Geohazard Panel Discussion

Moderator: Chris Newton, Phillips 66
Panelists: Jeff Haferd, Marathon
Rhett Dotson, D2I
Casey Dowling, BGC

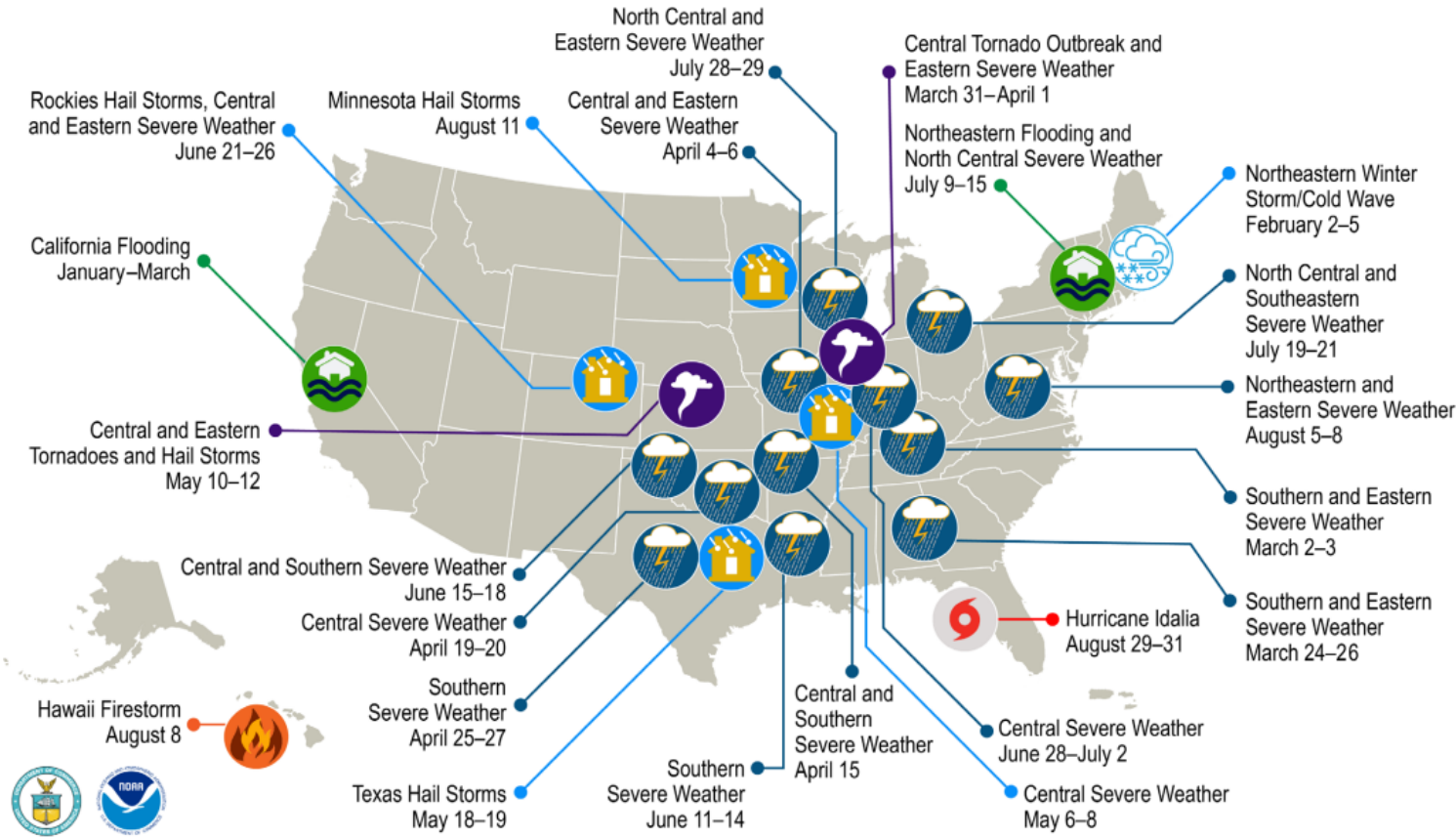*San Diego, California*
February 27, 2024

