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COMMUNITY REMOTE SENSING FOR MAXIMUM SPATIAL DATA INTERACTION

Abstract

Community Remote Sensing (CRS) is fast becoming recognized as a key element in filling the data gap for remote sensing, it is a new field that combines remote sensing with citizen science, social networks, and crowd-sourcing to enhance the data obtained from traditional sources. It includes the collection, calibration, analysis, communication, or application of remotely sensed information thereby increasing spatial data interaction by these community means. The Earth information needs of our society are vast. Until now, we have relied on government-sponsored satellites and observing systems as the foundation for this information. The rapid emergence of citizen science and social networks introduces an exciting new means for augmenting this knowledge. Citizen scientists may use sophisticated sensors and tools to collect precise information about our environment. Such holistic views can serve as ground-truthing for information collected by traditional sources such as satellites and deployed sensor systems. With social networking tools and crowd sourcing technologies, the data collected by the CRS systems can grow exponentially. The CRS system should deploy a cyber-infrastructure (CI), CRS-CI that is scalable and can support organic growth to meet the needs of an expanding CRS community. Community-driven data collection can produce large amounts of environmental data (such as rainfall, temperature, humidity, watershed level, crop yields, etc.) including sensor-based point measurements, textual data capturing information in free form, photographic images and video. It is expected that these data would be distributed geo-spatially, containing metadata about the data collector, time of information, and other contextual information that provide additional attributes about the collection process. The CRS-CI needs to provide a viable data management framework that enables 1) ingesting, 2) organizing, 3) storing, 4) discovery and access, 5) analysis, and 6) long term preservation.