

# Ted Simon, Ph.D., DABT

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**OVERVIEW** Scientist with over twenty five years experience in toxicology, risk assessment, mathematical modeling, statistics, neuroscience, and environmental/ecological health issues

## EDUCATION

1989 Ph.D. Neurobiology & Behavior, Georgia State University, Atlanta, GA

1971 B.A. Biology, Middlebury College, Middlebury, VT

## PROFESSIONAL CERTIFICATIONS

1994 - Diplomate of the American Board of Toxicology

## EMPLOYMENT HISTORY

2004 - present Principal, Ted Simon, LLC, Winston, GA

2006 – present Adjunct Professor, Environmental Health Science, College of Public Health, University of Georgia, Athens, GA

1996 - 2006 Toxicologist, US Environmental Protection Agency, Region 4, Atlanta, GA

2003 Instructor, Department of Biology, Georgia State University, Atlanta, GA

2001 - present Instructor, Department of Environmental Health Science, University of Georgia, Athens, GA

1996 Environmental Health Scientist, Agency for Toxic Substances and Disease Registry/Centers for Disease Control, Atlanta, GA

1994 - 1996 Toxicologist, US Environmental Protection Agency, Region 4, Atlanta, GA

1993 - 1994 Project Scientist, ManTech Environmental Inc., USEPA Region 4, Atlanta, GA

1993 Assistant Professor of Biology, Life College, Marietta, GA

1991 - 1993 Georgia State University, Postdoctoral Research Associate, Atlanta, GA

1989 - 1991 Emory University, Postdoctoral Research Fellow, Atlanta, GA

1982 - 1988 Georgia State University, Research/Teaching Assistant, Atlanta, GA

## BIO SKETCH

Dr. Simon is the principal and owner of Ted Simon, LLC, providing scientific support to a select group of clients. Dr. Simon has provided scientific consulting services to a range of clients, including large and small private sector companies, attorneys, industry trade groups, environmental assessment and remediation firms, state, federal and international regulatory agencies, university faculty and others. He provides scientific support in the areas of toxicology, environmental risk assessment, risk communication, statistics, drug and alcohol abuse, and other issues. He has taught graduate level university courses and private/public sector short courses in risk assessment, statistics and simulation modeling. He maintains scientific interests in the toxicology of dioxin, polychlorinated biphenyls (PCBs), mercury, arsenic and polycyclic aromatic hydrocarbons (PAHs), probabilistic methods in exposure and toxicity assessment, physiologically-based pharmacokinetic (PBPK) modeling and ecological risk assessment. He has provided litigation support as expert testimony and consultation for both private sector clients and EPA.

As a consulting scientist, Dr. Simon has worked on environmental and toxicological issues related to dioxin, PAHs, PCBs, arsenic, mercury, and other chemicals. He has provided advice to attorneys regarding environmental risk, accidental poisoning, intellectual property issues related to chemical products, health effects of indoor mold exposure, and alcohol and substance abuse issues. He has performed pro bono work for the Georgia Department of Natural Resources regarding fish advisories related to mercury and PCBs.

Previously, Dr. Simon was employed for twelve years at the Environmental Protection Agency, Region 4, in Atlanta. While at EPA, Dr. Simon served as the senior toxicologist in the Waste Management Division. In this role, he provided scientific support and assistance with public dialogue and communication at many public and private sector hazardous waste sites in Region 4. On a national level, he served as a resource for toxicological, chemical, health and ecological data regarding exposure to hazardous substances. He provided guidance to EPA, DOD state and private sector managers and personnel about risk communication. He developed national and regional guidance in the areas of probabilistic risk assessment, soil cleanup, statistics and toxicology.

## CONTINUING EDUCATION

- 2009 Visual Presentation of Quantitative Information, Dr. Edward R. Tufte, Atlanta, GA
- 2007 Toxicology and Molecular Biology of Tissue Repair, Short Course, Society of Toxicology Annual Meeting, taught by Dr. Harihara Mehendale and Dr. Chris Corton
- 2000 Environmental Statistics, Region 4 EPA, taught by Dr. Richard O. Gilbert
- 1996 Physiologically Based Pharmacokinetic Modeling, NIEHS, Research Triangle Park, NC, taught by Dr. Chris Portier and Dr. Michael Kohn
- 1995 Risk Communication and Public Dialogue Workshop, Brooks AFB, San Antonio, TX, taught by Dr. Vincent T. Covello
- 1994 Risk Communication Workshop, EPA Region 4, Atlanta, GA, taught by Mr. Andrew Swarcz
- 1994 Mid-America Toxicology Course, Kansas City, MO, taught by Dr. Curtis Klaassen

**PROFESSIONAL AFFILIATIONS**

1995 - Society of Toxicology  
1997 - 2000 Society for Risk Analysis  
1984 - 1993 Society for Neuroscience

