



Microwave Surfing

The Hum Redux

■ Rajeev Bansal

In a recent column [1], I reported that many people around the world claimed to hear a mysterious hum [2]:

“The Hum” refers to a mysterious sound heard in places around the world by a small fraction of a local population. It’s characterized by a persistent and invasive low-frequency rumbling or droning noise often accompanied by vibrations. While reports of “unidentified humming sounds” pop up in scientific literature dating back to the 1830s, modern manifestations of the contemporary hum have been widely reported by national media in the United Kingdom, the United States, and Australia since the early 1970s.

As I mentioned in [1], some people in the past (including a 1998 episode of the television show *The X Files*) had speculated that the hum might be connected to the communication



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systems used by the U.S. Navy based on extremely low frequencies (ELF) and very low frequencies (3–30 kHz). As the latest (theoretical) explanation for the elusive phenomenon, I quoted a 2015 report [3] from the British newspaper *The Independent*:

However, the search for the truth could now be over as researchers claim that microseis-

mic activity from long ocean waves impacting the sea bed is what makes our planet vibrate and produces the droning sound.

“The pressure of the waves on the seafloor generates seismic waves that cause the Earth to oscillate,” said Fabrice Ardhuin, a senior research scientist at Centre National de la Recherche Scientifique in France.

It was surprising, therefore, to receive an email in June from Ardhuin, who noted [4],

I have just seen your commentary in the *IEEE [Antennas and Propagation] Magazine* (April 2016). I would [like] to clarify that our research was misrepresented in *The Independent* last year: our work is about ground motions at periods of about 100 s ... which is far above the audible acoustic periods [in other words, the frequencies associated with the seismic waves are much lower than the lowest frequency audible to human beings]. This journal apparently used material from a proper AGU [American Geophysical Union]

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blog (<http://blogs.agu.org/geospace/2015/04/07/new-study-explains-source-of-earths-mysterious-ringing/>), which tells the right story, and invented something different. *The Independent* never bothered to contact any of the coauthors. ... That is the most amazing part: apparently scientists have *become some aloof beings better left in their ivory tower and journalists know better.* ...

I read the AGU blog referred to by Arduin and could see how the journalist for *The Independent* might have been misled by the nonscientific term “hum” used there into thinking that Arduin’s work could serve as an explanation for the “audible hum.” I also asked Arduin if he had a hypothesis about the source of the *audible* hum. His response:

Well ... I got *many* e-mails from people that hear [a] hum ... but I have no idea of where that can come from and whether it is a

real physical phenomenon or not. I talked to a few colleagues I know in acoustics but did not find much interest there.

So where does all this leave us when it comes to the source(s) of the mysterious audible hum? Well, I don’t think much of the ELF hypothesis myself. (For one thing, the U.S. Navy decommissioned the ELF transmitters in 2004, and the hum has not gone away.) Seismic activity, according to Arduin’s models, produces frequencies that are too low to be heard. Perhaps, a more plausible explanation is the one that was proposed by a scientific task force that investigated the Taos (New Mexico) hum in the 1990s [5]:

Mullins [head of the task force] says the task force conclusion was that the hum stems from some kind of ear condition that probably affects about 2 percent of the population.

“It’s generated from the inside,” he said, comparing it to tinnitus, which is a high-pitch sound.

But the hum can’t be categorized as tinnitus because what hum-hearers describe is a low-pitch noise.

Unfortunately, one conclusion from my previous column [1] still holds: there is no relief in sight yet for those who do hear the mysterious hum.

References

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