

# New Scientist

WEEKLY May 27-June 2, 2023

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# Messaging the stars

If there are intelligent aliens out there, should we try to communicate with them? And who should speak for Earth, asks **Chris Impey**

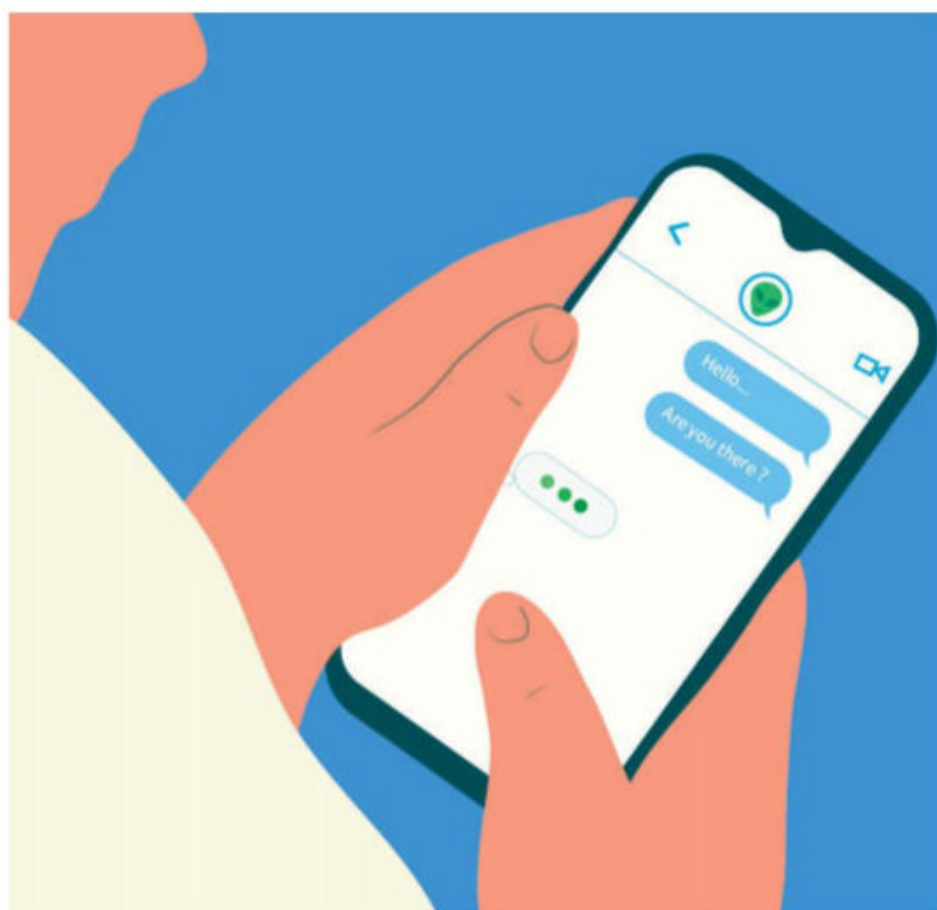
**F**OR 75 years, astronomers have been searching for extraterrestrial intelligence. SETI involves listening for radio or optical signals sent by intelligent civilisations. No artificial signals have yet been detected. The failure of SETI is called “The Great Silence”, but despite this, many scientists are confident that intelligent aliens exist. There are thought to be at least 10 billion habitable worlds in our galaxy, and billions of years have passed in which any life on them could have developed intelligence and technology.

METI, or messaging extraterrestrial intelligence, has been less common. It involves talking rather than listening. To some, it is a controversial activity.

The first attempts at communication were quixotic “messages in a bottle”. In 1972, NASA launched the Pioneer 10 spacecraft towards Jupiter, which carried a plaque with a line drawing of a man and a woman as well as symbols to show where the craft originated. In 1977, NASA followed this up with a golden record attached to the Voyager 1 craft. The 12-inch record held sounds and images chosen to convey the diversity of life on Earth.

Both spacecraft have left the solar system. At their current speeds, it will be tens of thousands of years before they reach another star system. In the immensity of space, the odds that they will be found are minuscule.

In 1974, a radio message was beamed from the Arecibo



MICHELLE D'URBANO

Observatory. A series of on-off radio pulses, designed to convey simple information about humanity, was sent towards the globular cluster M13. Since M13 is 25,000 light years away, we shouldn't hold our breath for a reply.

Now, an international team of astronomers plans to use the world's largest radio telescope, FAST, located in China, to beam a message towards millions of stars that are 10,000 to 20,000 light years away. The new message is an amalgam of previous ones. It contains 25,000 bytes of information, 100 times more than the Arecibo message, but

100 times less than a photo from a smartphone.

NASA signals to its remote spacecraft, meanwhile, have reached four nearby stars. A reply from aliens living in the vicinity could reach us by 2029.

But perhaps we have already betrayed our existence to aliens. Radio and television signals have been leaking into space for nearly a century, in an expanding bubble of communications that spans millions of stars – in theory, at least. When I did the maths, it turned out the signal from an early episode of *Doctor Who* faded below the hum of radiation from the big bang soon after it left the solar system.

The ethical question raised by METI is: should we be sending a message at all? Scientists are divided. Before he died, Stephen Hawking was outspoken about the danger of communicating with aliens. If they have superior technology and are malign, they might destroy us. Others see no problem, given that the signals take millennia to reach their destination. No international rules govern METI, so the experiments will continue.

Another question is: who speaks for Earth? In the absence of an international consultation with the public, decisions about what to send and where to send it are in the hands of a small group of scientists. That is probably unwise.

My own take is that the risk is abstract when the message will take millennia to be received. We have more proximate and existential threats than evil alien empires. My guess is that extraterrestrial intelligence and tech are so advanced that they are inscrutable. We share 99 per cent of our DNA with chimps and can't communicate with them. So, what are the odds we would be able to communicate with aliens of unknown function and form? ■

Hear more from Chris Impey at our Instant Expert event on 17 June



Chris Impey is author of *Worlds Without End* and an astronomer at the University of Arizona