Modeling 201: Demystifying your Modeling Project

Session Description: We will walk through all phases of a modeling project, from QAPP development to model configuration and calibration to communicating model results. Participants will gain fluency in modeling terminology as well as an understanding of the modeling process. The session format will include presentations as well as hands-on application of a completed QUAL2K model and small-group breakouts. The hands-on modeling will use a completed model and associated documentation (QAPP, modeling report) to provide tangible examples of the presentation topics. Pre-workshop materials including webinars and example model documentation will be provided for advanced preparation.

Intended Audience: Modeling 201 (Demystifying your Modeling Project) is geared towards state and federal water program staff with knowledge of Clean Water Act program terminology and common water quality processes. The session is appropriate for both technical staff early in their modeling careers and project managers that may have responsibilities reviewing and managing a modeling project. Some exposure to modeling projects will be helpful to place the course content in context, but participants are not expected to have independently conducted a modeling project.

Day	Торіс		
Tuesday	٠	Introductions/overview of the week	
	٠	Project Planning Overview	
		 Project planning 	overview
		 Problem formula 	ation
		 Model selection 	
		 Contracting 	
	QAPPs		
		 QAPP developm 	ent
		 Data/inputs 	
	*	Interactive: Answering Key Questions in an Example QAPP	
	٠	Model Configuration and Data Compilation	
		 Model types 	
		 Model compone 	nts
		\circ Data gathering (common sources, spatial and temporal resolution)
		 Addressing data 	gaps
	*	Interactive: QUAL2K Case Study Introduction	
Wednesday	•	Model Configuration and Data Compilation (continued)	
		 Channel represe 	ntation
		 Grid resolution a 	and extent
		 Boundary condi- 	ions
		• Parameters	
	*	Interactive: QUAL2K Background and Model Inputs	
	•	1odel Calibration and E	valuation (1)
		 Selecting param 	eters to calibrate
		 Process and eva 	luation
		 Sensitivity testir 	g
	•	Interactive: Work through QUAL2K calibration	

Draft Agenda

Day	Торіс		
	•	Model Calibration and Evaluation (2)	
		 Post-processing and visualization 	
		 Quantitative vs. qualitative examples 	
		 Error statistics 	
	•	Interactive: Work on post-processing, visualization, and error statistics	
Thursday	•	Model Acceptance	
		 Acceptance process 	
		 Marking acceptance 	
	•	Model Report	
		 Review components 	
		 Administrative record 	
	*	Interactive: Where is it documented?	
	•	Scenarios and decision making	
	*	Interactive: Conduct QUAL2K scenarios	
Friday	•	Public Process	
morning		 Communication 	
		 Model defensibility 	
	•	Wrap-up and resources	