



Advanced Breach Modeling Workshop

Monday – Wednesday, February 27 – March 1, 2023

8:30am – 12:30pm EDT

Two-Phase Flow Tailings Dam and Dam Breach Modeling

Instructors: Jimmy O'Brien, Ph.D. P.E., Noemi Gonzalez, Ph.D. P.E.

AGENDA

Day 1

8:30 – 9:30	Check-in, Introductions, and agenda review. Module 1: FLO-2D Model Overview Short course overview and FLO-2D brief overview. Hands on: Open QGIS and setup the program for the class.
9:30 – 10:30 am	Module 2: Prescribed Breach, Dam Breach Erosion Overview of the prescribed dam breach and the breach erosion components.
10:30 – 10:45 am	Break
10:45 – 11:45 am	Module 3: Prescribed Breach Modeling Prescribed horizontal and vertical breach rate methods background. Hands on: Work on a prescribed breach project with QGIS.
11:45 – 12:30 pm	Module 4: Dam Breach Erosion Modeling Tailings dam failure through piping and overtopping erosion overview. Breach parameters and modeling requirements. Hands on: Prepare a breach erosion project with QGIS.

Day 2

8:30 – 9:30	Module 5: Tailings Dam Tool Tailings Dam Tool application to estimate breach volume and generate a breach hydrograph. Compare with prescribed breach and breach erosion volume predictions. Hands on: Create a breach hydrograph volume using the Tailings Dam Tool.
9:30 – 10:30 am	Module 6: Tailings Dam Breach, Mudflow and 2 Phase Flow Simulation Discussion and background of the 2-phase flow tailings dam breach component. Conventional sediment transport and mudflow modeling.
10:30 – 10:45 am	Break
10:45 – 12:30 pm	Module 6 cont. Hands on: Use QGIS to create to input sediment transport and mudflow data.

Day 3

8:30 – 10:30	Module 7: 2-Phase Flow: Project Results and Review Hands on: 2-Phase Flow project set up and simulation.
10:30 – 10:45 am	Break
10:45 – 12:30 am	Module 8: Mapping Mapping tailings dam breach model runout and hazard maps. Hands on: Import maps into QGIS. Modify maps to calculate hazard zones. Animate flood mapping, set up a mapping template.