



February 20th, 2023

Welcome to the latest edition of the AW3D newsletter.

In the previous edition ([AW3D Newsletter vol.41](#)), the newest AW3D Enhanced sample data with a new algorithm was featured. Let's deep dive into our state-of-the-art algorithm for Digital Elevation Models (DEM) and the details of its improvement in this edition.

This issue also highlights AW3D case studies focused on mitigating the effects of climate change.

Thanks for reading.

-AW3D team

## AW3D News: An Improved Algorithm for AW3D DEM Generation

In constant pursuit of product quality, we improved and applied the algorithm for AW3D Enhanced Digital Surface Model (DSM) and Digital Terrain Model (DTM) in late 2022.

This enhancement provides a more comprehensive depiction of city-level topography, delivering more accurate and reliable results, particularly for urban planning and simulating the impact of natural disasters.

Here are details of the improvements:

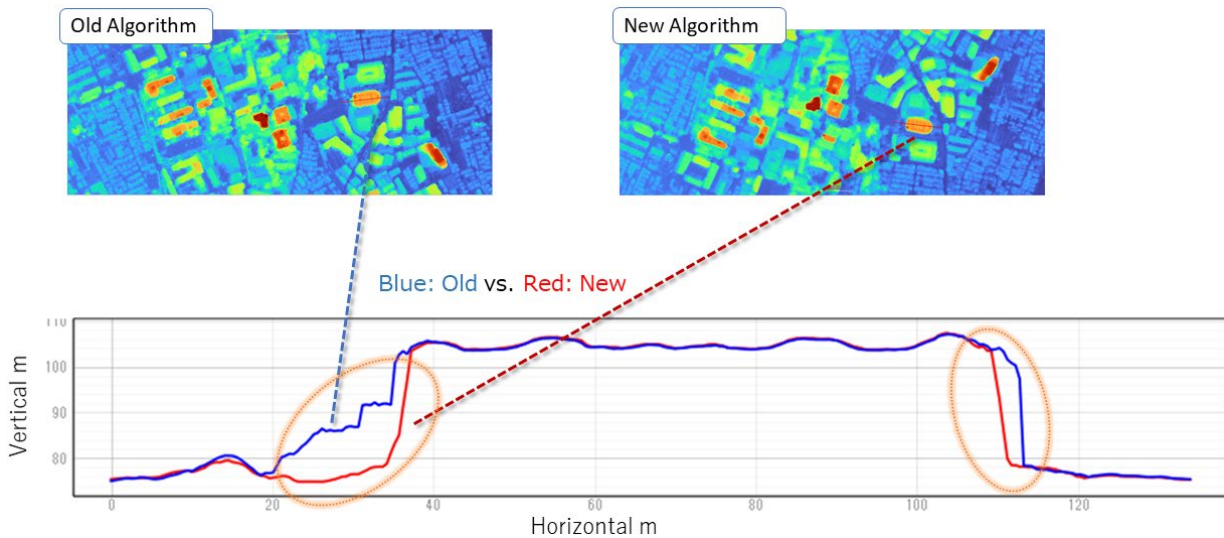
< Summary >

Product	Improvements
AW3D Enhanced DSM	Higher quality using an updated multi-view algorithm ✓ Captures the geometry of a ground-object more accurately ✓ Noises are significantly reduced on a flat surface
AW3D Enhanced DTM	More accurate topographic representation thanks to the DSM improvement

