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ET on Earth?

The search for extraterrestrial intelligence should not exclude our own planet.

SINCE THE EARLY 1960s, SETI (the Search for Extraterrestrial Intelligence) has largely focused on detecting radio messages. Arguably this hunt has only begun. But how do we seek new civilizations that might not be beaming intentional signals our way?

A recent buzzword in SETI circles is *technosignatures* (*S&T*: Aug. 2022, p. 34). The term broadens the notion of *biosignatures* — signs of biological activity — to search for technological activity. This allows us to avoid having to define “intelligence,” to tacitly acknowledge both that intelligence may not be biological and that some very intelligent creatures (think cetaceans on Earth) might not have technology, and to simply focus on observable technological signatures (radio signals being one small subset of these). The technosignatures approach opens SETI to searching for anything from unintended flashes from spacecraft-propelling lasers to vast engineering projects, such as *Dyson spheres* or other “alien megastructures”

built by those seeking to rearrange their planetary systems to harvest maximum energy from their star.

If we’re open to technosignatures elsewhere in the galaxy, what about within the Sun’s orbital realm? Our infant civilization has already launched five spacecraft that will wander the galaxy, and we’re trying to figure out how to send tiny spacecraft to nearby exoplanets. Imagine what an aged ET civilization might have achieved and what machines might have entered our solar system over billions of years. A recently published white paper by a group of astronomers (including me) argues that as we explore the solar system, we should be on the lookout for artifacts (<https://is.gd/SSartifacts>).

This was highlighted when ‘Oumuia, the first-ever interstellar visitor found in our solar system, exhibited a peculiar shape and acceleration. Could it be an artifact? Almost surely not — astronomers have found more prosaic and more likely explanations. Yet there’s value in such a false alarm, which invites us to ask, “Why not?”

Just as the galaxy doesn’t stop inside the Oort Cloud of comets, the solar system doesn’t stop at Earth’s upper atmosphere. This brings us to the possibility of finding ET technology in our skies.

Admittedly, when it comes to *unidentified anomalous phenomena*, or UAPs, astronomers often reflexively dismiss the subject, explaining to people we meet that we’re scientists, not UFO enthusiasts. There are many explanations — from lost balloons to internal camera reflections — for why people may see stuff in the air, and most of

◀ A widely circulated clip from a video shot in 2015 by a Navy aircraft showing an unidentified aerial object

those explanations seem more likely than visitors from beyond our planet. Much obvious bullpucky also surrounds this topic, and anyone in astrobiology or SETI is so used to being bombarded with unhinged claims (you should see my inbox on any random week) that it’s easiest to dismiss all of it.

But this response is intellectually lazy, and we back it up with rationalizations as to why we don’t have to worry about it, e.g., aliens would never spend all the energy needed to actually visit Earth; they’d surely just stay home and send messages instead. Yet we must admit that, given the unpredictability

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of advanced ET culture and technology, we have no idea what they’d value or be capable of.

We also don’t really know what we should be searching for. And astronomy, which assumes an objectivity and consistency to natural phenomena, is ill-equipped to study something that might be aware of and deliberately avoiding or confusing our observations, or even studying us. Nevertheless, there’s a logical continuity between extrasolar technosignatures, solar system SETI, and possible extraterrestrial UAPs. If we admit the worth of one, we cannot dismiss the others.

It’s a tricky balance, especially with a topic that’s so emotionally loaded for so many. But we need to follow the data wherever they lead and be open to all possibilities. Otherwise we might miss something really important.

■ **DAVID GRINSPOON** serves on a 16-member NASA committee that is exploring ways that scientists should go about studying UAPs.

