



TECHNICAL MEMORANDUM

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September 26, 2001

TO: Michael Fitzgibbon and Cheryl Taylor STI Ref. No. 900201
FROM: Lyle Chinkin, Courtney Gorin, and Tami Funk
SUBJECT: Revised Temporal Allocation Factors for Area and Off-Road Emissions Sources

SUMMARY

This technical memorandum presents the methodologies used to update the temporal profiles for select area and off-road mobile source emissions categories currently used by the California Air Resources Board (ARB) to temporally distribute annual emissions to monthly emissions. Historically, most of these temporal profiles have been developed on a large regional scale (e.g., statewide or by air basin). Under the sponsorship of the Central California Ozone Study (CCOS), STI reviewed and updated ARB's seasonal temporal profiles for select area and off-road mobile sources for each county in California. The area and off-road emissions categories selected for review in this study are those whose temporal profiles of activities are climate-related. Emissions activities for some source categories (e.g., lawn and garden equipment, burning, and agricultural equipment) are highly dependent on climatological variations. California encompasses a diverse geography and an equally diverse climate. As part of this effort, regional California climate data were obtained and used as the basis for updating seasonal temporal profiles for climate-related area and off-road mobile source emissions categories.

Revised seasonal temporal profiles were developed based on county-specific climate data. Appendix A provides a list of all emission categories that were reviewed and/or updated using the climate-based information. The emissions categories under review were sub-divided into three groups: agricultural, population-based, and rural activities. The emissions categories listed in Appendix A indicate the emissions' classification type: either AG, POP, or RURAL.

To more accurately represent California's diverse climatology, STI generated regional or county-specific temporal profiles based on local climate data. Climatic parameters used in this analysis included rainfall; minimum, maximum and average temperature; and heating degree days. Each emissions classification type (AG, POP, or RURAL) required different methods for segregating the state of California into appropriate regional sectors. The methodologies used to define sub-regions within California are explained in more detail within the Methodology section of this document.

Each emissions classification type (i.e. agricultural, population, or rural) require different methodologies. All three groups have distinct sources of data, analytical requirements, and climatic regions. For agricultural activities, the surrogate for the temporal profiles were developed using California crop calendars from the National Agricultural Statistics Service, (U.S. Department of Agriculture, 1997). The crop calendars for California's major crops provided the basis for agricultural emissions categories temporal profiles.

The majority of emissions categories reviewed in this study fell within the classification of population-related activities. The seasonal variation in activity levels for the majority of these emissions categories is proportional to temperature (i.e., as the temperature rises, the level of activity increases). Other categories' seasonal patterns are related to rainfall, minimum or maximum temperature, or other climate-based parameters. To account for these seasonal variations in activity level, STI classified the population-related emission categories by activity indicator and established an appropriate surrogate for each emissions inventory code (EIC) number. The different surrogates used to develop temporal profiles are discussed in detail in the Methodology section of this report. Each EIC number is listed in Appendix A; the surrogate used to develop the temporal profiles for each EIC number is listed in the "Activity Indicator" column.

The emissions classification "RURAL" denotes activities that predominantly occur in rural areas. Rural-based emissions categories tend to be focused on recreational activities. The data for recreational activity variation was obtained from the ARB publication "*Development of an Improved Inventory Of Emissions from Pleasure Craft in California*" (Causley, 1995). This publication is based on a survey of boating activity. The temporal profile for boating is assumed to be similar to most recreational off-road activities. This survey divided California counties into three geographic areas—Northern, Central, and Southern California—and developed different temporal profiles for those areas based on survey results.

In the development of new seasonal surrogates, additional sources of activity data such as employment or monthly sales were obtained for a few source categories and compared to ARB's existing profiles and to the new climate-based temporal profiles. This provided a comparison to verify the relationship between actual activity level (i.e., an independent source of data) and the proposed surrogate. The reviewed and/or updated seasonal temporal profiles were then assigned as unique profiles by EIC for each county and integrated into a comprehensive MS Excel spreadsheet.

DATA

A variety of climate and weather data were used to develop county-specific seasonal temporal profiles:

- Climate zone data from the California Energy Commission for average daily temperature, maximum daily temperature, minimum daily temperature, heating degree days (HDD), and cooling degree days (CDD)
- Rain and snowfall data from the Western Regional Climate Center's web site <<http://www.wrcc.dri.edu/climsum.html>>.
- Agricultural data (U.S. Department of Agriculture, 1997)
- Recreational activity data from ARB (Causley, 1995)
- Construction equipment activity data from ARB specific to the Sacramento area (Chang and Rocke, 1998)

METHODOLOGY

CLASSIFICATION OF EMISSIONS SOURCES

Each source category in the ARB area and off-road mobile source emissions inventory was examined and classified as climate dependent or non-climate dependent. The source categories that were classified as climate dependent were then subdivided based on the locations or land use types where emissions from those categories were likely to occur. The three subdivisions are agricultural, population, and rural-based activities. The classifications were assigned by determining if activities from each climate dependant category would most likely occur in a populated, rural, or agricultural region. For example, emissions from architectural coatings occur more frequently in a populated or urban region while emissions from agricultural equipment generally occur in agricultural areas. This classification scheme provided a systematic method of determining what regional data would be used to develop seasonal temporal profiles for emissions sources. Appendix A contains the classifications (CLASS) assigned to each climate-dependent emissions source category.

AGRICULTURAL ACTIVITIES

Data for agricultural activities such as planting and harvesting were obtained from the U.S. Department of Agriculture (USDA). The data from the USDA consists of crop calendars for the state's predominant crops and total state acreage for each crop. The average of these crop calendars, weighted by total acreage, were used to develop seasonal profiles for planting, cultivating, harvesting, and combinations of these activities. The temporal profile for "farm equipment", for example, is related to all agricultural operations and is based on the months when all agricultural activities are occurring: planting, cultivating, and harvesting activities.

Other agricultural temporal profiles, such as pesticide application, occur only during specific time periods, such as crop cultivation.