< Details >

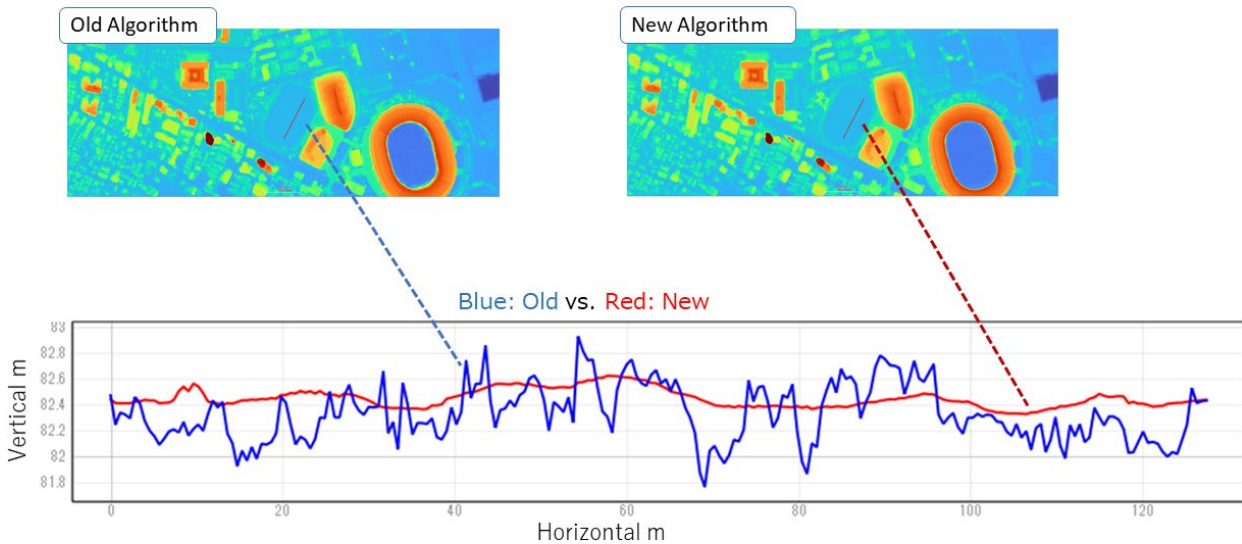
New DSM represents more detailed ground objects such as building rooftops.

You can see a clearer edge (red) compared to the old one (blue).



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Additionally, this new process chain enhances the signal- to-noise ratio, elevating the quality of DSM.



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Please feel free to contact us for our new sample data set to confirm this industry-leading unmatched quality of DEM products! <https://www.aw3d.jp/en/sampleform/>

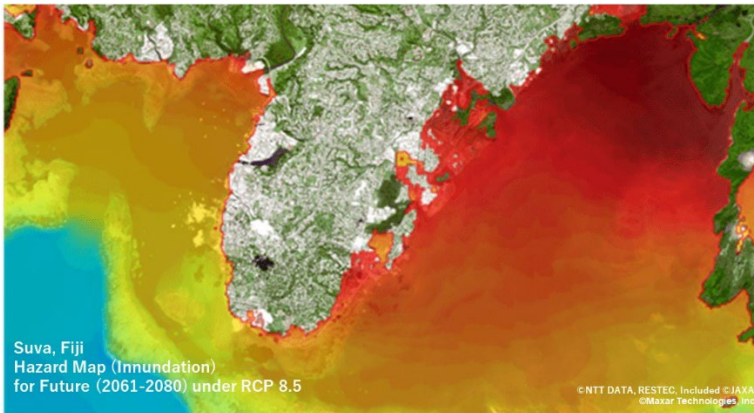
## Case Study: Mitigate Effects of Climate Changes by Using AW3D

Climate change refers to alterations in ordinary weather patterns, including temperature and precipitation, in a specific area over an extended duration. According to a report by Japan Meteorological Agency, the alarming trend of rising global temperatures continues with an average increase of 0.74°C per 100 years.

\*cf. [Annual Anomalies of Global Average Surface Temperature \(1891 - 2022\)](#)

AW3D DEM plays a key role in mitigating the effects of climate change such as the following use cases:

Use Case 1: Hazard Maps for High Tides Caused by Cyclones in Island Countries



Island nations like Fiji, Vanuatu, and Samoa, particularly susceptible to cyclones damage in the Asia pacific, require comprehensive hazard maps. Flood Analysis of coastal regions is implemented using AW3D Standard product (5m resolution) and water depth data derived from optical satellite imagery (WorldView-2 etc.). This analysis highlighted areas that seem to be easily affected by climate change, as prominently indicated on the hazard maps.

Use Case 2: Mitigate Effects of Climate Change on U.S. Armed Forced Stations

Our partner, L3Harris Technologies, conducted a project for the U.S. Department of Defense (DoD). AW3D DTM (2.5m resolution) was utilized to model various climate scenarios and assess the impact of extreme weather events and sea level rise on flood inundation. For further information, please refer to [the article](#).

Discover more applications and case studies here:

<https://www.aw3d.jp/en/casestudy/>

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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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