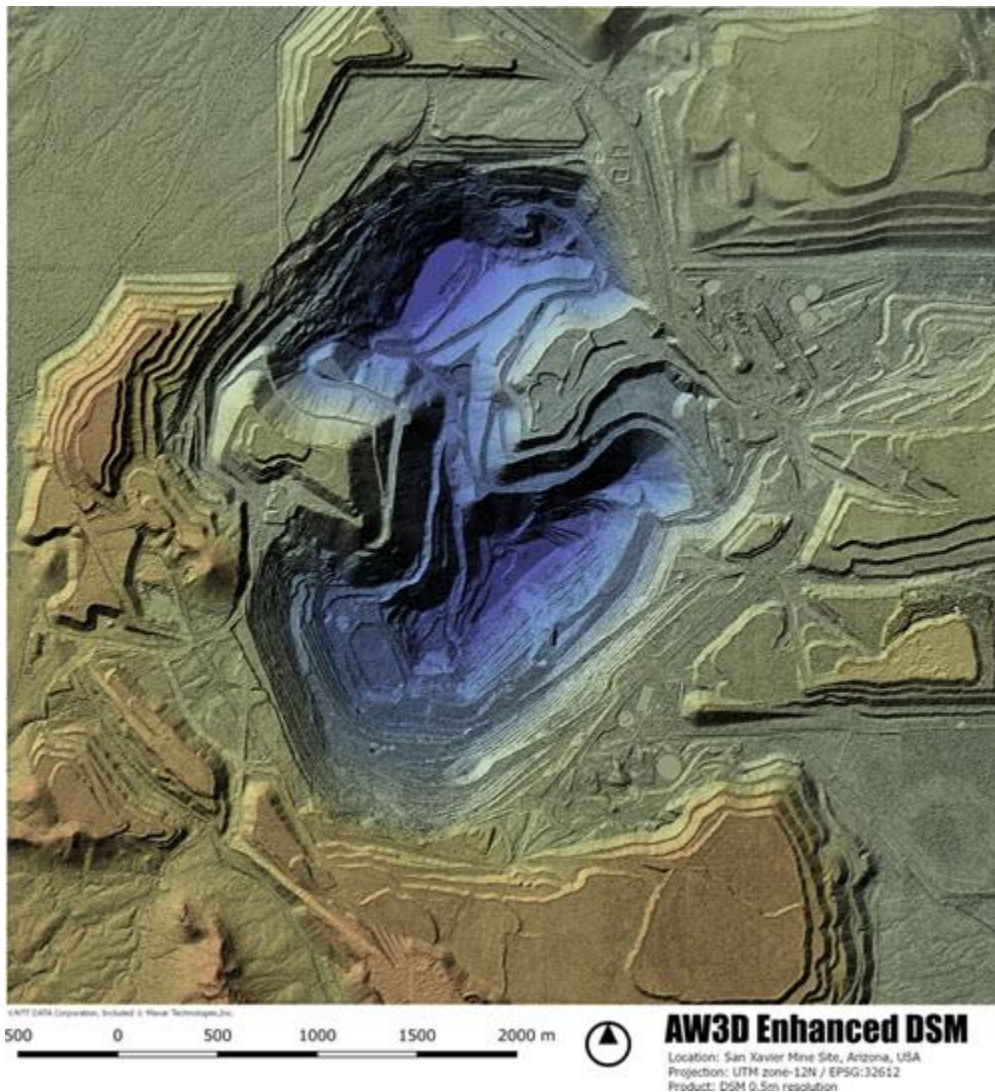
Welcome to your AW3D newsletter. We're excited to share the latest news, tips, and resource for geospatial data specialists. In this issue, we take a look at GDAL, which is one of the best GIS toolsets, for people who use digital elevation models but has not fully take an advantage of this open-source software.

