

# **Future Missions Exploring the Sun-Earth Connections and Space Weather**

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The direct exploration of space started with the first successful satellite launches in the early sixties of the century. Since then we have continuously improved our understanding of the physical processes in various regions of space covering very different electric and magnetic field properties, such as the ionosphere, the Earth's magnetosphere, near Earth's orbit in the interplanetary medium, the inner and outer parts of the heliosphere or regions in the solar atmosphere. Based on the results of key science missions like Yohkoh, SOHO, Ulysses or Cluster, I will try to depict how an ideal space weather mission may be defined and how new missions in solar and heliospheric physics (STEREO, SDO, Solar Orbiter) that are currently being developed will contribute. A focus will be set here on the STEREO mission scenario which will be a key milestone to establish the first reliable space weather predictions.