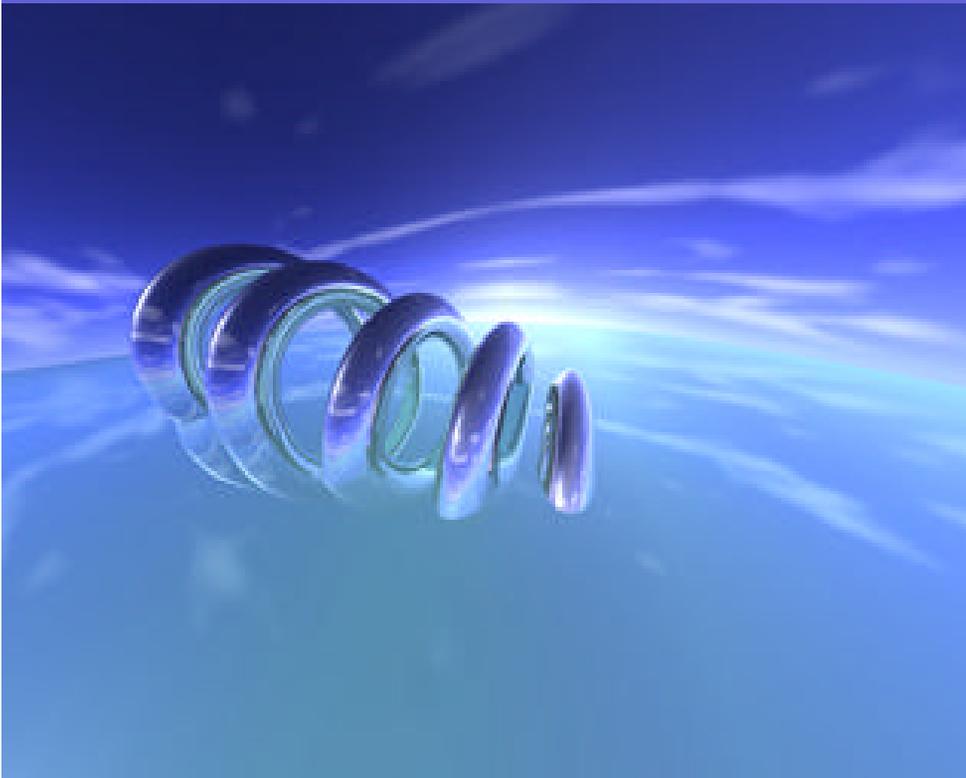
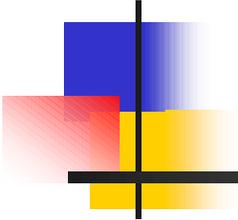


Air Pollution Impact Assessment

- Overview of Tools and Vision -



Planning and Technical Support Division
California Air Resources Board
March 2003



Overview of Tools and Products

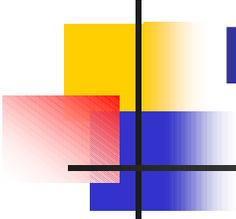
- ✍ **Tools to make emission data more accessible to the public**
- ✍ **Tools for professionals to assess localized cumulative impacts**
- ✍ **Tools and maps for a statewide overview of total cumulative impacts**

CHAPIS: Community Health Air Pollution Information System

-- Web-Mapping Tool - Prototype March 2003 --

- ✍ Provide Interactive Maps of Air Pollution Emission Sources
- ✍ Include Stationary, Mobile, & Areawide Emissions
- ✍ Provide Maps or Tabular Information
- ✍ Collaboration with CAPCOA and Districts
- ✍ Mechanism to Improve Data Quality





Populating Data in Stages for Quality

Initial pollutants and facilities

- Criteria Pollutants for 10 ton/year facilities
- Toxics for Refineries, Power Plants
- HRA facilities - Metal fabrication, Chemical, Aerospace

Initial public data release ~summer 2003

On-going future additions

- Coordination with CAPCOA
- Other HRA, Gas stations, Platers, Dry Cleaners

Start by picking a region of interest:



Welcome to CHAPIS - The Community Health Air Pollution Information System Last Updated Nov. 18, 2002

The California Air Resources Board (ARB) developed CHAPIS as an Internet-based tool to provide a graphical way to look at the amounts and spatial distribution of air pollution emission sources in California. CHAPIS provides a mapping tool to analyze the spatial characteristics of California's Air Pollutant Emission Inventory, for emissions of traditional criteria air pollutants and key toxic air pollutants. This is a prototype, showing selected data from the ARB and local Districts, for point source, mobile source, and dispersed source emissions data. For online help or more information about CHAPIS, click here. To begin using CHAPIS, select an area of interest using the menus or map provided below.

Select an Area of Interest:

Select an area of interest using the menus below or use the map, and click on the county of your choice.

County: [COUNTIES]
Air Basin: [AIR BASINS]
Air District: [AIR DISTRICTS]
Region: [REGIONS]

Or Enter a Zip Code: [] Go To Zip

* This website is best viewed with your screen area set to 1024 x 768 px.



