Towards Measuring the Impact of Weather Phenomena on Arrival Management

PRU DECEA

TEASER With air transportation recovering around the globe, the policy focus shifts back to environmental protection and the climate change impact of air transportation. Arrival operations at airports form part of a substantial benefit pool. WHY IMPORTANT Little attention is currently given to the underlying mechanism of changing weather phenomena on arriving air traffic. APPROACH This paper presents the conceptual approach to describe arrival management sequencing as a spatio-temporal problem within 200NM around an airport. The success of the trajectory-based operations will be analysed in light of significant weather disruptions at the arrival airports and within the studied arrival horizon.

EXPERIMENT MAJOR RESULT/TAKE AWAY

Note

This article is work in progress. We also use the Quarto manuscript project type to explore the new features. Please consult these pages regularly to follow any updates.

Introduction

Table 1: Threshold values for proxies defining particular hazard type.

Hazard type	Shortcut	Threshold values
Thunderstorm	TSTM	ML CAPE >150 J kg-1, convective precipitation >0.25 mm h-1
Limited visibility	LIMV	Ceiling height <200 ft AGL, low-level cloud cover $\frac{1}{4}100\%$
Low-level wind shear	LLWS	$0-100~\mathrm{m}$ AGL vertical wind shear gradient $>3~\mathrm{kt}$ per $100~\mathrm{ft}$
Snowfall	SNOW	Snowfall > 0.5 mm h 1 (liquid water content equivalent)

Source: Article Notebook

Values from (Taszarek, Kendzierski, and Pilguj 2020). Add some more text. Where is the article gone?

Background

Concept, Methods, and Data

Results and Discussion

Conclusion

References

Taszarek, Mateusz, Sebastian Kendzierski, and Natalia Pilguj. 2020. "Hazardous Weather Affecting European Airports: Climatological Estimates of Situations with Limited Visibility, Thunderstorm, Low-Level Wind Shear and Snowfall from ERA5." Weather and Climate Extremes 28 (June): 100243. https://doi.org/10.1016/j.wace.2020.100243.