

The Social and Economic Impacts of Space Weather (US Project)

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The U.S. National Space Weather Action Plan (SWAP) calls for new research into the social and economic impacts of space weather and for the development of quantitative estimates of potential costs. In response to this call, NOAA's Space Weather Prediction Center (SWPC) and Abt Associates worked together to identify, describe, and quantify the impacts resulting from both moderate and severe space weather events across four technological sectors: Electric power, commercial aviation, satellites, and Global Navigation and Surveillance Systems (GNSS) users. Our study involved an extensive literature review and conversations with ~50 stakeholders across these industries of diverse expertise from engineering to operations to end users. Our findings are organized in terms of five broad but interrelated impact categories including Defensive Investments, Mitigating Actions, Asset Damages, Service Interruptions, and Health Effects. We also developed simple, tractable estimates of the potential costs of impacts that are apt to be largest and are also most plausible during moderate and more severe space weather scenarios. We hope that our systematic exploration of potential impacts provides a foundation for the future work that is critical for designing technologies, developing procedures, and implementing policies that can effectively reduce our known and evolving vulnerabilities to this natural hazard. This study concluded in October 2018. Our final report is publically available and can be downloaded at: https://www.weather.gov/news/171212_spaceweatherreport

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