

## Impact of Climate Change on Air Transportation System Components

	<b>Infrastructure – Airports (runways, taxiways, gates)</b>	<b>Infrastructure – ANSP (surveillance, navigation aids, comm networks)</b>	<b>Aircraft Performance</b>	<b>Aircraft Safety/Passenger Travel Comfort</b>	<b>Local - Noise</b>	<b>Local – Air &amp; Water Quality</b>	<b>Passenger Demand</b>
<b>Temperature Increases</b>	<ul style="list-style-type: none"> <li>• Heat damage to runway surfaces</li> <li>• Increased facility cooling costs</li> </ul>	Heat damage and wear to electronic equipment	<ul style="list-style-type: none"> <li>• Decreased climb performance</li> <li>• Delays due to aircraft max operating temps</li> <li>• Reduced payload due to aircraft max operating temps</li> </ul>		Changes in airport noise contours/impact		Shift in geographic region travel demand
<b>Change in precipitation</b>	<ul style="list-style-type: none"> <li>• Reduced capacity and closures</li> <li>• Reduced capacity due to contaminated surfaces</li> </ul>	Increased wear and tear	Contaminated runways require longer takeoff and landing distance	Frozen precipitation causes de-icing and delays	Changes in noise impact due to flight path changes	Changes in air & water quality	Shift in geographic region travel demand
<b>Frequency and Intensity of Convective Weather</b>	<ul style="list-style-type: none"> <li>• Reduced capacity and closures</li> <li>• Damage airport facilities (e.g. hangars)</li> </ul>	<ul style="list-style-type: none"> <li>• Increased wear and tear</li> <li>• Hail damage</li> <li>• Lose RAIM for space-based nav aids</li> </ul>		Increased turbulence	Changes in noise impact due to flight path changes		
<b>Strengthening of Jet Stream</b>			Increased performance East-bound (reduced fuel-burn)	Increased likelihood of turbulence			

			Decreased performance West-bound (increased fuel burn, increased maintenance)				
<b>Changes in Wind Pattern</b>	Reduced capacity due to runway configuration and wind misalignment			Increased crosswind takeoffs and landings	Changes in noise impact due to flight path changes		
<b>Sea Level Rise</b>	<ul style="list-style-type: none"> <li>• Reduced capacity and closures for airports adjacent bodies of water</li> <li>• Need for flood protection</li> </ul>	Relocation and water damage					Shift in geographic region travel demand
<b>Increased Storm Surge</b>	<ul style="list-style-type: none"> <li>• Reduced capacity and closures for airports adjacent bodies of water</li> <li>• Need for flood protection</li> </ul>	Relocation and water damage					