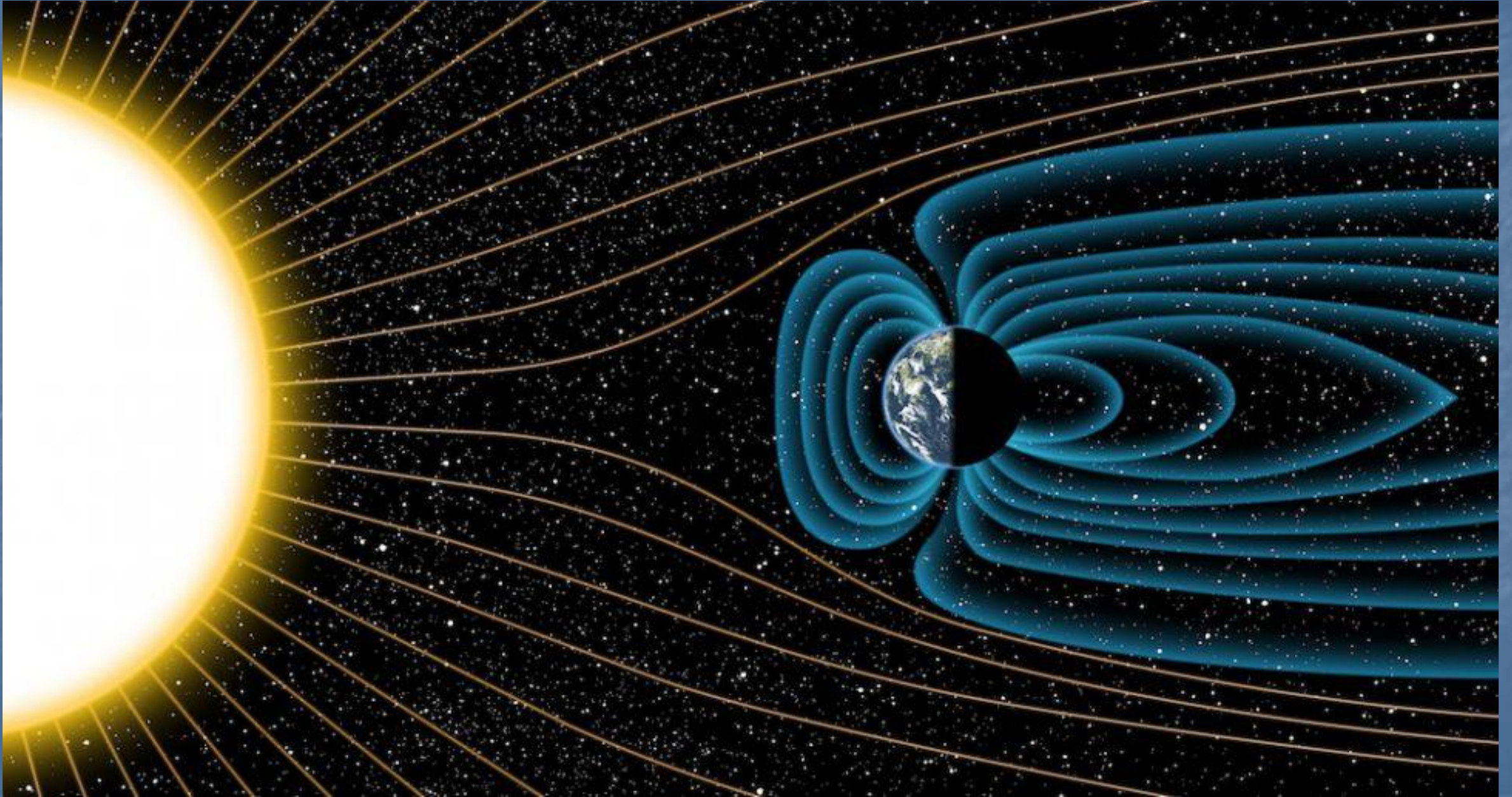


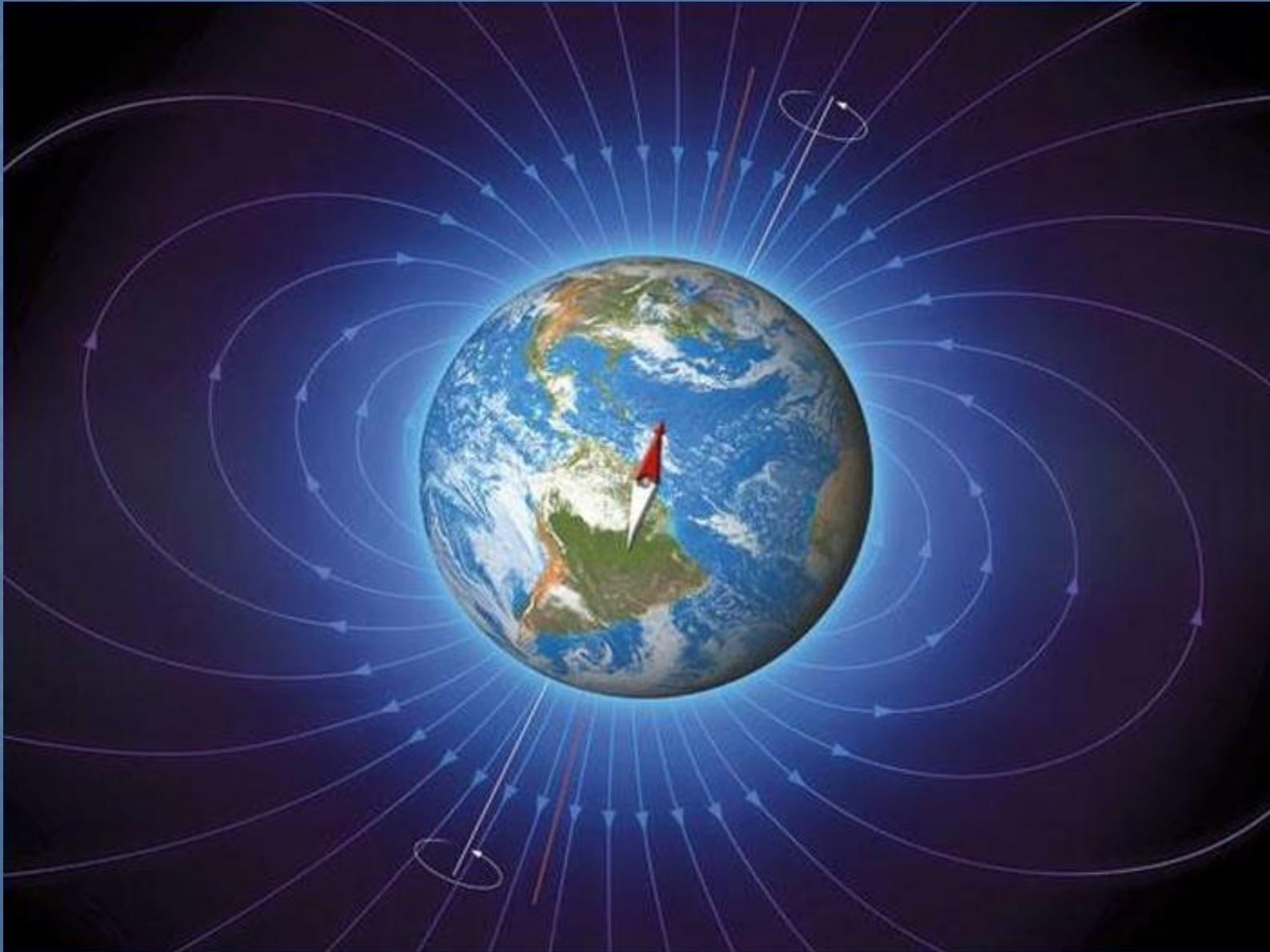
The effect of electromagnetic fields on living organisms.
All life on Earth exists within the constant and
variable components of the Earth's electromagnetic
magnetic field (EMF).

Thanks to the magnetic field, electrons and protons that are harmful to life
pass the Earth by...

