NEW RESEARCH SHOWS THERE COULD BE 30 ACTIVE COMMUNICATING CIVILIZATIONS IN OUR MILKY WAY?

I One of the biggest and longest-standing questions in the history of human thought is whether there are other intelligent life forms within our Universe. Obtaining good estimates of the number of possible extraterrestrial civilizations has however been very challenging.

II A new study led by the University of Nottingham and published today (June 15, 2020) in *The Astrophysical Journal* has taken a new approach to this problem. Using the assumption that intelligent life forms on other planets in a similar way as it does on Earth, researchers have obtained an estimate for the number of intelligent communicating civilizations within our own galaxy — the Milky Way. They calculate that there could be over 30 active communicating intelligent civilizations in our home Galaxy.

III Professor of Astrophysics at the University of Nottingham, Christopher Conselice who led the research, explains: "There should be at least a few dozen active civilizations in our Galaxy under the assumption that it takes 5 billion years for intelligent life to form on other planets, as on Earth." Conselice also explains that "The idea is looking at evolution, but on a cosmic scale. We call this calculation the Astrobiological Copernican Limit."

IV First author Tom Westby explains: "The classic method for estimating the number of intelligent civilizations relies on making guesses of values relating to life, whereby opinions about such matters vary quite substantially. Our new study simplifies these assumptions using new data, giving us a solid estimate of the number of civilizations in our Galaxy.

V The two Astrobiological Copernican limits are that intelligent life forms in less than 5 billion years, or after about 5 billion years — similar to on Earth where a communicating civilization formed after 4.5 billion years. In the strong criteria, whereby a metal content equal to that of the Sun is needed (the Sun is relatively speaking quite metal-rich), we calculate that there should be around 36 active civilizations in our Galaxy."

VI The research shows that the number of civilizations depends strongly on how long they are actively sending out signals of their existence into space, such as radio transmissions from satellites, television, etc. If other technological civilizations last as long as ours, which is currently 100 years old, then there will be about 36 ongoing intelligent technical civilizations throughout our Galaxy.

VII However, the average distance to these civilizations would be 17,000 light-years away, making detection and communication very difficult with our present technology. It is also possible that we are the only civilization within our Galaxy unless the survival times of civilizations like our own are long.

VIII Professor Conselice continues: "Our new research suggests that searches for extraterrestrial intelligent civilizations not only reveal the existence of how life forms, but also give us clues for how long our own civilization will last. If we find that intelligent life is common, then this would reveal that our civilization could exist for much longer than a few hundred years, alternatively if we find that there are no active civilizations in our Galaxy, it is a bad sign for our own long-term existence. By searching for extraterrestrial intelligent life — even if we find nothing — we are discovering our own future and fate."

Reference: By University of Nottingham June 15, 2020, *Astrophysical Journal*.

1. Find in the texts words or expressions that mean:

a. ancient/durable (I)
b. calculations (I)
c. difficult (I)
d. way of looking at (II)
e. issues/questions (IV)
f. transmitting (VI)
g. in progress/active (VI)
h. current (VII)
i. life expectancy (VII)
j. destiny/outcome (VIII)

2. **Answer the following questions in your our words.**
   a. What is the conventional way of calculating the amount of civilizations?

   b. When did communicating civilization appear on Earth?

   c. Why are radio and television transmissions mentioned?

   d. What two pieces of information does searching for alien civilizations give us?

3. **Complete the second sentences so that it has the same meaning as the first one.**
   a. There should be at least a few dozen active civilizations in our Galaxy under the assumption that it takes 5 billion years for intelligent life to form on other planets, as on Earth.
   Knowing that ...

   b. The average distance to these civilizations would be 17,000 light-years away, making detection and communication very difficult with our present technology.
   The long distance to these civilizations ...

   c. If we find that intelligent life is common, then this would reveal that our civilization could exist for much longer than a few hundred years, alternatively if we find that there are no active civilizations in our Galaxy, it is a bad sign for our own long-term existence
   Our civilization will last long...

   but it will be shorter ...
   d. It is also possible that we are the only civilization within our Galaxy unless the survival times of civilizations like our own are long.
   If...