

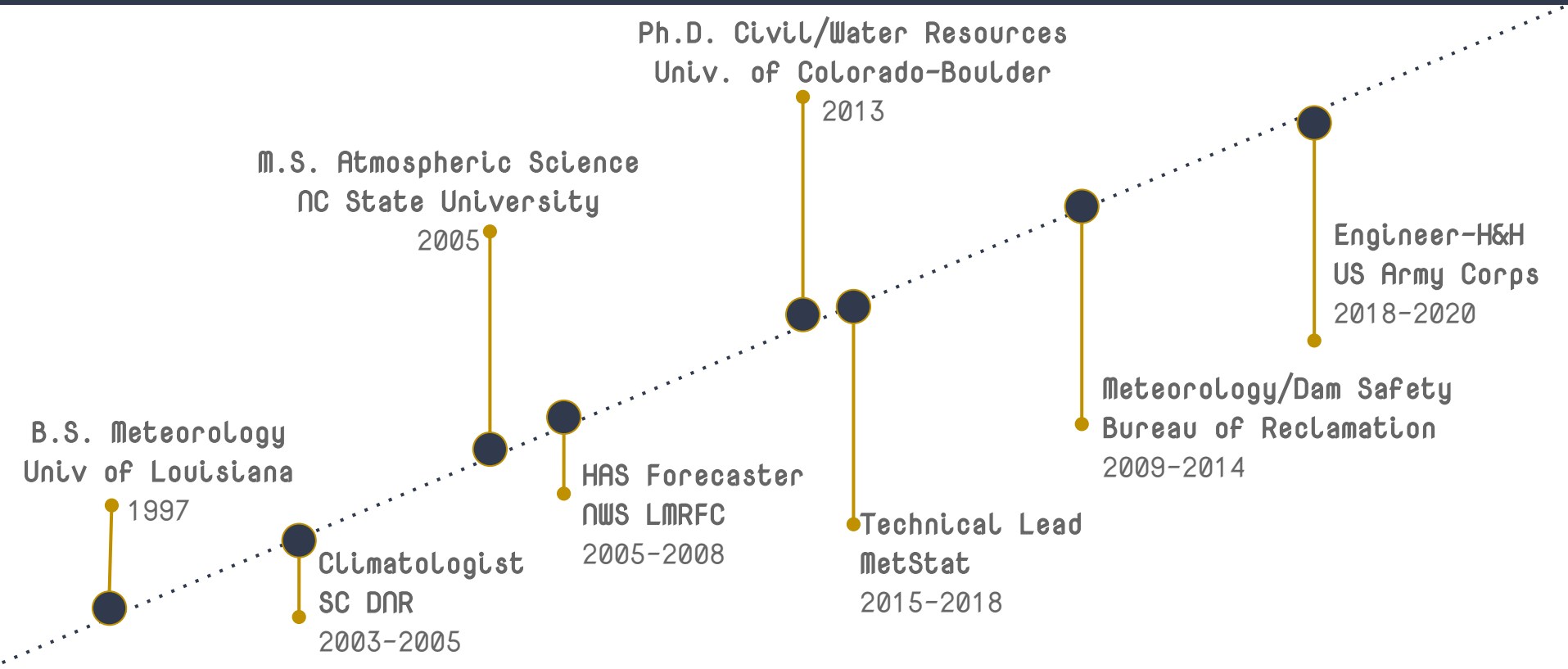
Jason Caldwell, Ph.D., P.E., P.H., C.C.M

20+ Years Progressive Science/Engineering

Finding Technical Solutions to the Complex
Water Problems of Today through Data
Analysis, Modeling, and Applications of
Risk to Real-World Situations

