

# John P. Ortiz

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## EDUCATION

### NEW MEXICO TECH

#### M.Sc. HYDROLOGY

May 2017 | Socorro, NM | 3.89 GPA

Thesis: The role of fault-zone architectural elements and basal altered zones on downward pore pressure propagation and induced seismicity in the crystalline basement

### DARTMOUTH COLLEGE

#### B.A. EARTH SCIENCES (HONORS)

June 2014 | Hanover, NH

Honor's Thesis: Quantifying regional sediment flux from observations of nearshore morphology in the Columbia River Littoral Cell

## COURSEWORK

Advanced Hydrological Modeling  
Quantitative Hydrologic Methods  
Contaminant Hydrogeology  
Statistical Modeling & Machine Learning  
Continuum Fluid Dynamics  
Petroleum Reservoir Engineering  
Depositional Systems & Basin Analysis  
Subsurface and Petroleum Geology  
Hydrogeochemistry

### SHORT COURSES

MATLAB Reservoir Simulation Toolbox  
PFLOTRAN Short Course  
Reservoir Geomechanics  
Pioneer Natural Resources Field Course

## SKILLS

### PROGRAMMING

Python • MATLAB • R • Bash/shell •  $\text{\LaTeX}$

### SOFTWARE

FEHM • PFLOTRAN • MODFLOW • Git  
Petromod • ArcGIS • Adobe Illustrator  
Unix • Linux • MacOS X • Windows  
COMSOL Multiphysics

## SOCIETIES

AGU  
GSA  
AAPG  
NGWA  
InterPore

## EXPERIENCE

### LOS ALAMOS NATIONAL LAB | POST-MASTER'S RESEARCHER

June 2017 - present | Los Alamos, NM

- Simulating radionuclide gas transport in fractured geologic media using multiple finite-element method (FEM) and control volume finite-element (CVFEM) numerical models.
- Determining field-scale transport properties of rocks using models and tracer experiments.
- Developing the Amanzi high performance computing (HPC) flow & transport simulator to meet the Nuclear Quality Assurance-1 (NQA-1) regulatory standard by improving code verification and benchmark tests.
- Developing a reduced-order model (ROM) for rapid prediction of gas seepage times.

### NEW MEXICO TECH | GRADUATE RA/TA

August 2015 - May 2017 | Socorro, NM

- Created transient 3D finite-difference (FDM) models in MODFLOW to analyze fluid-fault interactions as pertaining to a suite of basal reservoir injection scenarios.
- Developed transient 2D cross-sectional FDM models in MATLAB to test fluid-fault interactions for crystalline basement fault zones exhibiting local, dynamically enhanced permeability caused by excess fluid pressures.
- Deployed subsurface field survey equipment (transverse electromagnetics [TEM], magnetotellurics [MT]) to interpret deep saline geothermal flow regimes in order to evaluate potential hydrothermal systems in southern New Mexico.

### OREGON STATE UNIVERSITY | RESEARCH INTERN

June 2013 - September 2013 | Corvallis, OR

- Collected nearshore topographic and bathymetric data.
- Interpolated, and visualized nearshore bathymetry in order to extract key spatial and temporal metrics using MATLAB.

### US ARMY CORPS OF ENGINEERS | RESEARCH INTERN

January 2013 - March 2013 | Duck, NC

- Collected and processed LiDAR observations during and after storm surges to monitor coastal evolution and erosion.
- Created a paleo-hurricane record of St. Croix using grain-size analysis and on sediment cores combined with charcoal carbon dating.

## AWARDS

Top 20 Most Downloaded Recent Papers, Wiley Publishing  
LANL "Spot" Performance Award