Website developed by VESTRA Resources Inc. VESTRA

ARB Homepage

Gridded Emissions: Combines Mobile, Areawide, & Point Emissions in Cell

California Air Resources Board CHAPIS Community Health Air Pollution Information System

Click or drag a box on the map to Zoom In

Navigation Analysis Overview Map

Prototype for Review; NOT REAL DATA

Map showing gridded emissions for Benzene in Los Angeles County. The map displays various emission categories and their distribution across the region, including cities like Los Angeles, Anaheim, and Long Beach.

Current Settings
Tool Mode: Zoom
County: Los Angeles

Messages

Legend / Facilities

Benzene (L)	
No Value	
0.000056 - 31200	
31200 - 62400	
62400 - 93500	

Gridded Emissions Categories

Onroad Mobile	<input checked="" type="checkbox"/>
Offroad Mobile	<input checked="" type="checkbox"/>
Industrial	<input checked="" type="checkbox"/>
Small Commercial	<input checked="" type="checkbox"/>
Areawide (Dispersed solvents, Painting, Other)	<input checked="" type="checkbox"/>

Select All Clear All

Combined Sources
Mobile, Areawide, and Stationary Totals.

Gridded Emissions Gridded Risk

Analysis of Sources in Map View
Calculate Stats for all Point Sources in the Map View

Calculate Stats Print Map Get Help Start Page

Select pollutant: Benzene Clear Select facility type: Facility Types & SIC Codes Go

Map Settings
Identify Layer: Gridded Emissions Map Tip Layer: Emissions

Jump to a new location
County/Air Basin/Air District: Los Angeles Regions: REGIONS Zip Code: Go To Zip

Click to change the visibility of gridded emissions layers

Internet

Start H:\Data_CHAPI... CHAPIS - Micro... H:\Data_CHAPI... SnagIt CHAPIS Grid... 1:41 PM

Not real data.

Click a Grid Cell For Numeric Contributions and Total

CHAPIS - Microsoft Internet Explorer

California Air Resources Board CHAPIS Community Health Air Pollution Information System

Click on the map to **Identify** a feature

Current Settings

Navigation Analysis

CHAPIS: Identify Results - Microsoft Internet Explorer

File Edit View Favorites Tools Help

1 feature found

Benzene(Lbs./yr.) from selected source categories:

Onroad Mobile	Offroad Mobile	Industrial	Small Commercial	Areawide (Dispersed solvents, Painting, Other)	Total
24300	5900	810	430	640	32100

Full Legend
Layer List

NOTE: Displayed data are not real.

Gridded Emissions Gridded Risk

Analysis of Sources in Map View
Calculate Stats for all Point Sources in the Map View

Calculate Stats

Print Map Get Help Start Page

Select pollutant: Benzene Clear Select facility type: Facility Types & SIC Codes Go

Map Settings

Identify Layer: Gridded Emissions Map Tip Layer: Emissions Buffer Radius: 2 miles

Jump to a new location

County/Air Basin/Air District: Orange Regions: REGIONS Zip Code: Go To Zip

Start H:\Data_CHAPI... CHAPIS - Micro... H:\Data_CHAPI... CHAPIS: Ide... SnagIt 1:46 PM

Sample Map with Point Sources, Roads, Schools, etc. (scale-dependent)

Hover tool gives facility name immediately

The screenshot displays the CHAPIS web application interface. At the top, a yellow callout box reads "Sample Map with Point Sources, Roads, Schools, etc. (scale-dependent)". Another yellow callout box points to a facility on the map, stating "Hover tool gives facility name immediately". The map shows a grid of streets and several point sources represented by blue triangles. A tooltip for a facility reads "ABC COMPANY INC (3240788)". A red banner across the map says "Prototype for Review; NOT REAL DATA".

Current Settings
Tool Mode: Zoom In
County: Los Angeles

Messages
22 Benzene industrial (point) emissions sources found

Legend / Facilities
Benzene (Lbs./yr.)
▲ 0 - 1000
▲ 1000 - 25000
▲ 25000 - 116920

Not Real Data

Combined Sources
Mobile, Areawide, and Stationary Totals.
Gridded Emissions Gridded Risk

Analysis of Sources in Map View
Calculate Stats for all Point Sources in the Map View
Calculate Stats Print Map Get Help Start Page

Select pollutant: Benzene Clear Select facility type: Facility Types & SIC Codes Go

Map Settings
Identify Layer: Emissions Map Tip Layer: Emissions Buffer Radius: 2 miles

Jump to a new location
County/Air Basin/Air District: Los Angeles Regions: REGIONS Zip Code: Go To Zip

Map Width: 6.4 miles

0 0.8mi

Start CHAPIS - Microsoft I... 4:43 PM

Summary List and Total for Facilities in the Map View

22 Benzene industrial (point) emissions sources found

Maximum Value: 3700 Lbs./yr.
 Average Value: 252 Lbs./yr.
 Total Emissions: 5550 Lbs./yr.

Note: Data and summary statistics in this table are for point (industrial) sources only.
 Use the "Gridded Emissions" option to see additional types of sources.

