

Keeping an Eye on What Happens Next

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Remote sensing provides a unique perspective on our dynamic planet day and night, tracking changes and revealing the course of complex interactions. Long term monitoring and targeted observation combine with modeling and mapping to provide increased awareness of hydrometrological and geological hazards. Disasters often follow hazards and the goal of NASA's DISASTERs program is to look at the earth as a highly coupled system to reduce risk and enable resilience. Remote sensing and geospatial science are used as tools to help answer critical questions that inform decisions for preparedness, mitigation, response and recovery. A disasters severity is related to the subsequent impact on society and the environment. Keeping an eye on what happens next is one of the key opportunities to limit the scale of the impact, guiding alternate choices that either increase vulnerability or increase resilience. This talk will examine why and how the global constellation of Earth observations and the maturity of our collective science, technology, socio-economic and cultural knowledge help manage cascading impacts. Examples will be drawn from recent tropical cyclones, wildfires, floods and earthquakes. The string of devastating Atlantic hurricanes in 2017 is an example of where remote sensing tracked their paths and provided data on intensity, but also helped determine flood extent and depth, damage to property, contamination of water, and power outages. In other areas remote sensing helps manage the impacts on ecosystems as well as built communities by distinguishing between storm surge, sea level rise, soil moisture and subsidence. Other case studies will describe cascading events associated with aerosols, dust, ash, and toxic chemicals that emanate from forest fires, volcanoes, and chemical explosions. The increased value of radar-based observations will be highlighted by examining response and recovery from earthquake-triggered impacts including landslides and wildfire enhanced floods and mudslides.