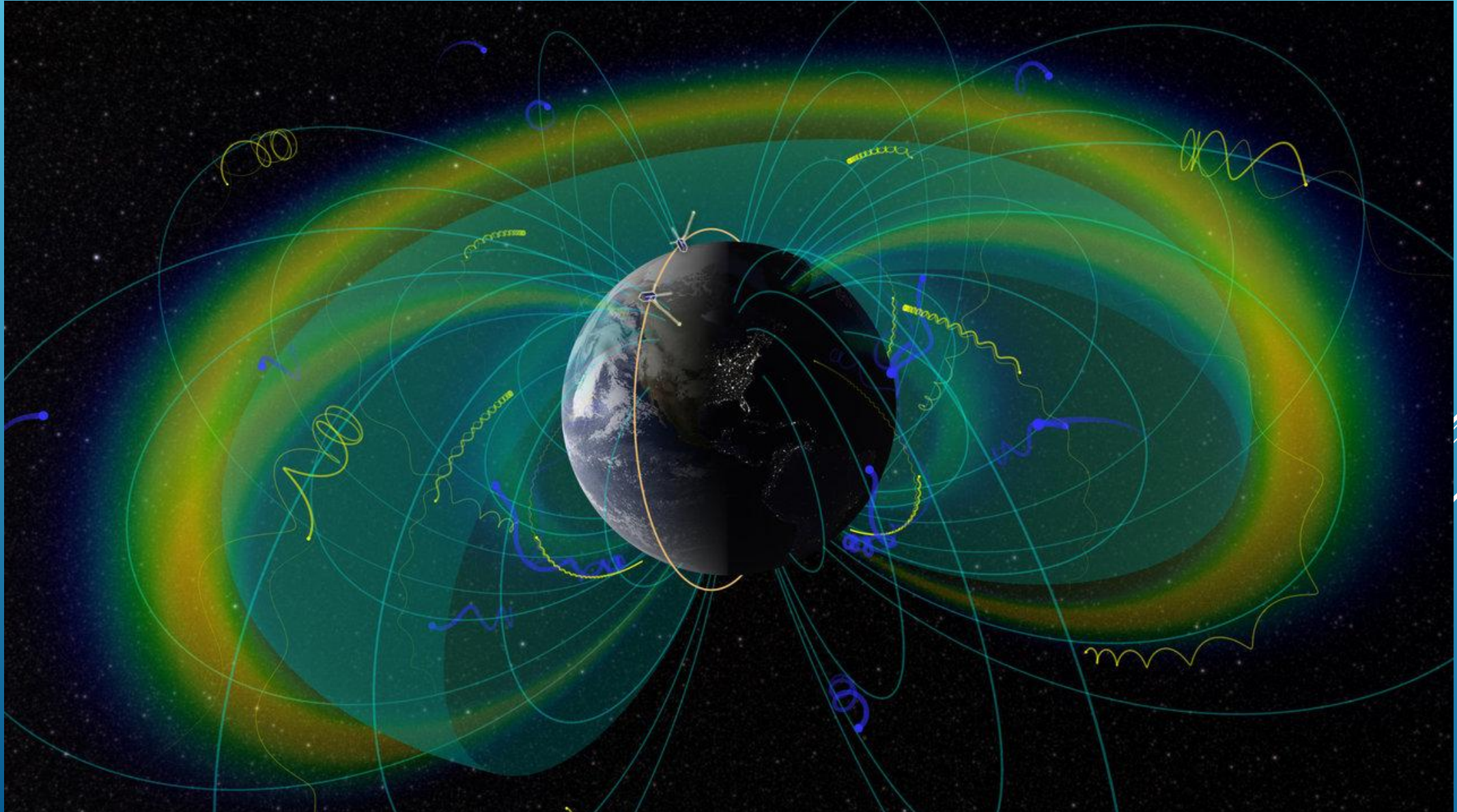


The Earth's permanent magnetic field

is $70\ \mu\text{T}$ at the poles, $50\ \mu\text{T}$ at middle latitudes and $30\ \mu\text{T}$ at the equator.



Variable electromagnetic fields arise from lightning discharges, magnetic storms, etc. Their intensity in a magnetically quiet environment is 30–50 nT and during magnetic storms 300–1000 nT.