Facil ID	Company	Address	Benzene (Lbs./yr)	SIC Code
3240788	ABC COMPANY INC	200000 A ST SANTA FE SPRINGS, CA 90670	3700	13 - Oil and Gas Extraction
8748	XYZ COMPANY INC	300000 B ST PICO RIVERA, CA 90660	788	37 - Transportation Equipment
2289688	EFG COMPANY INC	4000000 Q ST PICO RIVERA, CA 90660	746	37 - Transportation Equipment
46500	IJK COMPANY INC	2000000 J ST SANTA FE SPRINGS, CA 90670	160	13 - Oil and Gas Extraction
24488	GGG COMPANY INC	600000 G ST SANTA FE SPRINGS, CA 93003	64.9	13 - Oil and Gas Extraction
23419	PQR COMPANY INC	1000000 F ST PICO RIVERA, CA 90660	32	49 - Electric, Gas, Sanitary Services
23351	CCC COMPANY INC	400000 C ST LOS ANGELES, CA 90040	2	28 - Chemical and Allied Products
19251	LMN COMPANY INC	5000000 T ST WHITTIER, CA 90601	23.5	34 - Fabricated Metal Products
18695	Zyx COMPANY INC	3000000 Z ST	6.57	32 - Stone, Clay and Glass Products

Not real data.

http://www.arb.ca.gov/app/emsinv/facinfo/facdet.php?co_1=19&ab_1=SC&facid_1=3240788&dis_1=SC&dbyr=1996

Jump to a new location

County/Air Basin/Air District: Regions: Zip Code:

Link to Existing Database Query Tools for Facility Data

Facility Information

Facility Name :	ABC COMPANY INC.	District :	SOUTH COAST AQMD
Street :	10735 S SHOEMAKER AVE		
City :	SANTA FE SPRINGS	Zip :	90670
Contact Person :	ENVIRONMENTAL ENG	Phone :	(310) 903-2725
Facility SIC :	1311		

Mailing address

Company Name :	ABC COMPANY INC.		
Address :	10735 SOUTH SHOEMAKER AVENUE		
City :	SANTA FE SPRINGS	St :	CA
		Zip :	90670

For most recent data, please contact the Air District

[\[Start a new query\]](#) [\[Prioritization & Risk\]](#)

	Pollutant	Emissions	Unit
Data from 1996	TOG	21.8	Tons/Yr
	ROG	13.9	Tons/Yr
TOXIC DATA MAY COME FROM VARIOUS YEARS			
	Ammonia	587.4	Lbs/Yr
	Benzene	3702.4	Lbs/Yr
	Naphthalene	2398.4	Lbs/Yr

Not real data.

Link to Reported Risk Assessment if Available

Facility Risk Information

Facility Name : ABC COMPANY INC.
Street : 10735 S SHOEMAKER AVE
City : SANTA FE SPRINGS

District : [SOUTH COAST AQMD](#)
Zip : 90670

For most recent data, please contact the Air District

[\[Start a new query\]](#)

Not real data

Facility Health Risk and Score Data

Facility Prioritization Score	Inventory Year	Value	District Prioritization Threshold	
			High	Low
Cancer	1991	182.53	10	1
Non-Cancer Chronic	1991	6.92	10	1
Non-Cancer Acute	1991	1.07	10	1

Health Risk Assessment	Inventory Year	Value	District Notification Level	District RRAP Level
			Cancer Risk	1991
Non-Cancer Chronic Hazard Index	1991	.04	>1; lead THI >.5	>5
Non-Cancer Acute Hazard Index	1991	.01	>1; lead THI >.5	>5

Measure Distances with Circles (or Lines)

CHAPIS - Microsoft Internet Explorer

File Edit View Favorites Tools Help

California Air Resources Board CHAPIS Community Health Air Pollution Information System

Click on the map to create a circular buffer

Navigation Analysis Overview Map

ZYX COMPANY INC (18695)

Prototype for Review; NOT REAL DATA

Map Width: 6.3 miles

Select pollutant: Benzene Clear Select facility type: Facility Types & SIC Codes Go

Map Settings

Identify Layer: Emissions Map Tip Layer: Emissions Buffer Radius: 1 mile

Jump to a new location

County/Air Basin/Air District: Los Angeles Regions: REGIONS

Current Settings

Tool Mode: Buffer
County: Los Angeles

Messages

Legend / Facilities

Show Full Legend
Show Layer List

Benzene (Lbs./yr.)

- ▲ 0 - 1000
- ▲ 1000 - 25000
- ▲ 25000 - 116920

Combined Sources

Mobile, Areawide, and Stationary Totals.

Gridded Emissions Gridded Risk

Analysis of Sources in Map View

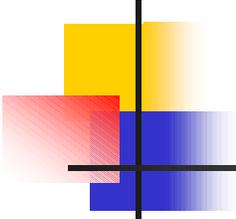
Calculate Stats for all Point Sources in the Map View

Calculate Stats

Print Map Get Help Start Page

NOTE: Displayed data are not real.