**SIGNIFICANT ACTIVITIES**

- 2009 Responses to EPA Charge Questions for Review of the 2009 Toxicological Review of 1,4-Dioxane**  
Working as a sub-contractor to Arcadis, developed responses to EPA's "Charge to External Reviewers for the Toxicological Review of 1,4-Dioxane." The responses were for questions relating to uncertainty analysis, physiologically-based pharmacokinetic (PBPK) modeling and Benchmark Dose modeling.
- 2009 Development of Physiologically-based Pharmacokinetic Models for Methylmercury, Arsenic and Cadmium for use as teaching tools at the Agency for Toxic Substances and Disease Registry (ATSDR)**  
Working as a sub-contractor to Summit Toxicology, developed PBPK models in Berkeley Madonna software for use as teaching aids for personnel at ATSDR.
- 2009 Development of Georgia Risk Reduction Standards (RRS) for Drexel Chemical Company in Cordele, GA**  
In conjunction with Environmental Planning Specialists, Inc., calculated Georgia RRS values for this site. Negotiated in person and by teleconference with Georgia Environmental Protection Division personnel regarding the appropriate use of toxicity criteria.
- 2009 Application of Risk Assessment Methodology in the National Research Council's 2008 Report "Science and Decisions: Advancing Risk Assessment" to Dioxin**  
Developed a draft manuscript that applied the advanced statistical techniques recommended in NRC (2008) to dose-response modeling of dioxin to obtain a toxicity criterion that included consideration of both variability and uncertainty.
- 2009 Consultation and Statistical Modeling regarding Dose Response of Perfluorooctanoic Acid (PFOA)**  
PFOA is a chemical used in the production of Teflon. Provided consultation regarding dose response modeling for PFOA as a sub-contractor to a consulting firm in Tallahassee, FL.
- 2009 Development of a Publication on Three Methods of Estimating Childrens' Soil and Dust Ingestion**  
Worked with personnel from the Ontario Ministry of the Environment to develop estimates of childrens' soil and dust ingestion from fecal tracer studies, from behavioral observations of hand-to-mouth activity and from lead biokinetics. The work is currently waiting for approval by the Ministry to be submitted for publication.
- 2009 Consultation regarding USEPA's new Arsenic Cancer Slope Factor**  
Briefed personnel from Georgia Power Company and Troutman Sanders LLP on the ramifications of EPA's proposed change in the oral cancer slope factor for Arsenic.
- 2009 Development of a Scientific Publication presenting Cancer Toxicity Criteria for 2,3,7,8-tetrachlorodibenzodioxin (Dioxin)**  
Following up work presented at EPA's Dioxin Workshop in February and based on comments received on a presentation at the 2009 Society of Toxicology meeting, the work has been accepted for publication in *Toxicological Sciences*.

- 2009 *Assessment of the Relative Susceptibility of Monkeys and Humans to PCBs***  
Estimated the relative susceptibility of monkeys and humans to the dioxin-like effects of PCBs and presented this work in a poster at the 2009 Society of Toxicology meeting.
- 2009 *Development of Georgia Risk Reduction Standards for Chemicals in Soil and Groundwater***  
As a sub-contractor to the Johnson Company, developed media standards for chemicals in soil and groundwater related to a hazardous waste site in north Georgia.
- 2009 *EPA Dioxin Workshop***  
Attended EPA's Federal Advisory Commission Act (FACA) Workshop on the risk assessment of 2,3,7,8-tetrachlorodibenzodioxin (TCDD); provided public commentary on EPA's proposed methods for revising the 2003 dioxin reassessment; presented a poster at the workshop and at the 2009 Society of Toxicology meeting showing cancer risk estimates based on the recent National Toxicology Program's cancer bioassay for TCDD.
- 2009 *Risk Communication and Regulatory Review related to the TVA Coal Ash Spill in Kingston, TN***  
Provided risk communication at public availability session for both the American Coal Ash Association and TVA; reviewed submissions to EPA developed by TVA.
- 2008 *Development of an Issue Paper on the Ethics of Environmental Regulation and Compounding Conservatism in Risk Assessment for the Ontario Ministry of the Environment***  
Discussed both historical philosophical literature and modern scientific publications to provide an understanding of the ethics of environmental regulation and the extent to which environmental regulations and standards are based on the precautionary principle and are thus an expression of the ethics of prevention rather than the ethics of consequence. Provided a recommendation of a proportion of a target population to include in an environmental standard based on this ethical discussion.
- 2008 *Assessment of Conservatism of Soil and Groundwater Standards for the Ontario Ministry of the Environment***  
Used statistical methods and Monte Carlo simulation to develop an assessment of the level of conservatism of proposed environmental media standards. This assessment included consideration of exposure, fate and transport and toxicity. The specific chemicals considered included arsenic, chromium, benzo(a)pyrene, benzene, trichloroethylene, vinyl chloride and polychlorinated biphenyls.
- 2008 *Evaluation of Soil Concentrations of Arsenic with an Emphasis on Local Background***  
Developed a report for submission to the Georgia Environmental Protection Division regarding a release of waste material containing arsenic that occurred by stormwater runoff. The report considered the geology and local background concentration and included a statistical analysis showing that arsenic concentrations remaining after cleanup of the waste material did not exceed the Georgia residential risk reduction standards under Georgia HSRA Rule §391-3-19-.074(e).
- 2008 *Consultation on the pesticide Toxaphene for the US House of Representatives Committee on Energy and Commerce***  
Provided scientific background information on the pesticide toxaphene via conference call to Mr. John G. Arlington, senior counsel for Oversight and Investigations.
- 2008 *Peer Review of Technical Profiles for Cyclohexane, Ethylene and Propylene for the US Environmental Protection Agency***  
Provided peer review comments on Technical Review documents on cyclohexane, ethylene and propylene for Eastern Research Group for EPA's Office of Environmental Information. These documents are part of the hazard assessment for section 313 of the Emergency Planning and Community Right-to-Know (EPCRA) Act of 1986.

