

DuPont Modeling Methodology and Results

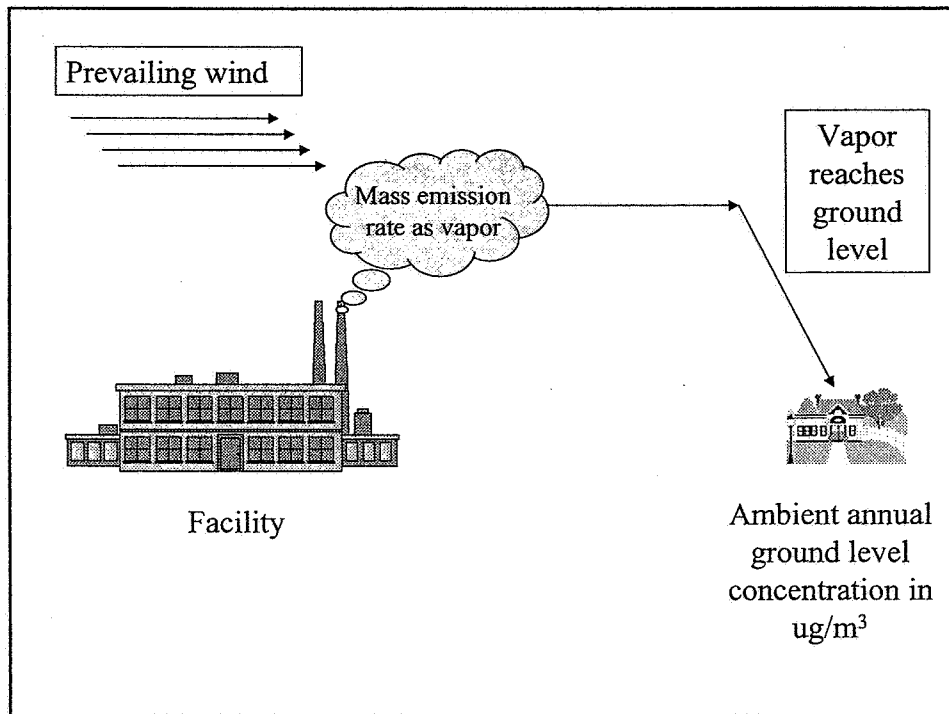
DRAFT

Shimizu Site

June 2003

About the Model

- Industrial Source Complex Short Term 3 (ISCST3)
- Sold/used globally, including in Japan
<http://www.phoenix-r.co.jp/products/products.htm>
- Input
 - Stack height, diameter
 - Flowrate, temperature
 - Mass of pollutant (kilogram per hour)
 - Local meteorological data (Shizouka 1997, 98, 99)
- Output
 - Ambient air concentrations in ug/m3
 - Max values and locations outside the property line



Model Calculations

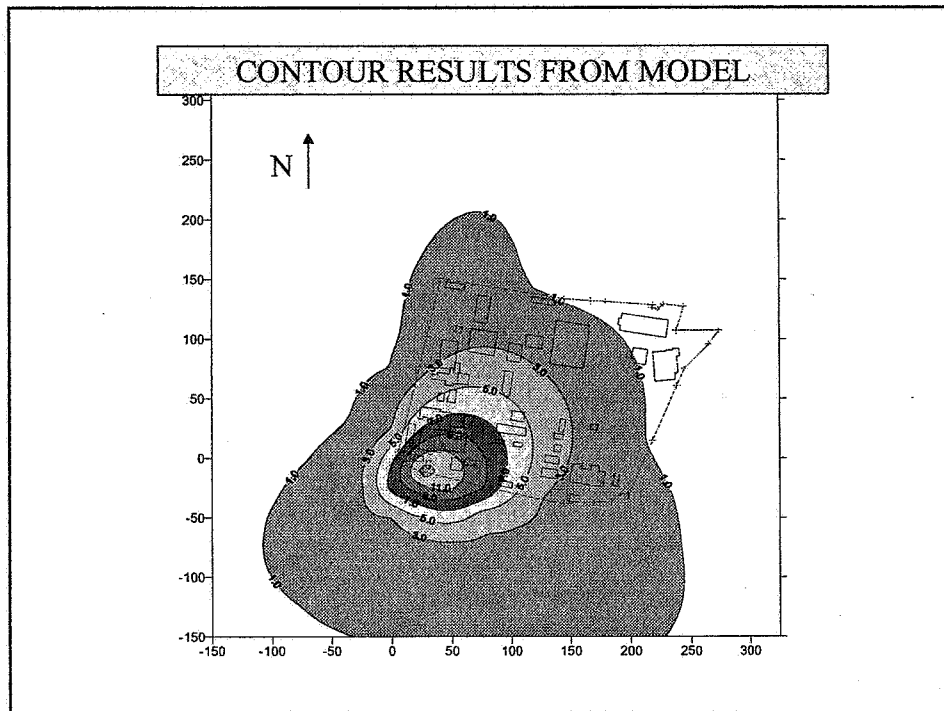
- Ambient air concentrations based on Gaussian Equation
- Concentration a function of a vertical term and a dispersion term
- Vertical term based on stack height, receptor elevation, plume rise, mixing
- Dispersion parameters describe distribution of pollutant in lateral and vertical

Shimizu Modeling Inputs - Emissions Rates

Source ID	Description	Location	Emission Rate, kg/hr	Emission Rate, g/s
1	Pre-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	0.24	0.0667
2	Post-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	0.24	0.0667
3	DBC Scrubber	E Plant: copolymer plant for PFA and FEP	0.07	0.0194
4	MP-2 scrubber	MP-2 building: copolymer type micro-powder	0.125	0.0347

Preliminary Modeling Results

- Maximum annual concentrations calculated as 14 ug/m3
- Point of maximum concentration at south boundary of site (on property line)



Contribution of Sources

Source ID	Description	Location	Height, m	Contribution, ug/m3	Contribution, %
1	Pre-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	8	7.002	50
2	Post-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	15	3.345	24
3	DBC Scrubber	E Plant: copolymer plant for PFA and FEP	18.2	2.953	21
4	MP-2 scrubber	MP-2 building: copolymer type micro-	16.1	0.771	5
				total = 14.071	