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UNLOCKING THE POTENTIAL OF SATELLITE TECHNOLOGIES FOR DISASTER RISK MANAGEMENT: OVERCOMING IMPLEMENTATION CHALLENGES

Abstract

Satellite technologies have the potential to reduce the catastrophic impact of disasters on affected populations, offering local and national-level stakeholders the ability to take data-driven decisions. Satellite Earth Observation (EO) data, provides insights about the planet's physical, chemical and biological systems, and enhances the resilience of communities to improve prevention, mitigation, preparedness, response, and recovery phases of disaster management. The advantages of EO data, such as breadth of coverage, relative affordability, frequency, and speed of data acquisition and processing, enable stakeholders to learn more about past disasters and to reduce exposure and vulnerability to future ones. Archive and current imagery, combined with meteorological data, can offer unique perspectives on natural hazards, and can inform risk management strategies. Meanwhile, satellite communications services offer assurance of connectivity for remote areas and in the immediate aftermath of a disaster. Set within this context, however, our research of 240 satellite applications for disaster management suggests that despite around 40% of all satellite applications being designed for governments to inform policy-making, many disaster risk management agencies in lower income countries lack experience in accessing and adopting these data. They may struggle to know how to integrate them into existing planning exercises and response activities. Assuring the full operationalisation of these applications presents the next challenge, and we suggest three important considerations for those who are developing the tools, products and services: 1) Clarifying the *what*: considering what is needed by disaster risk management agencies, including the decisions that need to be taken and the information required to make those decisions; 2) Considering the *how*: designing decision-support tools that take into account the practicalities, including the existing spatial data infrastructure, the in-situ data that can complement satellite imagery and the systems and processes that are being deployed; 3) Designing for *whom*: viewing the situation from the user perspective and understanding the capacity that will be required to use the decision-support tool on an ongoing basis.By addressing these considerations, satellite technologies can be more effectively integrated into disaster risk management, ultimately leading to better outcomes for affected populations.