KENNETH J. CRAIG
Atmospheric Modeler II

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Educational Background

M.S., Meteorology, San José State University
B.S., Meteorology, San José State University

Professional Experience

Mr. Craig joined STI in 2005 and is involved in all aspects of meteorological and air quality modeling projects at STI. Mr. Craig has experience applying various meteorological and air quality models to study air quality issues of local, regional, and hemispheric concern. For the Central California Air Quality Studies, he performed sensitivity simulations to study ozone aloft model performance in the San Joaquin Valley (SJV), and inert tracer experiments to assess the role of transport, diffusion, and plume rise during wintertime SJV pollution episodes. Mr. Craig has contributed to several additional modeling projects, including a Breton Island SO_2/NO_2 increment analysis for the U.S. Bureau of Ocean Energy Management, Regulation, and Enforcement; an ozone modeling analysis for the City of Albuquerque; and modeling analyses of residential wood burning curtailment strategies and regional wood smoke contributions for the Sacramento Metropolitan Air Quality Management District. Currently, Mr. Craig is working with the U.S. Forest Service (USFS) to develop a 30-year Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) trajectory climatology to assess the likelihood of black carbon transport to the Arctic from U.S. wildfires and prescribed burns.

Mr. Craig has been involved in the development and implementation of integrated smoke prediction systems. For the USFS, Mr. Craig implemented the BlueSky Gateway Modeling System, which combines existing meteorological and air quality models with custom fire location software and the USFS BlueSky Framework to produce real-time forecasts of smoke impacts on a national scale. For the development of the USFS Air Quality Impacts Planning Tool, he extended the BlueSky Framework to use an ensemble modeling approach to estimate climatological impacts of prescribed burn programs. Recently, Mr. Craig worked with Environment Canada and the British Columbia Ministry of Healthy Living and Sport to extend the BlueSky Framework to use Canadian wildfire information in an integrated smoke prediction system for western Canada.

Mr. Craig has experience processing and analyzing large geophysical data sets. He developed algorithms to process and analyze 10 years of observed meteorological data across the U.S. The U.S. Environmental Protection Agency (EPA) used these data and algorithms to develop the “MetDat” Omnibus Meteorological Database. Mr. Craig also developed algorithms to prepare 30 years of North American Regional Reanalysis data for use in various analysis and modeling applications. Recently, Mr. Craig implemented an algorithm to calculate wildfire smoke aerosol optical depth over Southern California from several months of Moderate Resolution Imaging Spectroradiometer satellite data.

Mr. Craig also provides modeling analysis support for STI’s Forecasting Services and Public Outreach group. He develops applications that process output from the NOAA-EPA National Air Quality Forecasting Capability to generate city-specific guidance for air quality forecasters nationwide through the EPA AIRNow Forecast Submittal System and through STI’s Air Quality Model Output Statistics system.

Prior to joining STI, Mr. Craig worked as a research assistant at San Jose State University and Pennsylvania State University, where he used MM5 to study the linkage between urban heat islands and convective initiation, and gained expertise in airborne LIDAR data interpretation, analysis, and visualization. Mr. Craig also taught undergraduate lecture and lab courses in meteorology and atmospheric physics.

Mr. Craig has a strong computer background and is skilled in FORTRAN, Python, IDL, Linux, the Microsoft Office Suite, and various model visualization tools.

Memberships

American Meteorological Society

See http://www.sonomatech.com/ResPub/KJCpub.pdf for a list of publications.