Clinton P. MacDonald

President
Chief Scientist

Mr. MacDonald joined Sonoma Technology in 1996. He is Sonoma Technology's President and a member of Sonoma Technology's Strategic Advisory Team. In addition to his corporate responsibilities, Mr. MacDonald performs a wide variety of technical work, focused on air quality monitoring and data reporting to the public to help clients meet regulatory requirements. Mr. MacDonald's expertise includes designing and implementing field measurement programs and supporting the implementation of data analysis and modeling solutions to address both regulatory and scientific objectives. Prior to becoming President of Sonoma Technology, Mr. MacDonald served as manager of Sonoma Technology's Meteorology, Measurements, and Outreach Division, and was a Sonoma Technology Vice President.

Mr. MacDonald serves on the advisory Board for the National Mesonet Program (NMP). The goal of the NMP is to support national weather-ready initiatives by providing weather observations to the National Weather Service from a variety of instrument networks throughout the United States. As part of Sonoma Technology's participation in a Cooperative Research and Development Agreement (ongoing since 1991), he serves on the Application Advisory Group for commercializing the National Oceanic and Atmospheric Administration's boundary-layer radar wind profiler (RWP) technology.

Education

- MS, Atmospheric Science, University of California at Davis
- BS, Atmospheric Science, University of California at Davis

For a list of publications, see sonomatech.com/ResPub/CPMpub.pdf.

Mr. MacDonald leads Sonoma Technology's refinery fenceline air quality measurement program, supporting clients with all aspects of rule compliance. Recent projects developed and lead by Mr. MacDonald ensure refinery compliance with Bay Area Air Quality Management District, San Joaquin Valley Air Pollution Control District, South Coast Air Quality Management District, and California Air Resources Board (CARB) fenceline regulations. These projects employ open-path instrument technology including UV-DOAS, FTIR, and TDLAS, as well as point instrumentation and meteorology instruments. Toxics and other compound concentration data are posted in near-real time through public websites, and include automatic alerting for high pollutant concentrations. The projects include the development and implementation of monitoring plans, standard operating procedures (SOPs) and comprehensive Quality Assurance Project Plans (QAPP).

Mr. MacDonald has led several studies to test and apply new low-cost air quality sensor technology. For example, in partnership with the BAAQMD, he led a study that used low-cost sensors and federal equivalent method (FEM) instruments to characterize the spatial and temporal variability of wintertime $PM_{2.5}$. He helped design and managed a study that used low-cost sensors to characterize ozone concentrations at high spatial resolution to help the San Joaquin Valley Air Pollution Control District document its ozone attainment designation. He also was senior advisor to an evaluation of small sensors for detection of dust at Cuyama Valley High School in California. He is currently supporting Sonoma Technology business development efforts for low-cost sensor applications.

Mr. MacDonald has designed and managed complex field studies to characterize and understand meteorological and chemical characteristics and processes and to provide data to support meteorological modeling and forecasting. Many of these studies take place in challenging environments and use highly sophisticated meteorological instrumentation such as RWPs, sodars, ceilometers, microwave radiometers, and flux systems, as well as a wide variety of air quality instruments, including open-path FTIR, UV-DOAS, TDLAS, and traditional Federal Reference Method (FRM) instruments. In addition, he led several measurement projects as part of comprehensive wind energy studies that sought to improve forecasting of hourly power production.

Mr. MacDonald has published several journal articles on meteorological and air quality processes, coauthored the U.S. Environmental Protection Agency's guidance on developing an air quality forecasting program, and authored many formal reports on air quality transport and dispersion, and monitoring plans. He developed and taught numerous courses and was an Adjunct Professor of Meteorology at Santa Rosa Junior College for meteorology.