Thanks for reading,

DEM of the Month:

Open mine pit, San Xavier Indian Reservation, Pima Co., AZ, USA

The file details of the terrain that are not captured in the open-&-free low-mid resolution DEM data but are well described in our AW3D Enhanced 0.5m DSM.



Tool of the Month: GDAL

The Geospatial Data Abstraction Library (GDAL, pronounced "gee-dall") is one of the most successful and widely accepted libraries for raster and vector geospatial data.

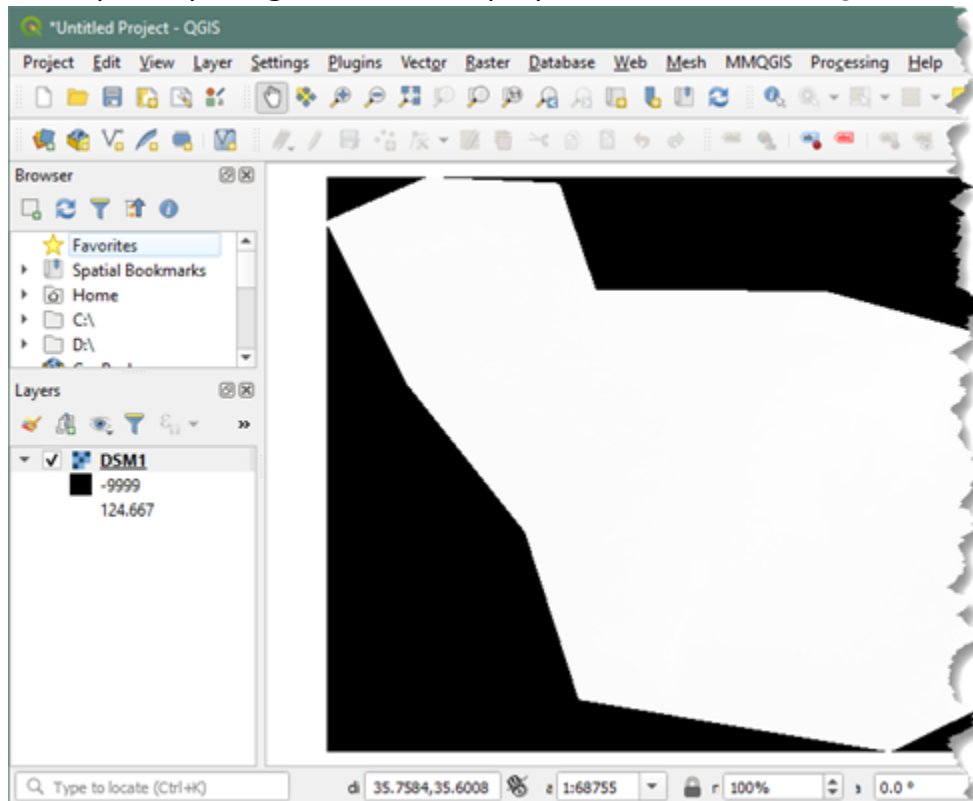
The easiest way to install & use it on the Windows environment is to install QGIS package (google to find the download page, then try "Long term release 3.10 (64 bit)").

After installation is completed, you can find "OSGeo4W Shell" from "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.

Example - setting NoData value in the GeoTIFF metadata

From time to time, our customer runs into a problem with opening DEM data from their GIS software. They see a pure black and white image without gray-scale, like this:

<Example - opening DSM without proper meta-data from QGIS 3.10>



This happens when AOI is not a rectangle and GeoTIFF file contains no-data pixels, but no-data value is not defined in its meta-data. To confirm this, open "OSGeo4W Shell" and use "GDALINFO" command with "-stats" option. Type something like:

(when you have your DEM data as "DSM1.tif" under "C:\%tmp" folder)

```
C:\>gdalinfo -stats C:\tmp\DSM1.tif
```

```
...  
Minimum=-9999.000, Maximum=137.679, Mean=-4203.738, StdDev=4949.159
```

Metadata: ...

