Google Earth Engine: A new platform for global-scale disaster risk resilience

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Satellites have been systematically collecting imagery and scientific measurements of our changing planet for more than 40 years, yet until recently this treasure trove of "big data" has not been online and readily available for high-performance data mining. The new Google Earth Engine platform (earthengine.google.org) provides an experimental API for massively-parallel geospatial analysis on hourly-updating global datasets such as Landsat satellite imagery, elevation data and weather. Scientists and other domain experts are developing new EE-powered applications which map, measure and monitor our changing planet in unprecedented detail, for the benefit of people and the environment. Applications include tracking and reducing global deforestation; estimating global crop yields, predicting future outbreaks of malaria, and mapping and mitigating the risks of earthquakes and extreme weather events such as floods and drought. Efforts are underway to create the first global, high-resolution digital elevation model that will enable flood risk assessment and protection for coastal and flood plain communities throughout the world.

The world of climate and disaster risk modeling, including the fields of human landscape and hazard mapping, all involve large datasets and complex models.   Although still in the early stages, this platform is now beginning to play a useful role across the disaster risk management cycle.