USGS
science for a changing world

Remote Sensing Coastal Change Project

Preliminary Mapping of the Mud Creek Landslide with 4D Photogrammetry

Jonathan Warrick, Andy Ritchie

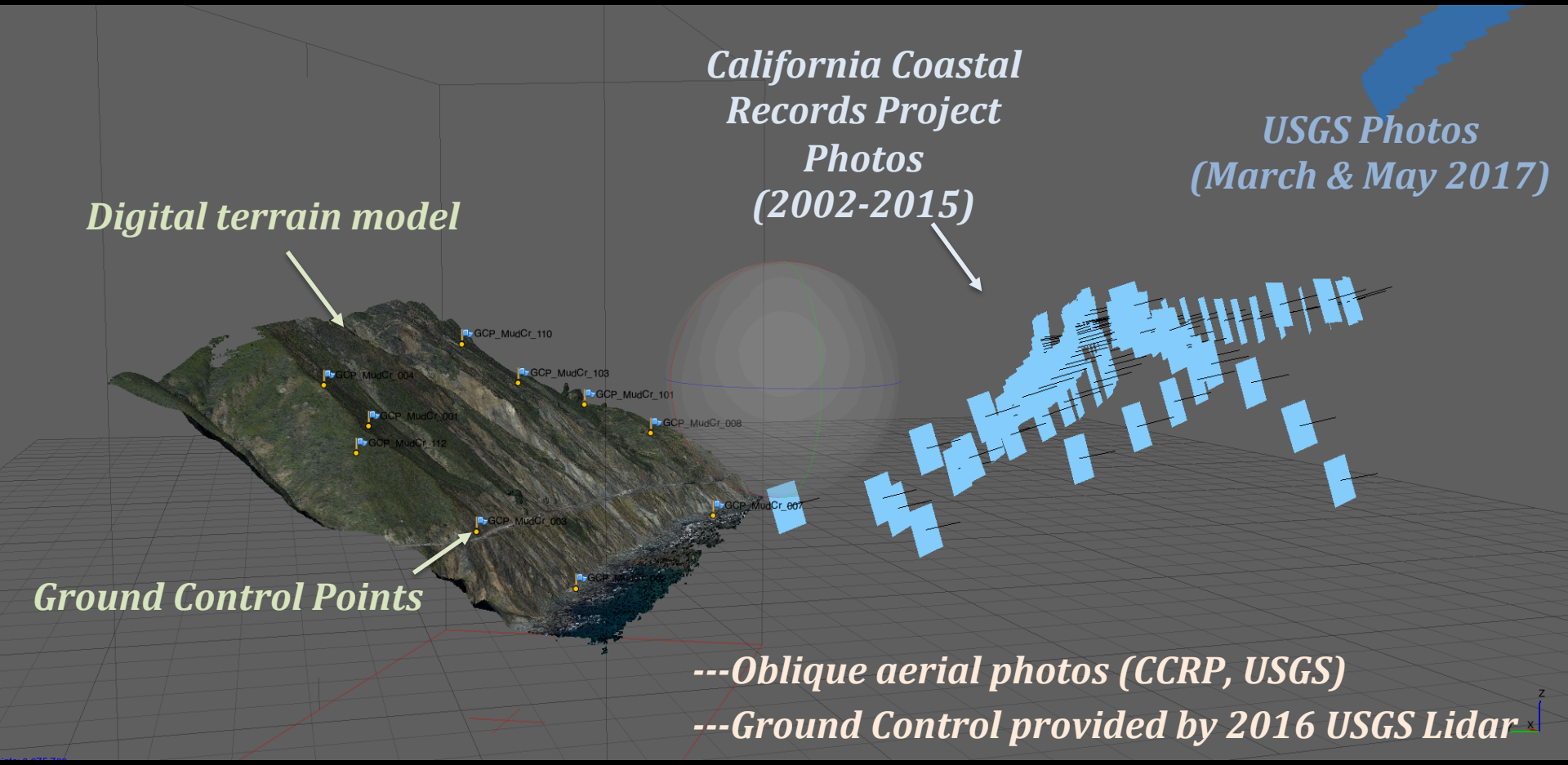
May 30, 2017

PROVISIONAL DATA SUBJECT TO REVISION

On May 20, 2017 …
Photo Credit: U.S. Geological Survey
May 27, 2017

Measuring Topographic Change with 4D Photogrammetry

Utilizing the techniques of Warrick et al. (2017) Journal of Coastal Research



---Oblique aerial photos (CCRP, USGS)

---Ground Control provided by 2016 USGS Lidar

---Results show Digital Terrain Models (DTMs)

---Change Uncertainty is approx. 0.75 m

---Positions have High Precision and Accuracy

PROVISIONAL DATA SUBJECT TO REVISION

Mud Creek – Topographic Point Cloud – Oblique Perspective

Photo Source:
California Coastal Records Project

September 11, 2015

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Photo Source:
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March 8, 2017

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May 19, 2017

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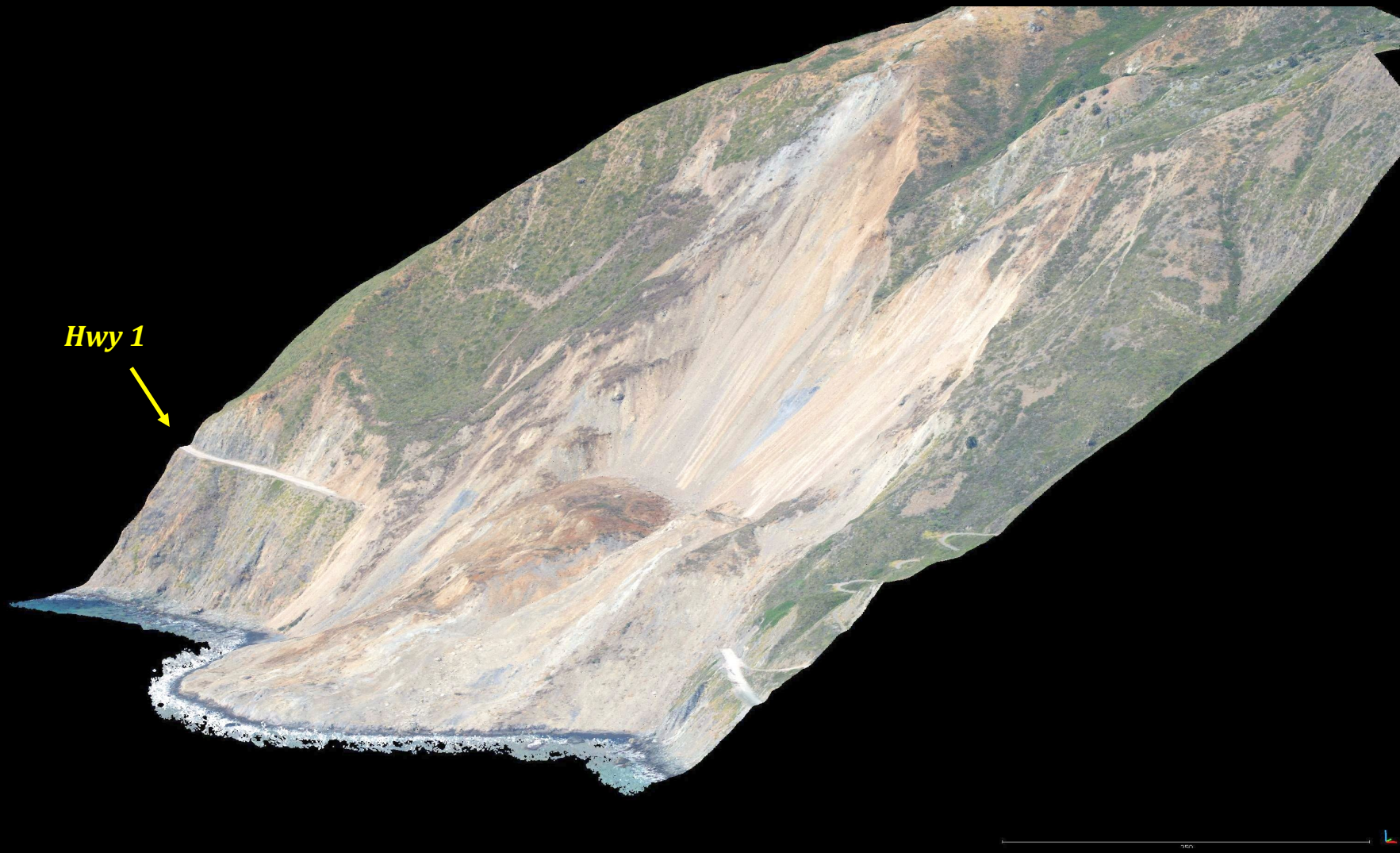

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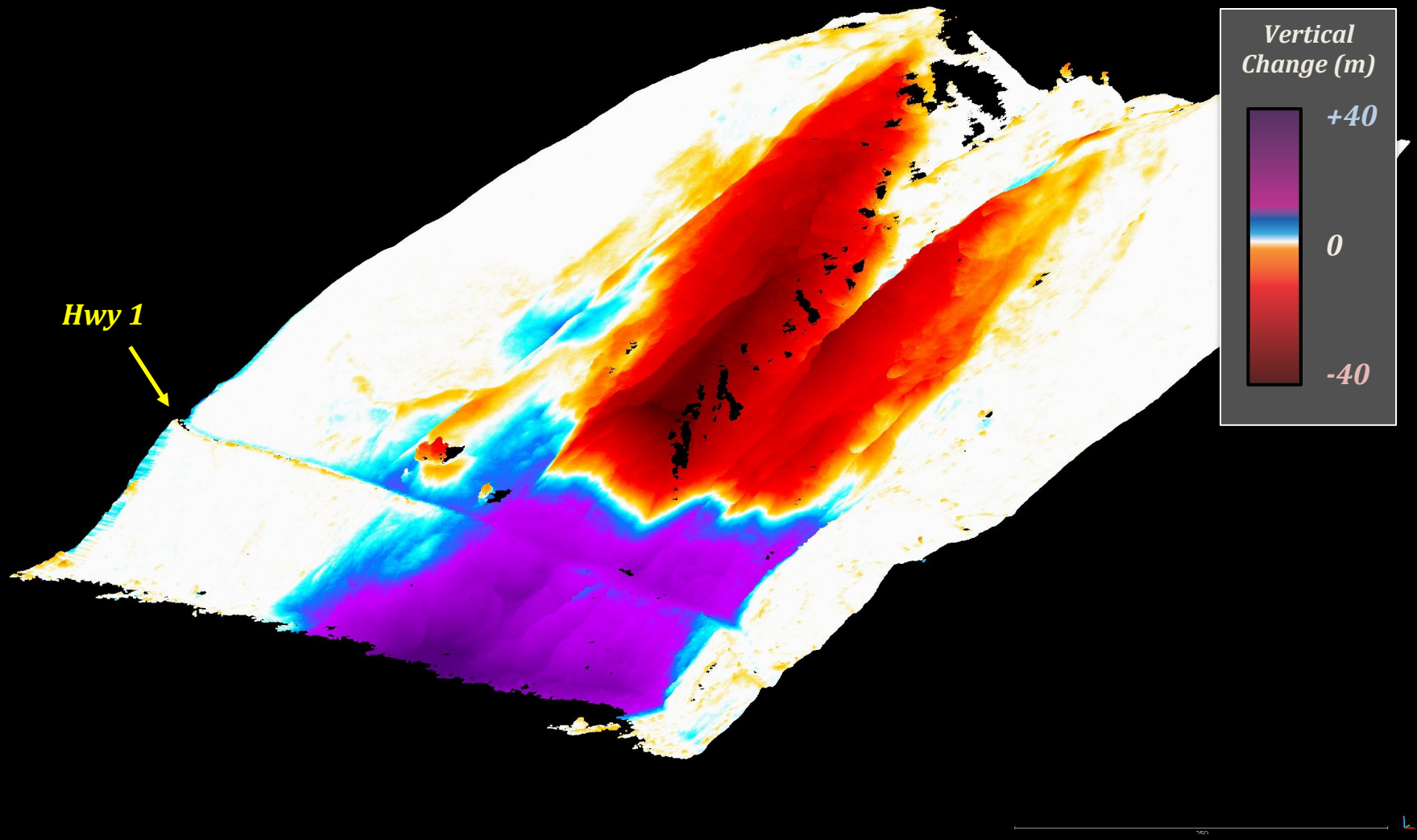