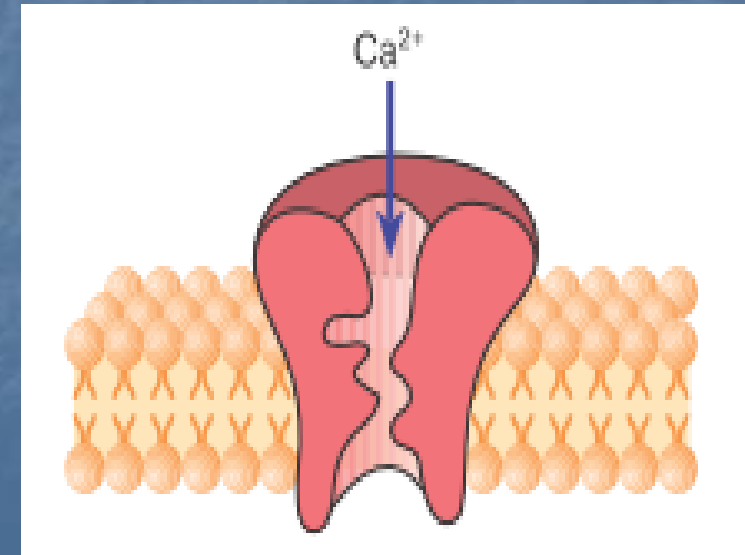
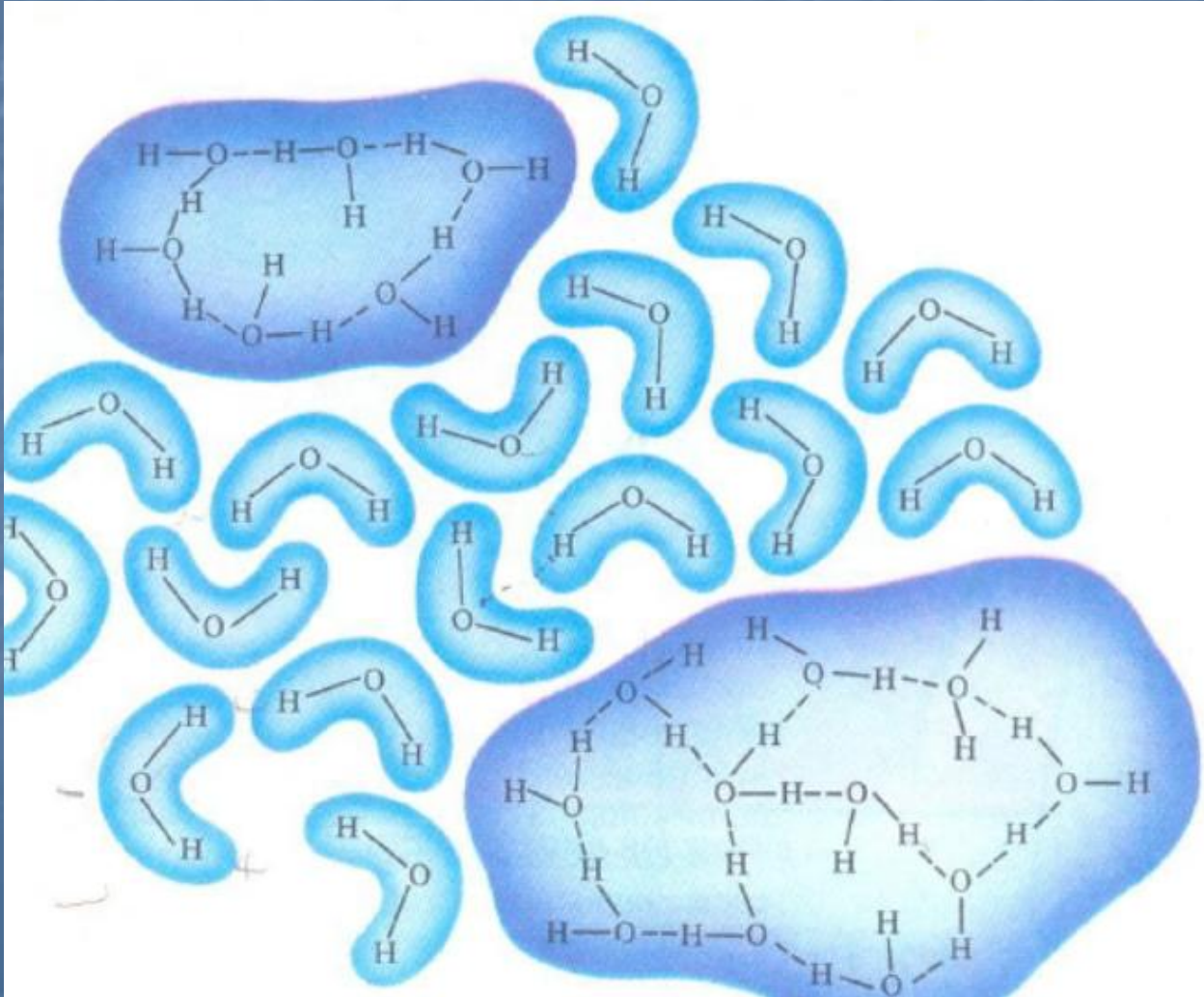