- 2008 *Statistical Evaluation of Solvent Data in Groundwater and Critique of ATSDR Health Assessment of a Superfund Site***  
Developed a report that included suggestions and comments on the ATSDR Report. Performed a statistical analysis to refine the conclusions reached and critiqued the methodology for the Health Assessment.
- 2008 *Lecture on the Toxicology of PCBs***  
Developed and presented a training segment as part of the Toxic Substance Control Act (TSCA) training for Georgia Power Company.
- 2008 *Quality Assurance for Fish Consumption Risk Assessment on the Passaic River***  
Reviewed a risk assessment developed by J. Andrew Tachovsky of Tox Strategies, Inc. and provided comments on both the accuracy and conceptualization of the risk assessment.
- 2008 *Risk Communication and Expert Consultation regarding Aerosol Emissions***  
Retained as an expert in toxicology to provide scientific consultation and risk communication regarding emissions of several inorganic chemicals from power plants.
- 2008 *Expert Consultation regarding Possible Mercury Exposure***  
Provided expert consultation and an expert report to attorneys interested in the neurological and psychological effects of inorganic mercury and will provide two depositions and possibly testimony later in 2008.
- 2008 *Development of Georgia Risk Reduction Standards for Trivalent and Hexavalent Chromium and several Volatile Organic Chemicals***  
Developed numerical standards under Georgia's Hazardous Site Response Rule 391-3-19 as a subcontractor to Environmental Planning Specialists to support property sale and transfer.
- 2008 *Consultation regarding the role of Dioxin and PCBs in the Hazard Ranking Score and Risk Assessment at a Superfund Site***  
Provided expert consultation to attorneys interested in knowing how the presence of dioxin-like chemicals and PCBs affected the regulatory history of a Superfund site in New England and may provide a deposition later this year.
- 2008 *Development of an Abstract on Dioxin Cleanup Levels for Submission to Dioxin 2008.***  
Each year, an international meeting on the toxicology of dioxin and other chlorinated chemicals is held in a different location. Developed a 4 page abstract condensed from a 120 page report.
- 2008 *Investigation of the Diagnostic Procedures of the Intoxilyzer 5000***  
Examined the scientific literature regarding the temperature dependence of alcohol vapor and the how this dependence would affect the temperature check and diagnostic routines of the Intoxilyzer 5000 used to measure breath alcohol in Georgia.
- 2008 *Introduction to Risk Assessment, a two day class for the Ontario Ministry of Environment***  
With Dr. Richard Hertzberg, developed and taught a class on Introduction to Risk Assessment for newly hired personnel at the Ministry.
- 2008 *Investigation into the Scientific Basis of Land Disposal Limit of 50 parts per million for PCBs***  
Under the 1979 Toxic Substances and Control Act (TSCA), EPA has placed an upper limit of 50 ppm for land disposal of PCBs. Investigated the scientific basis of this value in consultation with Environmental Planning Specialists, Inc. for application at the ACME Holtrachem former chlor-alkali plant site in North Carolina.
- 2008 *Review of Cleanup Target Levels of Florida Department of Environmental Protection***  
As part of the involvement with the Kabot-Coppers site, provided a review of the CTLs developed by the Center for Environmental and Human Toxicology of the University of Florida and used for regulation by FDEP.

- 2008 Consultation with Environmental Resource Management on Georgia Risk Reduction Standards**  
Provided consultation to Dr. Girish Misra of ERM regarding toxicology of chlorinated solvents and metals for development of standards for the Avery Dennison facility in Flowery Branch, Georgia.
- 2008 Review of PCB Ecotoxicology Information in the Baseline Ecological Risk Assessment for the LCP Chemical Site, Brunswick, GA**  
Reviewed the toxicity assessment for PCBs for the ecological risk assessment for this site to ensure consistency with the values and approach used in the human health risk assessment.
- 2007-8 Consulting Expert in a Toxic Tort Case regarding Indoor Dampness and Mold**  
Currently serving as a consulting expert regarding adverse effects of exposure to indoor dampness, associated mold and bacteria and the disinfectant chemicals used in the cleanup.
- 2007 Evaluation of Calculation Methods for the Georgia Risk Reduction Standards of the Georgia HSRA Program**  
As a sub-contractor to the Johnson Company in Montpelier, Vermont, examined RRS values for soil and groundwater developed for a site in north Georgia and provided an explanation of the rationale underlying discrepancies in the values.
- 2007 Toxicity Criteria for 2,3,4,7,8-Pentachlorodibenzofuran based on Internal Tissue Concentrations in Rats**  
Worked with Christopher Kirman of The Sapphire Group to develop both cancer potency estimates and noncancer reference dose estimates for 2,3,7,8-TCDD and 2,3,4,7,8-PeCDF using data from bioassays published by the National Toxicology Program in 2006.
- 2007 Comparison between Blood Levels of Dioxin in Residents of Midland, MI and those in rats associated with Adverse Effects**  
Conducted a comparison between human blood levels of 2,3,7,8-TCDD and 2,3,4,7,8-PeCDF measured in humans in the University of Michigan Dioxin Exposure Study and estimated blood levels in rats from bioassays published by the National Toxicology Program in 2006.
- 2007 Pro Bono Evaluation of Exposure to para-dichlorobenzene (PDB)**  
Developed a report on exposure and potential liver damage in an individual working in a botany laboratory in which PDB was used as an insect fumigant for plant specimens. The report was used to obtain benefits under Workman's Compensation.
- 2007-9 Risk Assessment for the Exposure to Mercury and PCBs from contact with Marsh Sediment and Consumption of Fish and Game Birds at the LCP Chemical Site, Brunswick, GA.**  
As a sub-contractor for Environmental Planning Specialists, conducted a risk evaluation for sediment exposure and fish consumption with development of site-specific fish consumption estimates and a site-specific sediment exposure estimate for an updated Remedial Investigation Report for submission to the US Environmental Protection Agency.
- 2007 Development of a Risk Assessment Methodology Based on Changes in Gene Expression**  
With very recent information on dioxin-related gene expression changes in the liver, developed a method for using these changes as a biomarker for the progression to type 2 diabetes.
- 2007 Pro Bono Evaluation of Georgia DNR Fish Advisories for PCBs and Mercury**  
Using the toxicity criterion for the PCB mixture Aroclor 1268 recently published (see below) and EPA information about mercury, re-evaluated current fish advisories near Brunswick, GA. This work was done for Dr. Randy Manning, the Georgia state toxicologist.