2015-'17 Topographic Change

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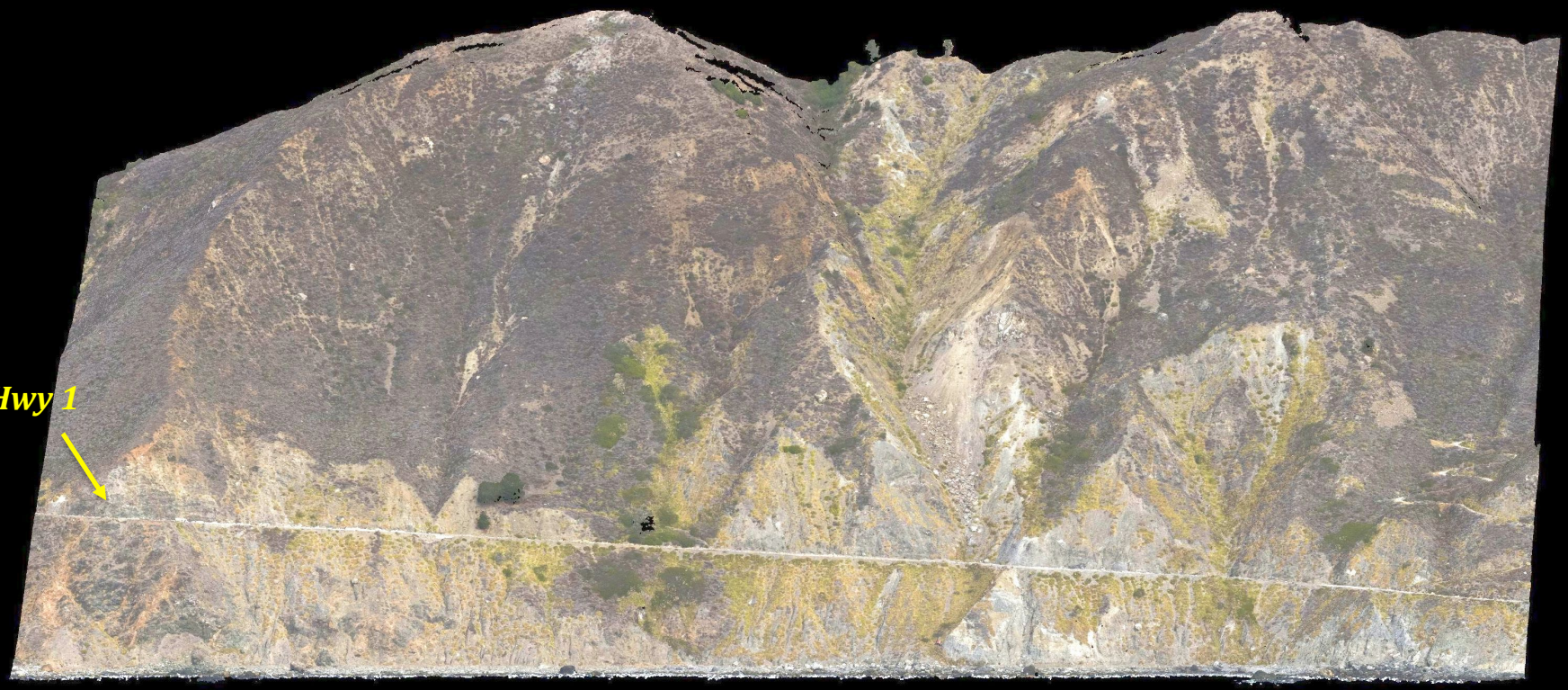

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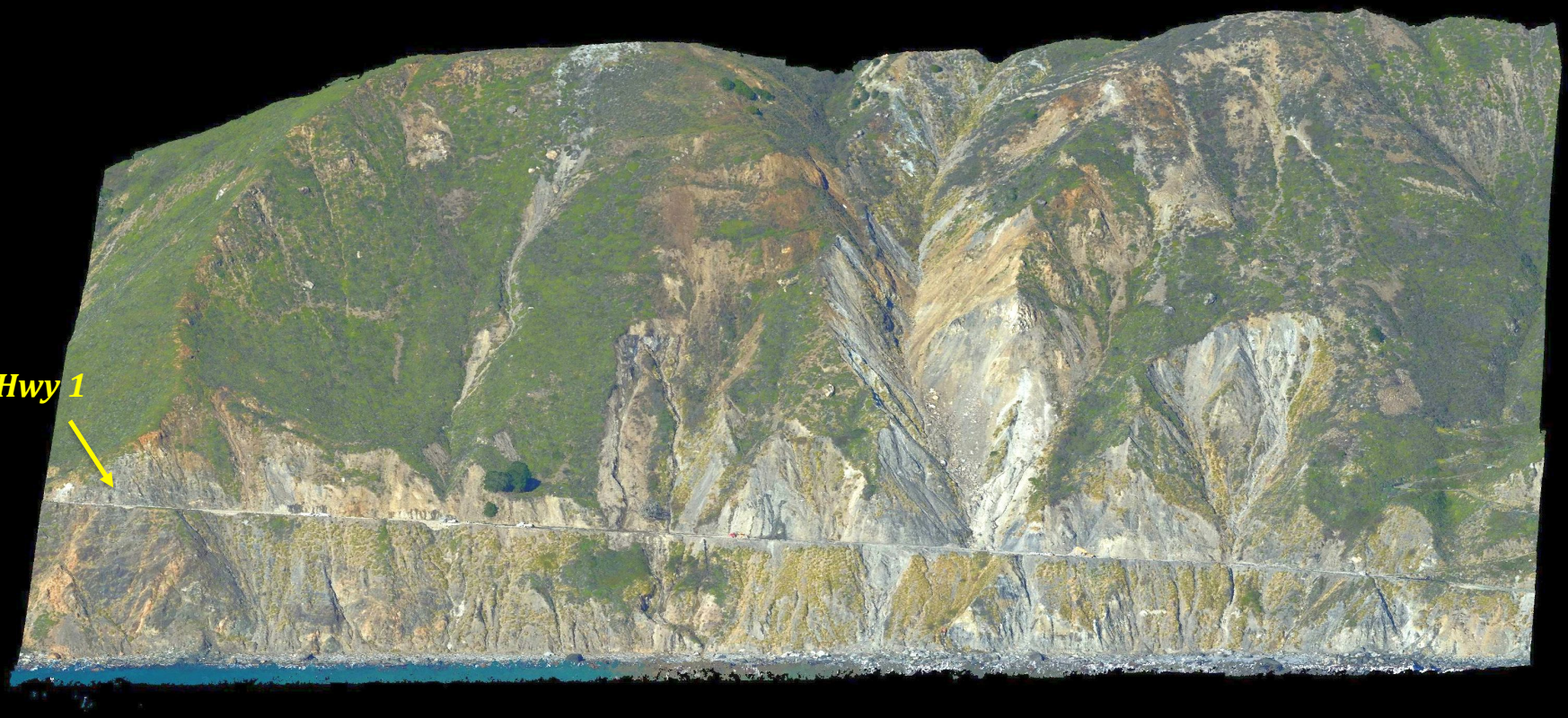

