



ASCENT

Center of Excellence for Alternative Jet Fuels and Environment

The Center of Excellence for Alternative Jet Fuels and Environment (ASCENT) is a cooperative aviation research organization co-led by Washington State University and the Massachusetts Institute of Technology, in collaboration with the FAA, NASA, the Department of Defense, the Environmental Protection Agency, and Transport Canada. The center works to create science-based solutions for the aviation industry's biggest challenges.

The Center of Excellence is focusing on meeting the environmental and energy goals of the Next Generation Air Transportation System, including reducing the number of people exposed to significant noise around U.S. airports; reducing significant air quality impacts attributable to aviation, achieving carbon neutral growth by 2020, and exploring ways to produce sustainable alternative jet

fuels at a commercial scale, which will create an industry with the potential for large-scale economic development and job creation.

The knowledge and capabilities gained from the Center of Excellence's research provides the aviation industry, governmental agencies, communities, and policy-makers with new scientific understanding and data, with which they can continue to address environmental issues and the future of aviation. In its seven years of existence, the Center of Excellence and its industry affiliates have provided more than \$125M for continued research into alternative jet fuels and the environment.

Some examples of current research:

- ▶ Domestic and international alternative jet fuel supply chain analysis
- ▶ Alternative jet fuel testing and evaluation to support ASTM Intl. Certification/Qualification process
- ▶ National Jet Fuel Combustion Program to develop improvements to the ASTM Certification/Qualification process

- ▶ Evaluation of economic, environmental and social sustainability of alternative jet fuels
- ▶ Development of sustainability criteria to include alternative jet fuels within a global market based measure for international aviation CO2 emissions
- ▶ Development of standards for aircraft CO2 emissions
- ▶ Development of measurement procedures and standards for non-volatile particulate matter emissions
- ▶ Development of sonic boom standards for civil, supersonic aircraft
- ▶ Sleep disturbance and cardiovascular disease due to aircraft noise exposure
- ▶ Development of impact quantification tools for aviation emissions
- ▶ Aircraft technology modeling
- ▶ Rotorcraft operations for noise abatement
- ▶ Aircraft operations for reduced noise and emissions

Established: September 2013

Research Areas

Alternative Jet Fuels

- Feedstock Development, Processing and Conversion
- Regional Supply and Refining Infrastructure
- Environmental Benefits Analysis
- Aircraft Component Deterioration and Wear
- Fuel Performance Testing

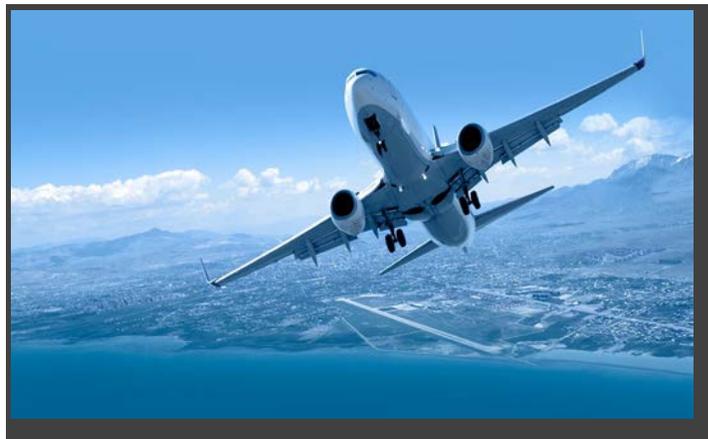
Environment

- Aircraft Noise and Impacts
- Aviation Emissions and Impacts
- Aircraft Technology Assessment
- Environmentally and Energy Efficient Gate-to-Gate Aircraft Operations
- Aviation Modeling and Analysis

Sponsor:

FAA Office of Environment and Energy

<https://ascent.aero>



Core University Partners

- Washington State University (Lead)
- Massachusetts Institute of Technology (Co-lead)
- Boston University
- Georgia Institute of Technology
- Missouri University of Science & Technology
- Oregon State University
- Pennsylvania State University
- Purdue University
- Stanford University
- University of Dayton
- University of Hawaii
- University of Illinois - Champagne Urbana
- University of North Carolina – Chapel Hill
- University of Pennsylvania
- University of Tennessee
- University of Washington

Other Sponsors

- Environmental Protection Agency
- Department of Defense Agency
- Department of Defense Space Administration
- Transport Canada

Industry, Professional, and Community Affiliates

A coalition of 16 leading US research universities and over 60 private sector stakeholders committed to reducing the environmental impact of aviation, ASCENT also works in partnership with international research programs, federal agencies and national laboratories to create an all-inclusive research capability for whatever environmental impact obstacle the aviation industry faces.

ASCENT Advisory Committee

The ASCENT Advisory Committee is comprised of non-university institutions engage in environmental issues of aviation.

The purpose of this committee is to help shape ASCENT's priorities, pursue other agencies and partners for participation, and ensure the research and implementation is relevant to the overall goals of the center. The Advisory Committee works directly with the center co-directors and not with the FAA and other federal agencies. The committee does not influence agency policy.

For more information, visit:

<http://ascent.aero/advisory-committee>

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The FAA has also established the following Centers of Excellence:

- Technical Training & Human Performance
<https://coetthp.org/>
- Unmanned Aircraft Systems
<http://www.assureuas.org/>
- Alternative Jet Fuels and Environment
<https://ascent.aero>
- General Aviation Research
<https://www.pegasas.aero>
- Commercial Space Transportation
<http://www.coe-cst.org>
- Joint Center for Advanced Materials
<http://www.niar.twsu.edu/coe/cecama.asp>
<http://depts.washington.edu/amtas>