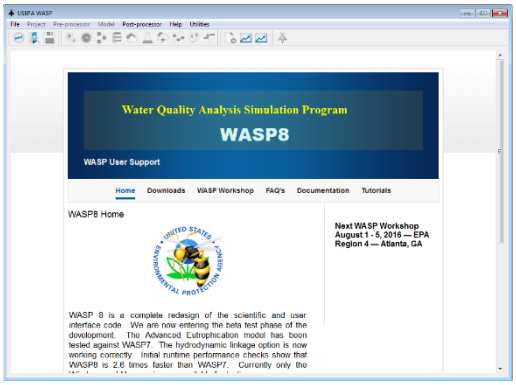
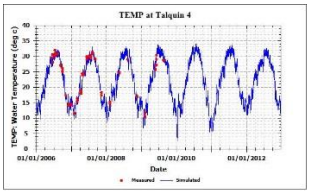
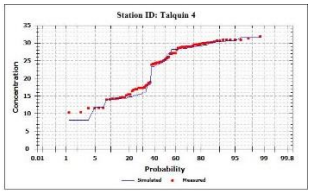
Water Quality Analysis Simulation Program (WASP 8.2)

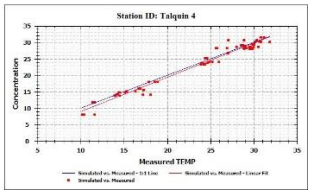
Water Quality Modeling Workshop ● June 11 - 15, 2018

US EPA Region 4 and the National Water Quality Modeling Work Group is proud to sponsor a 5-day workshop on water quality principles/modeling using the Water Quality Analysis Simulation Program (WASP). WASP is one of the most widely used water quality models in the US and throughout the world. With an estimated 10,000+ installed user base, the model is continually being enhanced to meet the needs of the user community. WASP can be applied to streams, rivers, lakes/reservoirs, and estuaries in 1, 2 or 3 dimensions. WASP is used routinely throughout the United States in the development of TMDLs and waste load allocations. The model is capable of simulating: **nutrients** (nitrogen, phosphorus, silica), **dissolved oxygen** (including sediment diagenesis), **biochemical oxygen demand** (3 types), **phytoplankton** (5 species), **benthic** & **macro** algae (3 species), **inorganic**/**organic solids** (5 types including mechanistic sediment transport), **pathogens**, **water temperature**, **pH** and **alkalinity**. The chemical model is capable of simulating 10 **organic chemicals**, 10 **nano chemicals**, 10 **dissolved carbon components**, **inorganic**/**organic solids** (5 types including mechanistic sediment transport), 5 **microbial groups**, and **water temperature**.









WASP8 is available for **Microsoft Windows**, **Apple OSX**, and **Linux** based machines. The modeling package consists of: a user-friendly graphical user interface that assists the users in developing a modeling input file, access time series data from database management systems, and a graphical post processor to aid in model calibration and report generation.

Special Topics:

- ✓ Real World Hands-On Exercises
- ✓ Linkage of Watershed Models to WASP
- ✓ Linkage of Hydrodynamic Models to WASP
- ✓ Developing Model Network's using EPA's BASINS GIS Tool
- ✓ Sediment Diagenesis Module
- ✓ Organizing Time Series Data for Model Input
- ✓ Calibration Procedures for Water Quality Modeling
- ✓ Developing a Nutrient TMDL

Who Should Attend

This course is designed to train the beginner to the most advanced user. The participants will be given PowerPoint presentations and other materials to make it easy to follow along in the course.

The workshop provides an excellent overview of major water quality processes including how they are implemented in the model. The training sessions are broken into theory lecture sessions and hands-on sessions. The majority of the workshop is hands-on using real world examples. The instructors encourage interaction and discussion to meet everyone's concerns.

Dates, Locations, and Logistics

We are planning for approximately 40 people in the class. Participants attending a WASP training course will be required to have a laptop computer or share a computer with someone. *Note: If possible make sure that you have Administrative Rights for your notebook to install the WASP Model*. The laptop computer will be used for running the model and viewing the course materials. All materials will be in electronic format and will be handed out at the beginning of the workshop.

Instructors

Tim Wool – is with US EPA Region 4/TMDL Program. Tim has over 30 years' experience in the development and application of WASP. Tim routinely uses WASP for the development of TMDLs.

Robert Ambrose – is retired from EPA ORD-NERL/ERD-Athens. Bob has over 35 years' experience in the development and application of WASP.

James Martin – Professor of Civil and Environmental Engineering, Mississippi State University. James has over 30 years' experience with WASP and has developed several of the kinetic modules.

How to Register

If you are interested in attending this workshop, please visit WASP Website click the Workshop Information link and complete the registration form. There is **no charge for the workshop**; attendees are responsible for their own travel and lodging.

Information for Atlanta WASP Course

EPA Region 4 is conveniently located along Atlanta's mass transit system (MARTA) which is accessible from Hartsfield-Jackson Airport. A list of local hotels will be e-mailed to you once you register. The WASP Course will be held in EPA's 3rd Floor Conference Center in the Atlanta/Augusta Room. Atlanta Federal Center (EPA Region 4) is a secured building; please make sure that you have proper identification for entrance into the building. If you are traveling from outside the United States, it is suggested you bring your passport. For additional information on visiting EPA Region 4, surrounding hotels, restaurants, and other information go to the following webpage:

http://www2.epa.gov/aboutepa/visiting-epas-region-4-office-atlanta

Lecture Topics

- Introduction to Water Quality Modeling
- Introduction to WASP
- Transport
    - Kinematic Wave 1-D Streams
    - Hydrodynamic Linkage (DYNHYD, EFDC etc)

- Sediment Resuspension and Settling
- Eutrophication
  - Dissolved Oxygen
  - Nutrient Cycling
  - Algae Dynamics
  - Periphyton Dynamics
  - pH/Alkalinity
- Toxicants
  - Sorption
  - Volatilization
  - Hydrolysis/Ionization
  - Biodegradation
- Linkages with Other Programs
  - BASINS
  - Watershed Models
    - LSPC
- Calibration Process