

# Dr. David L. Mitchell, Ph.D.

## Curriculum Vitae

### Personal Information

Dr. David L. Mitchell, Ph.D.

Consulting Forensic Geoscientist/Meteorologist

Member – American Meteorological Society

Associate Member – American Bar Association

Certified Professional Geoscientist, *AAPG Certification #26*

Licensed Geoscientist – *Texas Board of Professional Geoscientists License #1330*

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### Summary of Qualifications

**Dr. David L. Mitchell** is an authority on the numerical modeling of geophysical and atmospheric data with a **Doctorate in Meteorology** from Purdue University. Dr. Mitchell has over 30 years of technical modeling experience in industry and consulting. Dr. Mitchell is a **Court Qualified Expert in Air Modeling and Forensic Meteorology**. His business experience includes various research, project management and technical consulting positions with Conoco, Getty Oil Company, Texaco, Tenneco, British Petroleum, Leviathan Gas Pipeline LLP and IBM Corporation. Dr Mitchell has extensive knowledge of **Forensic Meteorology** and has published his research results on the modeling of atmospheric stability and convection. Dr. Mitchell is an expert in the field of **Air Pollution Meteorology and Groundwater Pollution Modeling** with over 30 years of experience with projects and litigation cases requiring the mathematical modeling of wave propagation in porous elastic media, geophysical and geological 2D and 3D reservoir modeling, atmospheric fluid dynamics and air dispersion modeling. Dr. Mitchell is a Licensed Geophysicist in the State of Texas, Certified by the Texas State Board of Geoscientists and is an expert in the areas of **Geophysical Modeling and Geological Modeling** for the characterization of reservoirs and the migration of fluids. He is an expert in the field of reservoir characterization and modeling with extensive knowledge of groundwater modeling techniques and the transport of contaminants within aquifer systems. He has extensive litigation experience with the **Forensic Geosciences** and has provided forensic litigation support for criminal and civil investigations and insurance cases involving accidents, release of toxic pollutants, personal injury and property damage. Dr. Mitchell is a member of the **American Association of Petroleum Geologists**, the **American Meteorological Society**, the **Air and Waste Management Association**, and the **National Association of Environmental Professionals**. Dr. Mitchell is also an **Associate Member of the American Bar Association** with affiliation with the Litigation Division and is a **Certified Geophysicist** and a **Licensed Professional Geoscientist**.

## **Degrees**

Ph.D., Atmospheric Science and Meteorology, Purdue University 1976

M.S., Physics, Purdue University 1974

B.S., Physics and Mathematics (Dean's Distinguished List), Baylor University 1972

## **Dissertation**

*A Theoretical Investigation of Atmospheric Convective Modes as a Function of Rayleigh Number, Prandtl Number and Eddy Anisotropy*; 1977, Meteor. Soc. Japan, Vol. 55, No. 4, 341 – 363.

## **Certification and Honors**

Certified Professional Geoscientist, Licensed Geoscientist – Texas Board of Professional Geoscientists

Associate of the Scientific Research Society of North America

*Sigma Pi Sigma*, National Physics Honors Society

Distinguished Expert, National Forensic Center

## **Professional Experience And Expertise**

### **Forensic Meteorology Services for the Legal Profession**

Industrial Air Pollution Expert Witness

Toxic Tort Strategy for Plaintiff or Defense/Environmental Air Pollution

Insurance Industry Services including Meteorological Re-Construction of Weather Events

Expert Witness Testimony/Litigation Consulting/Air Pollution Meteorology

Air Quality Computer Modeling/Air Dispersion Analysis/Hazardous Plume Releases

Meteorological Data Acquisition, Processing and Analysis (Domestic and International)