REX2024
PRCI Research Exchange

PRCI LEADING PIPELINE RESEARCH

Pipeline Research Council International

Impact on Changing Weather Patterns

U.S. 2023 Billion-Dollar Weather and Climate Disasters

High Precipitation Events
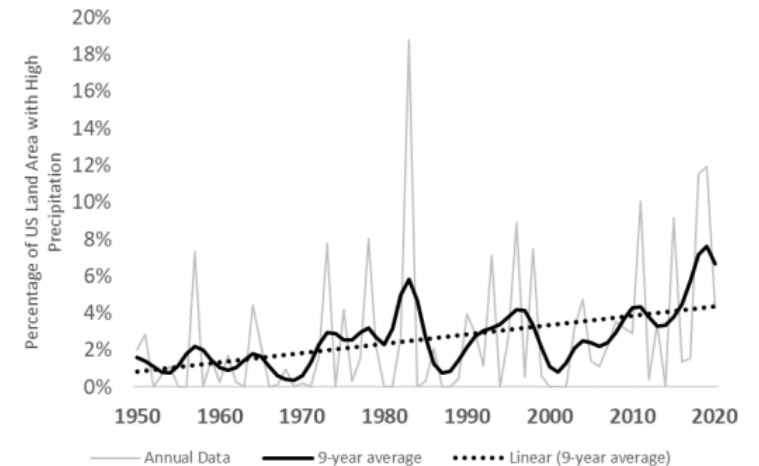
Example of Landslide # 1
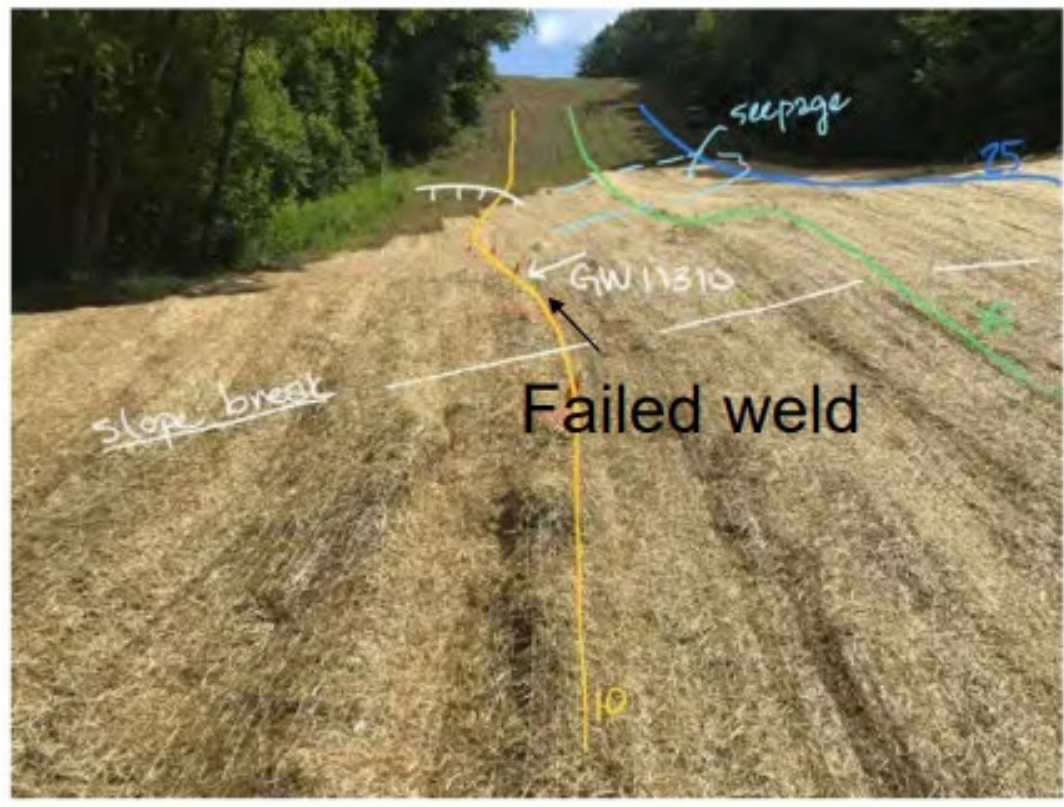
Example of Landslide # 2