Start CHAPIS - Microsoft I... 5:50 PM



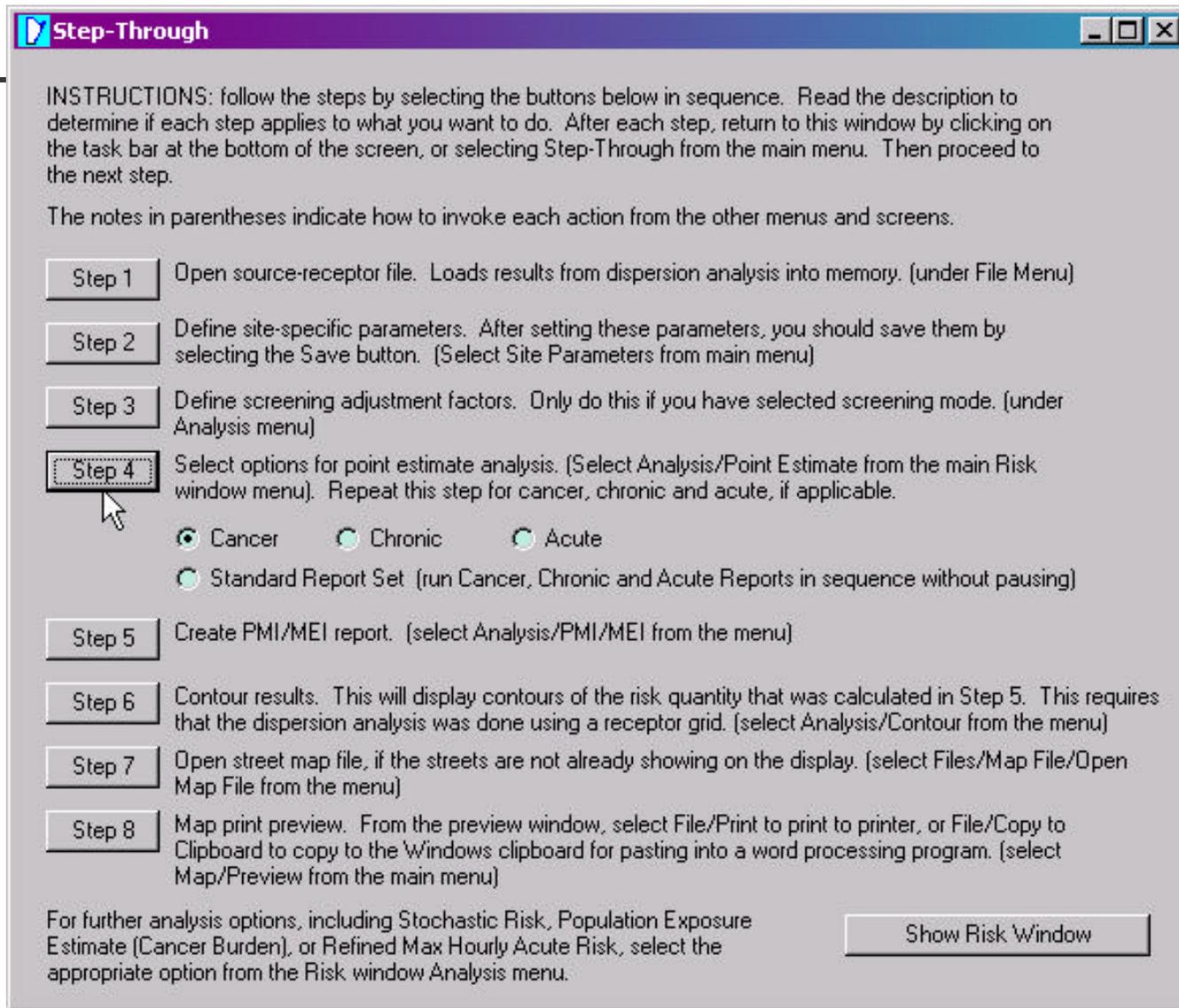
What is HARP?

The Hotspots Analysis and Reporting Program (HARP) is a tool to ...

- ✍ Create & manage facility emission data
- ✍ Perform air dispersion modeling
- ✍ Conduct health risk analyses
- ✍ Output data reports and maps



HARP: Risk analysis step-through



Step-Through

INSTRUCTIONS: follow the steps by selecting the buttons below in sequence. Read the description to determine if each step applies to what you want to do. After each step, return to this window by clicking on the task bar at the bottom of the screen, or selecting Step-Through from the main menu. Then proceed to the next step.

The notes in parentheses indicate how to invoke each action from the other menus and screens.

Step 1 Open source-receptor file. Loads results from dispersion analysis into memory. (under File Menu)

Step 2 Define site-specific parameters. After setting these parameters, you should save them by selecting the Save button. (Select Site Parameters from main menu)

Step 3 Define screening adjustment factors. Only do this if you have selected screening mode. (under Analysis menu)

Step 4 Select options for point estimate analysis. (Select Analysis/Point Estimate from the main Risk window menu). Repeat this step for cancer, chronic and acute, if applicable.

Cancer Chronic Acute

Standard Report Set (run Cancer, Chronic and Acute Reports in sequence without pausing)

Step 5 Create PMI/MEI report. (select Analysis/PMI/MEI from the menu)

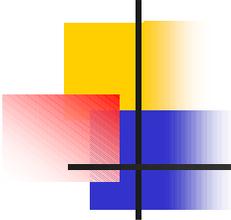
Step 6 Contour results. This will display contours of the risk quantity that was calculated in Step 5. This requires that the dispersion analysis was done using a receptor grid. (select Analysis/Contour from the menu)

Step 7 Open street map file, if the streets are not already showing on the display. (select Files/Map File/Open Map File from the menu)

Step 8 Map print preview. From the preview window, select File/Print to print to printer, or File/Copy to Clipboard to copy to the Windows clipboard for pasting into a word processing program. (select Map/Preview from the main menu)

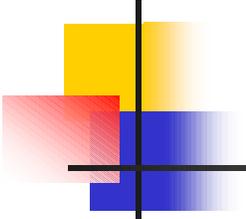
For further analysis options, including Stochastic Risk, Population Exposure Estimate (Cancer Burden), or Refined Max Hourly Acute Risk, select the appropriate option from the Risk window Analysis menu.

