

ENVIRONMENT, COMPLEX SYSTEMS & COMPUTING FRONTIERS



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Publications

- Milillo, P., Rignot, E., Rizzoli, P., Scheuchl, B., Mougino, J., Bueso-Bello, J. L., ... & Dini, L. (2022). Rapid glacier retreat rates observed in West Antarctica. *Nature Geoscience*, 15(1), 48-53.
- Milillo, P., Rignot, E., Rizzoli, P., Scheuchl, B., Mougino, J., Bueso-Bello, J., & Prats-Iraola, P. (2019). Heterogeneous retreat and ice melt of Thwaites Glacier, West Antarctica. *Science advances*, 5(1), eaau3433.
- Milillo, P., Giardina, G., Perissin, D., Milillo, G., Coletta, A., & Terranova, C. (2019). Pre-collapse space geodetic observations of critical infrastructure: the Morandi Bridge, Genoa, Italy. *Remote Sensing*, 11(12), 1403.
- Milillo, P., Giardina, G., DeJong, M. J., Perissin, D., & Milillo, G. (2018). Multi-temporal InSAR structural damage assessment: The London crossrail case study. *Remote Sensing*, 10(2), 287.
- Chaussard, E., Milillo, P., Bürgmann, R., Perissin, D., Fielding, E. J., & Baker, B. (2017). Remote sensing of ground deformation for monitoring groundwater management practices: Application to the Santa Clara Valley during the 2012–2015 California drought. *Journal of Geophysical Research: Solid Earth*, 122(10), 8566-8582.
- Milillo, P., Bürgmann, R., Lundgren, P., Salzer, J., Perissin, D., Fielding, E., ... & Milillo, G. (2016). Space geodetic monitoring of engineered structures: The ongoing destabilization of the Mosul dam, Iraq. *Scientific reports*, 6(1), 37408.
- Milillo, P., Perissin, D., Salzer, J. T., Lundgren, P., Lacava, G., Milillo, G., & Serio, C. (2016). Monitoring dam structural health from space: Insights from novel InSAR techniques and multi-parametric modeling applied to the Pertusillo dam Basilicata, Italy. *International journal of applied earth observation and geoinformation*, 52, 221-229.
- Milillo, P., Riel, B., Minchew, B., Yun, S. H., Simons, M., & Lundgren, P. (2015). On the synergistic use of SAR constellations' data exploitation for earth science and natural hazard response. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 9(3), 1095-1100.

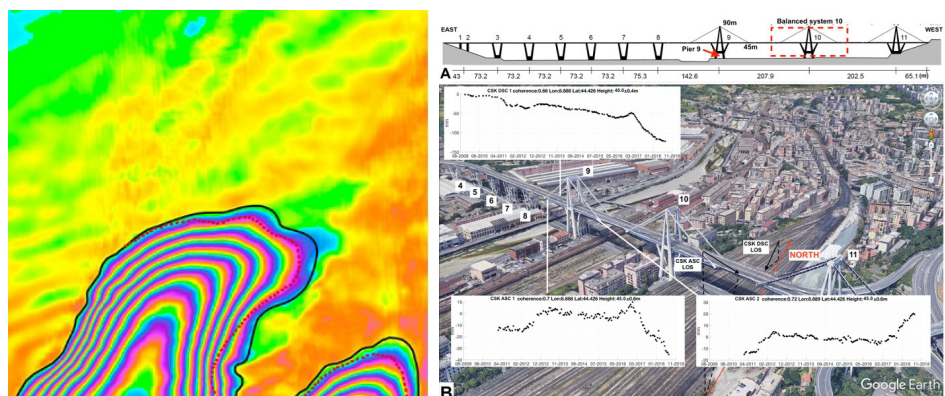
Dr. Milillo's expertise is in providing mm-accuracy measurement of ground and structural movement from space. He conducts multidisciplinary research that focuses on the synergistic use of remote sensing data exploitation and innovative approaches in Earth and Cryosphere Science and Natural/Anthropogenic Hazard Response. Specifically, he is interested in evaluating the efficacy of new generation remote sensing instruments in near real-time disaster monitoring, assessment, and response, and their ability to constrain dynamically changing physical processes and thereby, improve the understanding of Earth's environment. Dr. Milillo's research is funded by NASA, Air Force Research Laboratory (AFRL), and other international space agencies. He has published over forty research articles in leading international journals. Several of his research projects have been featured in international press, television, and radio. The awards and honors that Dr. Milillo has received include the NASA Group Achievement Award for the Advanced Rapid Imaging and Analysis (ARIA) Team, for creating the state-of-the-art rapid response processing system for Differential Global Positioning System (DGPS) and an imaging radar to deliver actionable products in response to disasters. He is also a member of the NASA surface topography and vegetation decadal survey incubation team and the NASA smallsat commercial onramp evaluation program for assessing the quality of commercial synthetic aperture radar (SAR) satellites.

PROVIDING ACCURATE AND RELIABLE MEASUREMENT OF THE NATURAL AND THE ANTHROPOGENIC ENVIRONMENT FROM SPACE

SAR-based geodetic imaging has revolutionized earth science research in solid earth, ecosystems, and cryosphere disciplines. Yet the ability to effectively utilize SAR data for research, long-term monitoring of extensive spatial areas of interest, and rapid hazard response have been limited due to processing complexity, data volume sizes, and latencies in the end-to-end process. Dr. Milillo's group focuses on several aspects of geosciences including but not limited to:

Understanding and interpreting the relationship between the amplitude, geometry, and temporal characteristics of specific sources of settlement (subsidence, landslide, tunneling, deep excavation, flood-induced bridge scour) and the consequent damage on buildings and infrastructure assets;

Assessing glacier mass balance measurement uncertainties and understanding the interaction between ice and climate, to determine how the ice sheets in Antarctica and Greenland will respond to climate change in the coming century and affect regional to global sea level rise.



Technology Information