

May 20, 2020

Dear AW3D Supporters,

I hope everyone is doing as well as can be expected right now. In Japan, we usually have a special holiday week, called "Golden Week" from the end of April to early May, but this year was obviously different from the past years.

All of our AW3D team members always wish your safety and health.

Hope you enjoy this issue!

-AW3D sales team

### Feature Topic: DSM vs. DTM

Some of you may remember that the processing level of DSM (Digital Surface Model) was covered in the [last issue](#). AW3D also offers DTM (Digital Terrain Model) and both DSM and DTM are known as "DEM (Digital Elevation Model)".

Since the impact from difference between DSM and DTM is significant in high resolution data, AW3D team always clarify and not to use a term "DEM" to avoid ambiguity.

DSM: represents the earth surface and includes all artificial structures, vegetation, and other features  
DTM: represents the bare ground surface without any features (objects) such as buildings and vegetation

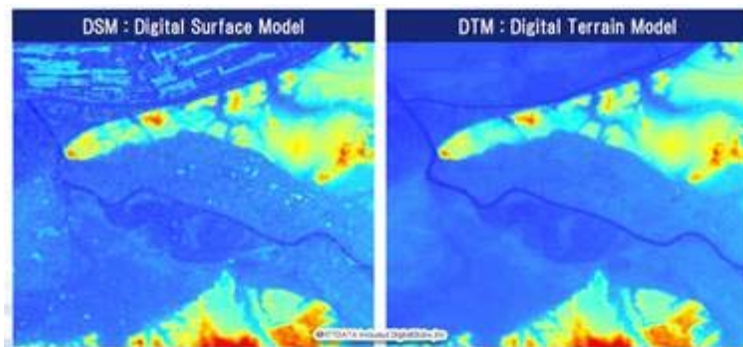
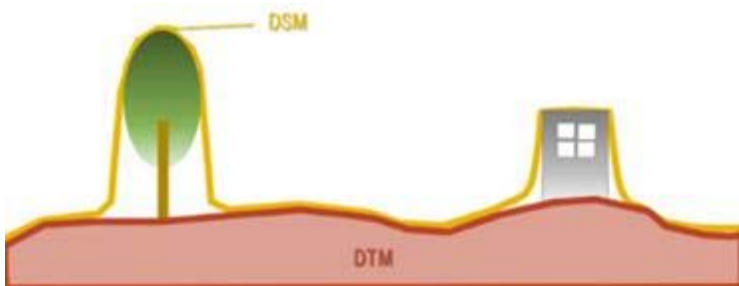


Image: The difference of DSM and DTM

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## Product of the Month: Generation of DTM

Generation of DTM is one of the most popular questions and here are basic steps:

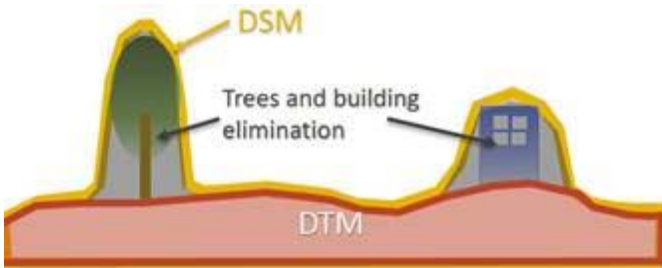
Step 1. Imagery Selection (using [3D stereoscopic](#) in-track stereo and [multi-view imageries](#))

Step 2. DSM Generation (dense image matching)

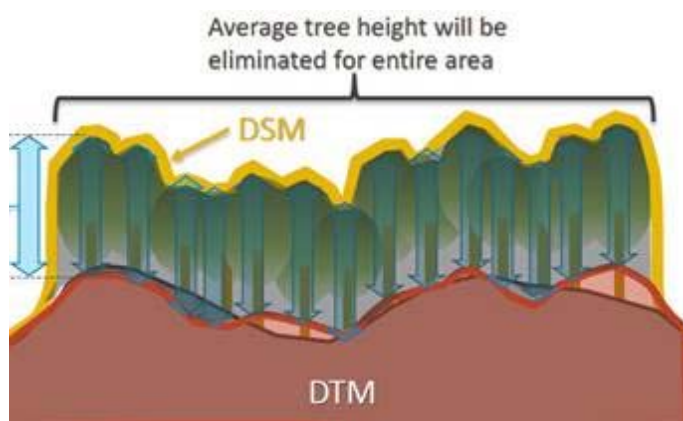
Step 3. Gaps infilling/error correction (due to clouds, viewpoint limitation, etc...)

Step 4. Buildings/vegetation height elimination

4-a. Normal process: The height of trees, buildings, and other structures that can be recognized from satellite imageries are eliminated from DSM.



4-b. Heavy vegetation area (e.g. continuous cover forest): For the area where cannot be seen the ground surface from the satellite imageries, the tree height for the entire area would be eliminating based on the estimated average tree height in the edge of the vegetation area.



Step 5. Base point (GCP) correction

-GCP correction is available as option and we'll talk about this topic some other time.

You may also heard about another DEM variation, namely Digital Height Model (DHM), which describes impressions of various ground features including buildings, elevated highways, trees and so on.

Theoretically DHM can be obtained by obstructing DTM from DSM, but this simple approach doesn't always give you optimal results because most process chains of generating DSM is designed to capture overall ground topology with reasonable level of noises.

In order to reproduce sharp edges of artificial structures in DHM, for example, you need a specialized data-processing system which is different from general DSM creation.

If you're interested in our DHM, please contact us.

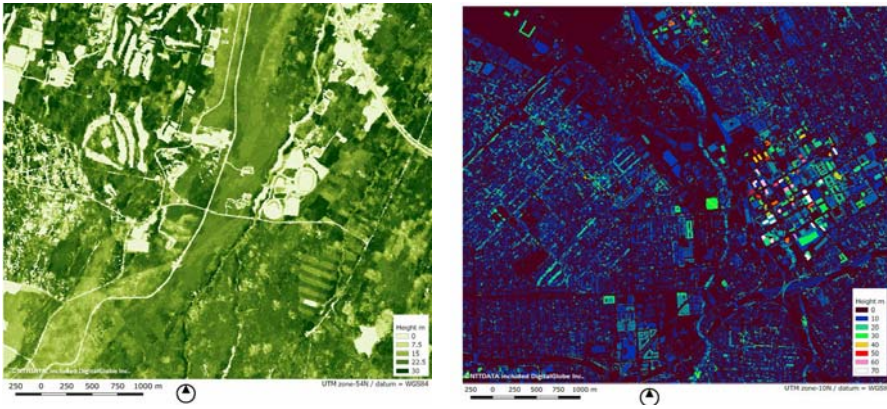


Image:DHM (left:Fuji, Japan right:San Jose, CA, USA)

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<Important>

Due to a statement of emergency declared by the Japanese Government over coronavirus pandemic, AW3D team is conducting necessary actions according to our contingency plan.

We are taking the highest priority on the safety and health of our members, but we also give full effort to meet our customers' expectations. Please contact our sales representative or [our website](#) to understand how this would affect your project with AW3D team.

Appreciate your kind understanding always.  
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