**2007 Member of an Expert Panel Developing a Protocol for Toxicity Testing of Weathered Toxaphene**

Served on an expert panel to refine a protocol for toxicity testing of weathered toxaphene mixtures and individual toxaphene congeners.

**2007 Soil Cleanup Standards for Dioxin related to the Georgia Hazardous Substances Response Act for the SouthWire Company Copper Division**

Consulted with SouthWire personnel and another contractor to develop a dioxin cleanup level in soil for consideration by the Georgia EPD including consideration of a recent epidemiological study of dioxin in the blood of workers at the SouthWire Carrollton smelter. This work included consideration of earlier congener profile analysis ("fingerprinting") that determined that the smelter was unlikely to be the primary source of dioxin-like chemicals in the Carrollton area.

**2007-8 Soil and Groundwater Risk Reduction Standards for PCBs, mercury and other chemicals at the LCP Chemical Site under the Georgia EPD Hazardous Substances Response Act**

As a subcontractor to Environmental Planning Specialists, prepared detailed calculations of soil and groundwater screening values based both on direct exposure and transfer of chemicals from soil to groundwater.

**2007 Development of a white paper on the Non-cancer effects on humans of Dioxin-like Chemicals**

Collected scientific information related to potential and actual human health effects from published studies of the Yu-Cheng/Yusho poisoning, the Seveso exposure, the BASF plant exposure and the Viet Nam Ranch Hands and others as well as related laboratory animal studies and gene microarray studies. Organized this information to assess the likelihood of various health outcomes from dioxin exposure.

**2006-7 Development of Cancer Dose-Response Analysis for 2,3,4,7,8-Pentachlorodibenzofuran**

In consultation with other scientists, developed probability distributions for the cancer slope factor of 2,3,4,7,8-PeCDF in rats using EPA's Benchmark Dose Software and physiologically-based pharmacokinetic modeling. This work was presented at the 2007 Society of Toxicology meeting and has been submitted to Toxicological Sciences.

**2006-7 Assessment of the Non-Dioxin-like Toxicity of PCB Mixtures**

With Dr. Rob James of Terra, Inc., developed a new method for assessing the toxicity of PCB mixtures. This work involved determining relative estimates of potency for non-dioxin-like PCB congeners. In PCB risk assessments to date, the sole focus has been on the cancer endpoint and the role of the coplanar dioxin-like PCBs. This groundbreaking work seeks to understand the toxicity of the non-coplanar PCB congeners and to provide quantitative estimates of this toxicity. The relative potency estimates developed in this work were applied in this paper to assess the toxicity of any PCB mixture relative to Aroclor 1254 or Aroclor 1016 for applications in fish advisories and fish consumption risk assessment. A paper titled "Development of a Neurotoxic Equivalence Scheme of Relative Potency for Assessing the Risk of PCB Mixtures" was published in May 2007 in *Regulatory Toxicology and Pharmacology* and a presentation was given on this work at the international conference "Dioxin 2007" held in Tokyo, Japan.

**2006 Assessment of Possible Drug/Alcohol Impairment in a Personal Injury Case.**

Examined quick time drug screen results and developed an assessment for possible impairment. The drug screen results involved possible alcohol and marijuana use.

**2006 Memorandum on the Recent History of Arsenic Regulation by EPA**

Produced a memo for attorneys at King & Spalding, LLP, detailing the history of arsenic regulation as a soil contaminant by EPA headquarters and by Region 4 EPA (Southeast) since 1988. The memo included an annotated list of supporting references.

**2006-8 Risk Assessment for the Residential Exposure Scenario for PCBs and mercury in Upland Soils at the LCP Chemical Site, Brunswick, GA.**

Working as a sub-contractor for Environmental Planning Specialists, conducted a risk evaluation for residential exposure. The original risk assessment for the LCP-Honeywell site did not include an estimate of risk to on-site residents or other human receptors with a small exposure unit (ca. 0.5 acres). This risk evaluation will be part of an updated remedial investigation for Honeywell to submit to USEPA.

**2006-7 Risk Assessment for Consumption of Estuarine Fish containing Toxaphene Residues by Coastal Georgia Residents**

As a sub-contractor to TN & Associates, developed fish consumption estimates for coastal Georgia residents based on the previous surveys in the Brunswick area. These estimates were used along with Dr. Simon's published work on the toxicity of toxaphene in a probabilistic risk assessment.

**2006 Development of a Physiologically-based Pharmacokinetic Model for Copper in Migratory Birds for Ecological Risk Assessment of Mine-Associated Tailings Ponds**

High copper concentrations in water may be toxic to birds, especially when associated with acid mine drainage. This project entailed the development of a PBPK model of copper absorption, distribution, metabolism and excretion (ADME) in juvenile ducks and adult geese. In addition, an assessment of the feasibility of incorporating the physiological changes associated with migration into the model was conducted. The model may be used to estimate toxic concentration thresholds for copper in acidic waters.

**2006 Evaluation of Fish Advisories and Risk of Weathered Toxaphene Residues in Fish at Terry Creek near Brunswick, GA**

As a sub-contractor to TN & Associates and USEPA, conducted an evaluation of fish advisories published by the Georgia Department of Natural Resources by applying the newly developed toxicity criterion for weathered toxaphene to determine a risk estimate for fish consumption.

**2001-06 University of Georgia Graduate Course in Environmental Risk Assessment**

Developed and taught a graduate-level class on Environmental Risk Assessment. The course lasted 15 weeks, 3 hours per week, and presented details of chemical analysis, exposure assessment and modeling, statistics and toxicology. The class has been presented three times.

