



They Know We Are Here: Analysis of Planet-Earth Electromagnetic Emissions

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ABSTRACT

Original Research Article

There is a new phenomenon in human history: we may be achieving a historic maximum total of wave emissions from our planet Earth to the outer space and beyond. Earth is at this day and age a pulsating planet sending continuous radio emissions. A conclusion is that, in a far-away galaxy, someone may notice this situation and may act accordingly. We may assume that they are trying to contact us.

Keywords: Electromagnetic planetary emissions, Radio emissions from Earth to outer space, Radio emissions achieve a historic maximum.

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The Past

In a small city in middle Italy, in the year 1895 AD, Italian Professor G Marconi just proved his theory that some elements emit a radiation that can be received by a device far away from the emission point.

This means that the radio waves will transport any sounds from point x to point y, which could be located 20 kilometers from the origin, or maybe even further away, could you believe? A new era has been born: the age of Radio. The first use of radio waves was for military purposes.

In WW1, the Generals fell in love with radio waves. Like never before, they could give orders to divisions far away, such as attack orders right away. Also, like never before, they could give defense orders when the enemy was at the gates nearby.

A few years later, in the early 1920s, many radio stations were sending waves, through air, sending news and music to people in Europe and America.

In WW2, the Nazi Generals were in love with radio waves too. They could declare victory in any battle even before the fight begins. This was the new era of propaganda wars.

The emission of long-and-short radio waves by thousands of radio stations, around the whole planet, was a new phenomenon in human development, although a relative few people were at the time aware of this new achievement. Note that radio waves were emitted, also for the first time, to the outer space and beyond.

The first licensed commercial radio station in the US was KDKA in Pittsburgh, Pennsylvania. It began broadcasting

(using long-radio-waves) in the late 1920s, but it has continuous programs since mid-1921. (Wikipedia, 2025).

At this point, we have to mention the case of the British Broadcasting Corporation BBC. Although the BBC started broadcasting a few years later than its American counterpart, within a short-time it became the largest broadcaster in the whole world. (Wikipedia, 2025b). The BBC World Service began as the Empire Short Wave Service, broadcasting on shortwave and aimed principally at English speakers across the British Empire. By 1938, just before World War II, the first foreign-language service was launched in Arabic, German, Italian, French, projecting the British quest for peace in the days of the conference on the Munich Agreement. By 1942, the BBC had started broadcasts in all major European languages. By the years of the Cold War, after 1950, the BBC had broadcasting stations in most countries in the World, including countries in Europe, Asia, the Americas, Africa, and Oceania.

In summary, the growth of the radio waves emission, from the early 1900s to this date and age, had a parabolic growth. Later on, there came TV waves, computer generated waves, with similar characteristics and similar growth rates.

At the beginning of the Radio Era, the demand for commercial radio emissions was limited to countries in North

America and Europe. The demand for broadcasting was explained by the price of the receivers and by the income of the families in these developed countries. Later on, new technologies reduced the costs of broadcasting and the price of receivers all around the globe. By the year 1960 every country in the world has radio stations and the radio signals were available almost anywhere. (Wikipedia, 2025a). By this time, the growth of demand for broadcasting would be correlated with population growth in every country.

One approximation to the curve representing the rate of growth of total world emissions may be achieved if we assume that the emission growth is correlated with the human population growth between 1900 and 2025.

Since 1900, the global population has experienced dramatic growth, increasing from an estimated 1.6 billion to over 8 billion, driven by advances in medicine, sanitation and food production. The curve that shows long-term population growth is presented in Figure 1 below. (ChatGPT, 2025).

Human population growth tends to decrease in the projections and stabilize by the year 2100. Although total wave emissions may continue to grow because they may reflect an increase of per-capita emissions, we may assume that there will be a maximum of wave emissions, in the near future.

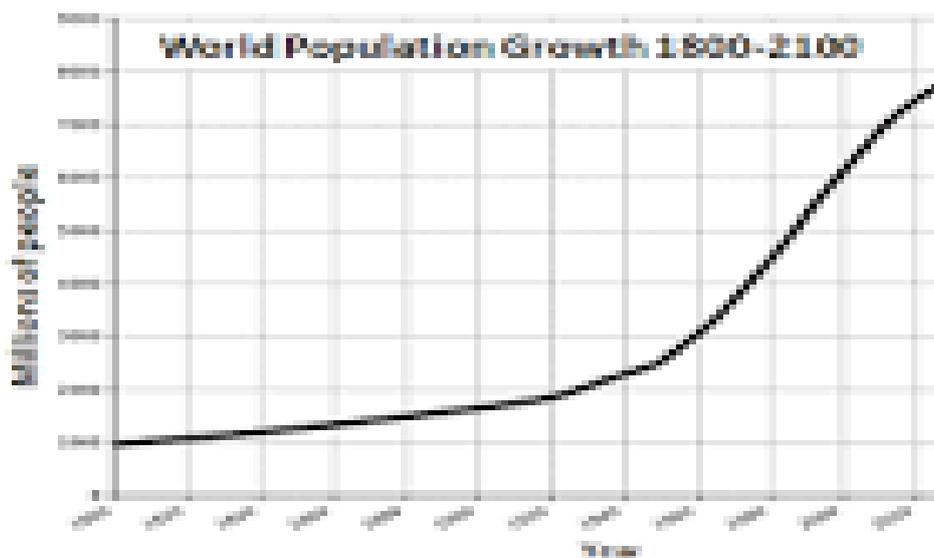


Figure 1: World Population Growth 1800-2100

In any case the conclusion maybe that there is a new phenomenon in human history: we may be achieving a historic maximum total of wave emissions from planet Earth to the out space and beyond. Somebody in a far-away galaxy may be noticing this new situation.

