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 • LaTeX

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

SOCIETIES

AGU
GSA
AAPG
NGWA
NMGS
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

LANL "Spot" Performance Award