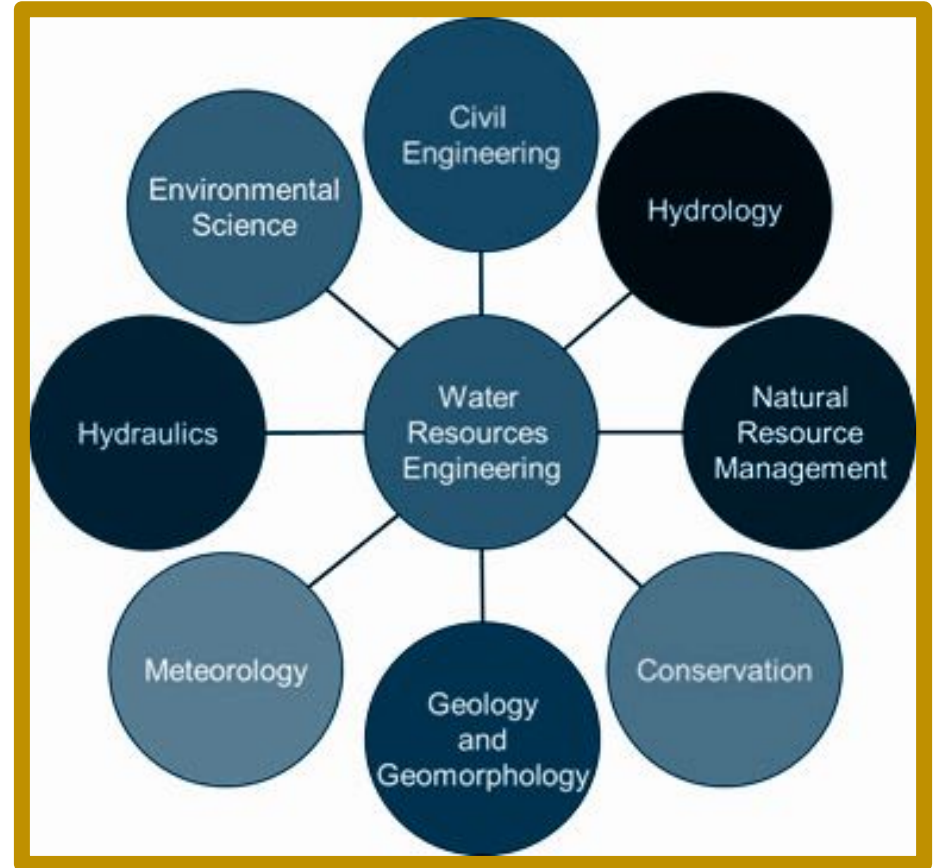


Progressive Science & Engineering



Hi, I'm Jason Caldwell

I'm passionate about developing high-caliber, integrated water resources solutions that implement efficient (automated), objective (reproducible), and innovative (state-of-the-science) engineering practices, methods, and techniques through team leadership, project management, and skillful attention to detail. I have 20 years strategizing technical advances in hydrology, meteorology, and climate in the public (federal, state, local government); private; and, academic sectors. I offer a wealth of experience to your company and your clients and thrive on generating opportunities for my team and myself.



Integrated Water Resources Framework



Skills & Expertise

Project Scoping

Proposal Writing

Financial Planning

Timely Execution

Client Satisfaction

Graphic User Interfaces (leaflet)

Statistical Analyses ®

GIS (ESRI/GDAL/Python)

Windows/Linux OS

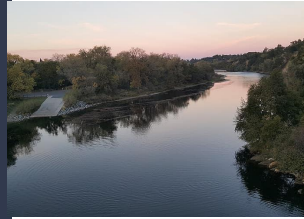
Shell Scripts & SQL

Selected Projects

Skills Required:

- **H&H Modeling**
 - Regression/AI/ML
 - CE-QUAL-W2
 - HEC-1/HMS
- **Statistical Prowess**
 - Resampling Techniques
 - QA/QC Filters
 - Frequency Analysis

Methow River Habitat Restoration
Climate Change & Water Temperature
Regional Climate Model Downscaling
Machine Learning/Regression Decadal Models



Shasta Dam Operation Decision Support
Multi-Objective Optimization
Seasonal-to-Annual Water Management
Statistical-Dynamical Model Coupling

El Vado Dam Hydrologic Hazards
Dam Safety Study

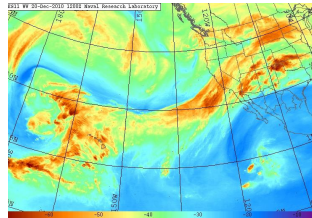
Depth-Duration-Frequency Support
Storms, Snow, Climatologies



Altus Dam Issue Evaluation Study
Risk Analysis for Dam Safety
Steep Hydrologic Gradient → Multiple Curves
Joint Probability Analyses

