Clinton P. MacDonald

President
Chief Business Strategist

Sonoma Technology

Mr. MacDonald joined STI in 1996. He is STI's President and Chief Business Strategist, and is also a member of STI's Board of Directors. 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 STI, Mr. MacDonald served as manager of STI's Meteorology, Measurements, and Outreach Division, and was an STI Vice President.

As part of STI's participation in a Cooperative Research and Development Agreement (CRADA, 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, including the LAP-3000 RWP. He also serves on the 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.

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 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, UVDOAS, TDLAS, and traditional Federal Reference Method instruments. In addition, he leads measurement projects for wind- and solar-energy studies that seek to improve forecasting of hourly power production. Other recent deployments sought to characterize complex lower-boundary characteristics to support experimental wind turbines.

Routine Operations. Mr. MacDonald leads several routine measurement programs to support air quality permitting, regulations, and operations. He is the Principal Investigator (PI) for the operation and maintenance of five upper-air meteorological sites for the South Coast Air Quality Management District (2006–present); the PI for the calibration and audits of the State of California Department of Transportation's near-road meteorological monitors (2009–present); and the PI for the operation of a meteorological station for the Altamont landfill (2010–present).

Low-Cost Sensors. Mr. MacDonald has led several studies to test and apply new low-cost air quality sensor technology. For example, in partnership with the Bay Area Air Quality Management District, 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.

Meteorological and Air Quality Analysis and Forecasting. 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. He developed and taught numerous courses and was an Adjunct Professor of Meteorology at Santa Rosa Junior College. Mr. MacDonald has performed a wide range of data analysis activities for a number of studies, such as the Paso del Norte Ozone Study, the San Antonio Ozone Study, the Northern Front Range Air Quality Study, the NARSTO Northeast 1995 Study, and the Integrated Monitoring Study in California's San Joaquin Valley.

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