

UGM Students Make Sand Dunes 3D Modelling

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The territory of Yogyakarta Special Region has diverse landscapes, one of those is of eolian which is formed due to wind activities. Examples of this are barchan type sand dunes in Parangkusumo beach, Bantul regency.

The formation of this sand dune took a a very long time. There are only two sand dunes of this type in the world, in Mexico and Parangkusumo. But the Parangkusumo sand dunes are getting threatened due to increasing human activities and vegetation population that serve as wind barrier in this area.

“Changes in pattern and volume are happening there that can threaten the presence of Parangkusumo sand dunes,” said Rachmadhiya Salsabila, Geodetic student of Universitas Gadjah Mada on Monday (13/6) at UGM Faculty of Engineering.

Bila said that previous studies showed the causes for the pattern and morphological changes of the sand dunes, including excessive vegetation population, tourism development, and weather change. These all caused a change in the contour or volume of the sand dunes.

Along with her Engineering fellow students, Galih Yudha Wahyu Saputra, Ghotfani Kaukabi,



Rachmat Hidayat, and Anisah, they conducted a research to preserve the sand dunes in a sustainable manner. They tried to make a 3D modelling, equipped with spatial data.

Galih said currently there were only data on the decreasing areas of sand dunes. Data for further analysis on contour pattern and volume are unavailable still.

Then, the students worked intensively making a 3D modelling of Parangkusumo sand dunes using Terrestrial Laser Scanner (TLS) that produced a 3D model in the form of pointcloud with 3D coordinate system that has high accuracy.

“The 3D model can visualise the condition of sand dunes, so the change in pattern and volume of the sand dunes is observable,” Rachmat added.

The 3D modelling can be made for analysing the changes in contour pattern and volume that happen in spatio-temporal manner as well as for technical study to make the legal drafting to protect the sustainability of Parangkusumo sand dunes from human activities.

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