The seasonal temporal profile was applied uniformly to each county in each air basin. A uniform profile was chosen in lieu of crop-specific profiles to minimize the effects of specialized local crop calendars and crop composition. Because the agricultural production in California is very diverse, the profiles developed from any one crop do not accurately represent regional or local variation. The most diverse profile was developed by the inclusion of all major crop calendars. The incorporation of all crop calendars into one profile minimizes the extremes in monthly variations of activity. There are two exceptions to this methodology regarding profile development. The first exception is the profiles for the “ALL” agricultural classification for Sacramento, Solano, and Yolo counties, which are derived from the ARB publication, “Temporal, Spatial, and Ambient Temperature Effects in the Sacramento Modeling Region” (Chang and Rocke, 1998). Unique profiles, developed in this document for each county, are thought to be a better representation than the state average. The second exception is the profile for the burning of spring prunings (EIC 670-660-0262-0000), which is taken directly from ARB’s existing profiles. One common profile was applied to every county except those in the San Joaquin Valley. The profiles specific to each county within the San Joaquin Valley were then added to the final profile table developed by STI. The ARB’s profiles are believed to be more representative of emissions activities for burning of pruning wastes than the crop calendar data. Appendix A lists the agricultural processes (by EIC) and corresponding activity profile used to temporally distribute emissions (CLASS = AG, INDICATOR = CULTIVATION, ALL, etc.).

The profiles for rice and cotton, two of the most predominate crops by acreage in California, were produced for this project but proved to be too extreme for use in developing regional or county specific seasonal profiles. However, these profiles have been provided in Appendix B for information purposes only.

POPULATION

Population-dependent activities occur in proportion to population density. To identify climatic variations throughout the state, data for each climate zone was gathered and used to develop temporal profiles for each EIC. Population-dependent activities are labeled POP in Appendix A.

Regional Climatic Divisions for Population-Dependent Emissions

For all emission categories deemed population-related, one method was used to determine the climatological divisions within California. The division of the state into regions with similar climate is based on data published by the California Energy Commission (CEC). The CEC groups the state into 16 different geographic regions based on similar climatic data. The CEC termed these regions “climate zones”. Climate zone boundaries obtained from the CEC are shown in **Figure 1**. Monthly climate data for each climate zone shown in Figure 1 were also obtained from the CEC. The CEC weather data consists of many climate parameters: average temperature, maximum temperature, heating degree days, etc. The Geographic

Information System (GIS) software package ArcView was used to map the climate zone boundaries with other state characteristics, including county boundaries, air basins, and urban areas. As a result of California's diverse climate, the climate zones shown in Figure 1 do not follow political boundaries, and often a county (and air basin) falls within two or more climate zones. STI utilized various analytical tools to determine the predominant climate zone for each county/air basin.

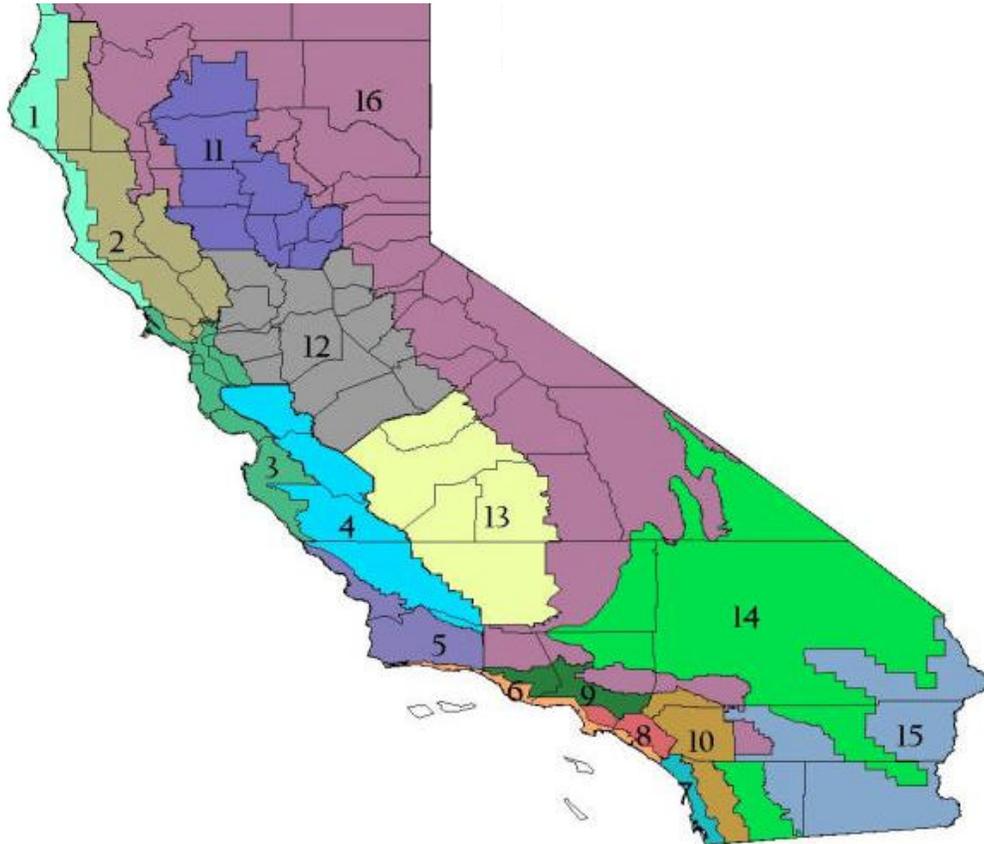


Figure 1. Map of California designating the climate zones defined by the California Energy Commission (CEC) and climate zone overlap relative to county boundaries.

As shown in Figure 1, many counties in California contain two or more different climate zones. In order to correctly allocate each county's temporal profile, it was necessary to identify the predominant climate zone. The predominant climate zone within a county is determined by considering each climate zone's proportion of county area and proportion of population. In the simplest case, an entire county or air basin falls completely within a single climate zone; therefore, the climate zone assignment is already defined. However, in many cases, a county or air basin may span several climate zones. To identify the most appropriate climate zone, STI performed two spatial analyses. First, the area of each climate zone within each county was calculated to determine the area-weighted predominant climate zone. Secondly, since many emissions activities are associated with highly populated areas (e.g., lawn and garden equipment), a second spatial analysis was performed to determine the predominant climate zone

in each county based on population density. Once the predominant climate zone was determined, the corresponding climate data were used to develop seasonal temporal profiles. Appendix C lists all counties within every air basin and the corresponding climate zone determined to be representative of emissions activities.

Surrogates for Developing Population-Dependant Temporal Profiles

For many of the categories listed in Appendix A, STI also acquired alternative sources of activity information (e.g. consumption, sales, or employment data) for comparison purposes. The activity data were compared to the average seasonal temperature profiles, which provided an independent source of data to compare to the temporal profiles for quality assurance.

Average Temperature Surrogate

Average temperature was used as the surrogate for population-based emissions categories whose activity levels are proportional to temperature. An example of this type of category is architectural coating activities, which tend to increase activity levels during the warmer months when there is also less rain. Appendix A contains the Emission Inventory Code (EIC) and source description for each category with a temporal profile update based on average temperature (INDICATOR = AVG TEMP).