Show Risk Window



Site-specific analysis using HARP

- ✍ **Powerful tool in one convenient package which uses:**
 - ✍ ARB Emission Inventory Guidelines
 - ✍ U.S. EPA approved air dispersion models
 - ✍ OEHHA Risk Assessment Guidelines
- ✍ **Analyzes single or multiple facilities**
(cumulative impacts)
- ✍ **Tool for air quality professionals**



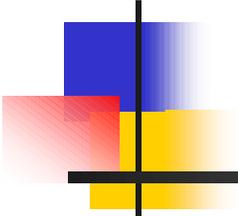
Tools to Assess Localized Cumulative Impacts

Vision: integrate CHAPIS and HARP on web

- User can add a new facility and overlay impacts with statewide risk maps
- Pushes technology

Also enhance desktop HARP to import external, regional modeling

- Single package for combining total cumulative impacts
- For air quality professionals doing local analysis

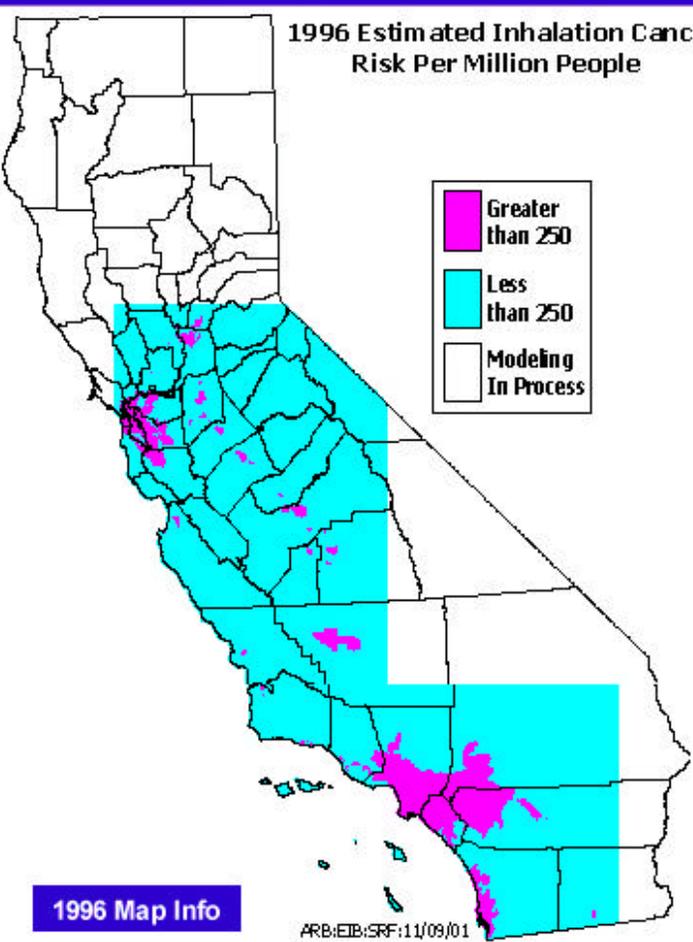


ARB Regional Risk Maps

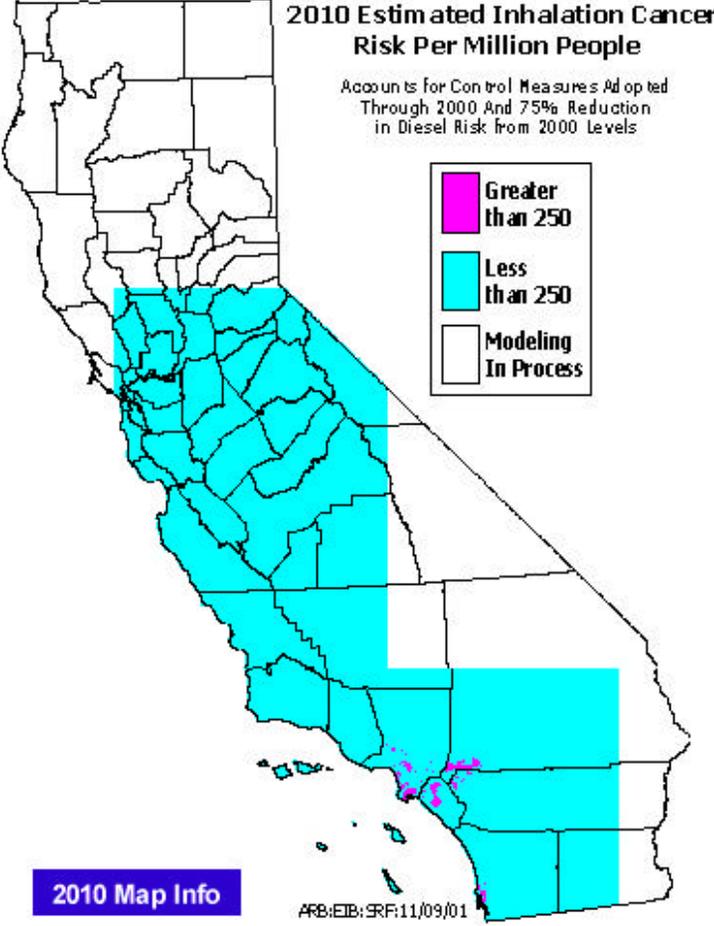
-- ASPEN Model --

- ✍ **Maps now on ARB web site**
 - ✍ ASPEN model with ARB's 1996 emission inventory
 - ✍ Trends to 2010
- ✍ **Update to statewide coverage and 2000 data**
 - ✍ ~ Spring/summer
- ✍ **Regional scale**

selected only because it conveniently illustrates the trends associated with urban areas. Local maps with additional risk cutpoints can be accessed either by emission category or year.

About Risk Maps	Local Maps By Emissions Category	Local Maps For Different Years
