Day 3 (Thursday, 27 October) 14:30 - 16:30, Hall B
Organized Session 2　Urban Air Mobility

O2-1

Cross Fertilization between ATM and UTM

Pr Daniel Delahaye(Ecole Nationale de l'Aviation Civile)

This short paper analyzes the ATM concepts which could be succefully transfered to the UTM world. It then identifies the limits of this UTM fertilization from the ATM. On the other way, UTM can also be a good test-bed to try new air transportation concepts which could be transfered to the ATM world.

O2-2

Traffic Management Challenges in Advanced Air Mobility

Hamsa Balakrishnan, Christopher Chin (Massachusetts Institute of Technology), Karthik Gopalakrishnan (Stanford University), Victor Qin (Massachusetts Institute of Technology)

The emerging demand for Advanced Air Mobility is expected to pose new challenges that cannot be addressed by existing air traffic management approaches. Key among these challenges are the large number of operations, the increased levels of competition, and the dynamic nature of the demand. In this talk, we discuss how protocol-based approaches can be used to balance efficiency (both operational and economic) and fairness, in a scalable manner with limited information-sharing.

O2-3

Estimation Methods of the Visual Flight Rules Planned Route for Sharing Preflight Information with Urban Air Mobility

Daichi Toratani, Hiroko Hirabayashi (Electronic Navigation Research Institute, MPAT)

With the emerging urban air mobility, there is a concern that urban air mobility operations affect existing aircraft operations, especially operations of visual flight rules aircraft. Preflight information sharing between urban air mobility and visual flight rules aircraft is a promising approach to establish collaborative operational environment including urban air mobilities. With preflight information, such as planned route, it can be expected that potential conflict is detected before flights and resolved through traffic management system. The authors developed three estimation methods of the visual flight rules planned routes from the visual flight rules flight plan, which is not mandatory to submit to the local air navigation service provider in most countries but mandatory in Japan. Estimation results are compared with the actual track data to evaluate the estimation performance. Based on the comparison results of three estimation methods, discussion is provided regarding the trade-off of the estimation performance and implementation effort from the perspective of sharing preflight information.

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O2-4

An Overview of Advanced Air Mobility Research at NASA

Marcus Johnson, Jeffrey Homola (NASA Ames Research Center)

Advanced Air Mobility (AAM) is expected to enable new types of aircraft to provide local-area transportation more cleanly, efficiently, and quietly than today, complemented by higher levels of autonomy and automation, and supported by air traffic management systems and infrastructure. A varied set of missions and use cases is envisioned. The United States' National Aeronautics and Space Administration (NASA) has established a broad research portfolio that leverages internal activities and external collaborations with industry and government. As the AAM concept has evolved, compelling new applications to disaster response have emerged, posing new challenges for the research community. To address these challenges, NASA is leveraging its foundational work performed in partnership with the Japan Aerospace Exploration Agency (JAXA) on integrated unmanned and manned aircraft operations in disaster response situations. The joint NASA and JAXA work, along with the ongoing AAM efforts, have contributed to the formulation of a new project that will expand the scope of technology integration with an initial focus on wildland firefighting.