



# Improving Airport Resilience to Climate Change & Severe Weather: 2024 Update



Seward Airport, AK. Photo credit: Alaska Aerial Technologies, LLC.



Palau International Airport, Bureau of Aviation, MPII, Republic of Palau, drone footage. Photo credit: Osel Rengulbai, Chief Airport Operations.



Fort Lauderdale, FL airport flooding in April 2023. Photo credit: FLL Airport Ops.

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## Project Summary

National Plan of Integrated Airport Systems (NPIAS) airports need comprehensive infrastructure plans and guidance to address near- and longer-term climate risks. The Federal Aviation Administration (FAA) Office of Airports and the Department of Transportation's (DOT) Volpe Center initiated a project in 2021 to develop the Airport Resilience Assessment Framework (ARAF) to analyze severe weather impacts on airport operations and improve resiliency in the face of climate change. In the first years, the team researched and compiled extensive historical and projected climate data for all NPIAS airports from authoritative federal sources. The ARAF provides interactive climate hazard exposure information for each airport so on-site planning and operations teams can rate vulnerability and conduct repeatable and effective resilience assessments.

The project team conducted pilot tests of the ARAF with seven airport partners, culminating in a Spring 2023 workshop. The airport partners used a prototype version of the interactive component of the ARAF to complete a resilience assessment of critical airport infrastructure and provided feedback on the process and findings. The feedback from the pilot test informed development of a new ARAF enhancement focused on assets and adaptations, to help airports identify solutions that reduce the risk of significant climate impacts and quantify benefits from resilience projects. New and returning airport partners participated in a second workshop in Spring 2024 to provide further feedback.

The ARAF resources will help guide airports to make decisions about infrastructure priorities by providing a combination of vulnerability ratings, climate impact scores, and solutions to reduce climate impacts. The information supports infrastructure planning and project development activities along with applications for federal, State, and local funding of projects that improve resilience.

## Climate Impacts for NPIAS Airports

The team created an interactive dashboard to support regional and system-wide insights of climate exposure across the NPIAS airports. Most airports are projected to experience rising temperatures and increased precipitation intensity under future climate conditions.

- The number of Primary commercial service airports which have a mean daily maximum temperature of the hottest month over 95 F is expected to increase from 28 in the historical record to 105 under a medium emissions scenario by 2050
- 298 Primary airports are expected to experience increased precipitation in the wettest month under a medium emissions scenario by 2050
- 118 runways at 89 NPIAS airports are expected to have some level of inundation in 2050 under the NOAA intermediate Global Mean Sea Level scenario (a projected median increase of 0.40m [range 0.31 to 0.49m] for the contiguous U.S.)

## Next Steps

- Regularly update the climate data components of the ARAF updates to incorporate revised and new federal data resources
- Pursue partnerships and case studies in vulnerable regions (Alaska and Micronesia and Pacific Island Territories and Nations)
- Coordinate with trade associations and conduct additional pilot testing of the ARAF components with airport collaborators
- Publish the ARAF for use in airport planning applications, as part of the normal development process used by airports and the FAA