UNIVERSITY of HAWAI'I MĀNOA

Department of Atmospheric Sciences
M.S. Defense Announcement

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SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY

M.S. Defense Title:

IMPACTS OF WEATHER AND CLIMATE VARIABILITY ON COMMERCIAL AVIATION OPERATIONS

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Date: **Friday, July 22, 2016**
Time: **10:00 AM**
Location: **IPRC Conference Room, POST 414**

Abstract:

Weather creates numerous operational and safety hazards within the National Airspace System (NAS) creating flight delays, cancellations, and diversions; weather can also impact the economic performance of an operator, such as by changing fuel requirements or weight and load limitations for a flight. As a result of differences in geography, airport layouts, airport procedures, and other factors, individual airports are affected differently by common weather phenomena, and it is important to assess airports individually when studying the impacts of weather on aviation. Through the analysis of METAR weather observations and Federal Aviation Administration aviation performance datasets, the weather, delay, and cancellation climatologies were determined for ten U.S. airports. In addition, the impacts of weather on specific flight segments were determined to better identify the areas of poor performance in order to make future improvements. In order to determine the impacts of climate teleconnections on airport weather and ultimately aviation operations, changes in the monthly weather observations, such as freezing precipitation and thunderstorms, as a result of the El Niño Southern Oscillation and the Arctic Oscillation were also determined. Airlines and other aviation operators can use this information to develop schedules and procedures that are more resistant to weather impacts.