NTSB Investigation # PLD22FR002

Example of Landslide # 2

NTSB Investigation # PLD22FR002

Example of Flooding
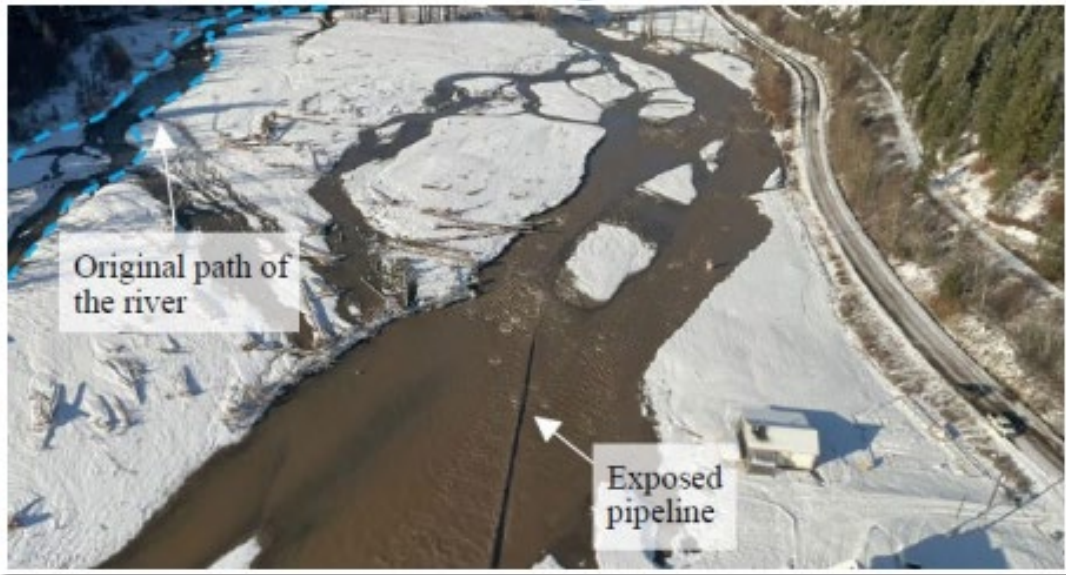
References
https://www.frontiersin.org/articles/10.3389/feart.2021.774200/full
The November 2021 British Columbia, Canada Storm: Observations and lessons learned from assessing pipeline infrastructure subject to natural disasters. Alex Baumgard et al. Proceedings of the ASME 2022 14th International Pipeline Conference, 2022