**2006 Development of a white paper presenting the history of Probabilistic Risk Assessment (PRA) at EPA**

Both the Federal Office of Management and Budget and the USEPA have emphasized the importance of quantitative analysis of variability and uncertainty, i.e. probabilistic risk assessment. Reviewed EPA guidance documents and scientific literature and produced a document that detailed this complete history of PRA at EPA and suggested likely uses of PRA in the future.

**2006 Consultation with the SouthWire Company, Carrollton, Georgia**

Advised company personnel regarding dioxin toxicity and possible investigation strategies for assessing dioxins and furan emissions from their secondary copper smelter. Attended a meeting with Georgia Environmental Protection Division personnel and provided information regarding the toxicity and carcinogenicity of dioxin. Conducted an analysis of dioxin congener profiles ("fingerprinting") to determine the sources of dioxins in environmental media near the SouthWire facility in Carrollton.

**2006 Pro Bono Evaluation of Georgia DNR Fish Advisories**

Currently there are stringent fish advisories in place for the coastal Georgia region near Brunswick and Saint Simons Island. The chemicals involved are mercury, toxaphene, and Aroclor 1268. Dr. Simon recently published a new toxicity criterion for toxaphene and for PCBs (see above). These fish advisories were re-evaluated in a pro bono effort for Dr. Kandy Manning, the Georgia state toxicologist.

**2005 Risk Communication regarding solvents in groundwater at Augusta, Georgia**

Provided information to citizens at a public meeting regarding the possible health effects of tetrachloroethylene and trichloroethylene in groundwater relating to a RCRA site.

**2005 Reassessment for the Need for PCB Congener Analysis at the Anniston/Solutia PCB Site**

Performed a comparison of results from PCB cancer bioassays indicates that the cancer potency for dioxin-like PCBs in PCB mixtures is greater than recent estimates of the cancer potency of 2,3,7,8-TCDD (dioxin) itself. This work was presented as an EPA memo commenting on an August 2005 internal EPA draft of the PCB risk assessment guidance.

**2005 Development of Nondetect Surrogate Values for Dioxin**

The common practice of the use of contract reporting limits as nondetect surrogates for dioxin analysis leads to large overestimates of risk when these nondetect surrogates are used in calculating concentration. The estimated detection limit (EDL) and estimated maximum possible concentration (EMPC) provide a more accurate nondetect surrogate value based on the actual chemical analysis and this method was provided in an EPA memorandum.

**2005-6 Estimate of the Toxicity of "Weathered" Toxaphene for Human Health Risk Assessment**

An estimate of the toxicity criterion (Reference Dose) for weathered toxaphene was needed for risk assessment of the Hercules site in Brunswick, Georgia, where the pesticide toxaphene was produced. Technical toxaphene is a mixture of over 600 chemicals and "weathers" in the environment to a smaller group of different chemicals. Little toxicological data was available for "weathered" toxaphene. This analysis included a re-evaluation of the European MATT value for weathered toxaphene and development of a new reference dose base on human body burdens of toxaphene. This analysis was co-authored by Dr. Randy Manning of the Georgia Environmental Protection Division and in 2006 was published in *Regulatory Toxicology and Pharmacology*.

**2005 Review of Proposed Arsenic Toxicity Assessment to be placed on IRIS**

As a consensus reviewer for EPA's IRIS database, reviewed and provided comment on proposed changes to the arsenic toxicity assessment.

**2005 Short Course to Michigan Department of Environmental Quality on Probabilistic Risk Assessment**

With Dr. Philip Goodrum, presented a 1 ½ day class on probabilistic risk assessment as part of a week long workshop on PRA sponsored by the Society for Risk Analysis and Interstate Technology Regulatory Council Workshop

**2005 Geostatistical modeling of dioxin concentrations in soil, Escambia Treatment site in Pensacola, FL.**

This Superfund site is highly controversial and, in 1996, was characterized in the NY Times as "Mount Dioxin." This analysis, completed in 2004, was developed to suggest a change in the land use and a lowering of cleanup costs. Knowledge of the mechanism of contaminant transport and geostatistical estimation of concentrations were used to refine risk estimates for soil. The method can yield considerable savings in analytical costs.

**2004-5 Ongoing Risk Communication to Community Against Pollution (CAP), a citizens group in Anniston, AL**

As an EPA toxicologist, developed a relationship with CAP and presented information on the health effects of PCBs at several public and community meetings.

**2004 Consultation with EPA Region 4 Mercury Study Group**

Provided information to a group of Region 4 personnel to address an editorial regarding human health and mercury by R. Harold Brown that appeared in the Atlanta Journal-Constitution on 23 Dec 2003.

**2004 Providence Park Ecological Risk Assessment**

Developed and authored an ecological risk assessment for the Providence Park site in Alpharetta, Georgia. This activity involved site visits, comparison of environmental sampling results with ecological benchmarks, and food web modeling. This work was prepared for Fulton County, GA to be submitted to the Georgia DNR.

**2004 Geostatistical modeling of residual dioxin in soil at the Coleman-Evans site in Jacksonville, FL.**

80 million dollars has been spent on soil cleanup at this former wood treatment facility, now a Superfund site. The analysis showed that the cleanup was successful and current conditions at the site were protective of human health. In addition, analysis of dioxin congener profiles ("fingerprinting") was used to show that dioxins found in an off-site location were unrelated to activities at the site.

**2004 Risk Communication regarding Trichloroethylene**

Provided information to the Citizen's Advisory Group (CAG) at Anniston Army Depot and a group of concerned citizens about the health effects of trichloroethylene. The group was concerned about releases into Coldwater Spring, the source of local drinking water.

