Review of: "A Case for Nature in Long-Haul Space Exploration"

Henri Gouin[1]

1 Aix-Marseille Université

Potential competing interests: No potential competing interests to declare.

It is certain that the psychological parameters are very important for the exploration, by man, of planets or satellites of the solar system, especially for long duration missions. In this sense the authors of this short article are certainly right.

However, in their analysis they should add other effects already perceptible on human missions practiced in the international space station. These effects of physical and gravitational nature must not only be taken into account but be the object of important complementary researches.

We can quote for example the effects of tides on plants [a]. These effects must have long-term consequences on animals.

Many biologists and physicians have even found that on Earth, gravitational and light effects have significant consequences on individuals [b].

The authors must also take account of other important physical effects that are difficult to avoid, such as radiation and solar storms, which are much less perceptible on the Earth, which is protected from these effects by a real magnetic shield. Other physical phenomena not yet considered may become important for human missions in the long term.

In conclusion, physicists, applied mathematicians, chemists and biologists must intervene with studies on long term missions on the near and distant solar system.

[a] H. Gouin, Influence of lunisolar tides on plants. Parametric resonance induced by periodic variations of gravity, Phys. Fluids, **32**, 101907 (2020); Analytical Calculations of Some Effects of Tidal Forces on Plants on the International Space Station, Forests, **12**, 1443 (2021).

[b] L. E. Miles, D. M. Raynal, and M. A. Wilson, Blind man living in normal society has circadian rhythms of 24.9 hours, Science, **198**, 421 (1977) ; B. J. Gluckman, T. I. Netoff, E. J. Neel, W. L. Ditto, M. L. Spano, and S. J. Schiff, Stochastic resonance in a neuronal network from mammalian brain, Phys. Rev. Lett., **77**, 4098 (1996).