Finally, a comparison with the Voyager project should be made here. The NASA project of the late 1970s launched two identical spacecrafts to explore the solar system and beyond. They are still operational, and sent a message to any potential extraterrestrial life. But our project has a larger scale, because is an analysis of planetary-scale of all electromagnetic emissions.

The Present

The following should be taken as a What-If economic analysis.

A short time ago, in a far away galaxy a University professor is making a power-point-alike presentation:

"We know there is a tiny planet, circling around a small star, in a minor galaxy, at the very end corner of the universe, and we know... we know... they have semi-intelligent life. The only proof we have is their continuous emission of radio waves"

"We have been monitoring the radio waves emissions for the last few cycles. This planet is 30 light-cycles away from us, but we have already sent a space drone to receive the signals. This drone is now 15 light-cycles away from this tiny planet and the emission of radio waves is rapidly increasing". This drone travels in an orbit that goes around tiny-planet and goes back to our planet."

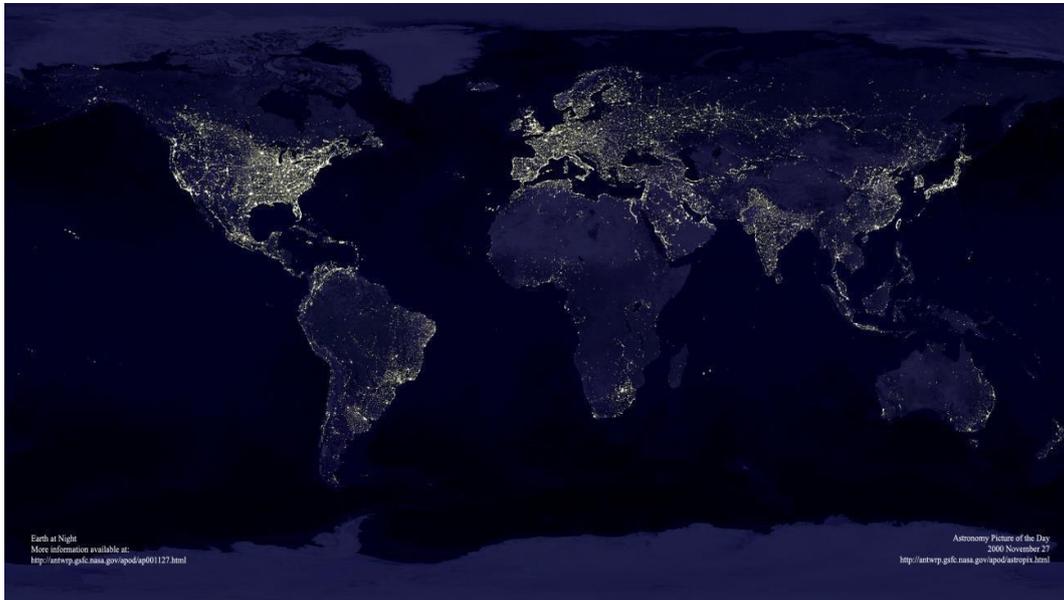


Figure 2: Earth-lights from tiny planet

"We will increase our research data from a second drone that is being directed to the tiny planet, which, of course, will take 30 light-cycles to achieve its destination. If we received enough financing for this project, we may have some more drones circling around tiny planet generating more continuous data in time"

"There is a goal we intend to set for the near future: to send a message to the earth-lings in the tiny planet telling them that We Know You are There.

The Future

Again, the following should be taken as a What-If economic analysis.

In the near future, at Cambridge University at England, a lecture is given by a presenter at a Summer Seminar:

"We have received signals from a galaxy 30-light-years away."

"We know this galaxy is far more advanced that here in the tiny planet."

"However, we know that the elements of the Mendeleev Table (Robinson 2025) are the same as the ones in our tiny planet."

"They have to know about Newton physics and Relativity."

"They must have developed Economic sciences: their resources were always limited while their demands were always huge."

"From the first data we receive from our drone, the points of emission of the radio waves seem to be located on the northern points of the tiny planet, as you may see from Figure 2" (Mayhew & Simmon, 2025).

"Now we know that the points of emission of the radio waves have been increasing at least for the last 100 earth-years. We need more data to confirm this hypothesis."

"We presume they are trying to contact us, but we believe that they will be sending space-drones or UFOs."

"But we also presume they know that the investment costs of a travel by aliens (or sending an invasion force) far exceeds the benefits of their endeavor, which is to communicate with us. The benefit-cost ratio is pure-economics reasoning."

"In summary, the real question is: what should we do?"

Conclusions

The first conclusion of this paper is that there is a new phenomenon in human history: we may be achieving a historic maximum total of wave emissions from planet Earth to the outer space and beyond.

The second conclusion is that, somebody, in a far-away galaxy, may be noticing this new situation and may be acting accordingly. As we conclude we may assume that they are trying to contact us by sending back radio messages.

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