



# Aviation and the Physical Impacts of Climate Change



Aviation is highly vulnerable to the types of weather-related stresses that will be exacerbated by global climate change.

Prolonged heat waves, increased frequency and severity of storms, and changing weather patterns will have important implications for the aviation sector.

Prudent risk management requires identifying how climate change will alter the nature and extent of these vulnerabilities over periods relevant to the aviation industry's medium- to long-term planning horizon.

The impacts of climate change are expected to be pervasive and multifaceted with an increase in both the frequency and severity of prolonged heat waves, intense storms, wildfires, and other weather-related events. For the air transport system, the implications are widespread with the potential for serious adverse effects relating to:

- Flight delays;
- Reduced load factors;
- Fleet and crew deployment;
- Changes in travel demand; and
- Heat-related stress on equipment and infrastructure.

Assessing risks from climate change impacts, and developing management plans where impacts could be significant, are important elements in medium- to long-range planning for the aviation community.

## Our Approach

Through our work with industry clients, ICF International has developed a systematic framework for assessing the risks associated with the physical impacts of climate change and creating effective management plans that deliver adaptive solutions. Our framework consists of four key steps:

### 1. Identify Risk Sources

The first step in our analysis is to identify specific areas of vulnerability for each client. Climate change will have both internal and external effects on members of the aviation community. Internal effects could include damage to equipment and structures, operational difficulties, and market changes that raise costs and reduce profitability. External effects might include failure of government services, damage to public infrastructure, disruption of supply chains, and changes in customer demands.

### 2. Conduct Risk Screening

Once we have identified the full range of risks, we undertake a systematic screening to organize each risk into one of three categories:

Category 1: Potentially significant climate risks that need to be addressed in the near term.

Category 2: Potential climate vulnerabilities that need to be monitored and reassessed over the long term.

Category 3: Minimal climate risks that require no further analysis.

### 3. Assess Risks

In this step, ICF performs a detailed analysis of all Category 1 risks. This analysis provides our clients with an in-depth assessment of the potential damages and costs that are likely to occur as a result of a combination of climate change impacts and inaction.

### 4. Identify Adaptive Responses

For the final step of our approach, we identify, evaluate, and make recommendations on adaptive responses that can reduce vulnerabilities substantially and mitigate the financial risks clients face as a result of the physical impacts of climate change.

## Our Expertise

ICF has a dedicated staff of more than 250 climate change professionals who deliver carbon management solutions expressly tailored to client needs.

We have more experience in the field of carbon management than any other professional services firm. From our offices in the United States, United Kingdom, Canada, Brazil, India, and Russia, ICF has provided carbon strategy support to more than 55 companies among the FT Global 500. The quality of our services and depth of expertise in carbon markets were acknowledged recently when *Environmental Finance* magazine announced the results of its annual market survey. The 900 respondents, each representing a unique organization, voted ICF a leading advisory services firm in three relevant categories.



ICF has extensive experience providing climate strategy services to the aviation sector. Our client list includes international commercial air carriers, major U.S. airports, and airport management groups. In addition to our private sector clients, we have provided climate- and aviation-related services to the National Aeronautics and Space Administration; the Federal Aviation Administration; the UK's Department for Environment, Food and Rural Affairs; the European Commission's Directorate General for Environment and Directorate General for Energy and Transport; and the International Civil Aviation Organization's Committee on Aviation Environmental Protection.

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## About ICF International

ICF International (NASDAQ: ICFI) partners with government and commercial clients to deliver consulting services and technology solutions in the energy, climate change, environment, transportation, social programs, health, defense, and emergency management markets. The firm combines passion for its work with industry expertise and innovative analytics to produce compelling results throughout the entire program life cycle, from analysis and design through implementation and improvement. Since 1969, ICF has been serving government at all levels, major corporations, and multilateral institutions. More than 3,000 employees serve these clients worldwide. ICF's Web site is [www.icfi.com](http://www.icfi.com).

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