

Comments from Valentina Zharkova

We wish to declare our protest against such the actions by the Chief Editor R. Marscalek to retract the paper with the new ground-breaking results on some minor corrections. We wish to record this protest with their Editor's message retracting the paper.

We have shown in the e-archive paper that the corrections are minor (see blue text of corrections in the link <https://ui.adsabs.harvard.edu/abs/2020arXiv200206550Z/abstract>).

We consider these actions by Mr Marszalek, Deputy Editor in chief, as an attempt to reduce our paper importance and the authors' scientific standing.

2. The main point of our SR retracted paper were the oscillations of a baseline of solar magnetic field (shown in Fig. 2) either towards the Northern or Southern Hemisphere (so called Hallstatt's cycle reported in many research of carbon 14 isotope in the terrestrial biomass. This period of baseline oscillations is not to be changed if the absolute value of the distance between the Sun and Earth is changed because it was derived from solar magnetic field seen from the Earth.

We involved the effect of the Sun moving either closer to or further from the different parts of the Earth orbit to explain these variations of zero-line of magnetic field.

This effect of changing magnetic field is still present as stated in the paper's last section, independently on the exact distance on which the Sun approach the Earth. This exact distance would only affect the solar irradiance and terrestrial temperature, as we have shown in the replies and erratum paper

http://mpee.northumbria.ac.uk/staff/slmv5/kinetics/zharkova_paper3_erratum_subm2.pdf but this was not what was calculated in the retracted paper.

3. The Editor retracts our paper based on the minor correction of the distance between Sun and Earth based on solar inertial motion mentioned in the last section.

We have proven that the Editor's statement of the reason for retraction is not a correct recollection what was said in this single paragraph of the paper, which was used against us to retract the paper (see the archive paper with the amended paragraph marked in blue <https://ui.adsabs.harvard.edu/abs/2020arXiv200206550Z/abstract>). We said that the Sun-Earth distance would change UP to 0.02 au not that it would change BY 0.02 au.

4. The Editor's statement does not appreciate the fact of the changing S-E distance because the post-publication referees insisted that such the S-E distance remains the same at any time. This is like medieval science denying the evidence from the JPL ephemeris.

This is contrary to the facts we have shown in the replies to the post-publication reviewers and the paper on this

http://mpee.northumbria.ac.uk/staff/slmv5/kinetics/zharkova_paper3_erratum_subm2.pdf that

even with the current JPL ephemeris calculated following Folkner et al, 2014 shows, if the 4 large planet effects are considered. We show that the S-E distance changes with the rate of 0.00028 au per 100 years, or by 0.0028 au per 1000 years (see the plot from JPL ephemeris attached obtained for the Sun-Earth distance change with the effect of 4 planets: Jupiter, Saturn, Neptune and Uranus).

This means that the S-E distance was reduced since 1700 (300 years ago) by 3×0.00027 au and will be reduced while the solar irradiance was increased by 2 W/m^2 . For the next 700 years the S-E distance will decrease by the further 7×0.00027 au until 2700 when this cycle has maximum as per our Fig. 3. This is the maximum of the current millennial (Hallstatt's) cycle which is well known in the solar irradiance as we reported in the paper on the link above.

The change of S-E distance shown above can explain the increase of the solar irradiance since Maunder Minimum until 2000 measured by SATIRE project (1.5 W/m^2) versus our estimation from SIM of 2 W/m^2 .

We also shown that the current JPL ephemeris use averaged gravitational effects of large planets on Earth while Laskar et al, 2011 shown that if the motion equations are integrate directly, the S-E distance changes because of gravitational effect of large planets on Earth can be increased by factor 1.5.

These points are not shown in the Editor's statement.

5. The terrestrial temperature increase derived in the retracted paper was based on the temperature curve by Akasofu, 2010, who derived the increase of the temperature by 0.5C per 100 years. This increase fits rather well to the reduction of S-E distance derived from JPL ephemeris as 0.00027 au per 100 years shown in the Fig. attached and the paper http://mpee.northumbria.ac.uk/staff/slmv5/kinetics/zharkova_paper3_erratum_subm2.pdf.

Therefore, the retracted paper main body, abstract and conclusions that the temperature is still to increase by $2.5\text{-}3.0\text{C}$ in the next 600-700 years are still correct. And it does not depend on the distance used in the paper because we did not calculate this temperature from the solar irradiance yet but used Akasofu's curve.

Why the paper is retracted then?

We consider this retraction by the Editor of Scientific Reports as a shameful step to cover up the truthful facts about the solar and Earth orbital motion reported by the retracted paper, in our replies to the reviewer comments and in the further papers.

This retraction by the Editor of Scientific Reports only serves to mask the essential shortcoming in the current solar forcing mechanism from the Sun, which was not considered in the terrestrial temperature models. This is the extra-heating the Erath gets because the Sun moves in its SIM

towards the Earth orbit in the next 700 years that was derived as a consequence from our research about baseline oscillation of magnetic field.

The history, we believe, will judge this act of our paper retraction as unfair.