Aviation Meteorology/Visibility Studies/Wind Analysis

Observational Field Programs/Air Sampling/Air Quality

Atmospheric Dynamics and Severe Storm Analysis

Climate Studies/Weather Patterns/Flood History

Historical Rainfall Analysis/Flood Events

Short Range and Long Range Weather Forecasting

Visibility Accidents/Smoke/Ground Level Fog

Force Majeure Cases/Acts of God and Unusual Weather Phenomena

Historical Climate and Weather Analysis/Hurricane and Tropical Storm Occurrences

Class Action Toxic Tort Cases

## **Forensic Geology and Geophysical Services for the Legal Profession**

Industrial Groundwater Pollution Expert Witness  
Toxic Tort Strategy for Plaintiff or Defense/Environmental Surface and Groundwater Pollution  
Insurance Industry Services including the Mapping of Surface and Groundwater Contamination  
Expert Witness Testimony/Litigation Consulting/Forensic Hydrology  
Groundwater Computer Modeling/Aquifer Systems Analysis/Hazardous Spill Releases  
Geological and Geophysical Data Acquisition, Processing and Analysis (Domestic and International)  
Geological and Geophysical Mapping of Reservoirs  
Observational Field Programs/Reflection and Refraction Seismology  
Forensic Seismology/Passive and Non Intrusive Seismic Investigations  
Forensic Analysis of Oil and Gas Operations and Operator Performance  
Independent Analysis of Oil and Gas Reserves  
Expert Analysis of Oil and Gas Properties  
Marine and Land Seismic Operations (Domestic and International)  
Value Analysis of Proprietary Geophysical and Geological Data  
2D and 3D Reflection Seismology Modeling and Analysis  
Fluid Dynamics and Reservoir Analysis  
Toxic Fluid Migration  
Class Action, Toxic Tort and Force Majeure Cases

## **Business Experience**

1976 – 1978	Conoco, Inc., Research Scientist.
1978 – 1984	Getty Oil Company/Texaco, Research Department Manager
1984 – 1988	Tenneco Oil Company, Senior Specialist.
1988 – 1992	British Petroleum, Senior Staff Specialist.
1992 – Present	GEO Associates/MET Associates, Managing Director and Consulting Forensic Geoscientist/Meteorologist.

## **Litigation Support Experience**

Dr. Mitchell has provided technical support and expert testimony on issues of scientific data and mathematical modeling to the Petroleum Industry, the Insurance Industry and the Legal Profession in the area of Forensic Geosciences. Forensic Meteorology litigation cases include providing expert witness support and testimony for Meteorological Data Analysis, Air Pollution Analysis and Modeling and Weather Event Re-Construction cases both Domestic and International. Forensic Geosciences litigation cases include groundwater modeling and analysis including reservoir characterization for the migration of fluids. Litigation support services and expert witness testimony for civil and criminal investigations and insurance industry cases (both plaintiff and defendant) involve Groundwater Pollution and Data Analysis, Forensic Geology and Geophysics, Hydrology Modeling, and Forensic Meteorology including Air Quality, Air Dispersion Modeling, Weather Event Re-Construction and Force Majeure cases.

### **Litigation Case examples include:**

- 1) Multiple cases involving Forensic Geophysical Analysis including geophysical and geological analysis and 2 Dimensional and 3 Dimensional subsurface mapping modeling.
- 2) Multiple cases involving Air Dispersion Modeling of Chemical Pollutants/Particulate Matter and Weather Wind Profile analysis in defense of petrochemical facilities being sued by surrounding neighborhoods due to Accidental Chemical Releases.
- 3) Weather Pattern Re-Construction and analysis of Historical Rainfall data in an urban setting in defense of commercial building owner being sued due to Flooding occurrences resulting in property damage.
- 4) Re-Construction of Weather Conditions and Wind data related to the occurrence of Dense Ground Fog and Reduced Visibility conditions resulting in a major, Multi-Vehicle Freeway accident and personal injury.
- 5) Historical Wind Data analysis and Air Quality Modeling in support of a Class Action Toxic Tort suit brought by a rural subdivision downwind of a polluting industrial complex.
- 6) Numerous Forensic Meteorology cases involving *Force Majeure* and the Re-Construction of Weather Conditions occurring at the time of an Accident, Injury or Criminal Action.
- 7) Modeling and Analysis for multiple cases involving Leaking Railway Cars and Industrial Tanks creating Hazardous Spills and Releases of Hazardous Pollutants into the Atmosphere.
- 8) Numerous cases requiring Air Dispersion Modeling Analysis and Forensic Meteorology Investigation to determine concentration levels of Smoke and Particulate Matter (PM10, PM2.5) during industrial operations and accidents.
- 9) Forensic Geosciences litigation cases include groundwater modeling and reservoir characterization for the migration of fluids.

### *Litigation Case List and References Provided Upon Request*

### **Professional Affiliations**

American Meteorological Society  
American Association of Petroleum Geologists  
National Association of Environmental Professionals  
Air and Waste Management Association  
Society of Exploration Geophysicists  
Scientific Research Society of North America  
National Physics Honor Society  
American Bar Association, Associate Member Litigation Division