Community Health	 <p>1996 Estimated Inhalation Cancer Risk Per Million People</p> <p>Greater than 250 Less than 250 Modeling In Process</p> <p>1996 Map Info</p> <p>ARB:EIB:SRF:11/09/01</p>	Select year below to see trends
Health Effects		<input type="radio"/> 1990
Measured Air Pollution in Your Neighborhood		<input checked="" type="radio"/> 1996
Air Toxics Program		<input type="radio"/> 2010
Diesel Risk Reduction		<input type="radio"/> 2010 With 75% Diesel Risk Reduction Goal
Chemical Information		
Coming Soon		

selected only because it conveniently illustrates the trends associated with urban areas. Local maps with additional risk cutpoints can be accessed either by emission category or year.

About Risk Maps	Local Maps By Emissions Category	Local Maps For Different Years
Community Health Health Effects Measured Air Pollution in Your Neighborhood Air Toxics Program Diesel Risk Reduction Chemical Information Coming Soon	<h3>2010 Estimated Inhalation Cancer Risk Per Million People</h3> <p>Accounts for Control Measures Adopted Through 2000 And 75% Reduction in Diesel Risk from 2000 Levels</p>  <p>Greater than 250 Less than 250 Modeling In Process</p> <p>2010 Map Info</p> <p>ARB/EIB:ERF:11/09/01</p>	<p>Select year below to see trends</p> <p><input type="radio"/> 1990</p> <p><input type="radio"/> 1996</p> <p><input type="radio"/> 2010</p> <p><input checked="" type="radio"/> 2010 With 75% Diesel Risk Reduction Goal</p>

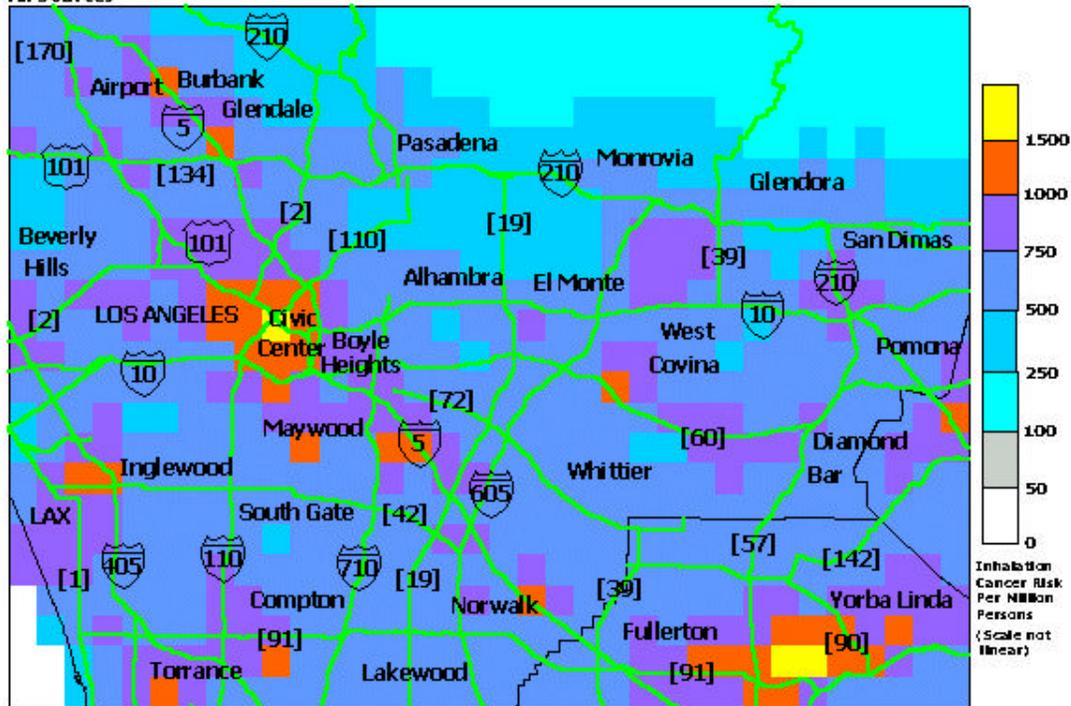
L.A.-Central

Map is loaded - Click on map to view printable map window.