**2003 Cleanup of a skeet range at NAS Cecil Field in Jacksonville, FL.**

This skeet range was used in the 1940's and lead was present in surface soil at concentrations up to 65,000 mg/kg. The site is 85 acres in size and the initial estimates of cleanup costs were between \$15 and \$20 million. Using both geostatistics and exposure assessment, the area needing remediation was greatly reduced and the present estimated cleanup costs are approximately \$300,000. During this project, Dr. Simon collaborated with Dr. Steve Roberts of the University of Florida to develop a soil lead concentration that represented a threshold value for acute exposure in children.

**2003-4 Model of Chemical Release from a Railroad Tank Car**

Developed a method for modeling the release and dispersion of a dense gas from a railroad tank car. Source characteristics were obtained using basic physical chemical principles. Dispersion modeling was performed for dense gas dispersion in complex terrain. This model was used in successful defense of litigation.

**2003-5 Development of EPA's Guidance on Surface Soil Cleanup at Hazardous Waste Sites: Implementing Cleanup Levels EPA 9355.0-91.**

For many years, risk-based cleanup levels were applied as "not-to-exceed" levels for cleanup purposes. This resulted in "overremediation" of sites and unnecessary cost. This guidance presents methods for applying risk-based cleanup levels as area averages. The guidance was written in consultation with Ms. Janine Dinan of EPA and Dr. Shahrokh Rouhani of Newfields, Inc. In 2004, the guidance was presented at the National Association of Remedial Project Managers in a 4 hour training session. The development of the guidance started in 1996 with an EPA Science Advisory Board Consultation.

**2003 Expert Testimony in EPA vs. Norman C. Mayes**

As an EPA expert, provided testimony to Administrative Law Judge Barbara Gunning regarding the health effects of benzene and other fuel components and environmental sampling around underground storage tanks. The decision issued in March, 2005 was entirely favorable to EPA.

**2003 Short Course to Ontario Ministry of Environment on Probabilistic Risk Assessment**

With Dr. Philip Goodrum, developed and taught a class on probabilistic risk assessment, including probabilistic approaches to dose-response to personnel at the Ontario Ministry of Environment in Toronto, Canada

**2003 Georgia State University Graduate Course in Simulation Modeling**

Taught a graduate level course in Simulation Modeling. Students were provided lectures on statistics, probabilistic methods and time-dynamic differential equation models.

**2002-4 Air and Exposure Modeling and PBPK Model Development of Creosote Exposure at a Wood Treatment Facility**

Developed a comprehensive database of chemicals in wood preservative made with coal tar creosote. Modeled air concentrations of these chemicals at a treatment facility. Developed a physiologically-based pharmacokinetic model for creosote exposure that included ingestion, inhalation and dermal pathways. This model and the information developed were used in defense of litigation and resulted in a successful summary judgment.

**2001-2 Expert Testimony regarding Calibration of the Intoxilyzer 5000**

Developed testimony regarding the calibration procedures of the Intoxilyzer 5000. This is the "breathalyzer" used in Georgia for DUI testing. The machine is calibrated using a single concentration standard, usually corresponding to a blood alcohol level of 0.1 mg/dL in lieu of a range of standards. The machine is then used to determine if individuals are above or below 0.08 mg/dL (adult level) or 0.02 mg/dL (level for minors 18-21). Charges in DUI cases have been dropped in the three cases in which Dr. Simon was involved.

**2001 Short Course to TNRCC on Probability Distributions**

With Dr. Philip Goodrum, developed and taught a class on statistics and probability distributions to data to the Texas Natural Resource Conservation Commission

**2000 *Amended Guidance on Ecological Risk Assessment at Military Bases: Process Considerations, Timing of Activities, and Inclusion of Stakeholders.***

This EPA document, authored solely by Dr. Simon, enabled ecological risk assessments to be completed in a timely manner and ensures that risk assessment activities occur at times consistent with DOD funding schedules.

**1999-2000 *Acrylamide Release from a Railroad Tank Car***

Developed a model of release and transport of acrylamide from a railroad tank car. This model was used to predict air concentrations of several chemicals and was used in a successful defense of litigation.

**1999-2000 *Workshops on Probabilistic Risk Assessment***

In 1999 and 2000, worked with Dr. Steve Roberts of the University of Florida to organize two workshops on PRA. These workshops were sponsored by EPA, NIEHS and the University of Florida.

**1999 *Grant Review for IRSST, Canada***

Reviewed a grant proposal in French that proposed setting occupational standards for volatile chemicals based on probabilistic PBPK modeling. The grant was eventually funded and the project was significantly improved based on this review.

**1999 *Short Course to TNRCC on Probabilistic Risk Assessment***

With Dr. Philip Goodrum, developed and taught a class on probabilistic risk assessment to the Texas Natural Resource Conservation Commission.

**1998 *Workshop on Selection of Input Distributions for Probabilistic Assessment.***

Served on an expert panel for EPA's Risk Assessment Forum that led to the development of a guidance document from the National Center for Environmental Assessment

**1997 *Short Course to Navy Environmental Health Center on Probabilistic Risk Assessment***

Developed and taught with Dr. Philip Goodrum a class in probabilistic risk assessment to personnel at the Navy Environmental Health Center in Norfolk, VA.

**1996-9 *Development of "Risk Assessment Guidance for Superfund, Part 3. Process for Conducting Probabilistic Risk Assessment."***

This guidance was produced between 1996 and 1999. Primary author of chapter 7, "Using PRA to Calculate Preliminary Remediation Goals" and portions of Chapter 4 regarding the concentration term. Dr. Simon won EPA's Science Achievement Award for his work on this guidance.