Maximum Temperature Surrogate

The maximum temperature profiles were computed from the monthly average daily maximum temperatures for each climate zone. Maximum temperature from the CEC data set was used as the temporal surrogate for EIC 510-506-6720-0000, charcoal lighter materials. As people tend to barbecue more often when temperatures are high, maximum temperature was used as the surrogate for this category. The maximum temperature profiles peak during the summer months and the variation between winter and summer months is largest in mountain climate zones, compared to temperate southern California coastal zones.

Ratio of Monthly Average Daily Temperature to Yearly Average Daily Temperature with Upper and Lower Thresholds

The ratio of daily temperatures to annual average temperature was used as a surrogate for activities that involve the burning of residential yard waste. This temporal surrogate for burning activity was determined in consideration of two activity constraints: moist, rainy weather and legal limitations on burning activities. Burning is legal only when several conditions are met: the fire hazard is low, temperatures are moderate, and air quality is good. To account for these climatic and legal limitations placed upon burning activity, an upper threshold and a lower threshold were set. Because of the correlation between low temperatures and increased levels of precipitation, a lower threshold was set to account for decreased burning of residential yard waste during winter months. Likewise, the an upper threshold was imposed on the data because, when the temperature is high, there is an increase in the potential for fire hazards and/or poor air quality.

The base data were calculated by taking the ratio of monthly average daily temperature to yearly average temperature. The months with moderate temperatures, spring and fall, are more similar to the yearly average than the seasons with extreme temperatures, summer and winter. Thus, when months in spring and fall are divided by the yearly average, the result is a value close to one. The upper threshold was set such that temperatures above 120% of the yearly average would account for a relatively small amount of activity, assuming that when the temperature exceeds 120% of the yearly average, burning would probably be prohibited due to either poor air quality conditions or potential fire hazards. For the lower threshold, any month with less than 80% of the yearly average is likely to have rain or snow which would substantially reduce the amount of outdoor burning. Thus, the months with less than 80% were replaced with lower fractions of activity. After setting these thresholds, the data were then normalized to obtain a temporal profile for each county. The emissions sources to which this methodology was applied are listed in Appendix A (INDICATOR =BURN).

Minimum Temperature with Lower Limit

Minimum temperature with a lower limit is the surrogate used to seasonally distribute emissions from outdoor gardening activities. A surrogate based on minimum temperature was used because lawn and garden activities typically occur when temperatures are moderate. A threshold of 32°F was imposed because typical lawn and garden equipment, except snowblowers, are not likely to be used when temperatures drop below 32 degrees (i.e. freezing). The temporal distribution for lawn and garden equipment categories was calculated by setting minimum temperatures below 32°F equal to a total of 5% of the annual temperature and normalizing the remaining data. The emissions sources to which this methodology was applied are listed in Appendix A (INDICATOR = MIN TEMP, MIN>32). The new surrogate for lawn and garden activities resulted in unique county profiles that are similar to the statewide profile currently in use by the ARB, as seen in **Figure 2**. The county profile for mountainous areas is dissimilar to the existing ARB profile; because there is snow for a minimum of three months of the year in those counties, the use of lawn and garden equipment is restricted to snowblowing activities.

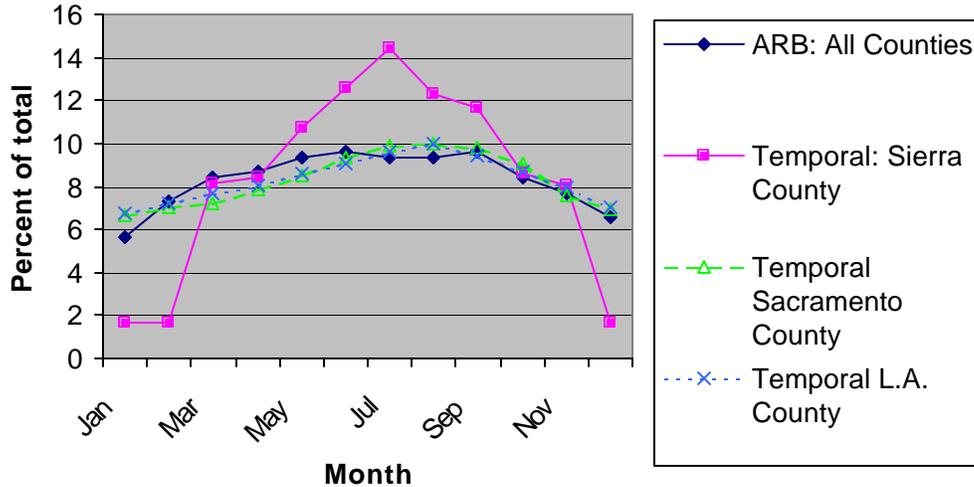


Figure 2. The temporal profile for lawn and garden emissions is compared between ARB's existing profile for the entire state and the new profiles based on seasonal temperature variation.

Heating Degree Days

Heating Degree Days are a measure of the need to heat a house or office to maintain a minimum 65°F. Heating Degree Days are generally used to estimate heating activity and are an appropriate surrogate for energy consumption for heating activities. The amount of fuel consumed for heating purposes is proportional to the difference in outdoor and indoor temperature. The larger the temperature difference between the outdoor temperature and a comfortable 65°F, the more energy required to maintain that 65°F inside. The weather parameter, Heating Degree Days, is the surrogate used to develop profiles for emissions associated with heating activities. The emissions sources to which this methodology was applied are listed in Appendix A (INDICATOR = HDD).

Inverse Rainfall Surrogate

Rainfall data for each county and climate zone were collected from the Western Regional Climate Center's web site at <<http://www.wrcc.dri.edu/climsum.html>>. The data consist of site-specific average monthly precipitation values. When the ground surface is moist, dust particles are too heavy and large to remain airborne; and the highest levels of dust generation occur during hot, dry months when there is little or no ground moisture or precipitation. As dust generation is inversely proportional to surface moisture, inverse rainfall is an appropriate surrogate for allocating seasonal dust emissions. The temporal profiles for emissions activities that generate dust were calculated by normalizing the inverse of monthly rainfall data. By inverting rainfall data, the months with the least amount of rainfall will be the largest proportion of emissions. **Figure 3** visually demonstrates the difference between rainfall and inverse rainfall. When very small numbers are inverted, the resulting value tends to be disproportionately large. To

minimize extremes due to the inversion of data with essentially zero amounts of rainfall in the summer months, a threshold was set on the original data to provide for reasonable seasonal profiles. The emissions sources to which this methodology was applied are listed in Appendix A (INDICATOR = INVERSE RAINFALL).