Select region by clicking on name on above maps. Next select radio button, below, and then category from dropdown lists

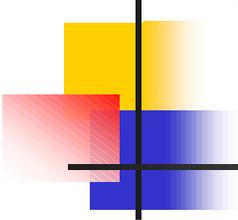
- TOTAL:
- DIESEL
 - All diesel
- NONDIESEL
 - All nondiesel

Total Risk (diesel + nondiesel)
Central Los Angeles : 1996 Cancer Risk Per Million
All Sources



See ARB web site list of sources not yet included in risk.

ARB:EB:SRF:11/20/01



Combine Regional Grid Modeling + Local-Scale Modeling

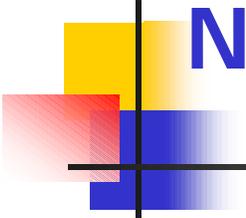
Regional Grid Modeling is Needed:

- Photochemistry
- Long-range transport
- Urban background

Local-Scale Modeling is Needed:

- Near-source peaks
 -  Busy roadways; ground-level sources
- Neighborhood resolution

Integrate and avoid double counting



Neighborhood Assessment Program

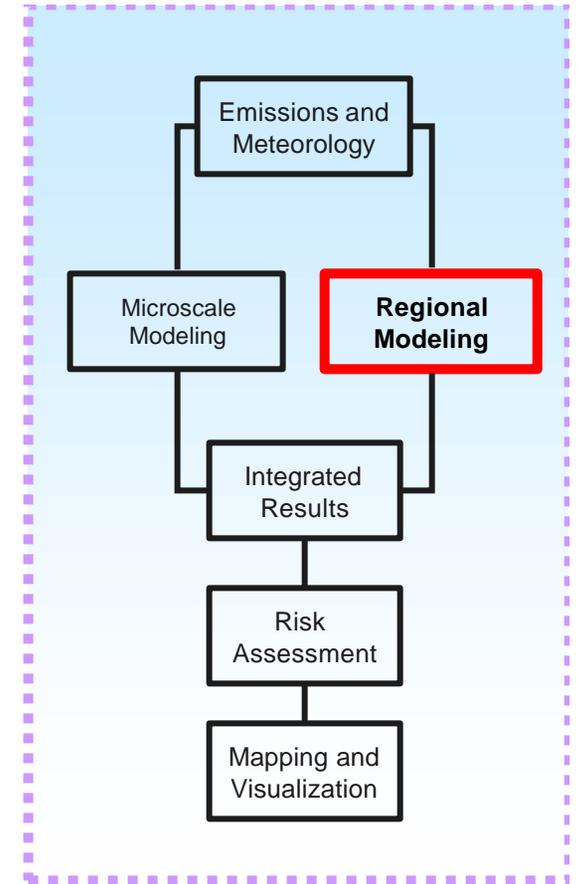
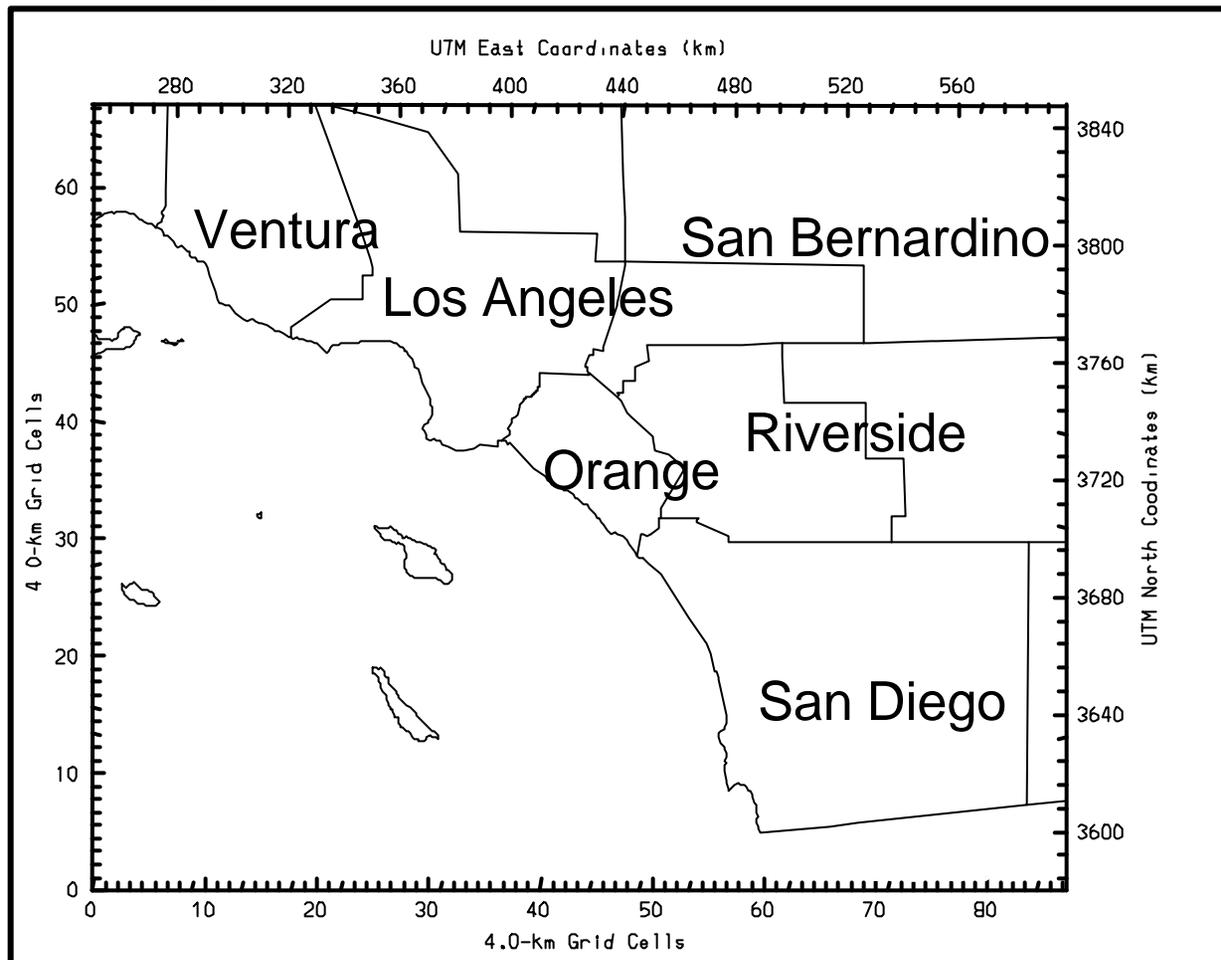
Neighborhood Assessment Program (NAP)

