

# First of its kind avalanche Monitoring Radar

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**In news-** An avalanche monitoring radar, the first of its kind in India, has been installed in North Sikkim by the Army and Defence Geoinformatics and Research Establishment (DGRE).

## **Key features of the Radar-**

- It has the **capability to detect avalanches within three seconds of its trigger** and will assist in saving lives of troops and reducing damage to property in super high altitude areas.
- The **radar was made operational by DGRE**, a laboratory under the DRDO, which is involved in forecasting and mitigation of avalanche hazards faced by the Army in the Himalayan region.
- It **uses a series of short microwave pulses**, which are scattered at the target and can detect an avalanche.
- It **can permanently scan the targeted slope** for avalanche release and track the path of the avalanche and its size in case it is triggered.
- The **radar can see through snow, fog as well as in the night**, making it an all weather solution.
- It **covers an area of two sq.km**, obviating the requirement to place additional instruments in dangerous avalanche-prone areas.
- **The radar is also linked to an alarm system**, enabling automatic control and warning measures in case an avalanche is triggered.
- **Images and videos of the event are automatically recorded for future analysis by experts.**
- Besides being used for detection of avalanches, **this radar can also be employed to detect landslides**

## What is an avalanche?

- **An avalanche is a mass of material rapidly moving down a slope.**
- It is typically triggered when the material on a slope breaks loose from its surroundings, and this material quickly collects and carries additional material down the slope.
- The **various kinds of avalanches include snow avalanches, rock avalanches, ice avalanches** (which typically occur in the vicinity of a glacier), and debris avalanches (which contain a variety of unconsolidated materials, such as loose stones and soil).
- The **occurrence of an avalanche depends on the interaction of mountainous terrain,** weather conditions, snowpack conditions, and a trigger.
- The probability of avalanches may be increased or decreased by several other terrain features, such as slope shape, a slope's exposure to sun and wind, and elevation.