Atmospheric Rivers & Climate Change
Science & Technology Grant

Western U.S. Moisture Intrusion = Rainfall
Land Use Impacts on Water Availability

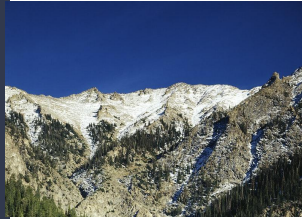
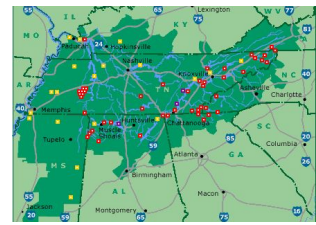


Selected Projects

Skills Required:

- **Data Collection**
 - Meteorological/Hydrologic
 - BIG DATA
- **Cross-Disciplinary Knowledge**
 - Bad Input → Poor Output
 - Strength in Mentorship
 - Federal/State/Local + Private Partnerships

Tennessee Valley Authority
Hydrologic Hazards Study
Precipitation-Frequency/PMP
Stochastic Hydrology & Storm Transposition



CO-NM Regional Extreme
Precipitation Study
Precipitation-Frequency/PMP
Risk Analysis for Dam Safety Applications

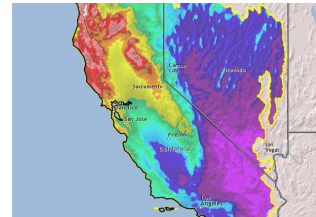
BC Hydro Hydrologic Hazards
Storm Analyses
Stochastic Hydrologic Modeling
Storm Typing Methodology



Southern California Edison
Seasonal Forecasting Tools
Weather Generation + Snowmelt Modeling
Short (1-3 day) to Seasonal (30-90 day)



California-Nevada River Forecast
Model Calibration Tools
Automated Watershed Delineation
Historical Inputs for Calibration/Validation



Selected Projects

Skills Required:

- **Modeling/Forecasting**
 - Input Requirements
 - Research-to-Application
- **Cloud Computing/HPC**
 - Parallelization Methods
 - Stochastic Technologies
- **Uncertainty & Risk**
 - Climate Change
 - Compound Errors
- **Emergency Management**
 - Disaster Mitigation, Preparation, Response, & Recovery

Climate Hydrology Atmospheric Modeling Prediction System (CHAMPS)

Short, Medium, Long-Range Forecasts
Agriculture, Drought/Flood, Tropical

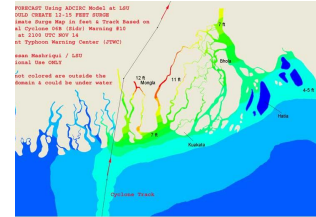


Precipitation Estimation/Forecast for Hydrologic Modeling

SACSMa Model Calibration Team
Tropical Weather Focal Point

Structured & Unstructured DEMs Storm Surge/Tsunami Inundation

Key Developer - Auto-TIN Algorithms
NRL & ADCIRC Collaboration



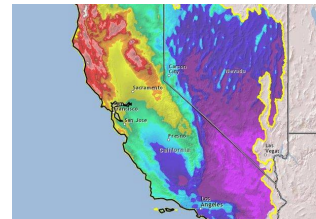
Addicks-Barker Water Management CWMS Modeling (HMS+RAS+RESSIM)

Real-Time Event-Driven Hydrologic Forecasts
Emergency Management Coordination

Modeling Across Scales

SWMM + SACSMa + Sensitivity

Investigation of Model Uncertainty
Auto-Calibration/Validation Techniques



Awards & Milestones

South Carolina Department of Natural Resources Public Service Award
(Hurricane Season 2004)

National Weather Service Regional Director Award & Isaac Cline Award in Hydrometeorological Services Improvements & 10+ “On-The-Spot” Cash Awards
(2005-2008)

Peer-Reviewed Publications in Water Resources Research, Hydrologic Engineering, IEEE Xplore
(2010-2014)

Professional Engineer (Wyoming), Professional Hydrologist (AIH), Certified Consulting Meteorologist (AMS), Doctor of Philosophy (UCB) Designations
(2010-2017)

