Guest editorial: The significance of clean and energy-efficient operations in sustainable aviation

Air transportation should be done using clean energy resources and technologies, without causing environmental pollution, and in energy-efficient, economical, safe and fast ways. In short, it must be sustainable. Many developed countries have set net-zero emission targets for the near future. To achieve this goal, it is necessary to consider many factors. The first of these is to use efficient aircraft technology by using less energy and fuel. In this way, lower life cycle emissions can be produced. By using sustainable aviation fuel (SAF), CO_2 emissions to the environment can also be reduced. Some typical feedstocks used are cooking oil, animal waste, solid waste from homes, forestry waste and energy crops. Improvement in operations and infrastructure is also another critical factor for sustainable aviation. It is possible to use less energy on the ground or to reduce the fuel consumed by choosing the optimum flight path. To make the airports sustainable, there are also issues such as reducing the maintenance costs of the devices, increasing the lifetime of the buildings and making the lighting, heating and cooling more economical. To ensure all this, researchers from around the world work together on materials and aircraft component development testing, wind tunnel testing, emissions and combustion testing, computational modeling and simulations.

The marginal effects of aviation felt in the vicinity of the airports. The most harmful effects of aircraft have been formed during the take-off by the jet engines' full throttle usage. Furthermore, the airport campus has many concentrated energy consumption areas, including local mobility, heating, cooling and lighting. However, there are measures to reduce the adverse effects of aerodromes, like Green Airport's certifications. Green Airports aims to certify the entity's performance in limiting its environmental impact by lowering energy consumption and waste and using more sustainable materials than raw resources. Hence, the human need for speedy transportation between continents and the living century's pressure on effective production, air transportation must be sustained environmentally.

International Symposium on Sustainable Aviation (ISSA-2021) was held hybrid between November 25 and 27, 2021, at Kasetsart University, Bangkok, Thailand. ISSA-2021 featured keynote presentations by invited speakers and general papers presentations in oral sessions. The symposium welcomed a large number of topics, including civil aviation, sustainable aviation and aerospace vehicle, environmental modeling and software, air conditioning and refrigeration applications of aircraft, energy, exergy, performance analysis, flight mechanics and computational fluid dynamics, avionics and auto control, design, management, planning, development, aircraft maintenance, repair and overhaul; airworthiness, reliability/safety and so on. Selected papers, which were presented at these conferences, and additional papers by well-known authors on these topics were invited for publication in this special issue. After the review process, ten papers (nine research papers and one review paper) were selected for publication. Corresponding authors of these papers are from the following countries: Hungary, South Africa, India, China, Turkey and Serbia.

The titles of these papers are as follows:

- Aerodynamic analysis of a logistics UAV wing with compound ducted rotor.
- Aviation communication: the effect of critical factors on the rate of misunderstandings.
- Image processing methods decision mechanism for surveillance applications with UAVs.
- Development of a novel supervisory controller on a parallel-hybrid powertrain for small unmanned aerial systems.
- Technology and solution-driven trends in sustainable aviation.
- Initial development of tandem wing UAV aerodynamic configuration.
- Aviation operators (pilots, ATCOs) decision-making process.
- Securing ADS-B data transmissions using blockchain: a comprehensive survey and analysis.
- An innovation-based actuator/surface fault detection, isolation, and filter tuning.
- A review of conventional and new-generation aircraft starter/generators from the perspective of electric drive applications.
- Environmentally sustainable airport development: Ukrainian case of decarbonization.

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