



## **From Geological Evidence to the Current Implications of a Cosmic Ray Climate Connection**

**N. Shaviv**

Racah Institute of Physics, Hebrew University

A growing body of evidence links cosmic-ray flux (CRF) variations to climate change on time scales ranging from days to eons. Here, I will review the paleoclimatic data, with emphasis on the multimillion-year time scale, where star formation activity and our changing galactic neighborhood appear to correlate with glacial activity. In particular, the 145 million year cycle of spiral arm passages, as is independently recorded in the cosmic-ray exposure ages of meteorites, appear to be physically linked to the icehouse/greenhouse cycles on Earth, which have the same period and phase. In the second part, I will show how the CRF/climate link can be used to better estimate climate sensitivity to changes in the radiative forcing. This is achieved by comparing changes in the radiative forcing over different periods to actual temperature change, while taking into consideration the forcing associated with CRF variations over the same period. 7 different time scales all consistently yield a current-day sensitivity close to that of a "black-body" Earth.