

Climate Expert: Stay Alert of High Rainfall Intensity

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The Meteorology, Climatology, and Geophysics Agency (BMKG) announced that there would occur a La Nina climate anomaly in Indonesia in the last few days. In accordance with La Nina's historical case in Indonesia, this phenomenon could increase the accumulated monthly rainfall volume to 40 percent above average.

Dr. Andung Bayu. S, M.Sc, as the UGM Center Secretary for Disaster Studies, said La Nina and El Nino, or sometimes known as the El-Nino Southern Oscillation / ENSO, is a symptom of atmospheric shifts that frequently influences the seasonal weather conditions in Indonesia and other countries around the Pacific Ocean. La Nina is an event where the seawater temperature in the Pacific Ocean falls below the surrounding temperature rate. Simultaneously, El Nino is a phenomenon in which the Pacific Ocean's seawater temperature increases above the normal average.

"El-Nino and La-Nina have a recurrence period every 2-7 years. Based on historical references, the researcher had found El N earlier than La-Nina," he said, at the UGM campus on Monday (12/10).

El-Nino is an event that occurs and is observed by the community and fishermen from Peru and Ecuador. They live around the coast of the eastern Pacific Ocean, which usually occurs in December. The surroundings community sometimes celebrates this event, as there was an increasing seawater

temperature phenomenon.

After in-depth research, experts also found the contrary event of El Nino. It was an event in which the seawater temperature warms up and is named La Nina. La Nina is caused by increased sea surface temperatures in the western and eastern Pacific than usual.

Based on this phenomenon, Andung also emphasized that the air pressure at the western Pacific equator decreases, thus stimulating excessive cloud formation and high rainfall in the affected areas. On the other hand, El Nino is caused by an increase in the eastern and central Pacific water temperatures. Then it finished with an increase in temperature and humidity in the atmosphere. This phenomenon causes the formation of clouds to increase rainfall in the region.

"This phenomenon also causes the air pressure in the western Pacific Ocean to inhibit the growth of clouds in the eastern Indonesian sea, which generates rainfall to decrease abnormally in some regions in Indonesia," he explained.


Andung also added that La-Nina caused air pressure at the western Pacific equator to decrease, which brought excessive cloud formation and higher rainfall than average conditions. The highest correlation between rainfall and the Southern Oscillation Index happens in September-November. This phenomenon means that the rain intensity in these months will be higher than average conditions.

"Meanwhile, in December-February, which is the peak of the rainy season, rainfall will remain high even though the correlation with the Southern Oscillation Index is lower. The agricultural sector is the one positively affected by La-Nina. Agricultural production that requires high water requirements will usually be fit to La-Nina conditions. This condition contrasts with El-Nino, where there is prolonged drought and decreased food production," he said.

According to Andung, the most frequent disasters are floods and landslides due to this high rainfall. This flood happens because the surface area cannot provide rainwater, which is higher than usual.

Meanwhile, an increase in the soil load, which is getting more massive due to being filled with rainwater that seeps into the ground, can cause landslides. Hence, people must prepare the anticipation of floods and landslides.

"If heavy rains constantly occur in flood-prone areas, the community must be alert. Likewise, if cracks appear on the cliffs, it is a sign of a landslide," Andung explained.



He maintained that local governments, especially through BPBD, must be prepared to handle floods and landslides. They can help monitor rainfall and river discharge and prepare an Early Warning System (EWS) facility.

According to him, the current challenge is the possibility of flooding and landslides amid the Covid-19 pandemic, especially if a disaster occurs on a huge scale so that people have to be evacuated.

"Evacuation barracks commonly have limited facilities and are very dense, so there is a high potential for Covid transmission," he explained.

Normally, the diseases that appear a lot are followed by the rainy season, especially coughs and colds. Regarding the Covid-19 pandemic, how this virus can endure during the rainy season is necessary for further research.

"Currently, we do not know whether it has a positive or negative impact, or if it has no impact at all, we really don't know," he explained.

Andung stated that the extreme climate irregularity in La-Nina commonly lasts until the end of the rainy season. For the next upcoming La-Nina, it is estimated that the possibility has started to decrease in December 2020 to February 2021, which means that the chance of rainfall in these months is approaching normal rain intensity.

"Such kind of extreme weather anomaly of La Nina can be both beneficial and detrimental. It will indeed be valuable because our water resources are abundant, and there will be a low potential drought. It could also be harmful because it raises the potential for flooding and landslides," he concluded.

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