[Contribution] Misconceptions and truths about earthquakes

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Bullfighting, a Spanish cultural tradition, has three main elements: the bullfighter, or matador, the bull and a red cloth called the muleta. When we think of bullfighting, a classic image that comes to mind is a bull charging at the muleta. Many people believe that the red color of the muleta excites the bull. However, this belief is a misconception. Bulls are actually colorblind, so they can't distinguish between colors.

Similarly, there are misconceptions about earthquakes.

A few years ago, a 4.9 magnitude earthquake struck off the coast of Seogwipo, Jeju Island in South Korea. The day before the earthquake, an unusual phenomenon occurred: more than 20,000 red sea bream were caught all at once. Whenever dolphins wash up on the shores and die, or deep-sea oarfish or giant squid are found on beaches, there are stories that these could be precursors to major earthquakes. We have all heard the theory that animals, such as insects and fish,

exhibit strange behaviors before earthquakes. However, there is no scientific evidence to support that such animal behaviors are related to earthquakes.

In addition, before a 7.8 magnitude earthquake struck Turkiye last year, “earthquake lights” appeared in the sky over the region. Similarly, before a 4.8 magnitude earthquake struck Buan, North Jeolla Province, in June, strong typhoon-like winds and dark clouds covered the sky, leading some people to believe that these were signs of an impending earthquake. However, experts agree that there is no connection between natural phenomena in the sky, including meteorological phenomena, and earthquakes, which are caused by rapid tectonic movements inside the Earth. Many stories about earthquake precursors have not been scientifically proven to have a direct cause-and-effect relationship with earthquakes, which remain a natural phenomenon that modern science cannot accurately predict.

Since we cannot predict when earthquakes will occur, it is important to continue making efforts to prepare for potential damage. Since 2018, the Korea Meteorological Administration has been conducting research on the fault structures beneath the Korean Peninsula by categorizing regions such as the metropolitan area and the Yeongnam region. Discovering and understanding the details of faults allows us to estimate the maximum magnitude of potential earthquakes, calculate expected damage and make appropriate preparations. In response to the 4.8 magnitude earthquake in Buan, research on the fault motion in the Jeolla region, originally scheduled to start in 2032, will begin earlier, in 2025. Additionally, research on underground faults for the entire Korean Peninsula will be completed by 2036.

Preparing for earthquakes is crucial both before and after they occur. The KMA sends out earthquake emergency text alerts to help people evacuate to safety before the strong shakes begin. Providing information about earthquakes based on how people actually feel the tremors is just as important as delivering information quickly. There may be cases where people receive alerts but don’t feel the earthquake, or they may feel the shaking but not receive an alert, causing unease. To address this, the KMA has improved its system and, starting in October, will begin sending alerts based on seismic intensity, a measure of how people actually feel the earthquake by targeting specific areas such as cities, counties and districts. This means that alerts will be sent to areas where people are more likely to experience seismic activity.

We are now familiar with the saying, “Korea is no longer safe from earthquakes.” However, since accurately predicting earthquakes is challenging, it is crucial to prepare through research and study and to respond promptly when they occur. While we cannot stop a natural phenomenon such as an earthquake, thorough preparation and prompt responses based on the KMA’s scientific research and monitoring system can significantly reduce damage. Our approach to earthquakes

should be based on correct scientific knowledge and thorough preparation rather than fear or panic. By using the timely and accurate earthquake information provided by the KMA, we can minimize the damage and ensure our safety.

The views expressed in this article are the writer's own. -- Ed.

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