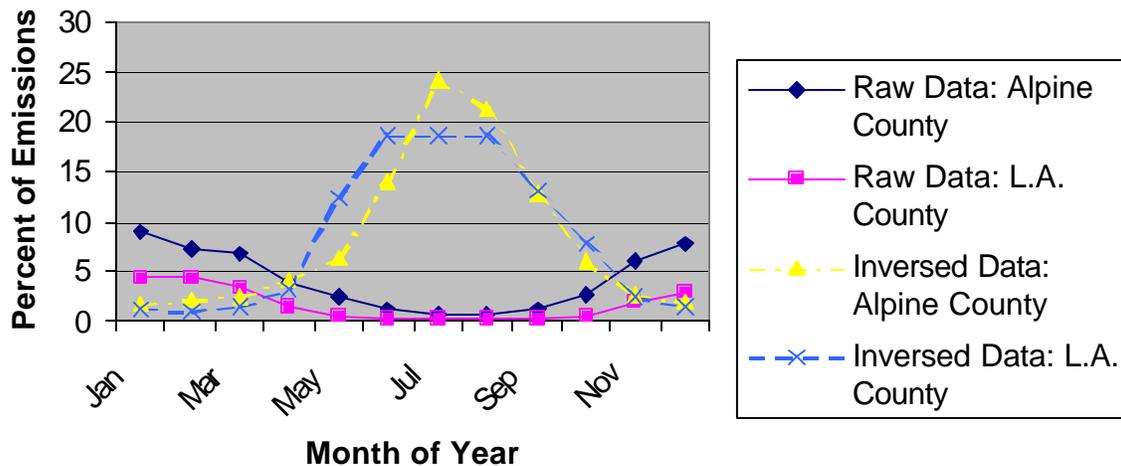


Figure 3. A comparison between normalized rainfall data and inversed rainfall data

Construction Mobile Equipment Surrogate

The seasonal temporal profiles for off-road construction equipment were updated to include the profiles published in Chang and Rocke (1998). It is important to note that this publication included data pertaining only to the Sacramento area. These profiles were applied to emission inventory categories for off-road construction equipment listed in Appendix A (INDICATOR=CONSTRUCTION). However, the profile from Chang and Rocke (1998) is similar to the “Average Temperature Surrogate” in the Sacramento region; thus, it is left to the discretion of ARB which surrogate—average temperature or the results of the Sacramento modeling—is more appropriate for the other California regions.

RURAL EMISSIONS ACTIVITIES

Snowmobiles

Snow depth data were gathered for each county in climate zone 16, the only climate zone in California likely to have consistent snow fall. These data were obtained from the Western Regional Climate Center’s web site <<http://www.wrcc.dri.edu/climsum.html>>. The snow depth data are presented as monthly averages over the past 20 years. Snow depth was used as a temporal surrogate for snowmobiles, EIC 850-870-1100-0000, since most snowmobile activity is limited to periods when there is snow on the ground.

Climate zone 16 traverses portions of the following counties: Del Norte, Siskiyou, Modoc, Lassen, Trinity, Shasta, Tehama, Plumas, Sierra, Nevada, Placer, El Dorado, Amador, Calaveras, Tuolumne, Mariposa, Alpine, Mono, Madera, Fresno, Tulare, Kern, Inyo, Ventura, Los Angeles, Riverside, and San Bernardino (see Figure 1). Snow depth data were obtained for weather stations that fall within climate zone 16 in each of the counties listed above. The data were reviewed and a lower threshold of one inch was applied with the assumption that less than an inch of snow is insufficient to operate a snowmobile. The variation in snow depths throughout the state varied significantly, so, in some cases, the site data were averaged before normalizing the data. The seasonal profile for snowmobile emissions was applied only to the counties indicated above, as it is assumed that snowmobiles are not operated in other counties (Appendix A, INDICATOR = SNOW).

Recreational Vehicles

Activities associated with recreational vehicles include boating, dirt bikes, all-terrain vehicles (ATVs), and other activities that utilize personal off-road vehicles. The seasonal profile for recreational activities was derived from Causley (1995). This document was based on a survey regarding boating use and divided the state into three areas: northern, central, and southern California. The seasonal profiles developed from the survey were applied to counties throughout California as defined in the report. **Table 1** indicates which California counties were included in each of the three geographic regions as defined in the boating survey. The seasonal temporal profiles for recreational boating were assumed to be representative of other recreational activity. The emissions sources to which this methodology was applied are listed in Appendix A (INDICATOR = REC).

Table 1. Counties in each geographic region in the boating survey.

Northern California	Central California		Southern California
Butte	Alameda	Napa	Imperial
Del Norte	Alpine	Placer	Kern
Glenn	Amador	Sacramento	Los Angeles
Humbolt	Calaveras	San Benito	Orange
Lassen	Colusa	San Francisco	Riverside
Modoc	Contra Costa	San Joaquin	San Bernardino
Nevada	El Dorado	San Mateo	San Diego
Plumas	Fresno	Santa Clara	San Luis Obispo
Shasta	Inyo	Santa Cruz	Santa Barbara
Siskiyou	Kings	Sierra	Ventura
Tehama	Lake	Solano	
Trinity	Madera	Sonoma	
Yuba	Mariposa	Stanislaus	
	Marin	Sutter	
	Mendocino	Tulare	
	Merced	Tuolumne	
	Mono	Yolo	
	Monterey		

DISCUSSION

STI's review and revision of the ARB's existing temporal distribution of emissions categories resulted in unique temporal profiles for each county and each emissions activity. The emissions categories were divided by activity type and appropriate surrogates for each activity were identified from multiple sources of data. These surrogates were used to develop temporal profiles.

Surrogates were quality assured using several techniques. One method of checking the representativeness of the surrogate was to compare it with independent data. Verification of the temporal profiles for architectural coatings and asphalt paving was accomplished by comparing the seasonal distribution of statewide paint sales and asphalt paving employment to average temperature profile (the surrogate for architectural coatings and asphalt paving profile). This analysis yielded a strong correlation. **Figure 4** graphically demonstrates the correlation between statewide commercial paint consumption or seasonal asphalt paving employment and the average daily temperature profile. As paint is a major component of the architectural coatings category, it is an appropriate indicator for activities involving architectural coatings. Likewise, asphalt employment is an appropriate indicator of asphalt paving activities.