**1996 *Removal of ATSDR's Intermediate MRL for Trichloroethylene***

While at ATSDR, achieved a consensus for removing the intermediate minimum risk level for trichloroethylene. At that time, this number was based on questionable science. Further research supported this decision.

**1995 *Region 4 Bulletins: Regional Risk Assessment Guidance***

Authored Region 4 risk bulletins on Toxicity Assessment and on Development of Remedial Goal Options.

**PEER REVIEWS**

2009 *Chemosphere*, Heidelore Fiedler, Ed.

"Quantitative structure-activity relationship (QSAR) studies for predicting activation of the ryanodine receptor type 1 channel complex (RyR1) by polychlorinated biphenyl (PCB) congeners"

- 2009 *Environmental Research*, Ellen Silbergeld, Ed.  
"Determination of bromadiolone residues in fox faeces by LC/ESI-MS in relationship with toxicological data and clinical signs after repeated exposure."
- 2008 *Chemosphere*, Heidelore Fiedler, Ed.  
"Tissue Distribution of Polychlorinated Biphenyls and Effects on Alaskan Northern Fur Seals Assessed with Five Congener Classification Schemes"
- 2008 *Chemosphere*, Heidelore Fiedler, Ed.  
"Levels of Polychlorinated Dibenzo-p-dioxins, Dibenzofurans, and Biphenyls in Southern Mississippi Catfish and Estimation of Potential Health Risks"
- 2007 *Critical Reviews in Toxicology*, Roger O. McClellan, Ed.  
"Risk Assessment of Toxaphene and its Breakdown Products: Time for a Change"
- 2006 *Environmental Forensics*, Ioana Petrisor, Ed.  
"Identifying Metals Contamination in Groundwater Using Geochemical Correlation Evaluation"
- 2002 *Environmental Science and Technology*, Mitchell J. Small, Ed.  
"Why and how should we assess occupational health impacts in integrated product policy?"
- 2001 Ohio Environmental Protection Agency,  
"Human Health Risk Assessment Concept Paper"
- 2000 Toxicology Excellence in Risk Assessment  
"Lifetime Estimate of Skin Cancer Risk from use of Coal Tar Containing Shampoos"
- 1999 *Environmental Science and Technology*  
"Chlordane Uptake and its Translocation in Food Crops"
- 1997 Agency for Toxic Substances and Disease Registry  
"Public Health Interventions to Prevent or Mitigate Possible Adverse Health Effects Related to Methyl Parathion Pesticide Exposure"
- 1996 National Research Council  
"Human Health Preliminary Risk Evaluation of the Jinkampo Incinerator Complex Activities in the Naval Air Facility, Atsugi, Japan"

#### GRANTS AWARDS AND HONORS

- 2005 Recognition from the SouthWire Company for innovative approaches to Environmental Cleanup
- 2005 EPA Bronze Medal for Testimony in the Norman Mayes case in Knoxville, TN that led to additional UST regulations being passed by the State of Tennessee
- 2005 EPA Bronze Medal for Developing Guidance on Monitoring Land Use Controls

- 2002 EPA Science Achievement Award for Probabilistic Risk Assessment Guidance
- 1995 EPA Bronze Medal for Commendable Service  
For leadership in setting the example in self-directed work team management and in setting the example in "fast-track" multimedia environmental investigation and cleanup
- 1992 Environmental Education Enterprises Scholarship in Environmental Science, "Principles of Environmental Drilling and Sampling," Association of Engineering Geologists, Atlanta, GA
- 1992 Special Award from the Vice President for Research, Georgia State University, "Evolution of different prey choice and feeding strategy in two related species," \$1000
- 1989 National Research Service Award F32 NS08394-01A1 from NIH-NINCDS "Modulation of Ionic Channels in an Oscillatory Network, Emory University, \$41,000
- 1989 Donald B. Lindsley Prize in Behavioral Neuroscience for Ph.D. Thesis, Honorable Mention for Ph.D. thesis, "The Neural Basis of Light Evoked Walking in Crayfish," Society for Neuroscience

#### SELECTED INVITED LECTURES

- 2008 "Toxaphene – How Bad is this Pesticide?" University of Georgia, Department of Environmental Health Science, Athens, GA, October 9, 2008
- 2008 "Nagging Questions about PCBs" University of Georgia, Department of Environmental Health Science, Athens, GA, October 7, 2008
- 2008 "Toxicology of Polychlorinated Biphenyls (PCBs)," Georgia Power TSCA Training, 24 July, 2008, Georgia Power Headquarters, Atlanta, GA
- 2008 "Neurotoxic Modes of Action of Polychlorinated Biphenyls and Brominated Flame Retardants: Implications for Environmental Regulation", National Institute of Environmental Health Science 5<sup>th</sup> PCB Workshop: New Knowledge gained from old pollutants, May 16-22, Iowa City, IA, invited by Dr. P.R.S. Kodavanti
- 2007 "Neurotoxic Equivalence Scheme of Relative Potency for Assessing the Risk of PCB Mixtures," Dioxin 2007, Tokyo, Japan, invited by Dr. P.R.S. Kodavanti
- 2007 "Probabilistic Risk Assessment and Exposure," University of Georgia, Department of Environmental Health Science, Athens, GA
- 2006 "Toxaphene – the World's Most Misunderstood Pesticide," University of Georgia Department of Environmental Health Science Seminar Series, Athens, GA
- 2005 "Regulatory Perspectives on Probabilistic Risk Assessment." As part of the workshop, "Probabilistic Risk Assessment: Current Developments and Applications of Environmental Assessment and Management." Society for Risk Analysis and Interstate Regulatory Council Workshop. Michigan State University, East Lansing, Michigan