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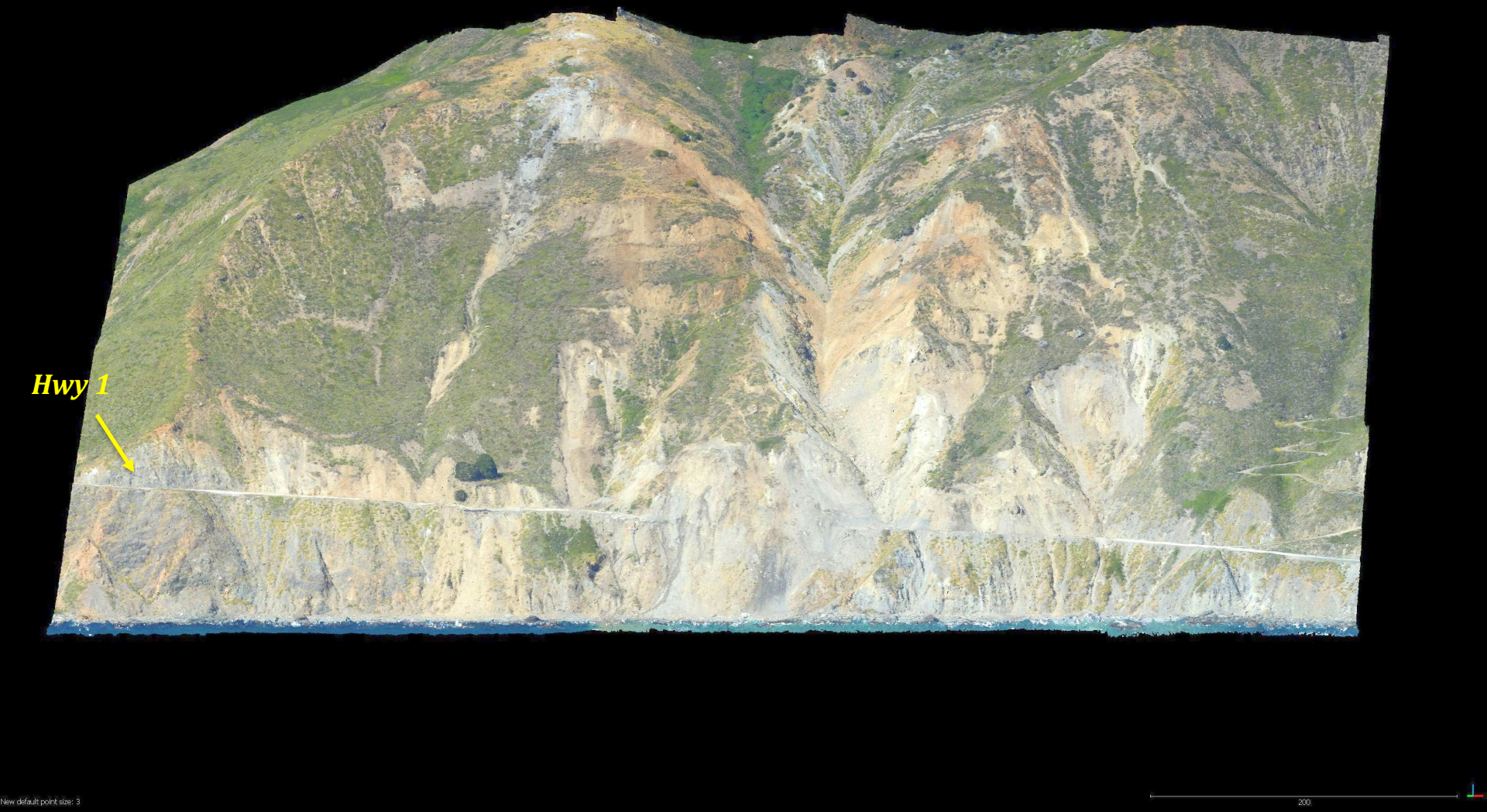

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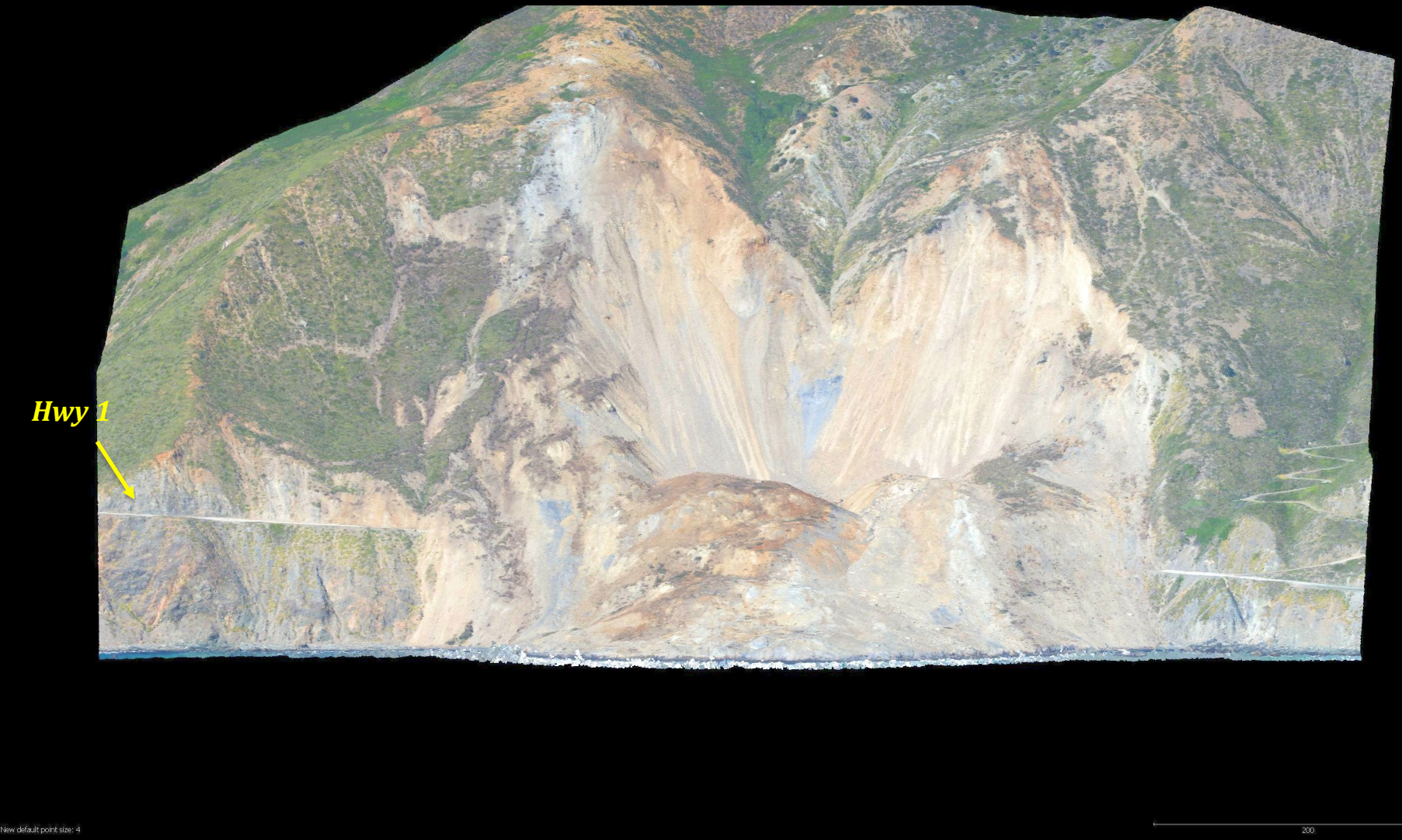

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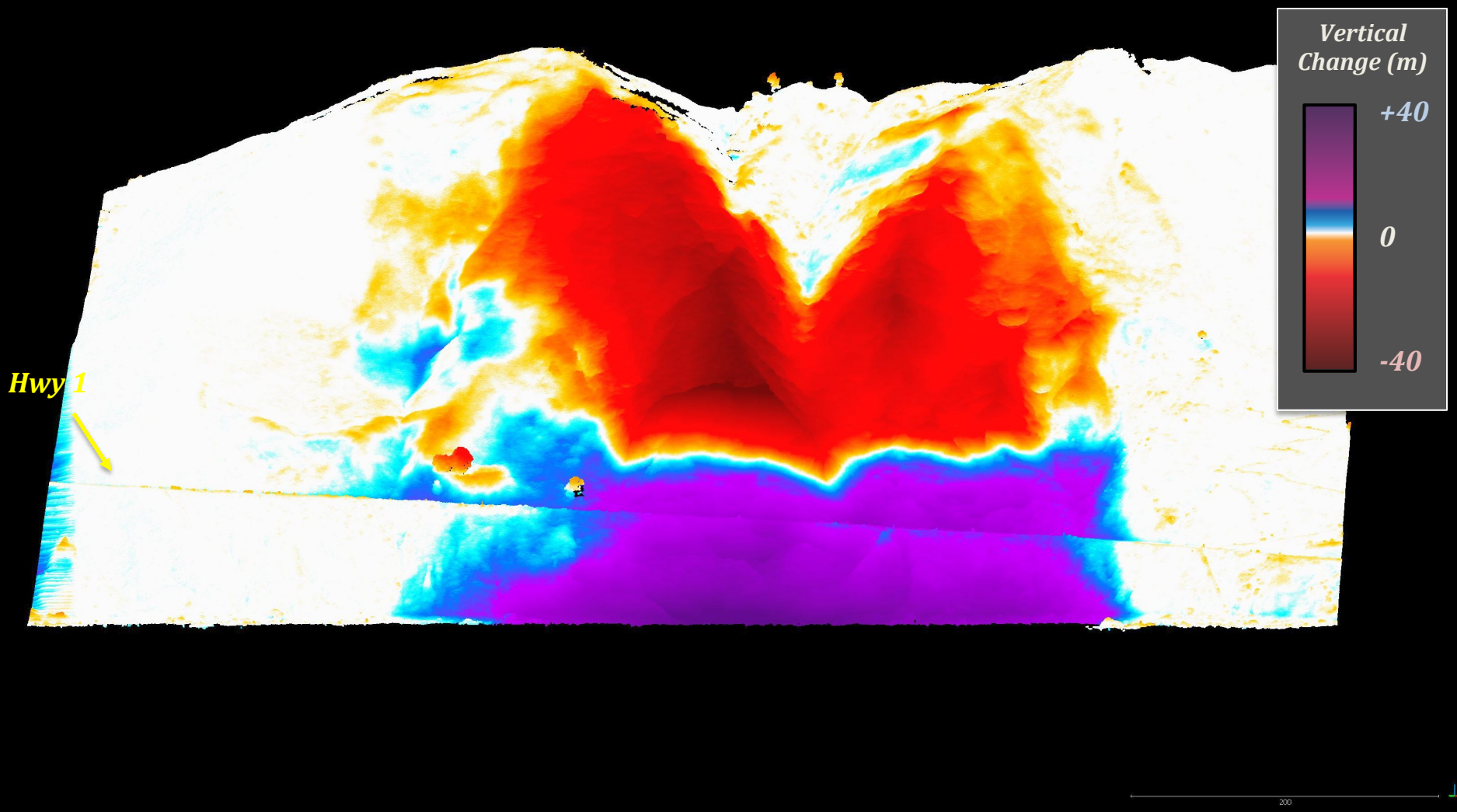