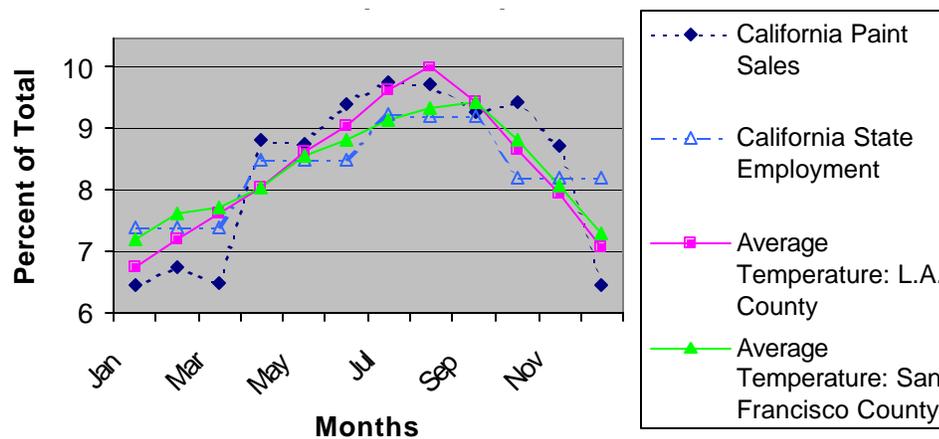


Figure 4. The temporal profile for Architectural Coatings and Asphalt Paving is compared to the yearly variation in exterior paint consumption based on monthly paint sales data and quarterly asphalt paving employment data.

Another method of quality assuring several profiles is to compare the new climate-dependent profiles to profiles developed for the Sacramento Modeling Region in Chang and Rocke (1998). Categories with potentially similar profiles were compared. In general, there is greater variation in the new climate-dependent profiles. The temporal profiles resulting from the surrogates chosen for every EIC category were verified, when possible, by independent data sources, previously published profiles, and rational expectations.

For example, asphalt is a primary ingredient in the manufacturing of roofing supplies and as a binder of roof tiles to a roof surface. The EIC for roofing activities in the emission inventory are 540-590-0400-0000 and 540-995-0400-0000. The seasonal temporal profile for allocating emissions for asphalt roofing was developed by comparing climate data to quarterly employment information for the roofing industry. Quarterly employment information was obtained from U.S. Census 2000 employment for the NAICS code 2356 “Roofing, siding, and sheet metal contractors”. Employment figures for the roofing industry are highest during the fall months, when emergency repairs are made after the first rains. Several climate surrogates, such as temperature, inverse temperature, and rainfall, were compared to the employment figures. However, the climate-based surrogates did not compare well with employment figures. **Figure 5** demonstrates that ARB’s existing seasonal profiles for asphalt roofing activities are more closely related to employment than any climate-based surrogates. Therefore, the five existing profiles in ARB’s emission inventory database were applied to all counties based on similar climate zones.

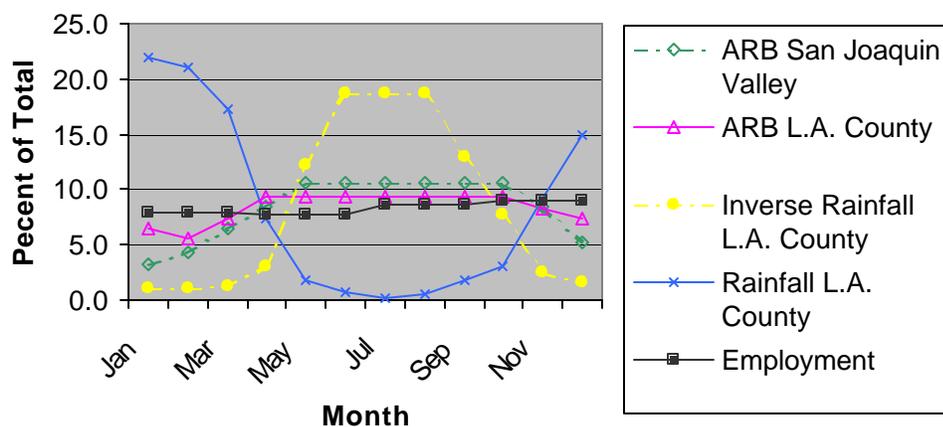


Figure 6. Seasonal variations in asphalt roofing employment data compared more favorably with ARB’s existing profiles than with any climate-based profile.

Discrepancies

In the process of updating the seasonal temporal profiles in the area and off-road emission inventory, STI found that a number of EICs were missing from the database that was delivered from ARB. Appendix D lists all EIC codes that were not found in the emission inventory database provided to STI. These EICs were not updated in the final table delivered to ARB; however, the appropriate temporal profiles for these codes were developed and are listed in the PROFILE column of Appendix D. ARB can update their database for these missing EICs with the profiles as indicated in Appendix D.

CONCLUSION

As part of the CCOS project, STI modified the temporal profiles for climate-related area and off-road mobile sources of emission activities. The new temporal profiles for these select categories were developed with multiple data sources in order to identify both correct spatial

allocations and temporal profiles for each emissions activity. Classification and grouping of emissions categories were performed with careful attention to detail. For every EIC number, appropriate surrogates were chosen independently. In conjunction with surrogate identification, data were obtained to quality assure the validity of the chosen surrogate, where possible. Ultimately, unique temporal profiles were developed for area and off-road emissions sources within each California County.

REFERENCES

- Augustyn & Company (1991) Climate zone weather data analysis and revision project. Final report prepared for the California Energy Commission, CEC Contract # 400-88-010, March.
- Causley M. (1995) Development of an improved inventory of emissions from pleasure craft in California. Final report prepared for the California Air Resources Board, Sacramento, CA by Systems Applications International, San Rafael, CA, Contract No. A132-184, June.
- Chang D.P.Y. and Rocke D.M. (1998) Temporal, spatial, and ambient temperature effects in the Sacramento modeling region. Final report prepared for the California Air Resources Board, Sacramento, CA by the University of California, Davis, CA, Contract No. 94-333, May.
- U.S. Department of Agriculture, National Agricultural Statistics Service (1997) Usual planting and harvesting dates for U.S. field crops. December.
- Western Regional Climate Center (1997) Climatological data summaries for temperature and precipitation. Web page <<http://www.wrcc.dri.edu/climsum.html>>, last accessed on June 8, 2001.

APPENDIX A

List of Emissions Source Categories for Which New Seasonal Temporal Profiles Were Developed

The EIC codes and category descriptions modified to represent county specific climatic variation.

