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Dynamic airspace configuration by genetic algorithm

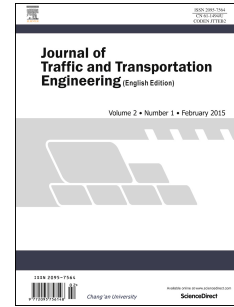
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1 Original Research Paper

2 **Dynamic airspace configuration by** 3 **genetic algorithm**

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9 10 **Highlights**

- 11 • An algorithm to solve a dynamic airspace configuration problem is proposed.
- 12 • The considered problem is formulated as a graph partitioning problem and is solved using
13 genetic algorithms.
- 14 • Airspace configurations obtained using the developed algorithm, outperform the existing
15 airspace configurations.

16 **Abstract**

17 With the continuous air traffic growth and limits of resources, there is a need for reducing
18 the congestion of the airspace systems. Nowadays, several projects are launched, aimed
19 at modernizing the global air transportation system and air traffic management. In recent
20 years, special interest has been paid to the solution of the dynamic airspace configuration
21 problem. Airspace sector configurations need to be dynamically adjusted to provide
22 maximum efficiency and flexibility in response to changing weather and traffic conditions.
23 The main objective of this work is to automatically adapt the airspace configurations
24 according to the evolution of traffic. In order to reach this objective, the airspace is
25 considered to be divided into predefined 3D airspace blocks which have to be grouped or

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