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<http://www.signonsandiego.com/news/metro/20060427-9999-1n27boom.html#>  
Mystery disturbance traced to sound wave

Scripps scientists say it traveled over the ocean to desert  
By Alex Roth  
UNION-TRIBUNE STAFF WRITER  
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A group of local scientists has uncovered some clues to the source of a mysterious disturbance that rattled San Diego County on the morning of April 4, shaking windows, doors and bookcases from the coast to the mountains.

The scientists, based at Scripps Institution of Oceanography in La Jolla, say the disturbance was caused by a sound wave that started over the ocean and petered out over the Imperial County desert. Using data from more than two dozen seismometers, they traced its likely origin to a spot roughly 120 miles off the San Diego coast.

That spot is in the general vicinity of Warning Area 291, a huge swath of ocean used for military training exercises. The Navy operates a live-fire range on San Clemente Island, which is within Warning Area 291 and sits about 65 miles from Mission Bay.

The researchers also have charted dozens of similar, if less dramatic, incidents that seem to have originated in the same general area of the ocean. They aren't sure what caused any of them.

Peter Shearer, a Scripps professor involved in the research, has no idea whether the April 4 disturbance was natural or made by humans.

"I would guess it's either an explosion that somebody hasn't told us about or it could have been a meteor coming into the atmosphere," he said. "But it was certainly a big disturbance in the atmosphere."

Steve Fiebing, a Coronado-based Navy spokesman, said the live-fire range on San Clemente Island was inactive April 4. He also said there was no Navy or Marine Corps flight activity in Warning Area 291 on that day that would have

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caused a sonic boom or a countywide tremor.

The area, also known in military circles as Whiskey 291, covers 1 million square miles and is off-limits to civilian planes and ships, Fiebing said.

"There was no unusual training that would have caused anything close to what people here felt," he said.

Cmdr. William Fenick, another local Navy spokesman, said no San Diego-based warships were conducting operations in Warning Area 291 that day.

"We don't know at this time where this earthquakelike sensation came from," Fenick said.

The April 4 disturbance hit San Diego County shortly before 9 a.m. A quake was quickly eliminated as the cause, leaving a mystery that has been the source of three weeks of speculation from Pacific Beach to Lakeside to the Internet.

The Scripps researchers believe the disturbance was the result of a low-frequency wave that traveled through the air at the speed of sound as it moved from the ocean to the desert. It was picked up by more than two dozen seismometers in San Diego and eastern Riverside counties, the researchers said.

According to data analyzed by the scientists, the wave was felt on San Nicolas Island, northwest of San Clemente Island, at 8:40 a.m. It hit Solana Beach at 8:46 a.m., the western edge of the Cleveland National Forest at 8:47.30 and the eastern side of the Salton Sea at 8:53 a.m. From there, it appears to have dissipated.

Elizabeth Cochran, the lead researcher on the project, said the wave moved at 320 meters per second, roughly the speed that sound travels through the air. Its velocity was too slow to be that of an earthquake, she said.

Cochran, a postdoctoral researcher in the geophysics and planetary physics department, said the only explanation is that the wave was traveling through the atmosphere, not through the ground. At each location, the wave could be felt for roughly 10 seconds, she said.

Several months before the April 4 incident, the team had begun studying other nonquake disturbances that were registering on San Diego County seismometers, including 76 that apparently originated in that same general area of the ocean in 2003. Shearer said he and his colleagues figured that some of those disturbances surely must have come from offshore military exercises.

The researchers haven't been able to determine whether the April 4 wave was more powerful than the earlier ones or whether it simply felt that way because of atmospheric conditions.

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If the disturbance was caused by the military, no one has owned up to it. The Navy and Marines say none of their planes were flying at supersonic speeds that morning.

"I'm told that a sonic boom would not cover that distance at all," said Fiebing, the Navy spokesman.

The Navy uses Warning Area 291 for a wide range of training, including large-scale ship maneuvers and battle exercises, but Fiebing and Fenick said they were unaware of any such training April 4 that would have caused such a disturbance.

Authorities have said a meteor probably wasn't the cause because it would have been noticed by the scientific community. The American Meteor Society reported no fireball sightings over Southern California on that day.