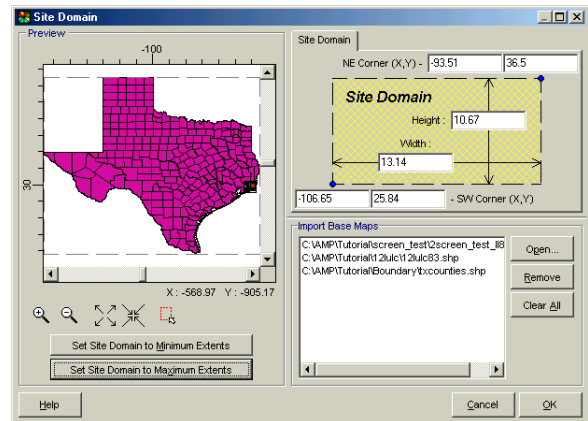


# ***RAIMI Tools Fact Sheet: Air Modeling Preprocessor (AMP)***

Air modeling for risk assessment must consider the local variability in land use and terrain to address site-specific fate and transport of airborne contaminants. Airflow surrounding a release is modified from the regionally measured meteorological data by local land features. Processing large data files of meteorological, land use and terrain information is time- and computer-intensive, particularly when assessing releases from hundreds or thousands of sources.

Additionally, automation of precise implementation methods ensures consistency among air modeling analyses. AMP implements automated data pre-processing to prepare source-specific meteorological and air model source input files accounting for localized variations in site characteristics.



## **Processing Site-Specific Meteorological Files**

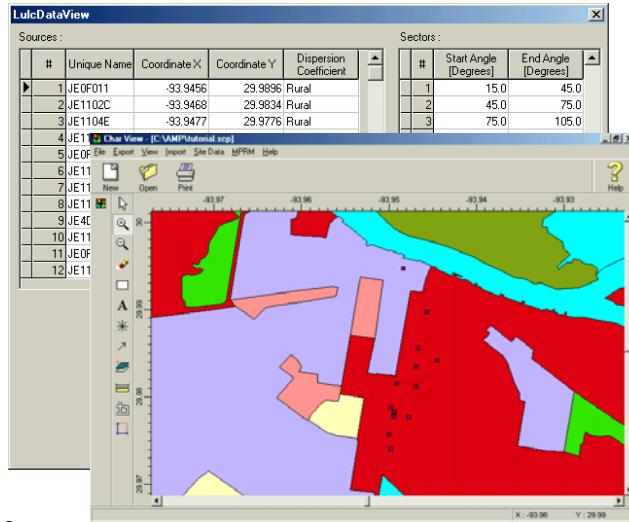
AMP is a robust data processing system that prepares a multi-year meteorological file for each source of contaminant release. With AMP, you can:

- Process local land use within 3 kilometers of every source to identify the source-specific, directional and seasonal surface roughness parameters, and determine the appropriateness of rural or urban air dispersion coefficients
- Process the regional measurements of meteorological parameters, typically five years, into a single localized source-specific meteorological file required for input to the air model

## **Preparing Source Input Files**

Sources included in the risk assessment require air model parameters for input to the risk pathways. Source input files direct the air model to compute air parameter values for acute and chronic risk for an area within 10 kilometers of each source, based on the unique release parameters of each source. As the source may emit contaminants in one or more phases, AMP prepares the required source input files for the air model (ISCST3) that include:

- Four separate input files for each source and phase (vapor, particle, particle-bound, and mercury vapor)
- Automatically generated grid node array (approximately 7000+ grid nodes) in a universal geographic grid system spaced every 3 arc-seconds (60-90 meters) out to 3 kilometers, and every 15 arc-seconds (300-450 meters) out to 10 kilometers, from each source location
- Automatically extracted terrain elevations at each grid node from the USGS 1-degree Digital Elevation Mapping (DEM) data
- Specification of acute (1-hour) and chronic (annual) averaging periods to prepare output plot files



## Key Components

AMP consists of four main components:

- **Define Datasets**, a tool to set pathways to view and process datasets
- **Process Site Parameters**, a tool that computes and views site parameters for each source
- **Create ADM Files**, a tool that:
  - Builds the air model input files (ISCST3) for each source
  - Includes all four contaminant phases (vapor, particle, particle-bound, mercury vapor)
  - Includes universal grid with terrain elevations surrounding each source
- **Process Meteorological Files**, a tool that:
  - Uses EPA's Meteorological Processor for Regulatory Modeling (MPRM)
  - Incorporates effects of seasonal land use near source
  - Creates source-specific meteorological files for each year of data
  - Merges multiple years of data into a single file

## System Requirements

To run AMP, you need:

- Windows 98, 2000, XP, ME
- 128Mb RAM (256Mb recommended)
- 200 megabytes of disk space (plus up to 3 Gigabytes of data, meteorological and source input files)

## Additional Information

For additional information on AMP or the RAIMI Program, contact Jeff Yurk, EPA Region 6, at [yurk.jeffrey@epa.gov](mailto:yurk.jeffrey@epa.gov) or via phone at 214-665-8309.