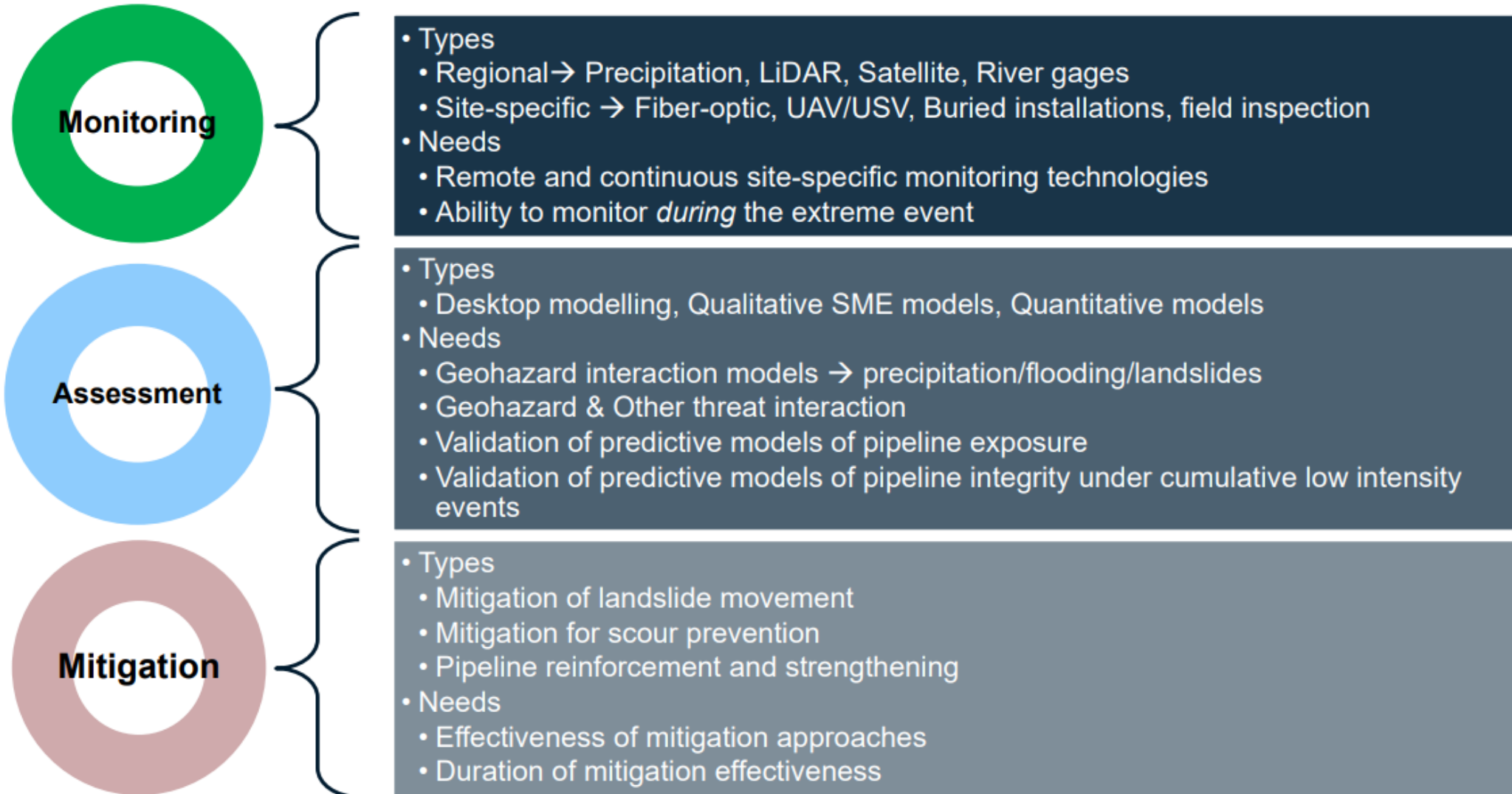# Key Components of Geohazard Management

Monitoring

- Types
  - Regional→ Precipitation, LiDAR, Satellite, River gages
  - Site-specific → Fiber-optic, UAV/USV, Buried installations, field inspection
- Needs
  - Remote and continuous site-specific monitoring technologies
  - Ability to monitor *during* the extreme event

Assessment

- Types
  - Desktop modelling, Qualitative SME models, Quantitative models
- Needs
  - Geohazard interaction models → precipitation/flooding/landslides
  - Geohazard & Other threat interaction
  - Validation of predictive models of pipeline exposure
  - Validation of predictive models of pipeline integrity under cumulative low intensity events

Mitigation

- Types
  - Mitigation of landslide movement
  - Mitigation for scour prevention
  - Pipeline reinforcement and strengthening
- Needs
  - Effectiveness of mitigation approaches
  - Duration of mitigation effectiveness

REX2024
PRCI Research Exchange

8

Panel Discussion

LANDSLIDE

F⊕CUS

thank you

REX2024
PRCI Research Exchange

Chris Newton, Phillips 66
christopher.g.newton@p66.com

Jeff Haferd, Marathon
jhaferd@marathonpetroleum.com

Rhett Dotson, D2I
RDotson@d2integrity.com

Casey Dowling, BGC Engineering
CDowling@bgcengineering.ca