In tropical forests, lightning strikes occur approximately 100 times per second. The electromagnetic wave from lightning travels around the Earth's 40 000 km circumference in 0.8 seconds. This means that the waveguide between the Earth's surface and the ionosphere is tuned to a frequency of approximately 8 Hz.

There are two main hypotheses about the effect of weak low-frequency electromagnetic fields on living organisms at the molecular level.

1. Low-frequency electromagnetic fields break down water clusters, making water more fluid. 2. Low-frequency electromagnetic fields cause vibrations in the main biologically important ions and molecules. As a result, ions pass through ion channels and substrates in the enzyme's active centre take a “lock-and-key” position.

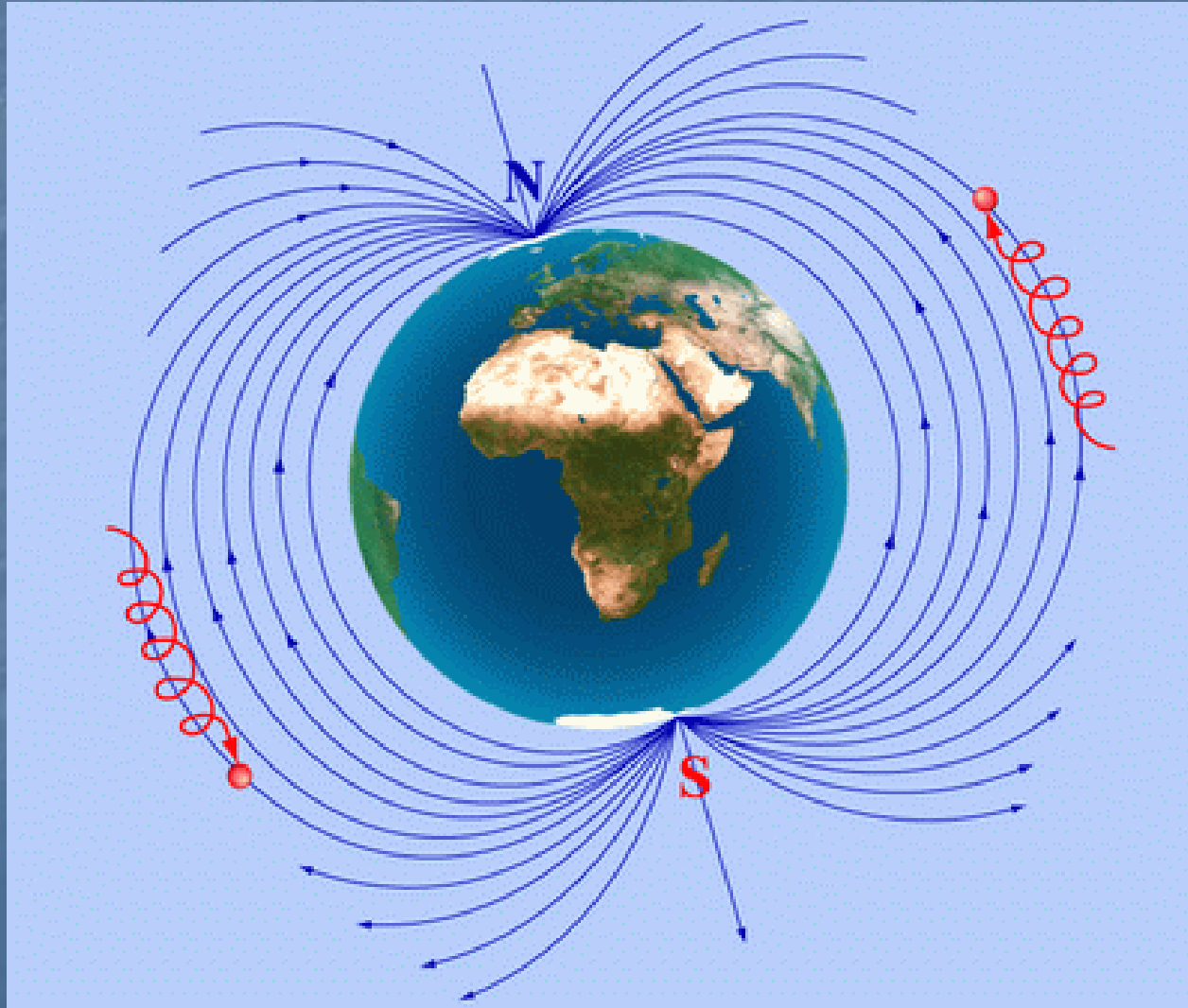


The mechanism of ion oscillations in the Earth's magnetic field. Any charged particle

moving in a constant magnetic field rotates in a spiral at a frequency called the cyclotron frequency. This

frequency is directly proportional to the particle's charge and inversely proportional to its mass.