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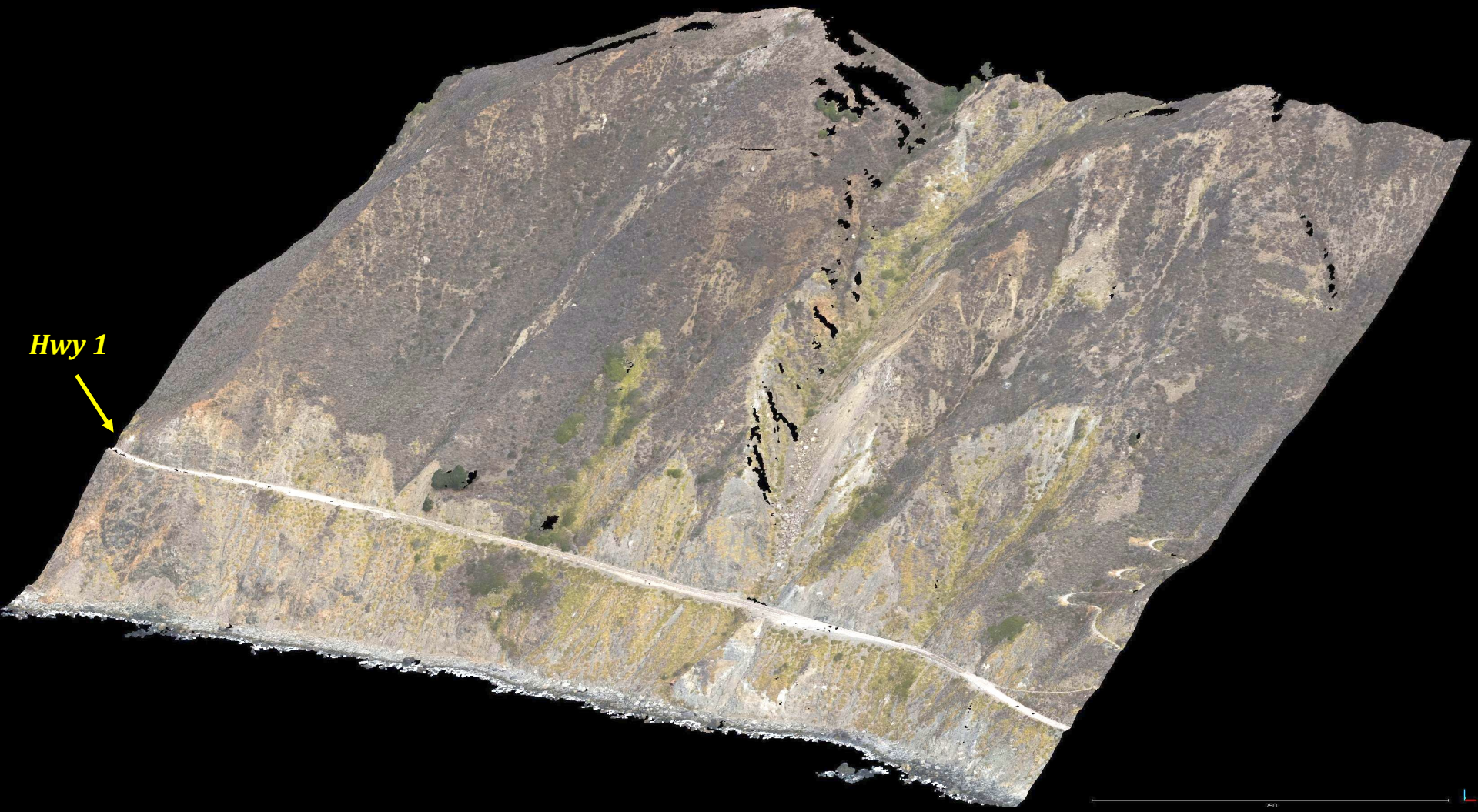

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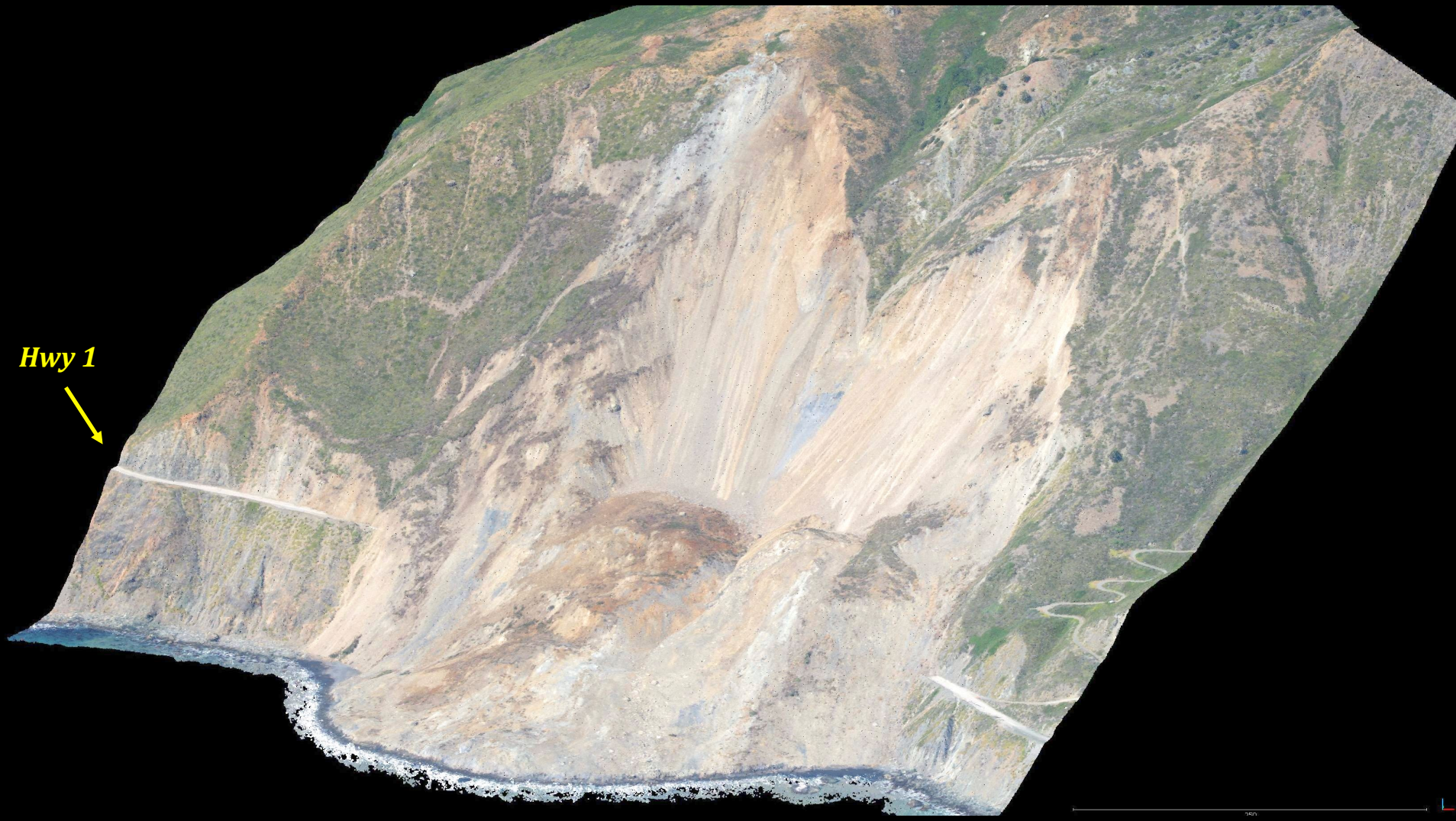

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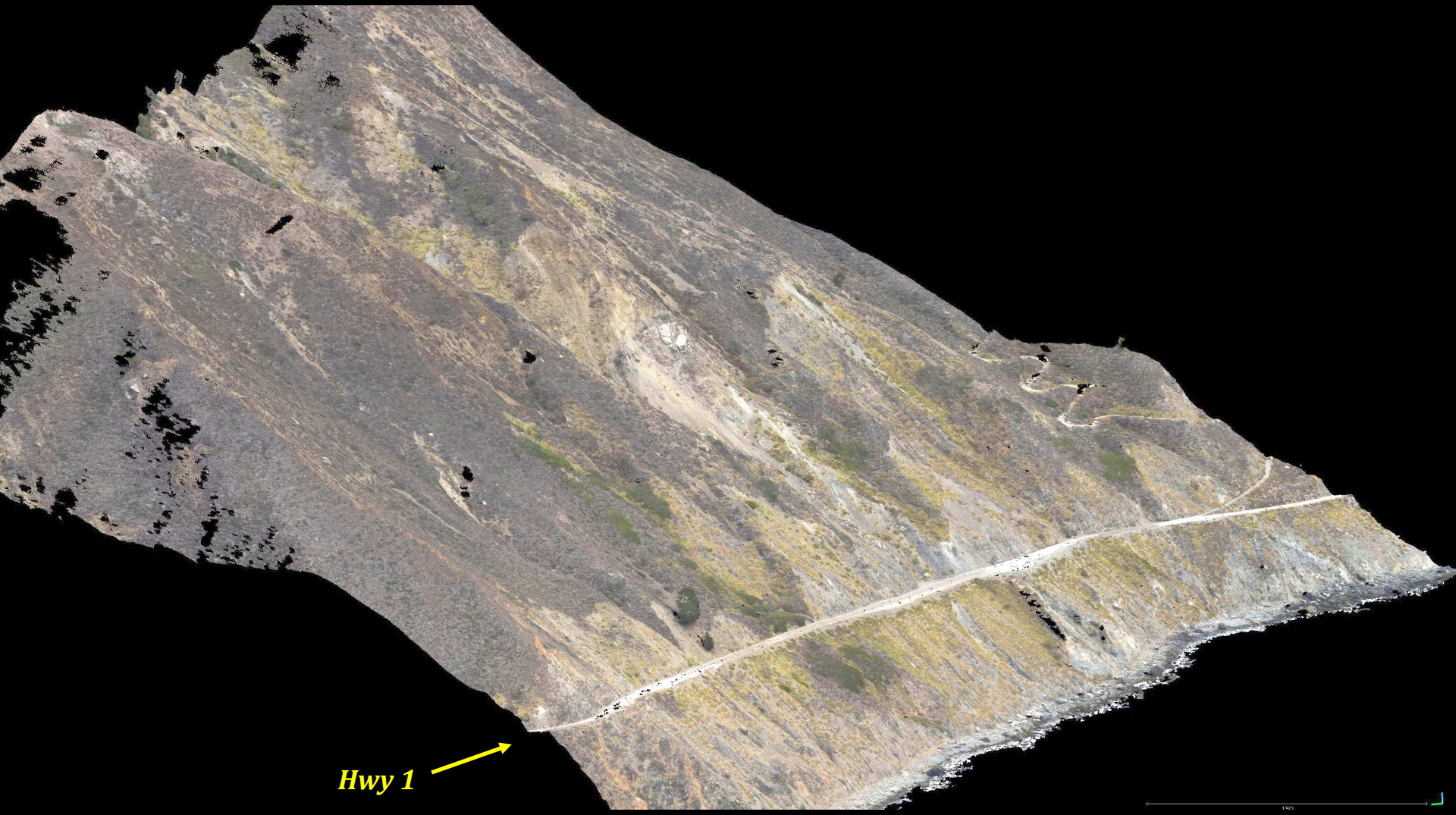

