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NTU team develops new radar

Nanyang Technological University scientists have developed a radar that creates images from radio waves. Lighter and smaller than most others of its kind, the radar can see through smoke and thick dust, and is able to interpret data not visible to the naked eye. **B4**

NTU scientists come up with lightweight mini radar

Jose Hong

Search and rescue operations by air can be hampered by cloud cover, but a group of Nanyang Technological University (NTU) scientists has developed a radar that creates images from radio waves which can even penetrate through plumes of smoke.

The synthetic aperture radar (SAR) can see through the thick dust and ash a volcano spews out to locate survivors during an eruption. It is also able to interpret information that is not visible to the naked eye, such as ground soil types or minute tectonic plate movements.

The team has been working on a prototype about the size of a volleyball, much smaller than most other SARs. Professor Lu Yilong, who led development of the radar, said it also light, allowing it to be mounted on a drone or microsatellite. At less than 100kg, NTU's SAR is around a quarter of the weight of other radar technologies.

Said Prof Lu: "The main advantages of the radar are that it can see different types of information on the Earth's surface in all types of weather, in the day and night... This technology will also open new doors in climatology, earth sciences and other fields, providing beneficial solutions for society."

He said conventional big satellite-SARs cost hundreds of millions of dollars. "Our microsatellite-SAR generally costs less than US\$1million (S\$1.3million).

"Having the microsatellites at a much lower cost means it is possible to launch multiples sets.

"The 'constellation', which can be controlled by one person, will enable a faster retrieval of data, and this is extremely important in disaster rescue operations."

Prof Lu, whose team has been working on this radar for about three years, declined to reveal the costs of developing the technology.

NTU has agreed to work with French space and defence company NEXEYA and local tech firm Censin Technology to push the radar's development to the next stage. NEXEYA will develop the satellite platform for the imaging radar while Censin Technology will provide market access and commercialise the technology.

Professor Louis Phee, acting dean of NTU's College of Engineering, said: "This latest collaboration is in line with the NTU Smart Campus vision and the development of this imaging technology will be a boon to many fields, including in sustainability studies, a key research area for NTU."

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ALL-SEEING ALL OF THE TIME

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PROFESSOR LU YILONG who led the development of the radar