Communicating the Power of Earth Observation (EO) Technologies: A Picture is worth a Thousand Actions

Ronald Eguchi,
President and CEO of ImageCat
www.imagecatinc.com

Thursday, Feb 21st, 2019
12:30 p.m. – 13:30 p.m.
ECJ 3.406

Abstract:
In many instances, disasters act as catalysts in the adoption of new and emerging technologies. Spawned by the need to rapidly collect vital information for disaster management, technology innovations have often helped emergency responders to assess the impact of large disasters more efficiently and rapidly, and to track and monitor progress in critical response and recovery operations. All of these events underscore the opportunities that emerge when time-critical information can be delivered more efficiently to users making critical decisions during the disaster.

One technology which has had an enormous impact on disaster management has been remote sensing. In the past several decades, this technology has been used extensively to explain the extent of impacts caused by earthquakes, tsunamis, hurricanes, floods, wildfires and terrorist attacks. Through high-resolution optical imagery and active sensors (e.g., synthetic aperture radar, or more commonly known as SAR, and light detection and ranging or In-situ and airborne LIDAR), remote sensing technologies have demonstrated significant efficacies in quantifying post-disaster damage, monitoring recovery and reconstruction progress after significant disasters, and more recently, in developing important exposure information on our urban infrastructure.

Remote sensing technologies are also playing a major role in helping to understand the vulnerability and resilience of many emerging economies around the world. Currently, there are substantial activities taking place in Africa where detailed risk profiles from natural hazards are being constructed in order to prioritize natural hazard mitigation efforts. The notion of investing in mitigation before a disaster occurs is key in reversing the trend of ever-increasing losses from natural disasters that are especially prevalent in developing countries. In the past several years, NASA has sponsored focused research on how to use earth observation (EO) imagery to delineate areas of urban development as well as the locations of critical infrastructure. This information has allowed analysts to quantify the expected damage or loss to communities from a wide range of natural hazards. These risk profiles are now allowing in-country policy makers to consider in a consistent and systematic way how best to address these risks for both urban and rural exposures.

This presentation will show through examples how remote sensing technologies have changed the way in which we measure, monitor and evaluate community resilience to natural hazards worldwide. We will also discuss that even with this demonstrable progress, remote sensing technologies still have the potential to be even more valuable in enhancing resilience.

Bio:
Mr. Eguchi is President and CEO of ImageCat, Inc., an international risk management company that supports the global risk and catastrophe management needs of the insurance industry, governments and NGOs. Mr. Eguchi has over 30 years of experience in risk analysis and risk reduction studies. He currently serves or has served on several editorial boards including EERI's Journal *SPECTRA*. In 1997, he was awarded the ASCE C. Martin Duke Award for his contributions to the area of lifeline earthquake engineering. In 2006, he accepted an ATC Award of Excellence on behalf of the ATC-61 project team for work on *An Independent Study to Assess Future Savings from Mitigation Activities* that showed that a dollar spent on hazard mitigation saves the nation about $4 in future benefits. He was recognized by EERI as the 2008 Distinguished Lecturer where he discussed the topic of *"Earthquakes, Hurricanes, and other Disasters: A View from Space."* He currently chairs the Technical Committee on Advances in Information Technologies for the SEI Division of ASCE, a committee he started in 2015. He has authored over 300 publications, many of them dealing with the seismic risk of utility lifeline systems and the use of remote sensing technologies for disaster response. He was awarded the 2017 Civil & Environmental Engineering Department Distinguished Alumnus Award from UCLA.