

NASA Top-level Science Question: What are the effects of gaseous and particulate emissions and climate variability and change on global atmospheric composition, and how will future changes in atmospheric composition affect ozone, climate, and regional/global air quality?

Elements of the Science Question

Mission Science Questions ⇒ Mission Science Objectives

<p>1. What are the <u>emission</u> patterns of the precursor chemicals for tropospheric ozone and aerosols?</p>	<p>1. Quantify spatial and temporal emissions of ozone and aerosol precursors (NO_x, CO, hydrocarbons, SO₂, particle emissions).</p>
<p>2. What is the evolution of ozone and aerosol through chemical formation and loss, transport, and deposition <u>processes</u>?</p>	<p>2. Measure distributions of ozone, aerosol, and precursors at high spatial and temporal resolution over the US and surrounding regions.</p>
<p>3. What are the influences of <u>weather</u> in transforming and dispersing emissions, ozone, and aerosol?</p>	<p>3. Track transport of aerosol and gases into, across, and out of NA; including large episodic releases from environmental disasters, e.g., fires, volcanoes.</p>
<p>4. What are the regional budgets for <u>air quality</u> criteria pollutants (CO, O₃, NO₂, SO₂, and aerosol) over North America?</p>	<p>4. Characterize regional air quality for model evaluation, assessment, and forecasting.</p>