- Two major studies: Barrio Logan, Wilmington
- Detailed local emission inventories
- Community air monitoring
- Tracer studies
- Develop/test new modeling protocols
- Compare modeled and observed concentrations

Regional Modeling

Southern California - Pilot Study

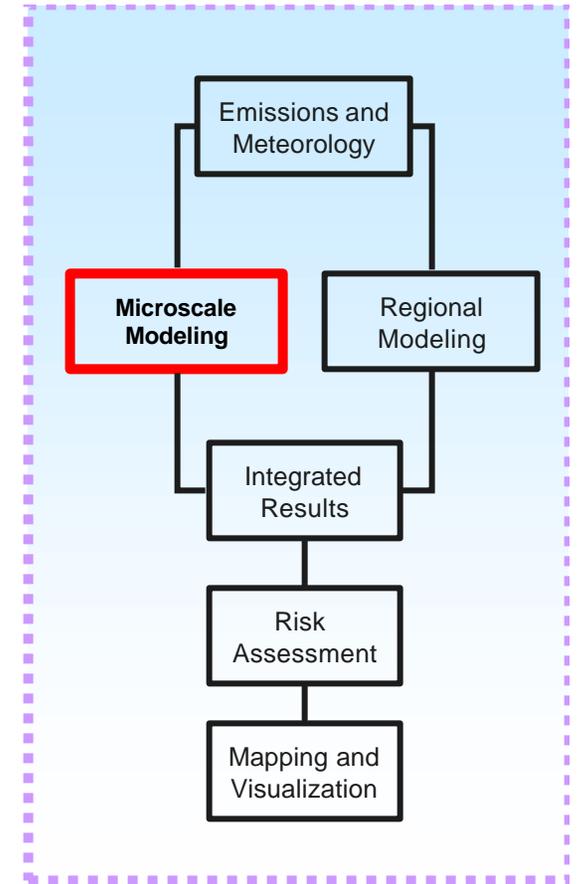
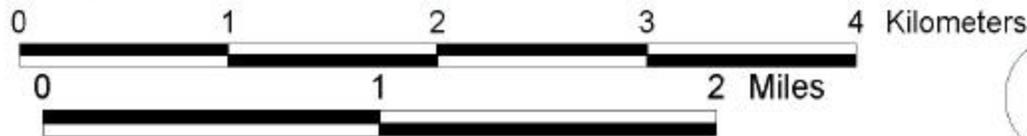
- SCOS domain (4 km grid resolution)
- Larger than MATES II

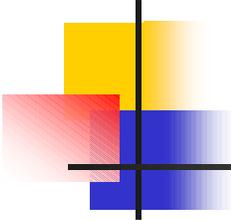


Microscale Modeling

Barrio Logan - Pilot Study

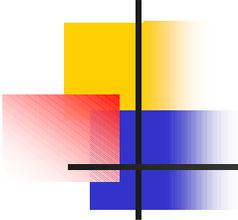
- Ship Building, Dock, Rail, Freeway, Manufacturing, Local Facilities, Local Traffic





Modeling Performance & Challenges

- ✍ **Objective is new**
 - ✍ Cumulative source modeling analysis
 - ✍ Regional models run for annual average
- ✍ **Integrate regional and microscale results**
- ✍ **Develop practical statewide approaches**
- ✍ **Workshops & Peer Review**



SUMMARY

Improved information to the public

- CHAPIS emission maps
- Statewide risk maps

Improved tools for air quality professionals

- To assess localized cumulative impacts

Improved tools for total cumulative impacts

- Localized impacts and regional perspectives on risk
- Peer reviewed protocols

END