The pixel value "-9999.000", which is used for no-data without declaring so in the meta-data, causes this unwanted behavior (note that Mean and StdDev values are way off for DEM data). To "fix" this, you can assign a no-data value in the GeoTIFF meta-data using "GDAL_TRANSLATE" command.

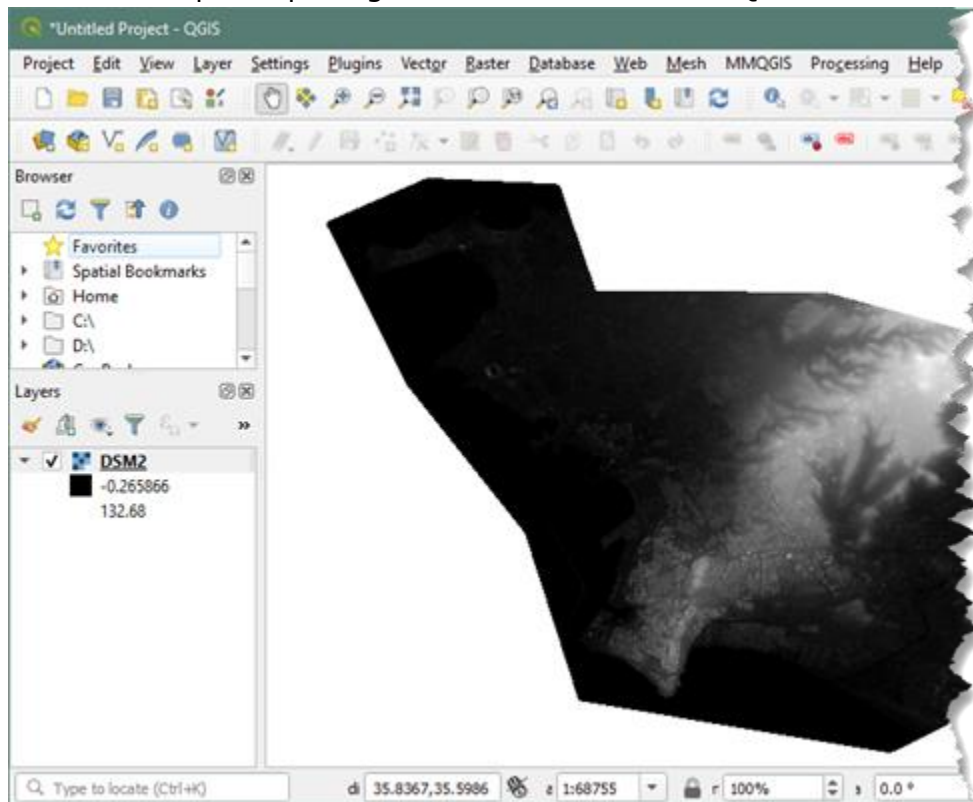
```
C:\>gdal_translate -a_nodata -9999 C:\tmp\DSM1.tif C:\tmp\DSM2.tif
Input file size is 8461, 5413
0...10...20...30...40...50...60...70...80...90...100 - done.
```

Now, the newly generated file "DSM2.tif", must have a proper meta-data. Let's check it using "GDALINFO" command again.

```
C:\>gdalinfo -stats C:\tmp\DSM2.tif
...
Minimum=-1.129, Maximum=137.679, Mean=22.779, StdDev=26.335
NoData Value=-9999
Metadata: ...
```

You will see that NoData value is set correctly, also the statistic values look much reasonable this time. Let's open it from QGIS to see if this fixes the problem.

<Example - opening the modified DSM from QGIS 3.10>



You now see a nice gray-scale image - also the area where there is no valid data is transparent - you can apply a color ramp to make a fine-looking DEM representation without a lot of manual tweaking from here.

GDAL offers many very useful functionalities, including re-projecting to other coordinate systems, compressing data using loss-less codec, etc.

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



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