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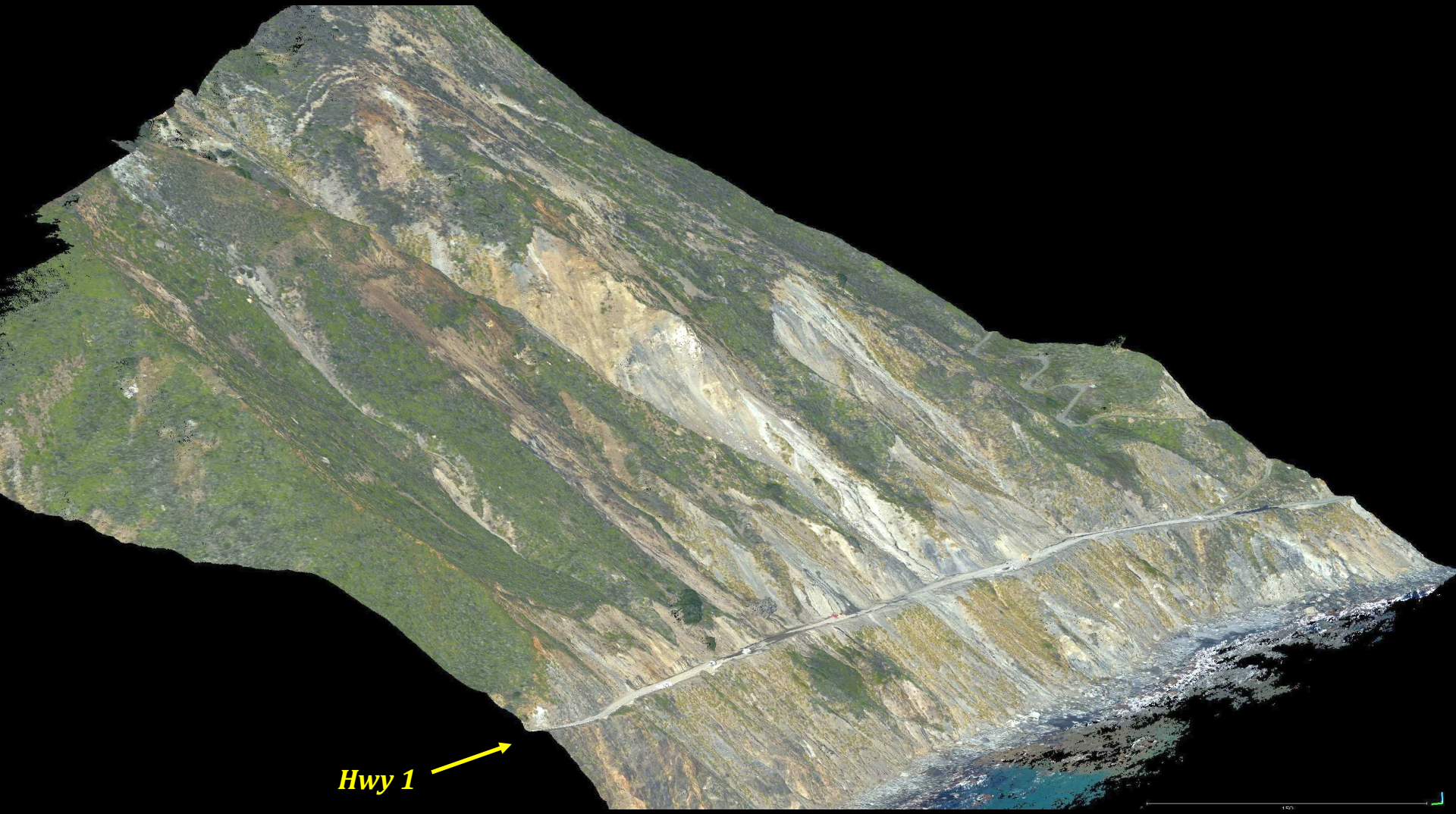

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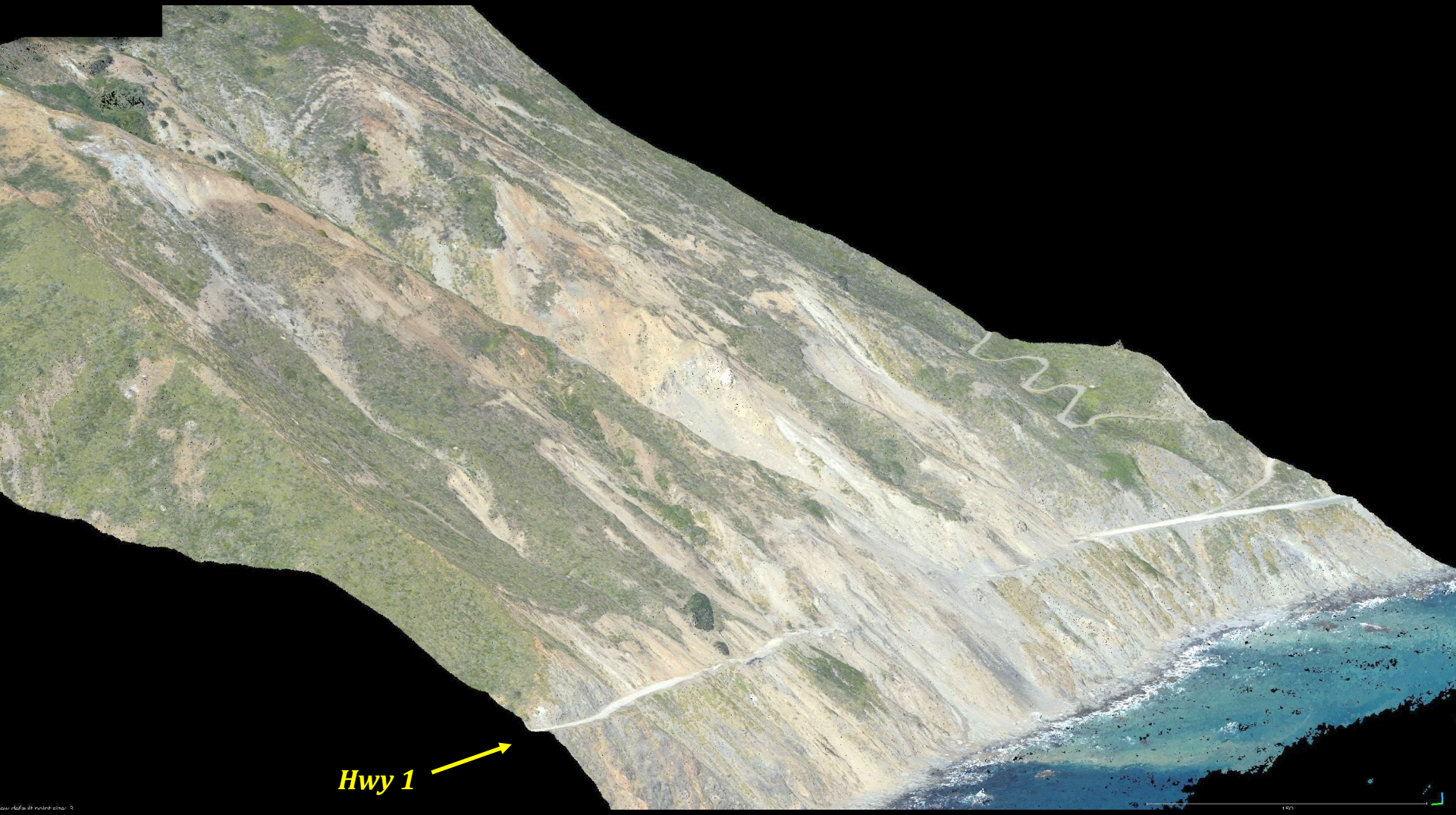

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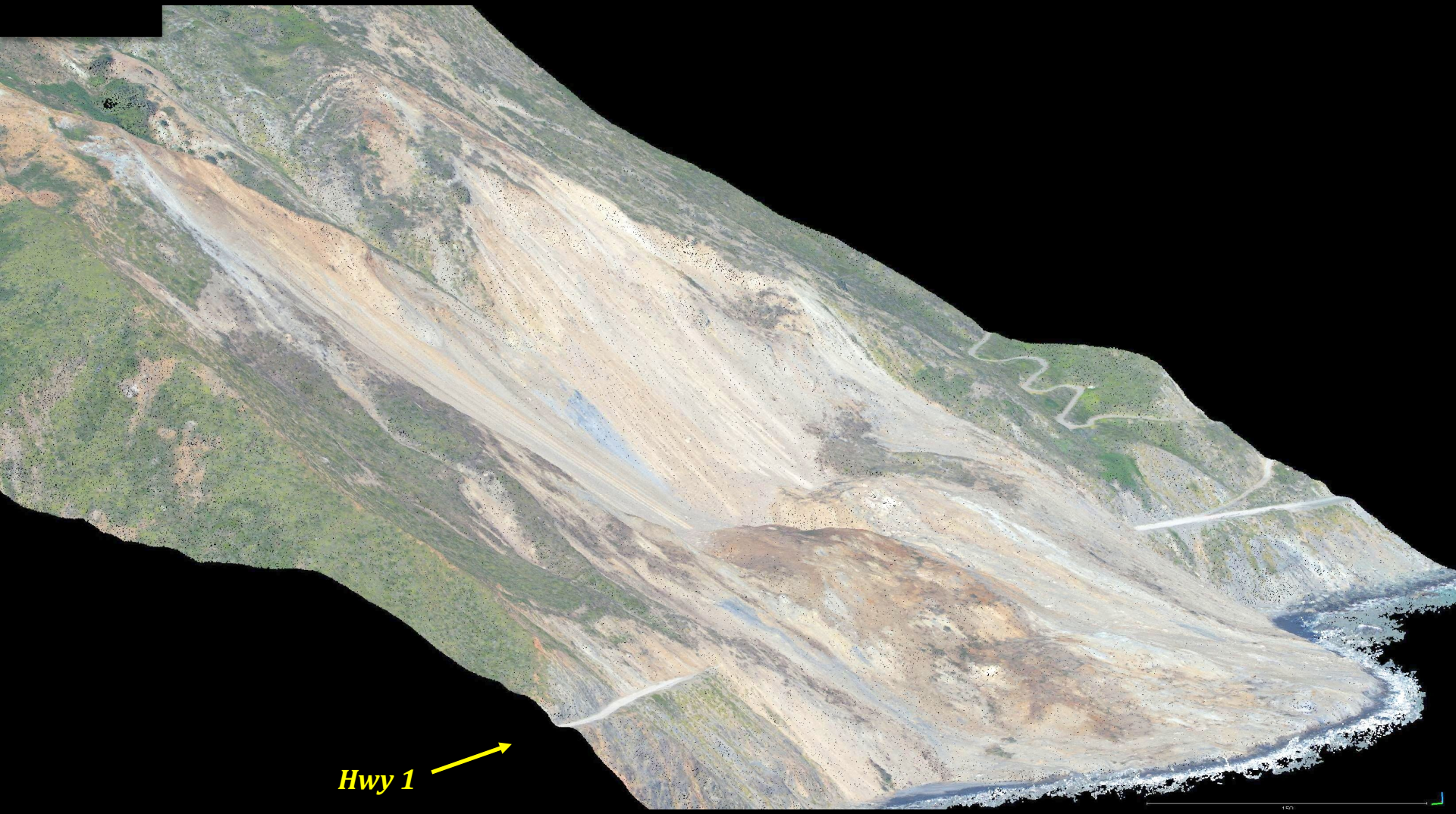

