

Summary of GEER Activities

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Professor and Associate Dean

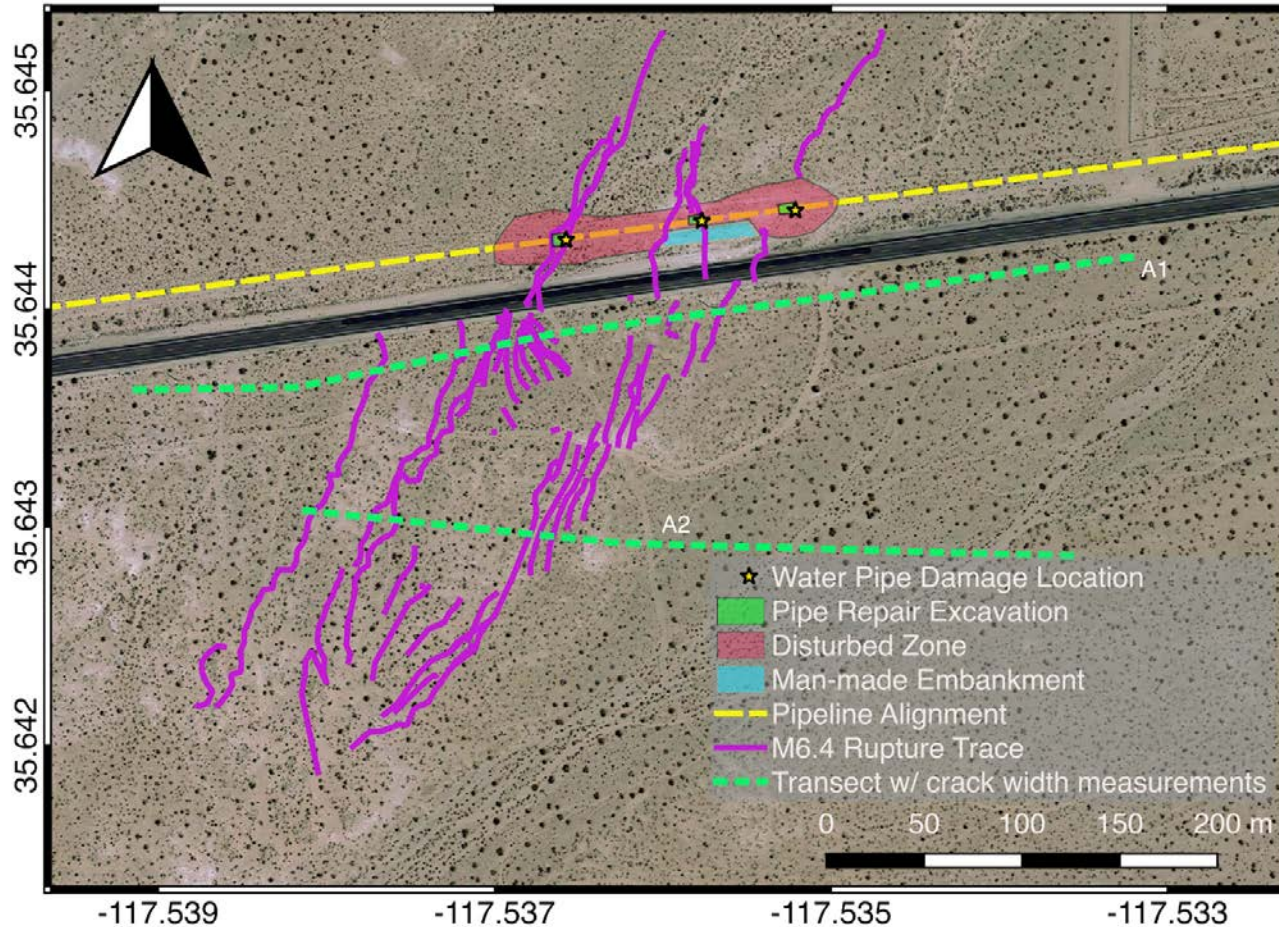
Department of Civil and Environmental Engineering

University of California, Los Angeles



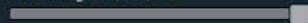
Available Data Resources

- Detailed ground measurements of surface cracks near Highway 178 for M6.4 and M7.1 ruptures
- UAV Structure from Motion point clouds and digital surface models for M6.4 and M7.1 ruptures south of Highway 178
- UAV SfM point clouds and DSM's in Trona and Argus where liquefaction-induced lateral spreading was observed
- Documentation of pipeline rupture where it crosses M6.4 and M7.1 ruptures
- Many ground motion records