EIC	SUMMARY CATEGORY	SOURCE CATEGORY	CLASS	ACTIVITY INDICATOR
810-806-1140-0000	AIRCRAFT	AGRICULTURAL AIRCRAFT (CROP DUSTING)	AG	CULTIVATION
870-880-1100-0000	FARM EQUIPMENT	LIGHT-DUTY EQUIPMENT - FOUR STROKE	AG	PLANTING, CULTIVATION, AND HARVESTING
870-882-1100-0000	FARM EQUIPMENT	HEAVY-DUTY EQUIPMENT	AG	PLANTING, CULTIVATION, AND HARVESTING
870-882-1210-0000	FARM EQUIPMENT	HEAVY-DUTY EQUIPMENT	AG	PLANTING, CULTIVATION, AND HARVESTING
870-893-1100-0040	FARM EQUIPMENT	AGRICULTURAL EQUIPMENT	AG	PLANTING, CULTIVATION, AND HARVESTING
870-893-1210-0000	FARM EQUIPMENT	AGRICULTURAL EQUIPMENT	AG	PLANTING, CULTIVATION, AND HARVESTING
620-614-5400-0000	FARMING OPERATIONS	TILLING DUST	AG	PLANTING AND CULTIVATION
620-615-5400-0000	FARMING OPERATIONS	HARVEST OPERATIONS - DUST	AG	HARVESTING
620-616-5400-0000	FARMING OPERATIONS	CATTLE FEEDLOT DUST	AG	INVERSE RAINFALL
620-618-0262-0000	FARMING OPERATIONS	LIVESTOCK WASTES	AG	YEAR ROUND
620-619-5400-0000	FARMING OPERATIONS	GROWING SEASON PLANTING OPERATIONS - DUST	AG	PLANTING
620-620-5400-0000	FARMING OPERATIONS	GROWING SEASON CULTIVATION OPERATIONS - DUST	AG	CULTIVATION
650-650-5400-0000	FUGITIVE WINDBLOWN DUST	DUST FROM AGRICULTURAL LANDS (NON-PASTURE)	AG	INVERSE RAINFALL
650-651-5400-0000	FUGITIVE WINDBLOWN DUST	DUST FROM PASTURE LANDS	AG	INVERSE RAINFALL
530-530-3225-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL PESTICIDES	AG	CULTIVATION
530-530-5702-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL PESTICIDES	AG	CULTIVATION
530-530-5710-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL PESTICIDES	AG	CULTIVATION
530-530-5750-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL PESTICIDES	AG	CULTIVATION
530-532-5710-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL RESIDUAL PESTICIDES	AG	CULTIVATION
530-532-5750-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL RESIDUAL PESTICIDES	AG	CULTIVATION

530-540-5750-0000	PESTICIDES/FERTILIZERS	STRUCTURAL PESTICIDES	AG	AVG TEMP
530-542-5710-0000	PESTICIDES/FERTILIZERS	STRUCTURAL RESIDUAL PESTICIDES	AG	AVG TEMP
530-544-3092-0000	PESTICIDES/FERTILIZERS	CREOSOTE APPLICATION	AG	AVG TEMP
670-660-0262-0000	WASTE BURNING AND DISPOSAL	AGRICULTURAL BURNING – PRUNINGS	AG	EXISTING ARB
670-662-0262-0000	WASTE BURNING AND DISPOSAL	AGRICULTURAL BURNING - FIELD CROPS	AG	HARVESTING
520-522-8300-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	THINNING AND CLEANUP SOLVENTS	POP	AVG TEMP
520-520-9100-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9105-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9106-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9110-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9112-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9114-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9116-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9132-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9134-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9136-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9142-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9144-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9153-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9155-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9156-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9159-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9161-0000	ARCHITECTURAL COATINGS AND RELATED	ARCHITECTURAL COATINGS	POP	AVG TEMP

	PROCESS SOLVENTS			
520-520-9272-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9273-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9274-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9276-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9278-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
520-520-9279-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	ARCHITECTURAL COATINGS	POP	AVG TEMP
540-560-0400-0000	ASPHALT PAVING / ROOFING	CUTBACK ASPHALT	POP	AVG TEMP
540-562-0400-0000	ASPHALT PAVING / ROOFING	ROAD OILS	POP	AVG TEMP
540-564-0400-0000	ASPHALT PAVING / ROOFING	HOT-MIX ASPHALT	POP	AVG TEMP
540-566-0400-0000	ASPHALT PAVING / ROOFING	EMULSIFIED ASPHALT	POP	AVG TEMP
630-622-5400-0000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST – RESIDENTIAL	POP	INVERSE RAINFALL
630-624-5400-0000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - COMMERCIAL	POP	INVERSE RAINFALL
630-626-5400-0000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - INDUSTRIAL	POP	INVERSE RAINFALL
630-628-5400-0000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST – INSTITUTIONAL	POP	INVERSE RAINFALL
630-630-5400-0000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST – GOVERNMENTAL	POP	INVERSE RAINFALL
630-632-5400-0000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST (UNSPECIFIED)	POP	INVERSE RAINFALL
630-634-5400-0000	CONSTRUCTION AND DEMOLITION	ROAD CONSTRUCTION DUST	POP	INVERSE RAINFALL
510-506-6505-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6509-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6510-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6520-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6521-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6530-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6600-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6601-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6610-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6611-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6612-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6613-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6614-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6615-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6616-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP

510-506-6617-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6625-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6626-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	AVG TEMP
510-506-6720-0000	CONSUMER PRODUCTS	CONSUMER PRODUCTS	POP	MAX TEMP
510-534-5700-0000	CONSUMER PRODUCTS	AEROSOL RESIDENTIAL PESTICIDES - PROPELLANTS	POP	AVG TEMP
510-536-5700-0000	CONSUMER PRODUCTS	AEROSOL RESIDENTIAL PESTICIDES - INGREDIENTS	POP	AVG TEMP
510-538-5700-0000	CONSUMER PRODUCTS	NON-AEROSOL RESIDENTIAL PESTICIDES - INGREDIENTS	POP	AVG TEMP
860-883-1100-0020	OFF-ROAD EQUIPMENT	LAWN AND GARDEN EQUIPMENT	POP	MIN TEMP, MIN>32
860-883-1100-0040	OFF-ROAD EQUIPMENT	LAWN AND GARDEN EQUIPMENT	POP	MIN TEMP, MIN>32
860-883-1210-0000	OFF-ROAD EQUIPMENT	LAWN AND GARDEN EQUIPMENT	POP	MIN TEMP, MIN>32
860-887-1100-0020	OFF-ROAD EQUIPMENT	CONSTRUCTION AND MINNING EQUIPMENT	POP	CONSTRUCTION
860-887-1100-0040	OFF-ROAD EQUIPMENT	CONSTRUCTION AND MINNING EQUIPMENT	POP	CONSTRUCTION
860-887-1210-0000	OFF-ROAD EQUIPMENT	CONSTRUCTION AND MINNING EQUIPMENT	POP	CONSTRUCTION
610-600-0230-0000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - WOOD STOVES	POP	HDD
610-602-0230-0000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - FIREPLACES	POP	HDD
610-604-0230-0000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION (UNSPECIFIED)	POP	HDD
610-606-0110-0000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	POP	HDD
610-606-1220-0000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	POP	HDD
680-676-1100-0000	UTILITY EQUIPMENT	LAWN & GARDEN- RESIDENTIAL- FOUR STROKE	POP	MIN TEMP, MIN>32
680-677-1100-0000	UTILITY EQUIPMENT	LAWN & GARDEN- RESIDENTIAL- TWO STROKE	POP	MIN TEMP, MIN>32
680-678-1100-0000	UTILITY EQUIPMENT	LAWN & GARDEN- COMMERCIAL- FOUR STROKE	POP	MIN TEMP, MIN>32
650-652-5400-0000	FUGITIVE WINDBLOWN DUST	DUST FROM UNPAVED ROADS AND ASSOCIATED AREAS	RURAL	INVERSE RAINFALL
850-870-1100-0000	OFF-ROAD RECREATIONAL VEHICLES	SNOWMOBILES	RURAL	SNOW DEPTH
850-871-1100-0020	OFF-ROAD RECREATIONAL VEHICLES	RECREATIONAL EQUIPMENT	RURAL	REC
850-871-1100-0040	OFF-ROAD RECREATIONAL VEHICLES	RECREATIONAL EQUIPMENT	RURAL	REC
850-871-1210-0000	OFF-ROAD RECREATIONAL VEHICLES	RECREATIONAL EQUIPMENT	RURAL	REC
850-872-1100-0000	OFF-ROAD RECREATIONAL VEHICLES	OFF-ROAD MOTORCYCLES	RURAL	REC
850-874-1100-0000	OFF-ROAD RECREATIONAL VEHICLES	ALL-TERRAIN VEHICLES (ATV'S)	RURAL	REC

850-876-1100-0000	OFF-ROAD RECREATIONAL VEHICLES	FOUR-WHEEL DRIVE VEHICLES	RURAL	REC
840-864-1100-0000	RECREATIONAL BOATS	RECREATIONAL BOATS	RURAL	REC
840-864-1100-0020	RECREATIONAL BOATS	RECREATIONAL BOATS	RURAL	REC
840-864-1100-0040	RECREATIONAL BOATS	RECREATIONAL BOATS	RURAL	REC
840-864-1210-0000	RECREATIONAL BOATS	RECREATIONAL BOATS	RURAL	REC
645-638-5400-0000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST - CITY AND COUNTY ROADS	RURAL	INVERSE RAINFALL
645-640-5400-0000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST - U.S. FOREST AND PARK ROADS	RURAL	INVERSE RAINFALL
645-642-5400-0000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST - TIMBER PRODUCTION ROADS	RURAL	INVERSE RAINFALL
645-644-5400-0000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST - B.L.M. ROADS	RURAL	INVERSE RAINFALL
645-646-5400-0000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST - FARM ROADS	RURAL	INVERSE RAINFALL
645-648-5400-0000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST (UNSPECIFIED)	RURAL	INVERSE RAINFALL
670-668-0200-0000	WASTE BURNING AND DISPOSAL	WEED ABATEMENT	RURAL	BURN
670-670-0200-0000	WASTE BURNING AND DISPOSAL	NON-AGRICULTURAL OPEN BURNING	RURAL	BURN
640-635-5400-0000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - FREEWAYS	POP/RURAL	INVERSE RAINFALL
640-636-5400-0000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST (UNSPECIFIED)	POP/RURAL	INVERSE RAINFALL
640-637-5400-0000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - MAJOR STREETS	POP/RURAL	INVERSE RAINFALL
640-639-5400-0000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - COLLECTOR STREETS	POP/RURAL	INVERSE RAINFALL
640-641-5400-0000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - LOCAL STREETS	POP/RURAL	INVERSE RAINFALL

APPENDIX B

TEMPORAL PROFILES FOR RICE AND COTTON CROP ACTIVITIES BASED ON CROP CALENDARS

Table B-1. Temporal Profiles for Rice

Activity Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting (%)	0.00	0.00	0.00	0.00	86.11	13.89	0.00	0.00	0.00	0.00	0.00	0.00
Harvest (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.61	67.39	0.00	0.00
Cultivation (%)	0.00	0.00	0.00	0.00	0.00	24.51	30.39	30.39	14.71	0.00	0.00	0.00
ALL (%)	0.00	0.00	0.00	0.00	21.53	3.47	21.53	21.53	10.42	21.53	0.00	0.00
Plant and Cultivating (%)	0.00	0.00	0.00	0.00	43.05	19.20	15.20	15.20	7.35	0.00	0.00	0.00

Table B-2. Temporal Profiles for Cotton

Activity Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Planting (%)	0.00	0.00	0.00	66.67	33.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Harvest (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.39	32.61	0.00
Cultivation (%)	0.00	0.00	0.00	0.00	0.00	24.59	25.41	25.41	24.59	0.00	0.00	0.00
ALL (%)	0.00	0.00	0.00	14.08	7.04	14.08	14.55	14.55	14.08	14.55	7.04	0.00
Plant and Cultivating (%)	0.00	0.00	0.00	17.96	8.98	17.96	18.56	18.56	17.96	0.00	0.00	0.00