$$\omega_c = \frac{qH}{mc}$$

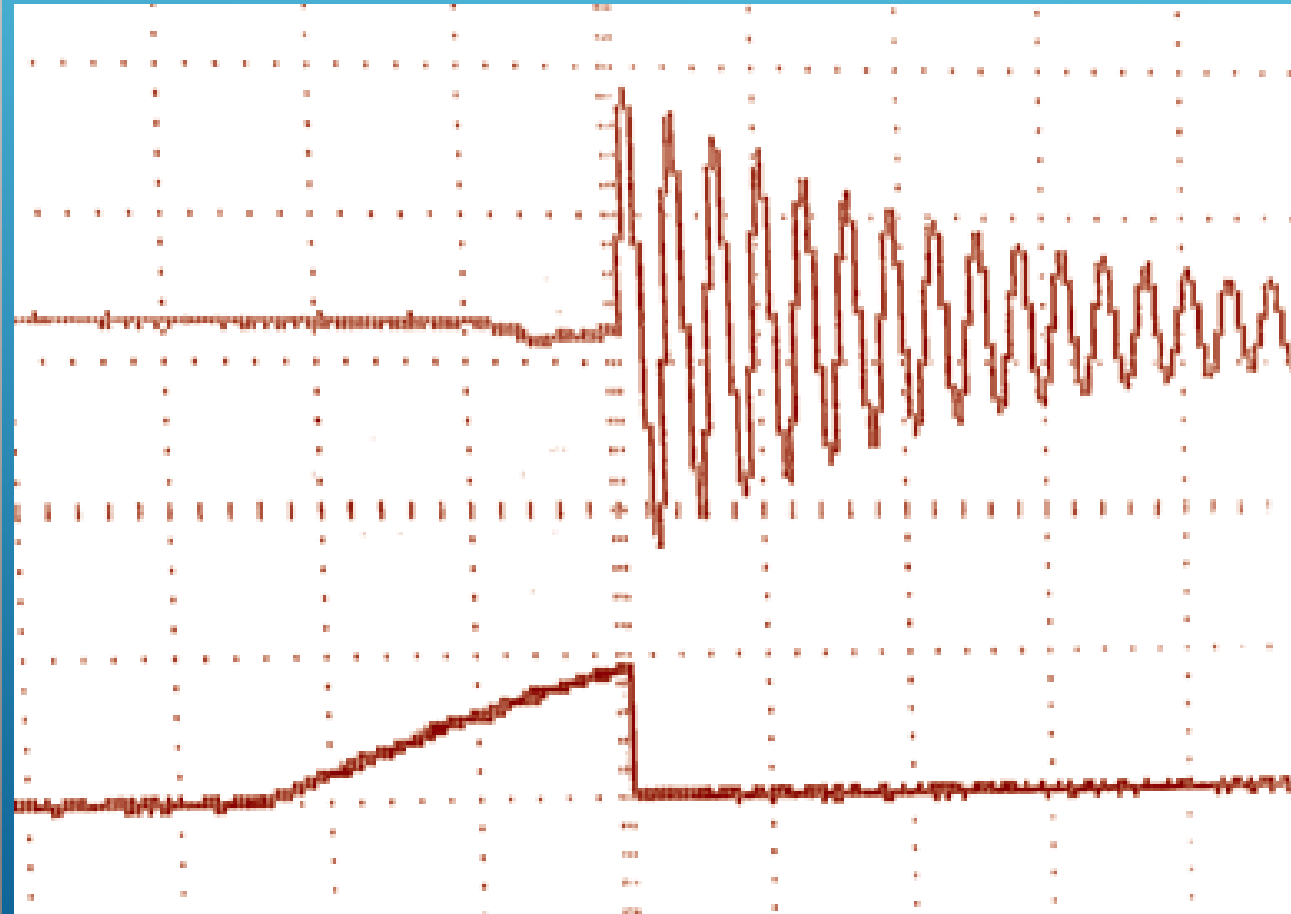


- The cyclotron frequencies of the main biologically important ions in the hydration shell of the Earth's magnetic field lie in the 4–10 Hz range. Frequencies around 8 Hz and their multiples (4, 16, 24, 32, etc.) (Schumann frequencies) therefore resonantly amplify ion oscillations, increasing biological activity.

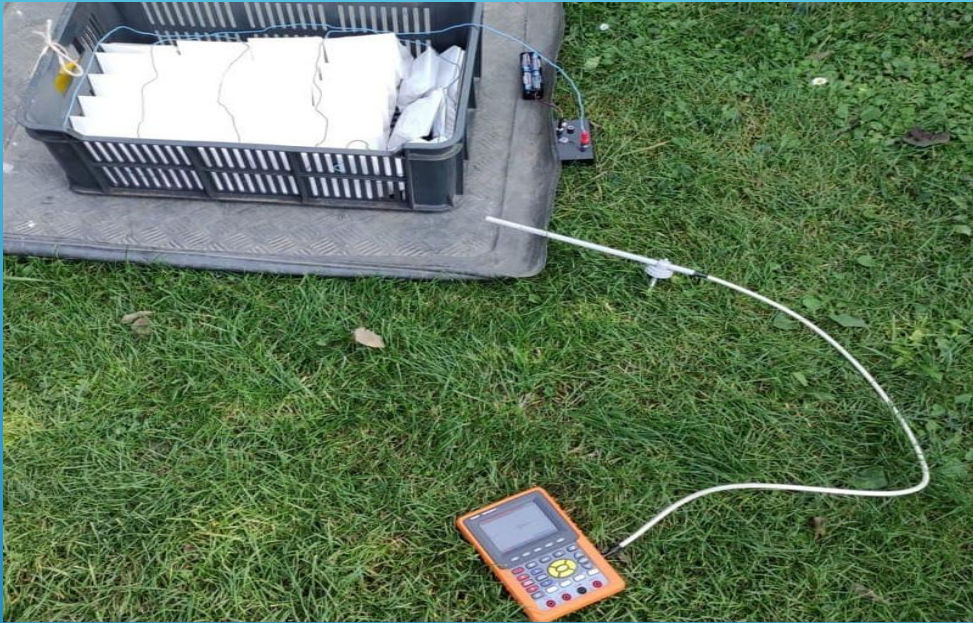
Natural electromagnetic fields (EMF) at a frequency of 8 Hz facilitate all major biological processes. Artificial EMF can further stimulate the activity of all plants and microorganisms. The question is how to apply this stimulation in practice to achieve economic benefits. Electromagnetic stimulation of seeds and vegetative plants is used in practice under certain conditions. Electromagnetic stimulation of bacteria is cost-effective in wastewater treatment, biogas (methane) production and, in some cases, lactic and alcoholic fermentation, microbial oxidation of ores and the production of gold, silver, copper and other metals.

In animals, the heart and brain act as the main oscillator synchronising all processes.

INTER-TRADE PRAHA spol. s.r.o. (Prague, Czech Republic) has developed a range of pulse generators and ProEMgen technology for plant cultivation, microbiological wastewater treatment and various fermentation processes. This technology requires no changes to the equipment's design. The generator is installed externally and the antenna wire is immersed in the liquid.