Appearance

Point budget: 9,670,000



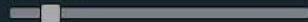
Field of view: 60



Eye-Dome-Lighting

 Enable

Radius: 1.4



Strength: 0.4



Background

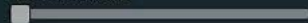
Skybox Gradient Black White None

Other

Splat Quality

Standard High Quality

Min node size: 30

 Box Lock view

Tools

Measurement



Clipping



Clip Task

None Highlight Inside Outside

Clip Method

Inside Any Inside All

Navigation

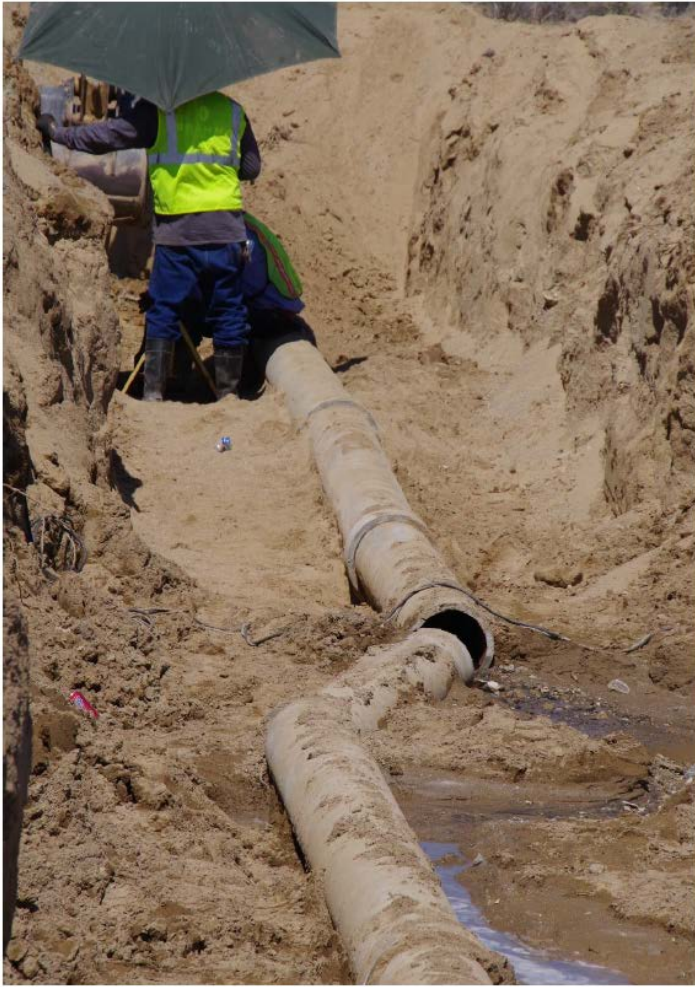


Camera Projection

Perspective Orthographic

Speed: 89.9





Broken concrete water pipe crossing M7.1 rupture

Stewart et al. (2019)





Shallow groundwater near Searles Lake resulted in liquefaction and lateral spreading that affected Trona and Argus.

- Compare SfM products with ground measurements of surface rupture. Key question: How small can a ground crack or offset be to be visible in the SfM products?
- Gather information about liquefaction effects in Trona, Argus, and within the Searles Lake region. Geotechnical investigation data necessary there. Compare SfM products and “before” images from Google Earth to quantify ground displacements.
- Incorporate recorded ground motions into next iteration of ground motion models.
- Detailed study of pipeline crossing the fault ruptures.

- Stewart, J.P. (ed.), Brandenberg, S.J., Wang, Pengfei, Nweke, C.C., Hudson, K., Mazzoni, S., Bozorgnia, Y., Hudnut, K.W., Davis, C.A., Ahdi, S.K., Zareian, F., Fayaz, J., Koehler, R.D., Chupik, C., Pierce, I., Williams, A., Akciz, S., Hudson, M.B., Kishida, T., Brooks, B.A., Gold, R.D., Ponti, D.J., Scharer, K.M., McPhillips, D.F., Ericksen, T., Hernandez, J., Patton, J., Olson, B., Dawson, T., Treiman, J., Duross, C.B., Blake, K., Buchhuber, J., Madugo, C., Sun, J., Donnellan, A., Lyzenga, G., and Conway, E. (2019). Preliminary report on engineering and geological effects of the July 2019 Ridgecrest Earthquake sequence: Geotechnical Extreme Events Reconnaissance Association Report GEER-064, doi: 10.18118/G6H66K.
- Winters, M. A. Delisle, M.-P. C. Lucey, J.T. D. Kim, Y. Liu, Z. Hudson, K. Brandenberg, S. and Gallien, T. W. (2019). UCLA UAV Imaging in Ridgecrest, CA Earthquake Sequence, July 4 and 5, 2019. DesignSafe-CI, Dataset, doi: 10.17603/ds2-wfgc-a575.

Thank You!