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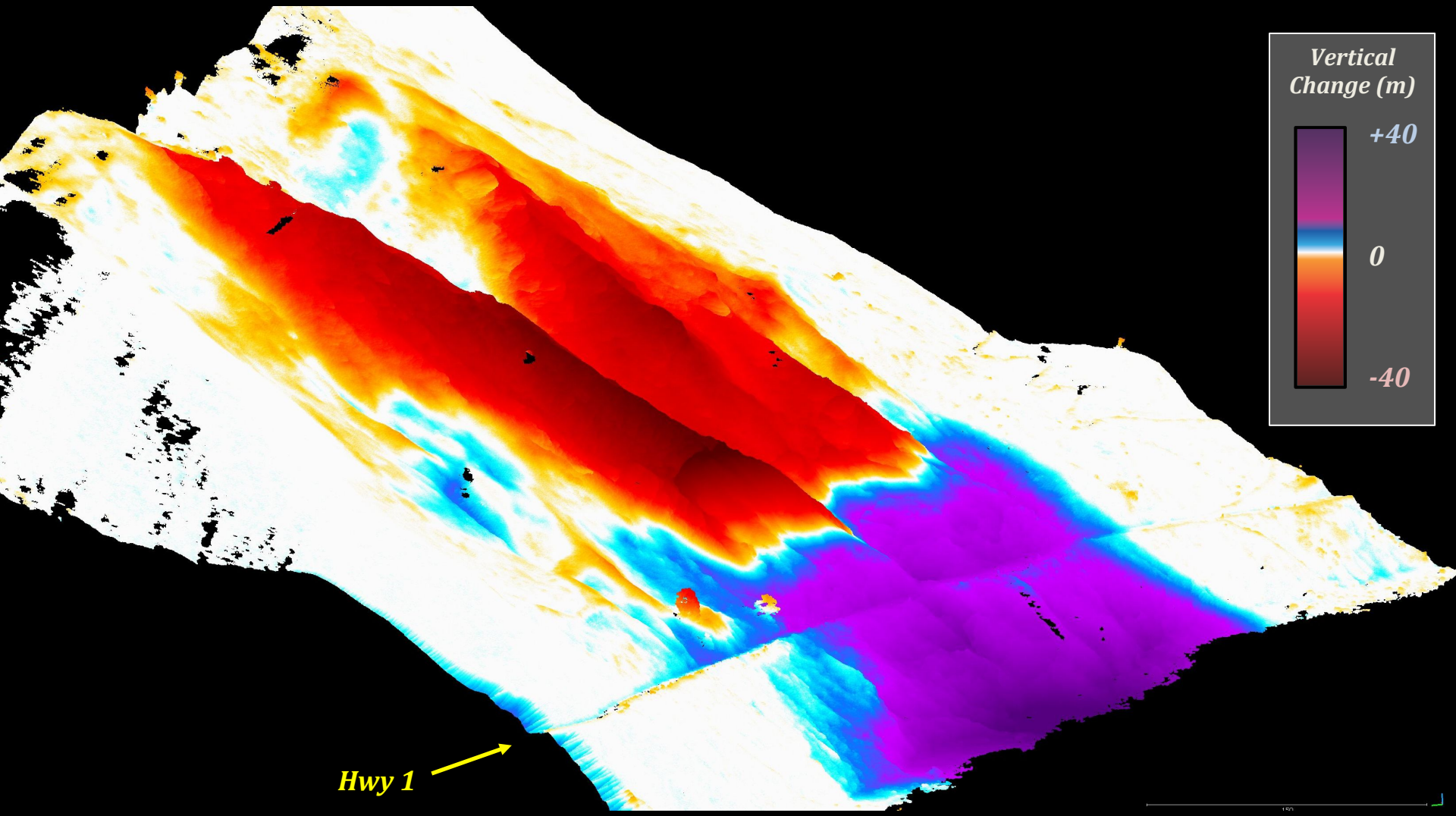

2015-'17 Topographic Change

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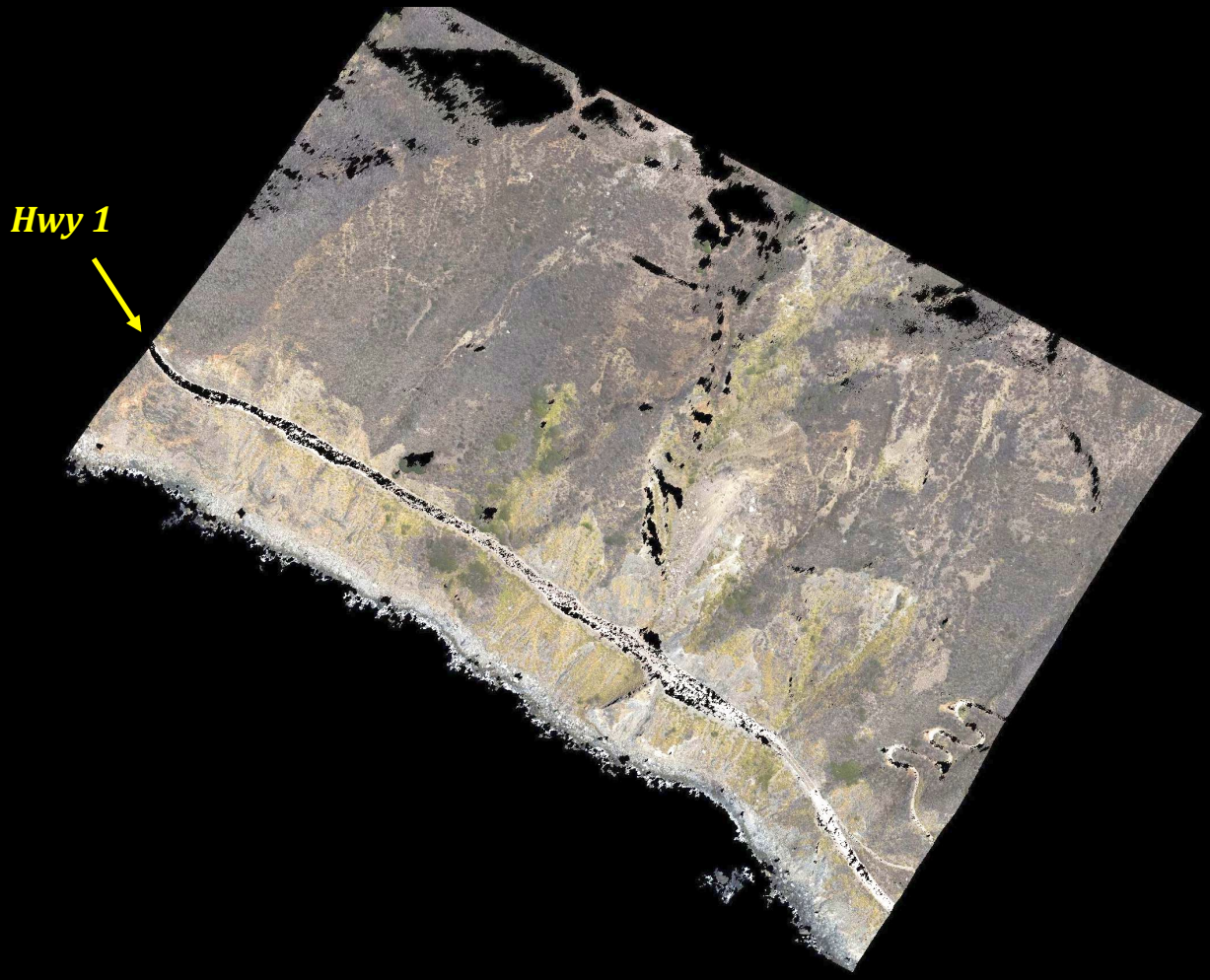
Mud Creek – Topographic Point Cloud – Vertical Perspective



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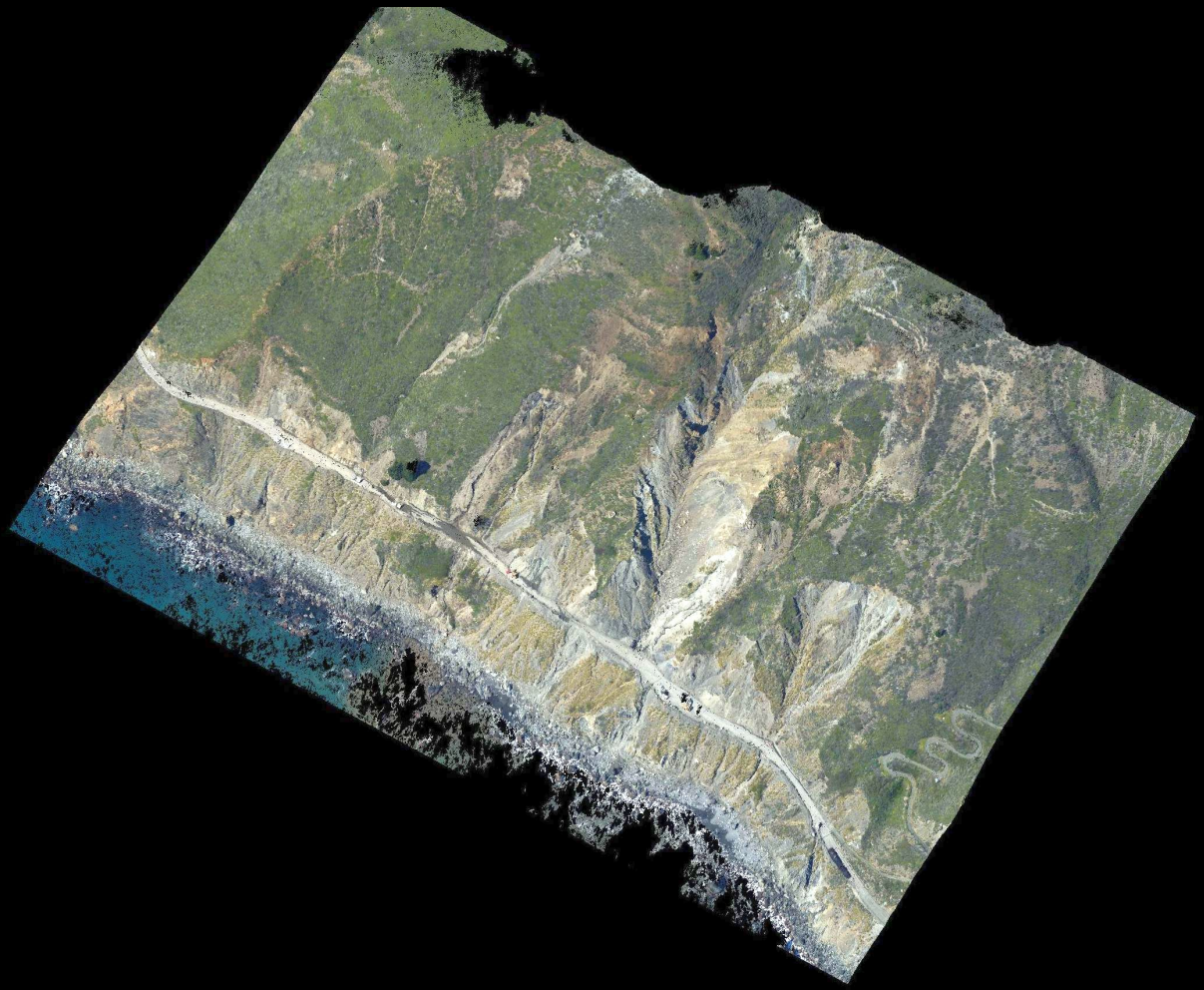
Mud Creek – Topographic Point Cloud – Vertical Perspective