- 2004 "New Directions in Environmental Issues: an EPA perspective." Panel discussion at the Georgia Environmental Law Seminar, Saint Simons Island, Georgia
- 2003 "Probabilistic Approaches to Dose-Response Assessment." Lecture to EPA's Risk Assessment Forum, Washington, DC
- 2000 "Probabilistic Risk Assessment: Step by Step," sponsored by NIEHS, EPA and the University of Florida, Safety Harbor, FL
- 1999 "EPA's New Guidance on Citizen Involvement in Superfund Risk Assessment - What Lawyers and Risk Professionals Need to Know." Panel Discussion at the Society of Risk Analysis Annual Meeting, Atlanta, GA
- 1999 "Calculating Cleanup Levels with Monte Carlo: Regulatory Concerns and Perspective." Within a symposium organized by Scott Ferson, Society for Risk Analysis Annual Meeting, Atlanta, GA
- 1999 "Evaluating the Risk of Liver Cancer from Occupational Exposure to Trichloroethylene with PBPK Modeling and Monte Carlo Simulation." Chemical Industry Institute of Toxicology, Research Triangle Park, NC
- 1999 "Practical Issues in the Use of Probabilistic Risk Assessment and Its Application to Hazardous Waste Sites," sponsored by NIEHS, EPA and the University of Florida, Sarasota, FL

#### PEER-REVIEWED PUBLICATIONS, ABSTRACTS AND BOOK CHAPTERS

- Simon T, Kirman, CR, Aylward LL, Budinsky RA, Rowlands JC (2009) Estimates of Cancer Potency of 2,3,7,8-Tetrachlorodibenzo(p)dioxin using Linear and Non-linear Dose-Response Modeling and Toxicokinetics. *Toxicological Sciences*, Accepted for publication.
- Simon T (2009) Cancer Potency Estimates for 2,3,7,8-TCDD developed from the National Toxicology Program Bioassay Results, *The Toxicologist*, Program #EA1-2251
- Simon T (2009) Why Humans are Less Sensitive to PCBs than Rhesus Monkeys, *The Toxicologist* #EA4-2254
- Simon T, Kirman, CR, Aylward LL, Budinsky RA, Rowlands JC, Long T (2008) Estimates of Cancer Potency For 2, 3, 4, 7, 8-Pentachlorodibenzofuran Using Both Nonlinear and Linear Approaches. *Toxicological Sciences* **106(2)**, 519-537.
- Kirman C., Crouch E, Aylward L, Simon T, Budinsky R, Landenberger B, Long T (2007) Cancer Potency Estimate For 2, 3, 4, 7, 8-Pentachlorodiobenzo(P)Dioxin (4-PeCDF) *The Toxicologist*, Program #1561, p323.

- Simon T, Britt K, James RC (2007) Development of a Neurotoxic Equivalence Scheme of Relative Potency for Assessing the Risk of PCB Mixtures. *Regulatory Toxicology and Pharmacology* **48**, 148-170.
- Simon T and Manning R (2006) Development of a Reference Dose for the Persistent Congeners of Weathered Toxaphene based on *in vivo* and *in vitro* effects Related to Tumor Promotion. *Regulatory Toxicology and Pharmacology* **44**, 268-281
- Simon TW (2000) In Defense of Risk Assessment: a Reply to the Environmental Justice Movement's Critique. *Human and Ecological Risk Assessment* **6(4)**, 556-560
- Englehardt JD, Simon TW (1999) Order Amid Uncertainty. *Civil Engineering*, American Society of Civil Engineers, **69(6)**, 8A-13A.
- Simon TW (1999) Two Dimensional Monte Carlo Simulation and Beyond: A Comparison of Several Probabilistic Risk Assessment Methods applied to a Superfund Site. *Human and Ecological Risk Assessment* **5(4)**, 823-843
- Simon TW (1997) Combining Physiologically Based Pharmacokinetic Modeling with Monte Carlo Simulation to Derive an Acute Inhalation Guidance Value for Trichloroethylene. *Regul Toxicol Pharmacol* **26**, 257-270
- Simon TW, Barnes K (1995) Olfaction and Prey Search in the carnivorous leech, *Haemopsis marmorata*. *J Exp Biol* **199**, 2041-2051
- Simon TW, Derby CD (1995) Mixture Suppression with inhibition for binary mixtures from whole cell patch clamp studies of *in situ* olfactory receptor neurons of the spiny lobster. *Brain Res* **678(1-2)**, 213-224.
- Simon TW, Schmidt, J, Calabrese RL (1994) Modulation of High Threshold Transmission Between Heart Interneurons of the Medicinal Leech by FMRF-NH<sub>2</sub>. *J Neurophysiol* **71**, 454-466.
- Simon TW, Opdyke CA, Calabrese RL (1992) Modulatory effects of FMRF-NH<sub>2</sub> on the outward currents and oscillatory activity in heart interneurons of the medicinal leech. *J Neurosci* **12(4)**, 525-537.
- Simon TW, Edwards DH (1990) The Caudal Photoreceptor: A Multifunctional Sensory Neuron may select its Outputs by Spike Frequency. In *Frontiers in Crustacean Neurobiology*, Wiese K, Krenz W-D, Tautz J, Reichert H, Mulloney B (eds.) Birkhauser-Verlag, Basel, Boston, Berlin
- Simon TW, Edwards DH (1990) Light-evoked walking in crayfish: Behavioral and neuronal responses triggered by the caudal photoreceptor. *J Comp Physiol A* **166**, 745-755
- Hershey SJ, Simon TW, Baste C (1975) Histochemical localization of cytochrome oxidase in gastric mucosa. *J Histochem Cytochem* **4**, 271-282.