

SATELLITES 'REVEAL BUILDING SINKING FAST BEFORE COLLAPSE'



Scientist Daniele Perissin's graphs showed the condition of buildings in To Kwa Wan in the lead-up to the collapse. Photo: SCMP Pictures

Scientist says technology available now could have prevented To Kwa Wan tragedy that killed four, but government has decided not to use it

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A scientist says an analysis of satellite images has revealed that a To Kwa Wan building was sinking at an alarming rate in the months before it collapsed in 2010, killing four people.

Block J at 45 Ma Tau Wai Road was reduced to rubble within seconds on January 29, 2010. Dr Daniele Perissin, who carried out the research, said a study of satellite radar images of the site since 2008 showed the building began sinking in early 2009, dropped 4mm between June and November 2009 and fell a further 8mm from November – sinking 2cm in total.

Perissin, who served as an assistant professor at the Chinese University of Hong Kong's Institute of Space and Earth Information Science until last year, said technology exists today that could have spotted early signs of problems at the 53-year-old block of flats.

Engineers could then have been sent promptly to examine the building, added the Italian academic, author of a program that can detect tiny movements in the ground to provide early warnings of subsidence. "An in-situ survey driven by the warning could have revealed the possibility of collapse, potentially saving four lives," he said.

However, he said he failed last year to persuade the government

to start using the software to identify high-risk sites. Budget concerns halted the idea, which would have cost more than HK\$900,000 a year, he said.

Last year, a court ruled that a workman, Chu Wai-wing, 77, was likely to have caused damage to the building with his repairs to the ground floor and fined him HK\$10,000. He claimed he was being treated as a scapegoat.

The 2011 inquest into the four deaths was told the building was in a "very, very dilapidated state" before the repairman began work

expansion. However, after that it was clear that the building was affected by a different and stronger process," Perissin said.

He carried out his study using satellite signals to measure deformations in the surface of the earth.

The department's report into the Ma Tau Wai Road building collapse showed it had received a complaint about cracks, loose plastering and flaking concrete in different parts of the building in November 2009.

Two inspections were carried out in November and December but found no imminent structural danger.

After the collapse, the department inspected about 4,000 buildings that were at least 50 years old and found about 1,000 of them showed obvious defects. Two had emergency work done.

Since then, a number of private buildings aged 30 or above are inspected every year.

Dr Greg Wong Chak-yan, former president of the Hong Kong Institution of Engineers, said the 2cm of subsidence spotted in the study could be an important sign of defects.

"If a building sinks and other buildings around it don't, an inspection is warranted," he said.

● Traffic in To Kwa Wan was thrown into chaos during rush hour yesterday after a 2m section of Ma Tau Wai Road near the junction with Lok Shan Road caved in. The single northbound lane was closed for almost three hours as repair work was carried out. MTR Corporation, which is building the Sha Tin to Central Link in the area, said it would investigate the cause of the incident. No injuries were reported.

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The number of centimetres the building sank in the year before it finally collapsed

on the day of the collapse, but that a surveyor's inspection in November 2009 found that it did not pose an immediate danger.

Coroner Michael Chan Pik-kiu concluded that no one should be held criminally responsible. But he found fault with both the owner and buildings officials.

"Before November 2009, the detected movements were not enough to raise a warning, as it could be interpreted as thermal