STIMULATION OF POPPY BEFORE SOWING



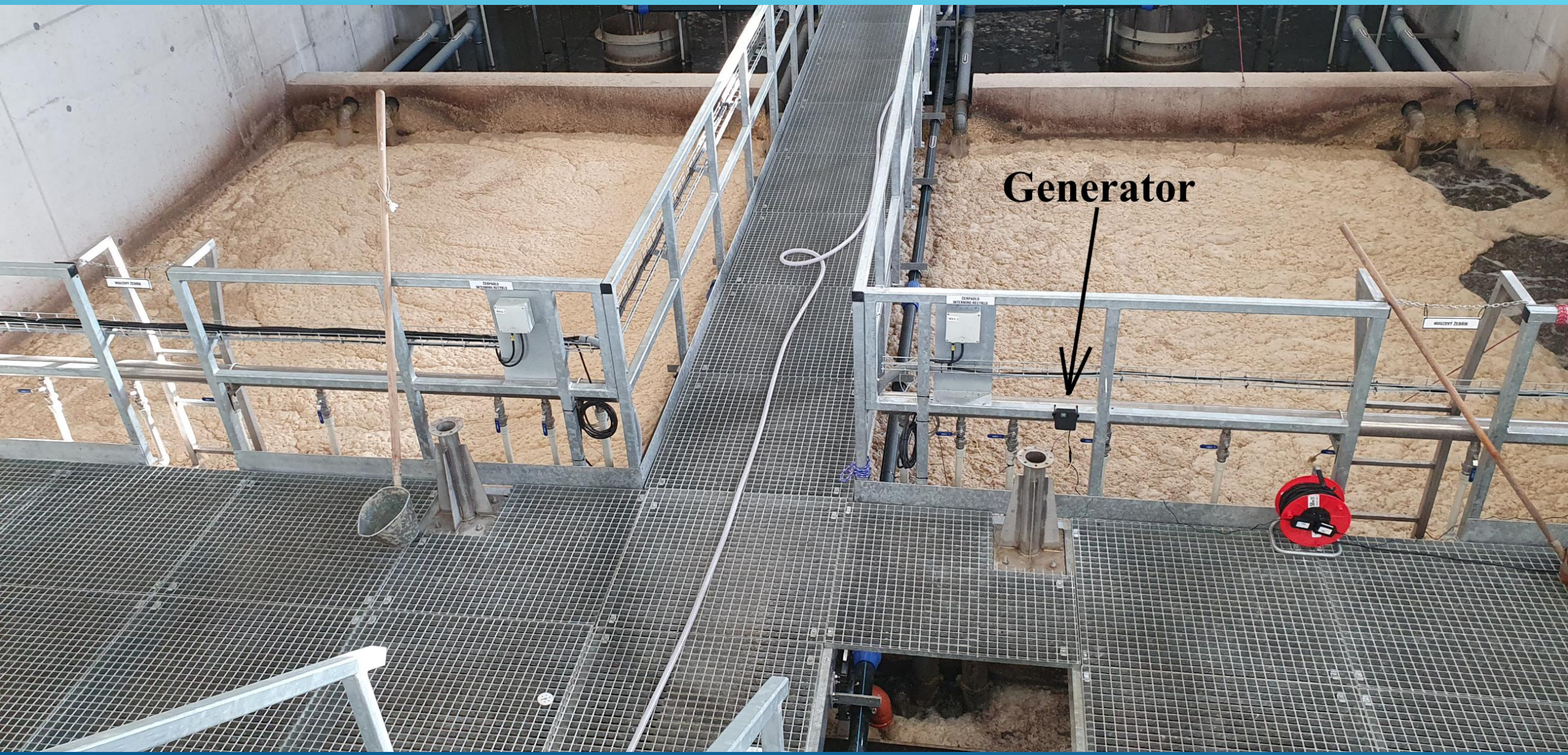
STIMULATION OF BARLEY GERMINATION



STIMULATION OF VINEYARDS AND HOP PLANTATIONS



STIMULATION OF WASTEWATER TREATMENT



STIMULATION OF BEER FERMENTATION

