Trajectory-based Operational Performance Assessment

(initial) Vertical Flight Efficiency

PBWG

Table of contents

“Preamble/Front Matters”

The PBWG is a multi-regional group aiming to foster the application of performance monitoring and benchmarking of air navigation services and air transport under the ICAO GANP.

This Technical Note summarises the (initial) development and refinement of trajectory based analytics.
As a first application use case, the group is interested in studying **vertical flight efficiency** in the arrival and departure phase.

To support the development an open trajectory data set is established for a representative subset of the operations studied by the PBWG.
The “playground” data is based on a regular data dump provided by Opensky Network(Schäfer et al. 2014).

This project is developed as a *quarto book* on top of the *R/RStudio eco-system*. For practical reasons the code is jointly developed using the *{tidyverse}* family. The latter supports readability/development of code for analysts without extensive coding/scripting experience.

1 Introduction

> **Note**
>
> Work in progress.
>
> - provide background
> - goal/structure of project/report

2 Conclusions

> **Note**
>
> This Technical Note is still under active development.
>
> - summarise what was shown
> - provide pointers for how to download/access the data/reproduce the study
> - open research / next problems
> - concluding remarks

Data Preparation

> **Note**
>
> This section is under development. The idea is to provide a pipeline to reproduce the examples.

- download data from OSN and/or package Zenodoo
- subset trajectory data for study airports
- extract / label trajectories
- detect level segments

References

Schäfer, Matthias, Martin Strohmeier, Vincent Linders, Ivan Martinovic, and Matthias Wilhelm. 2014. "Bringing up OpenSky: A Large-Scale ADS-b Sensor Network for Research." In, 8394.