# A Cosmic Journey through the Universe

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I am going to take you for a comic journey. I will show you our place in the cosmos and will talk about the solar system, formation and explosions of stars (supernovae) and our Milky Way galaxy which is one of hundreds of billions of galaxies in the Universe. In this talk, I will also talk about the Sun which is one of hundreds of billions stars in the Milky Way. It is the main driver of space weather, as it emits a “wind” of charged particles. Sudden ejections of plasma and magnetic field structures from the Sun's atmosphere called coronal mass ejections (CMEs) together with sudden bursts of radiation termed solar flares all cause space weather effects at the Earth. In addition, non-solar sources such as relativistic galactic cosmic rays (CRs), meteoroids and space debris can all be considered as altering space weather conditions at the Earth. Finally I will talk slso about secondary CRs in the atmosphere and real-time monotring of the muon particles by the Global Muon Detector Network. The reduction in CRs count rate by the magnetic fields associated with CMEs can play a significat key-role in forecasting the expected arrival time of CMEs.