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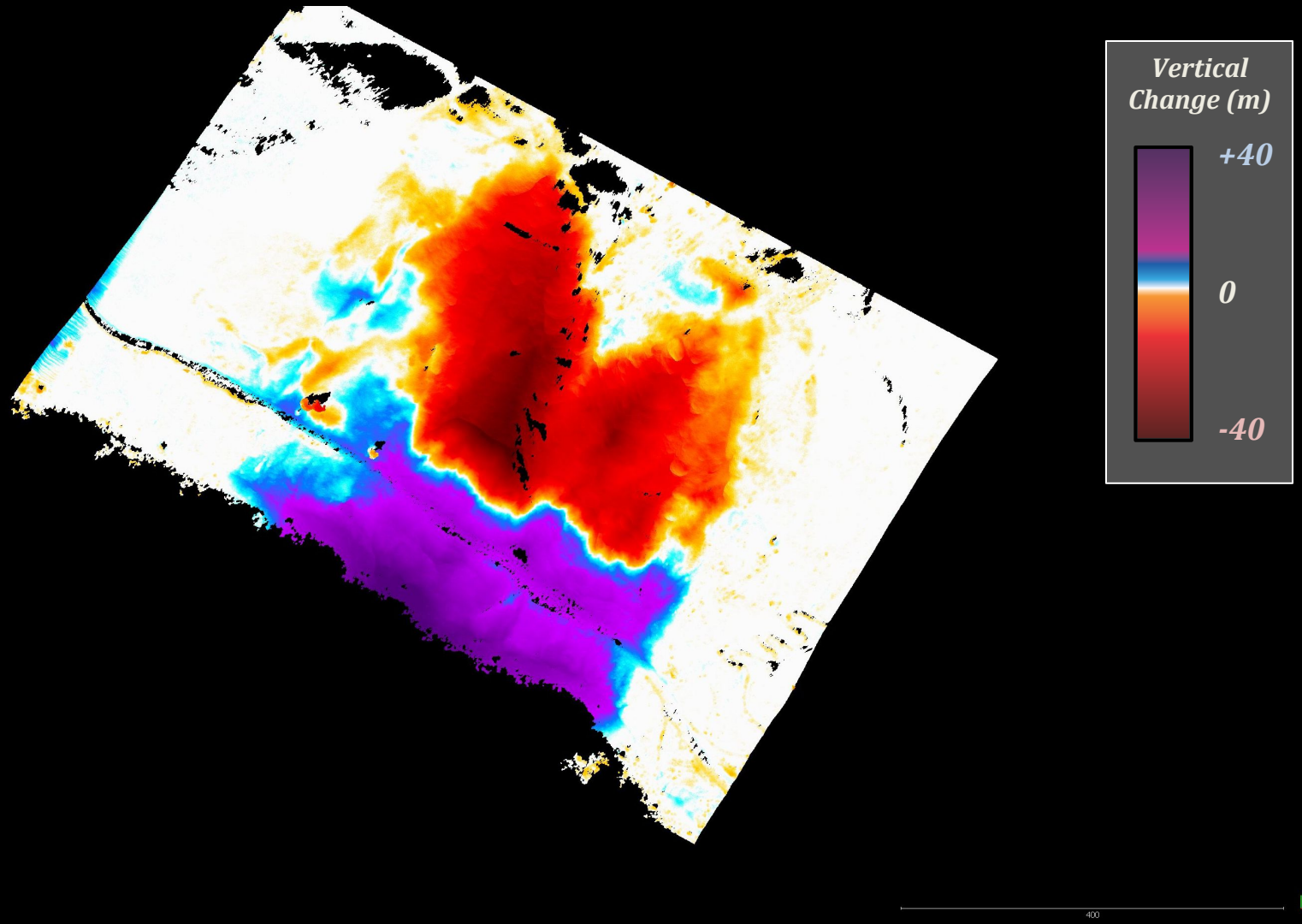

2015-'17 Topographic Change

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May 27, 2017 Point Cloud

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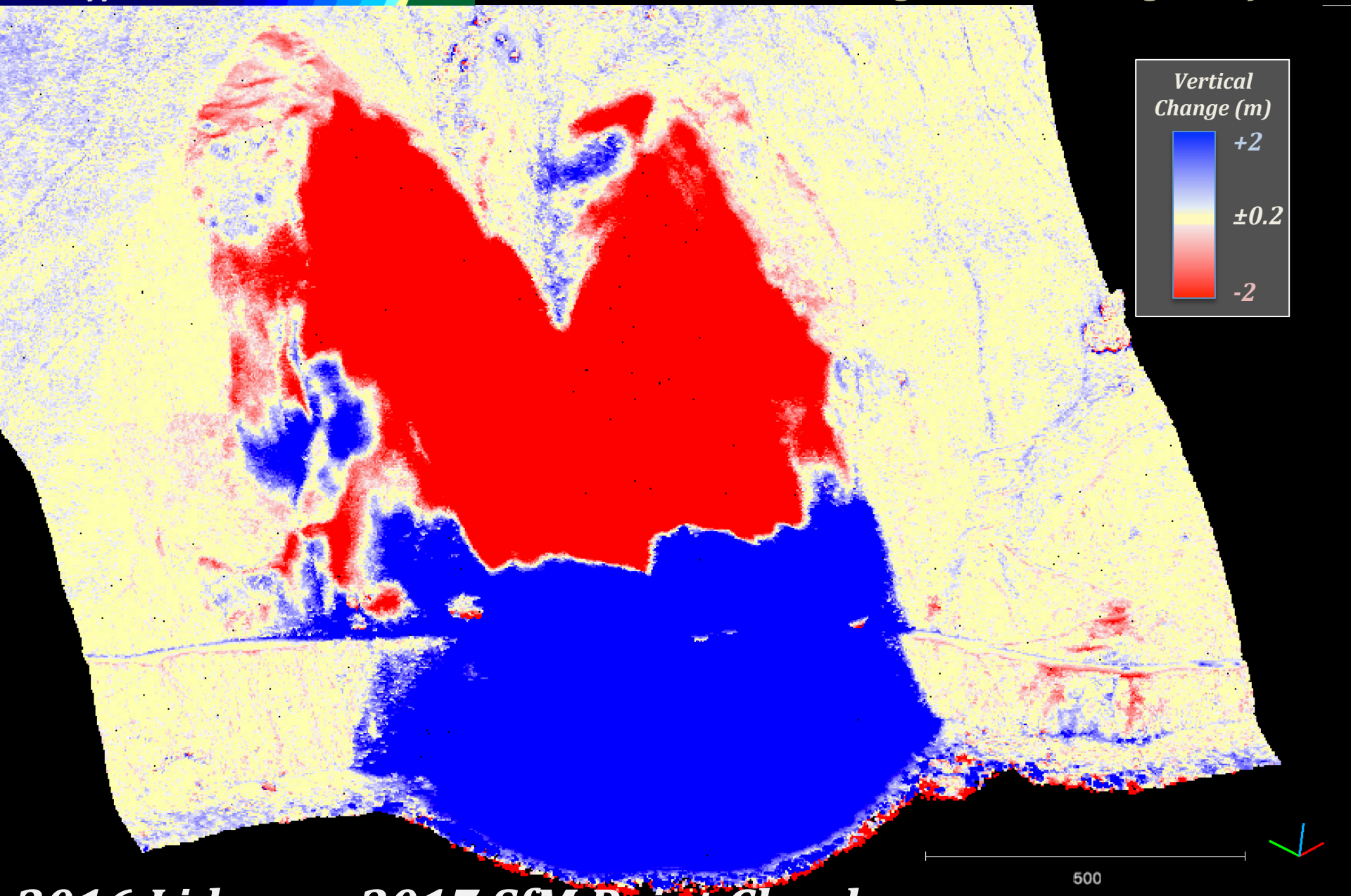

