



August 31st, 2021

Welcome to the latest edition of the AW3D newsletter.

August is the month when we encounter typhoons most frequently in Japan. Typhoons and other tropical cyclones can cause disastrous flood damage, and it is becoming an increasingly big problem not only in Japan but also worldwide. This issue features AW3D case studies related to disaster management.

Sending condolences to all of those affected by these devastating disasters all over the world. We strive to provide better products and services to help minimize disaster damage in the world.

### 3D Map of the Month: Vietnam



AW3D 50cm Ortho Image ©NTTDATA included ©Maxar Technologies, Inc.

Tứ Hạ, Vietnam-big typhoons hit Vietnam every year, and it causes serious damage to houses. AW3D Enhanced DSM/DTM and Ortho imagery helped to understand the assessment of typhoon risks.

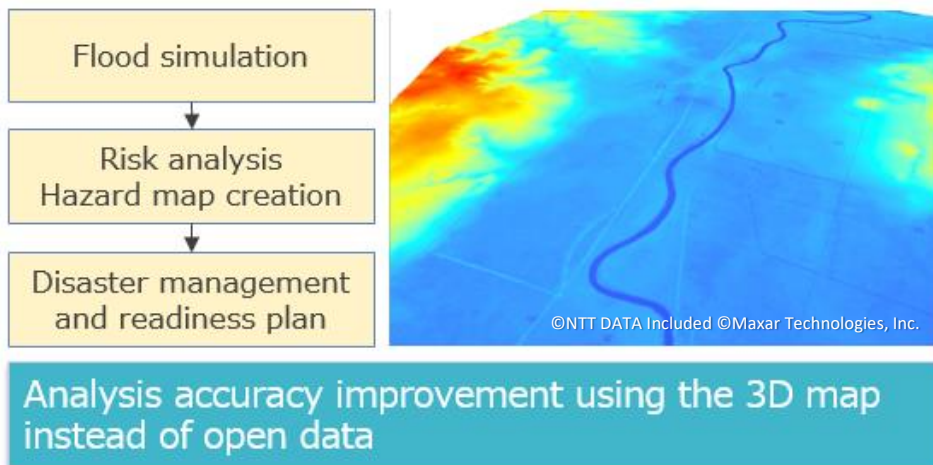
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## Case Study: Flood risk analysis – Myanmar

Improving the flood risk analysis makes it possible to design a disaster prevention plan and make a hazard map. It helps with the resilience urban development. This case study is suitable for urban developers, engineering companies, and municipalities.

AW3D was used as the topographical model data in the flood risk analysis in Myanmar. Our customer, an engineering company, chose AW3D because of its accuracy and up-to-date data instead of open data. As a result, the accuracy of flood risk analysis has been dramatically improved compared to the analysis that used open data. Finally, the end user reflected the analysis results in disaster management plans and hydraulic plans.

Phases	Preliminary design
Purpose of Use	Calculation of the amount of surplus soil /Selection of the route of the main channel
Delivered Data	<ul style="list-style-type: none"><li>• Ortho imagery (GeoTIFF)</li><li>• Digital elevation data (1m DTM/GeoTIFF)</li><li>• 1m contour lines (Shape)</li></ul>
Accuracy requirement	Equivalent to 1 : 2,500 (1m RMSE)
Area Size	700 sq. km

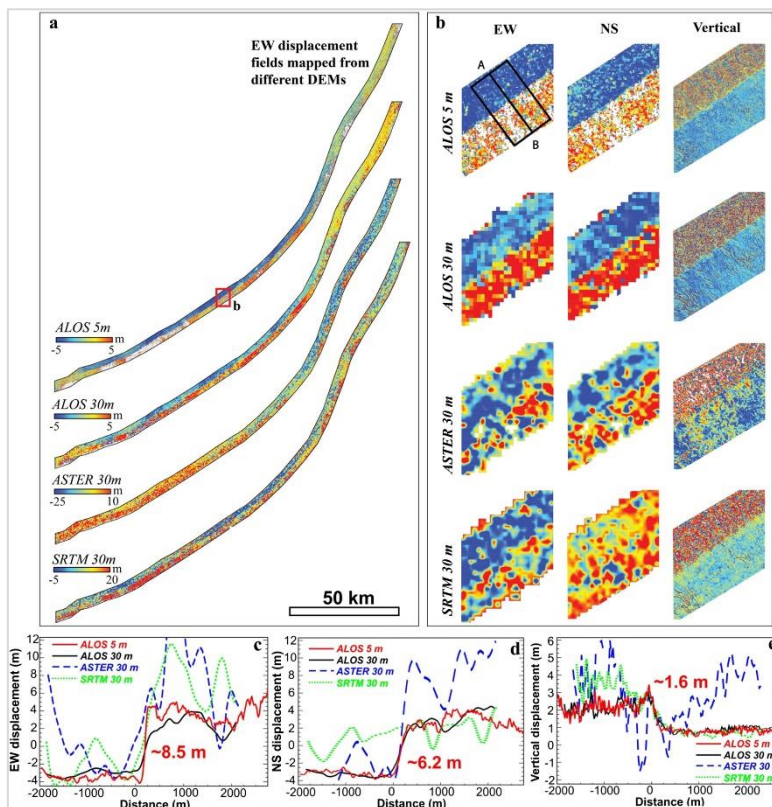


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## Case Study: 2013 Balochistan (Pakistan) Earthquake analysis – University of Oxford and Sun Yat-sen University

AW3D Standard Level2 DSM (1,274 sq.km) was used for the earthquake study by scientists at Sun Yat-sen University and the University of Oxford.

Please check the details of this study by Yu Zhou et al., 2018 “Characterizing Complex Surface Ruptures in the 2013 Mw 7.7 Balochistan Earthquake Using Three-Dimensional Displacements” at <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018JB016043>



Comparison of 3-D surface deformation derived from AW3D and other DEMs

It was used as ‘preearthquake’ topography by combining with the ‘postearthquake’ dataset of Pleiades digital elevation model, to retrieve 3D displacement fields in the 2013 Mw 7.7 Balochistan, Pakistan, earthquake.

Utilizing light detection and ranging (LiDAR) topography has been a valuable tool, but it is relatively expensive and ‘preearthquake’ dataset is always limited. Therefore, AW3D Standard, which is prepared as off-the-shelf, has been selected in this study. It is mentioned that our global dataset of AW3D Standard has opened up new opportunities for mapping surface deformation in 3D, and will allow comprehensive analyses for all major continental earthquakes in suitable terrains from now onward.



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