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UBD centre working on raising flood warning time to 18 hours



Dr Saiful Azmi Hj Husain, the UBD-IBM Technical Coordinator. Picture: BT file



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UNIVERSITI Brunei Darussalam's (UBD) IBM research centre is working on an early warning system for floods that will increase warning times from the one hour to 18 hours.

By feeding Lidar (Light Detecting and Ranging) data into their state-of-the-art IBM Blue Gene supercomputer, the centre can come up with a model that predicts which areas will experience flash flooding, said the UBD-IBM Technical Coordinator recently.

"With current technology at the Brunei Meteorological Service, warning times are only between one and three hours. With the use of Lidar data in our software, called Deep Thunder, we can increase these warning times from three to 18 hours," Dr Saiful Azmi Hj Hussain told The Brunei Times last Thursday.

Lidar data is a lasermap technology used to create 3D models of topography.

The senior mathematics lecturer explained that the IBM research centre has developed a hydrology model which measures stream flows, runoffs and water levels in rivers, which is used in flood forecasting. The remaining challenge is obtaining Lidar data from the National Disaster Management Centre to increase the accuracy of their forecasts.

"Once we have the Lidar data we can actually solve the problem (of flood forecasting) for NDMC," he said.

"We've already shown them these results and we told them we will refine our model if we can get more data to increase the accuracy."

Using data from the Brunei Meteorological Service, the software has an accuracy rate of 90 per cent but Dr Saiful said by using Lidar data they hope to increase the accuracy to 98 per cent.

"If we couple these systems together we can actually predict how much rainfall is required for flash floods to occur in a particular area. So we will be able to say, 'this place definitely will get flash floods even though the rainfall is only about 15mm'," he said on the sidelines of the World Oceans Day seminar.

However, he added that the remaining challenge for the forecasting system is lack of reliable data, explaining that the current technology used by the Brunei Meteorological Service is not sophisticated enough to provide ample warning times in flood forecasting.

"This is where NDMC comes in, we are trying to get their help in obtaining Lidar data," said the lecturer.

First of its kind in the Asean region, the IBM centre uses the multi-million dollar Blue Gene supercomputer, which will be used in climate modelling research and investigating the impact of climate change on flood forecasting, crop yields, renewable energy and conditions of rainforests in the region.

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