APPENDIX C

List of Counties, Air Basins and Their Corresponding Climate Zones

Air Basin	County	DI_Code	Climate Zone
GREAT BASIN VALLEYS	ALPINE	GBU	16
GREAT BASIN VALLEYS	INYO	GBU	16
GREAT BASIN VALLEYS	MONO	GBU	16
LAKE COUNTY	LAKE	LAK	2
LAKE TAHOE	EL DORADO	ED	16
LAKE TAHOE	PLACER	PLA	16
MOJAVE DESERT	KERN	KER	14
MOJAVE DESERT	LOS ANGELES	AV	14
MOJAVE DESERT	RIVERSIDE	MOJ	14
MOJAVE DESERT	RIVERSIDE	SC	14
MOJAVE DESERT	SAN BERNARDINO	MOJ	14
MOUNTAIN COUNTIES	AMADOR	AMA	12
MOUNTAIN COUNTIES	CALA VERAS	CAL	12
MOUNTAIN COUNTIES	EL DORADO	ED	12
MOUNTAIN COUNTIES	MARIPOSA	MPA	12
MOUNTAIN COUNTIES	NEVADA	NSI	16
MOUNTAIN COUNTIES	PLACER	PLA	16
MOUNTAIN COUNTIES	PLUMAS	NSI	16
MOUNTAIN COUNTIES	SIERRA	NSI	16
MOUNTAIN COUNTIES	TUOLUMNE	TUO	12
NORTH CENTRAL COAST	MONTEREY	MBU	3
NORTH CENTRAL COAST	SAN BENITO	MBU	3
NORTH CENTRAL COAST	SANTA CRUZ	MBU	3
NORTH COAST	DEL NORTE	NCU	1
NORTH COAST	HUMBOLDT	NCU	1
NORTH COAST	MENDOCINO	MEN	1
NORTH COAST	SONOMA	NS	2
NORTH COAST	TRINITY	NCU	2
NORTHEAST PLATEAU	LASSEN	LAS	16
NORTHEAST PLATEAU	MODOC	MOD	16
NORTHEAST PLATEAU	SISKIYOU	SIS	16
SACRAMENTO VALLEY	BUTTE	BUT	11
SACRAMENTO VALLEY	COLUSA	COL	11
SACRAMENTO VALLEY	GLENN	GLE	11
SACRAMENTO VALLEY	PLACER	PLA	11
SACRAMENTO VALLEY	SACRAMENTO	SAC	12
SACRAMENTO VALLEY	SHASTA	SHA	11
SACRAMENTO VALLEY	SOLANO	YS	12
SACRAMENTO VALLEY	SUTTER	FR	11
SACRAMENTO VALLEY	TEHAMA	TEH	11
SACRAMENTO VALLEY	YOLO	YS	12
SACRAMENTO VALLEY	YUBA	FR	11
SALTON SEA	IMPERIAL	IMP	15
SALTON SEA	RIVERSIDE	SC	15
SAN DIEGO	SAN DIEGO	SD	7

Air Basin	County	DI_Code	Climate Zone
SAN FRANCISCO BAY AREA	ALAMEDA	BA	3
SAN FRANCISCO BAY AREA	CONTRA COSTA	BA	12
SAN FRANCISCO BAY AREA	MARIN	BA	3
SAN FRANCISCO BAY AREA	NAPA	BA	2
SAN FRANCISCO BAY AREA	SAN FRANCISCO	BA	3
SAN FRANCISCO BAY AREA	SAN MATEO	BA	3
SAN FRANCISCO BAY AREA	SANTA CLARA	BA	4
SAN FRANCISCO BAY AREA	SOLANO	BA	12
SAN FRANCISCO BAY AREA	SONOMA	BA	2
SAN JOAQUIN VALLEY	FRESNO	SJU	13
SAN JOAQUIN VALLEY	KERN	SJU	13
SAN JOAQUIN VALLEY	KINGS	SJU	13
SAN JOAQUIN VALLEY	MADERA	SJU	13
SAN JOAQUIN VALLEY	MERCED	SJU	12
SAN JOAQUIN VALLEY	SAN JOAQUIN	SJU	12
SAN JOAQUIN VALLEY	STANISLAUS	SJU	12
SAN JOAQUIN VALLEY	TULARE	SJU	13
SOUTH CENTRAL COAST	SAN LUIS OBISPO	SLO	5
SOUTH CENTRAL COAST	SANTA BARBARA	SB	6
SOUTH CENTRAL COAST	VENTURA	VEN	9
SOUTH COAST	LOS ANGELES	SC	9
SOUTH COAST	ORANGE	SC	8
SOUTH COAST	RIVERSIDE	SC	10
SOUTH COAST	SAN BERNARDINO	SC	10

APPENDIX D

EIC codes not located in database.

EIC	SUMMARY CATEGORY NAME	SOURCE CATEGORY NAME	CLIM	EMISS	PROFILE
530-530-5710-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL PESTICIDES	AG	AG	CULTIVATE
530-530-5750-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL PESTICIDES	AG	AG	CULTIVATE
530-532-5710-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL RESIDUAL PESTICIDES	AG	AG	CULTIVATE
530-532-5750-0000	PESTICIDES/FERTILIZERS	AGRICULTURAL RESIDUAL PESTICIDES	AG	AG	CULTIVATE
530-540-5750-0000	PESTICIDES/FERTILIZERS	STRUCTURAL PESTICIDES	AG	AG	AVG TEMP
530-542-5710-0000	PESTICIDES/FERTILIZERS	STRUCTURAL RESIDUAL PESTICIDES	AG	AG	AVG TEMP
530-544-3092-0000	PESTICIDES/FERTILIZERS	CREOSOTE APPLICATION	AG	AG	AVG TEMP
520-522-8300-0000	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	THINNING AND CLEANUP SOLVENTS	*	POP	AVG TEMP
510-534-5700-0000	CONSUMER PRODUCTS	AEROSOL RESIDENTIAL PESTICIDES - PROPELLANTS	C	POP	AVG TEMP
510-536-5700-0000	CONSUMER PRODUCTS	AEROSOL RESIDENTIAL PESTICIDES - INGREDIENTS	C	POP	AVG TEMP
510-538-5700-0000	CONSUMER PRODUCTS	NON-AEROSOL RESIDENTIAL PESTICIDES - INGREDIENTS	C	POP	AVG TEMP
680-676-1100-0000	UTILITY EQUIPMENT	LAWN & GARDEN- RESIDENTIAL- FOUR STROKE	C	POP	MIN TEMP, MIN>32
680-677-1100-0000	UTILITY EQUIPMENT	LAWN & GARDEN- RESIDENTIAL- TWO STROKE	C	POP	MIN TEMP, MIN>32
680-678-1100-0000	UTILITY EQUIPMENT	LAWN & GARDEN- COMMERCIAL- FOUR STROKE	C	POP	MIN TEMP, MIN>32
850-871-1100-0020	OFF-ROAD RECREATIONAL VEHICLES	RECREATIONAL EQUIPMENT	C	RURAL	REC
850-871-1100-0040	OFF-ROAD RECREATIONAL VEHICLES	RECREATIONAL EQUIPMENT	C	RURAL	REC
850-871-1210-0000	OFF-ROAD RECREATIONAL VEHICLES	RECREATIONAL EQUIPMENT	C	RURAL	REC
840-864-1100-0000	RECREATIONAL BOATS	RECREATIONAL BOATS	C	RURAL	REC

870-880-1100-0000	FARM EQUIPMENT	LIGHT-DUTY EQUIPMENT - FOUR STROKE	AG	AG	ALL
870-882-1100-0000	FARM EQUIPMENT	HEAVY-DUTY EQUIPMENT	AG	AG	ALL
870-882-1210-0000	FARM EQUIPMENT	HEAVY-DUTY EQUIPMENT	AG	AG	ALL