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General Conclusions Regarding the Planetary–Solar–Terrestrial Interaction[1]

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Abstract

In a collection of research papers devoted to the problem of solar variability and its origin in planetary beat, it is demonstrated that the forcing function originates from gravitational and inertial effects on the Sun from the planets and their satellites. This conclusion is shared by nineteen co-authors.

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1. Introduction

The Sun is in the centre of our solar–planetary system but it has to constantly adjust its position with respect to the centre of mass in response to the planetary motions. This is because our solar–planetary system acts as a multi-body system of mutual interaction and transfer of gravity and momentum impulses.

The solar activity – i.e. the emission of heat, electromagnetic waves and particles – is known to change with time in a cyclic manner ranging from days and years to decades, centuries and millennia. The most commonly known cycle is the 11 yr cycle, which also forms a higher rank variability between "grand maxima and grand minima". During the last three grand minima (the Spörer, Maunder and Dalton Minima), the Earth experienced "Little Ice Age" conditions. Today, we seem to be at the end of a grand maximum.

Cosmogenic radionuclides (^{14}C and ^{10}Be) may record the solar variability back in time for 9500 yr or more. These records contain a number of characteristic cycles. There are, however, also additional internal sources for the production of these radionuclides to consider.

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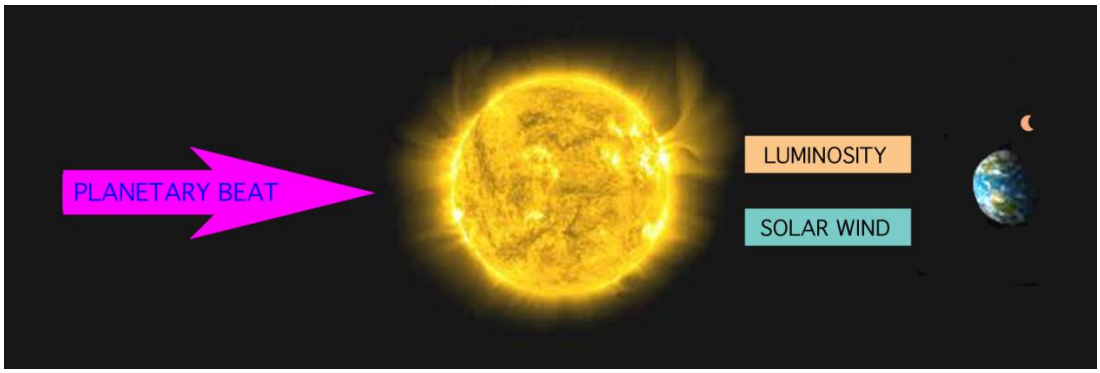

Figure 1: Ilustration of the planetary–solar–terrestrial interaction here proposed

The planetary beat in gravity and momentum on the Sun from the celestial bodies circulating around the Sun can be estimated, even calculated, and broken down into cyclic beats. Several of the papers in this volume have addressed this and presented new material.

2. Conclusions

The following conclusion and implications are formulated and agreed upon.

Conclusion 1

The solar activity varies with a number of characteristic time cycles. There are no solar theories able to explain this variability as driven and sustained by internal processes. We present (in paper after paper) a spectrum of ideas, estimates, observations, and calculations to demonstrate that the driving factor of solar variability must emerge from gravitational and inertial effects on the Sun from the planets and their satellites (Fig. 1; References).

Implication 1

We hope that by the arguments and facts presented in this volume we have lifted "the planetary hypothesis" to the level of a "planetary theory", and we even foresee that it will lead to a new paradigm on planetary–solar–terrestrial interaction (Fig. 1).

We are well aware of the fact that there is much more to learn and improve, but we trust the theory is here to stay.

Implication 2

Several papers have addressed the question about the evolution of climate during the 21st century. Obviously, we are on our way into a new grand solar minimum. This sheds serious doubts on the issue of a continued, even accelerated, warm-ing as claimed by the IPCC project.

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