

<b>Source Category:</b>	<b>Aircraft</b>
<b>SCC Code:</b>	<b>2275020000 Commercial</b> <b>2275050000 General Aviation</b> <b>2275060000 Air Taxis</b> <b>2275001000 Military</b>
<b>Pollutants of Concern:</b>	<b>PM-10, PM-2.5, VOC, NOx, CO, SOx, and 14 HAPs (including Pb)</b>
<b>How is the PM National Emission Inventory developed for this category?</b>	
<b>Current Methodology (see also the link to the NEI Methodology Description):</b>	
<ul style="list-style-type: none"> <li>• National level activity data on landing and take-off (LTOs) for commercial carriers obtained from U.S. DOT for U.S. flag carriers and from EPA OTAQ internal study for foreign flag carriers. Number of annual aircraft operations (arrivals plus departures) within each non-commercial aircraft category, divided by 2 (data from FAA).</li> <li>• Emission factors for commercial aircraft derived from Emissions and Dispersion Modeling System (EDMS) from FAA. Used default engines for each aircraft type and default time-in-mode values for takeoff, climbout, approach, and landing roll times. EDMS requires input of time-in-mode for taxiing and idling combined (default value of 26 minutes used for all aircraft types). Does not include emissions factors for PM.</li> <li>• For FAA U.S. flag LTO data whose aircraft could not be matched to EDMS aircraft, used an average LTO-based emission factor developed from the U.S. flag aircraft that could be matched.</li> <li>• Criteria pollutant emission estimates for military aircraft, general aviation, and air taxis were calculated by combining aircraft operations data from FAA's Air Traffic and Activity Data System (ATADS) and EPA criteria emission factors (see Mobile Source Emission Inventory Guidance Document reference)</li> <li>• National aircraft emission estimates were allocated to individual counties using airport activity data derived from FAA Terminal Area Forecast System (TAF) database of over 2,000 airports in the United States. The percentage of national LTOs represented by each airport was used to apportion the emissions.</li> </ul>	
<b>Current Variables/Assumptions Used:</b>	
<ul style="list-style-type: none"> <li>• National data on LTOs used for various aircraft categories</li> <li>• National emissions determined using national emission factors either from EDMS or from EPA OTAQ.</li> </ul>	

- Allocation to county level based on total LTOs at individual airports using FAA data.

**Uncertainties / Shortcomings of Current Methods:**

- Default engine types and time-in-mode values used.
- LTO data used to allocate emissions to the county do not generally include military LTO data.

**How can State, Local, and Tribal agencies improve upon this methodology?**

Commercial Aircraft:

- Obtain estimates of LTO data by airport/county, and by aircraft type [to obtain LTOs not covered by FAA data (e.g., foreign flag aircraft)] [*Local commercial airports (airport master plans or records), Federal Aviation Administration*]
- Develop airport specific emission estimates using the new FAA EDMS emission estimation tool in conjunction with local aircraft specific equipment and activity data. [*Local commercial airports (airport master plans or records), Federal Aviation Administration*]
- Information on climbout/takeoff/approach times, as well as taxi/idle times [*Local commercial airports (airport master plans or records), Federal Aviation Administration*]
- For PM, match emission factors from EPA’s 1992 Volume IV, Mobile Sources Procedures document, to the aircraft engines in their fleet as best as possible.
- Check EPA OTAQ web page since they are working with FAA to develop better aircraft PM emission factors. (Results expected late 2002)

General aviation, air taxi, and military aircraft:

- Obtain local estimates of LTOs for these categories (to obtain LTOs not covered by FAA data) [*Local commercial airports (airport master plans or records), Federal Aviation Administration*]
- Obtain information on the aircraft/engine types that comprise the aircraft fleet for these categories. Apply engine-specific emission factors from EPA’s Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources, 1992 (or EDMS, if available) [*Local commercial airports (airport master plans or records), Federal Aviation Administration*]

**Where can I find Additional Information and Guidance?**

**EPA Contact:** Laurel M Driver  
Emission Factor and Inventory Group

<p>U.S. Environmental Protection Agency  D205-01  USEPA Mailroom  Research Triangle Park, NC 27711  Telephone: 919 541-2859  E-mail: driver.laurel@epa.gov</p>	
<p><b>Additional Information on Emissions from Aviation Sources</b></p>	<p><a href="http://www.epa.gov/otaq/aviation.htm">http://www.epa.gov/otaq/aviation.htm</a></p>
<p><b>Mobile Source Emission Inventory Guidance Document</b></p>	<p><a href="http://www.epa.gov/otaq/inventory/r92009.pdf">http://www.epa.gov/otaq/inventory/r92009.pdf</a></p>
<p><b>NEI Methodology Description</b></p>	<p><a href="http://www.epa.gov/ttn/chief/net/index.html#doc">http://www.epa.gov/ttn/chief/net/index.html#doc</a></p>