2016 Lidar vs. 2017 SfM Point Cloud

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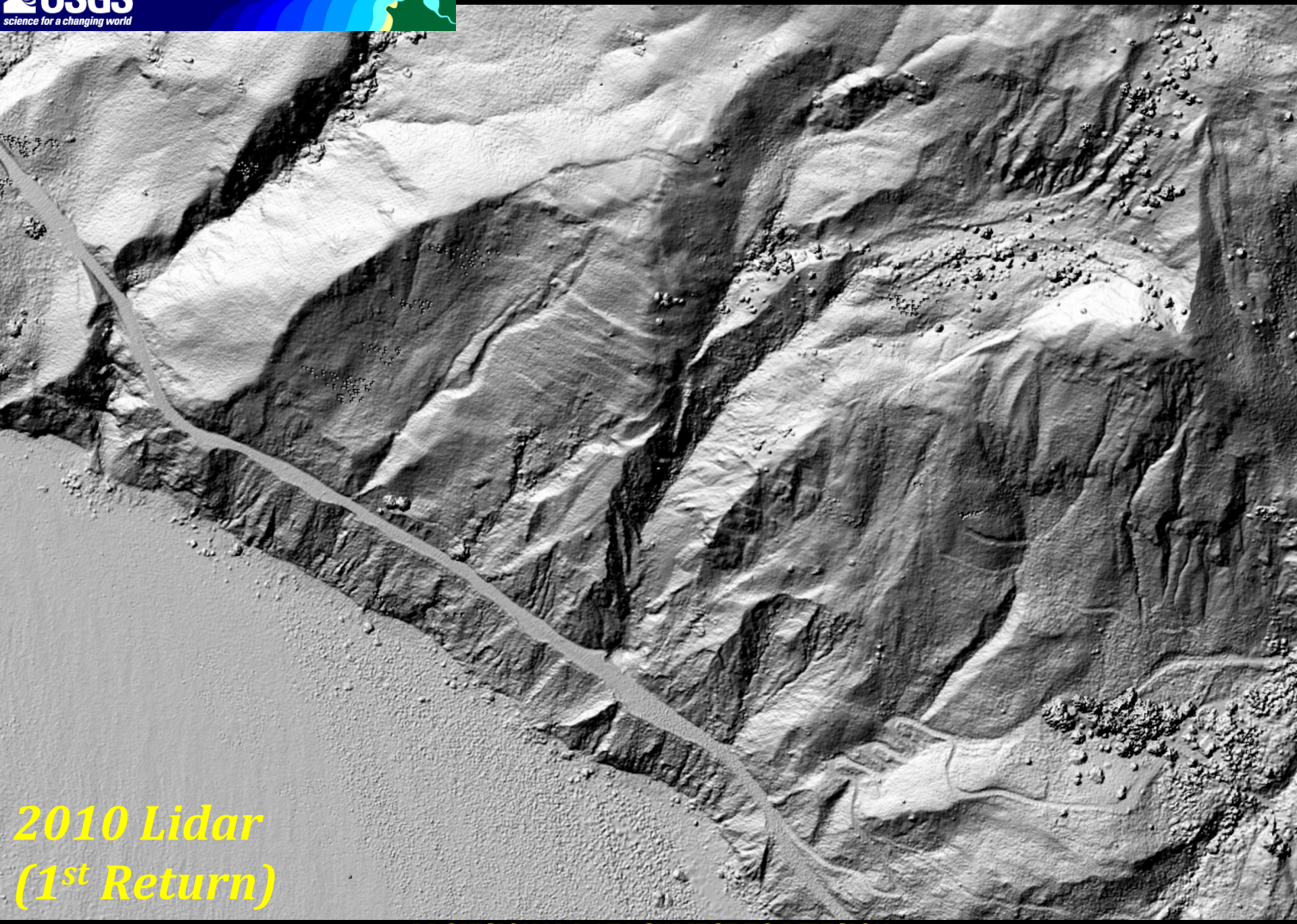

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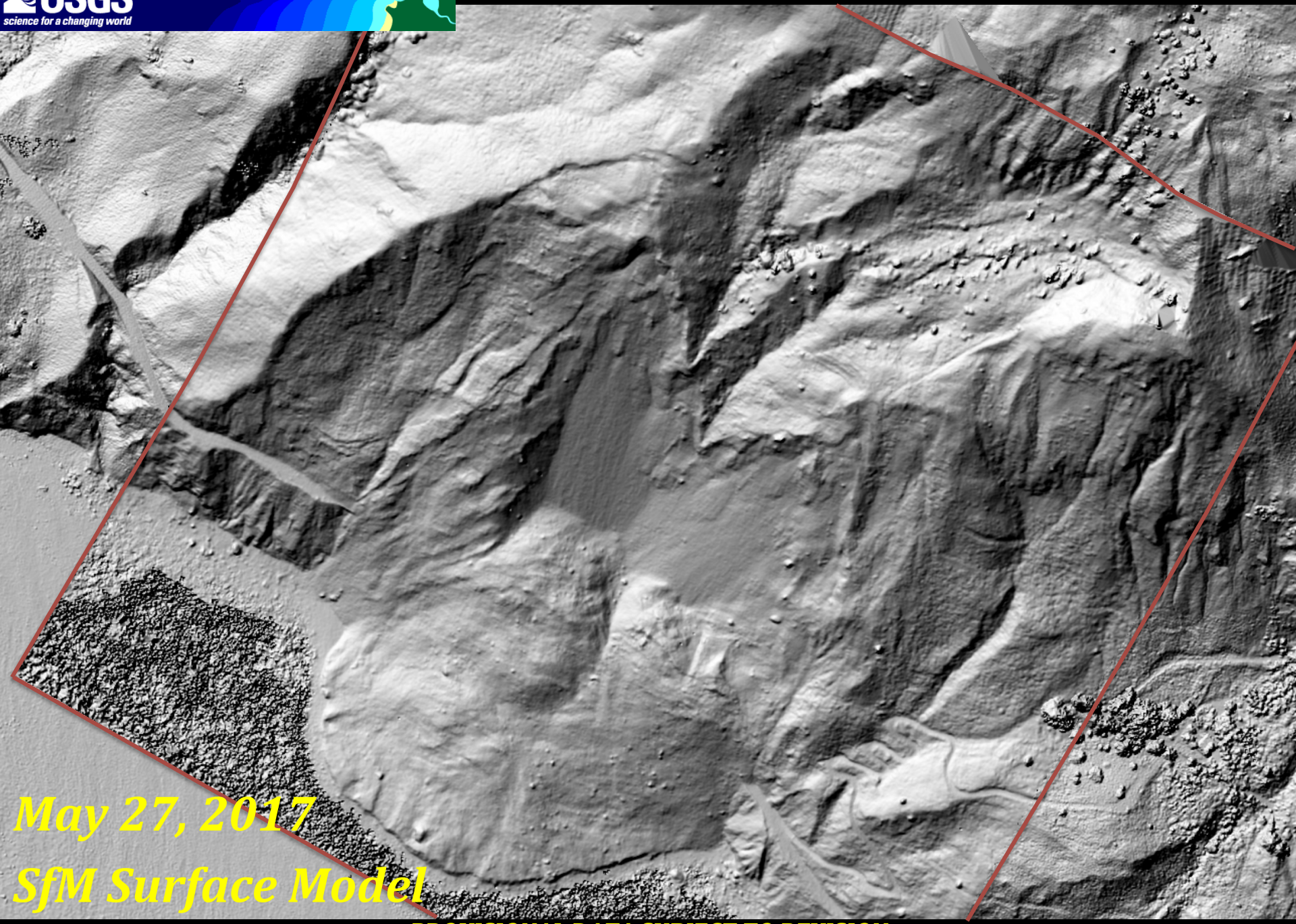

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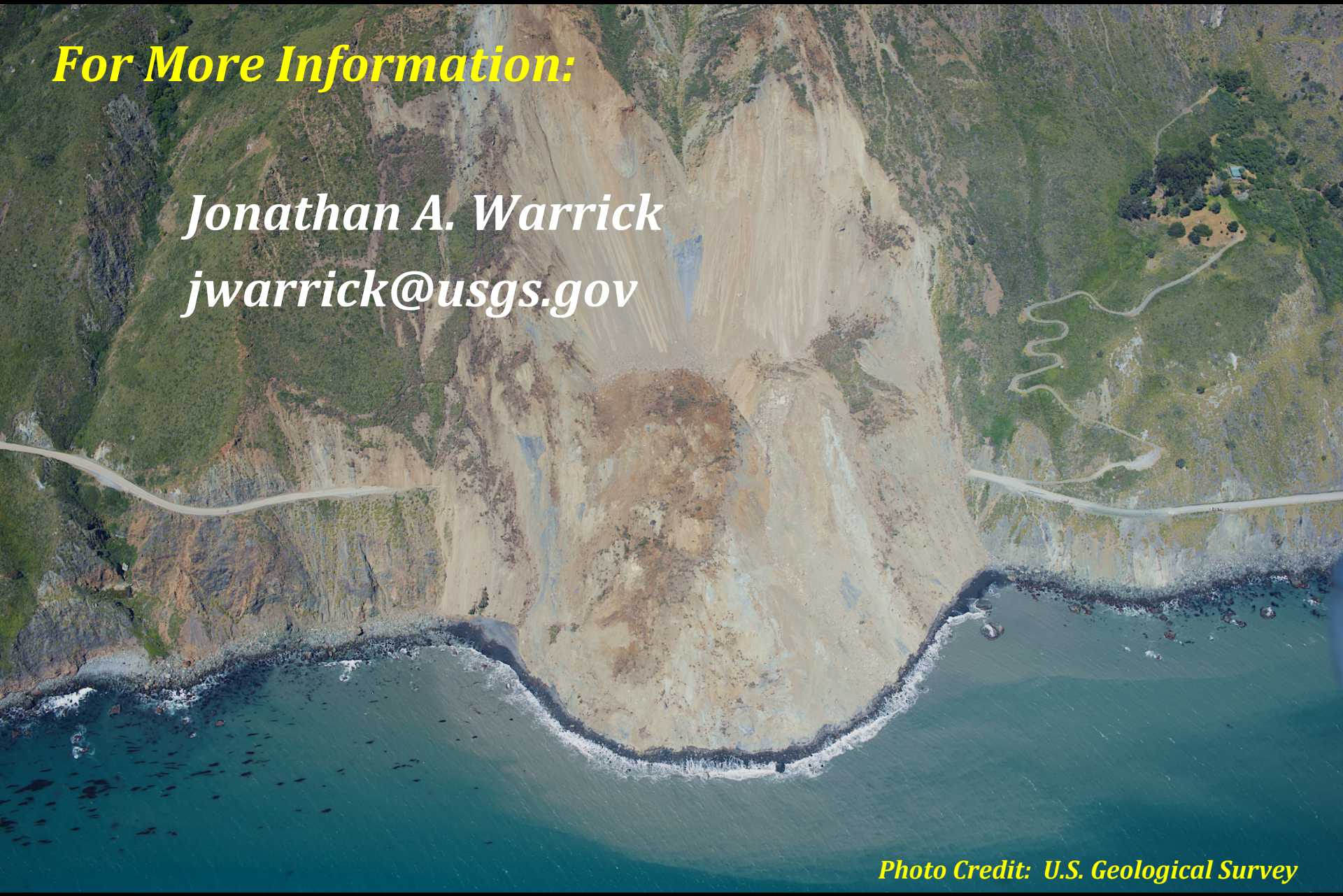

For More Information:

Jonathan A. Warrick

jwarrick@usgs.gov

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