



## **Biological extinctions and explosions in the Earth history and their relation to the spiral structure of the Galaxy**

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The spiral structure of the Galaxy may be responsible for the existence of critical periods in the evolution of our planet. This hypothesis may be playing a key role in explaining mass-extinction and explosion events. The galactic shock of the spiral structure is viewed as the cumulative cause of the mass-extinction events that characterize the Earth at different stages of development. The Solar system in the spiral arm is at higher pressure. Galactic shocks ultimately change the radiation balance in the atmosphere. The dust bands in the spiral arms may be responsible for the changes in absorption processes. They have effects on the biological processes either in the form of increased radiation or possibly also in the form of showers of energizing particles. This hypothesis will permit an evaluation of an age of mass-extinction events and large-scale catastrophes in the Earth history. The overwhelming majority of the galactic time-points corresponds to the important boundaries on the chronostratigraphic scales. However, the revealed galactic scale shows time-points to which correspond slight small events on the evolutionary scale. The only example of a marked contradiction in the scales is the time moment associated with the spiral arm at about 1530 m.y. ago. Or, in time moment associated with the spiral branch at about 3135 m.y. ago, considerably events are fixed only on the Moon. Such points can prove the hypothesis if research finds according events: mass extinction, ice age, the changes in the atmosphere at 1530 m.y. ago; biological extinction at 3135 m.y. ago.