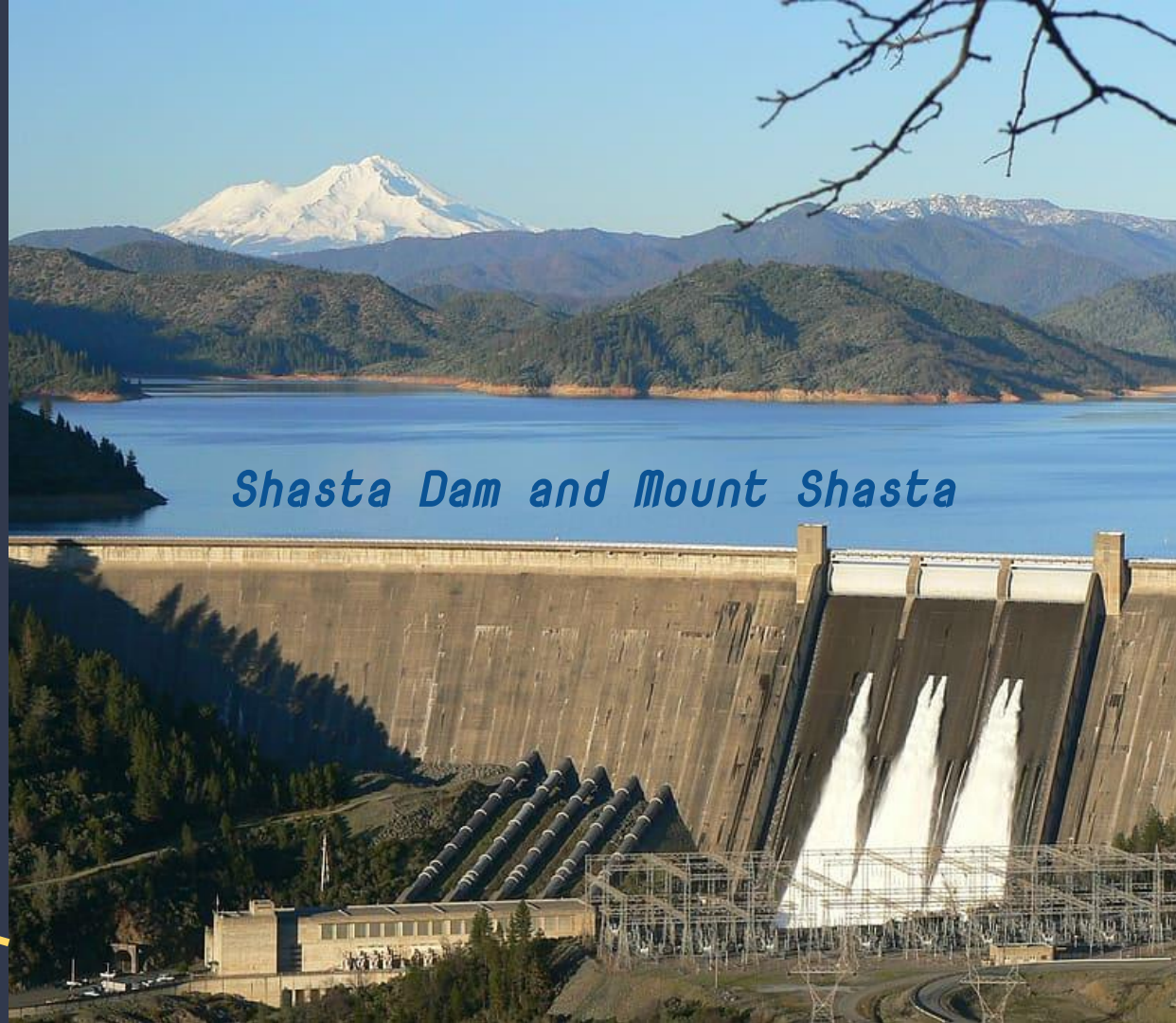
Galveston District Army Corps Coin of Excellence - Texas GLO Proposal for IM³PACT: Inter-Agency Monitoring, Mapping, and Modeling for the Prediction and Assessment of Coastal Threats
(2019-2020)

Contact

Jason Caldwell

jason@weatherandwater.com

(409) 207-0609



Shasta Dam and Mount Shasta