

## Mini Review

# Microwave Radiation in the Environment and Its Impact on the State of Living Organisms

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**Received:** August 02, 2023**Accepted:** September 18, 2023**Published:** September 25, 2023

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In the early 1990s [1], we proposed a new agent of the impact of geocosmos on a set of processes in the lower atmosphere and biosphere - the microwave radiation of the earth's ionosphere, emitted by all its atoms, molecules and their ions when high-energy (Rydberg) states are excited by photo- and secondary electrons mainly during solar flares and geomagnetic storms. This made it possible to solve the main problem of the physics of solar-terrestrial relations, since it opened a previously unknown channel for the constant influence of space weather factors on terrestrial processes and the state of the human body. In addition, we proposed to take into account the existence of such a factor when assessing the safety of manned space flights beyond the Earth's magnetosphere [2,10,12], including during the operation of the Moon. In our approach - supramolecular physics of supramolecular structures of molecules with high affinity for the proton (including water in a living organism), we took into account the pioneering works [14,15], in which the possibility of the formation of "polyatomic Rydberg molecules" in such cases was found. Their existence, including in the biological molecules, was discussed in [18]. Here we used the analogy with molecular protonics considered for the biomedium within the framework of supramolecular chemistry [16]. In our studies of the geocosmic contribution to terrestrial processes, we proposed for the first time to take into account the role of microwave emission from the ionosphere in studying the problem of global warming. Such an emission causes the generation of optically thin upper clouds from water-containing associates,

which delays the escape of thermal radiation from the surface atmosphere [4]. This was confirmed when interpreting the data of meteorological observations at an altitude of 2100 meters at the Kislovodsk station of the Leningrad University in 2003 [3].

**The Main Results of Recent Years Relate To the Proposals of Physical Mechanisms for Solving Pressing Biomedical Problems**

- The impact of electromagnetic radiation of the environment on association formation in aqueous solutions [6] and for the first time we proposed to take into account stimulated emission in the optics of the environment according to the postulate of A. Einstein, 1916.
- The influence of microwave radiation from geocosmos on the state of a living organism [5,7], while presenting possible explanations for the periodically observed temporal non-repeatability of a number of known biophysical experiments [13] and the behavior of the DNA of some viruses and bacteria in known experiments [17].
- The contribution of microwaves to the possibility of suppressing malignant mitosis [9].
- Detailed consideration of the mechanisms of influence of microwave fluxes on the behavior of viruses in the biosphere [11].

– A demanded, fully justified advance forecast [8] of a significant drop in the level of the current Covid-19 pandemic based on the results of observations from the Solar Dynamic Observatory spacecraft and made on the basis of a comparison with the Spanish flu pandemic (“influenza”) in 1918: by the nature of the redistribution sunspot structure in the northern and southern solar hemispheres.

### Conclusion

It should be emphasized that all our studies have been particularly relevant in recent years due to the sharp increase in anthropogenic microwave noise (by an order of magnitude every fifteen years), taking into account the possible contribution of the known mechanism of statistical resonance.

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