

“Climate Change and the Role of Air Traffic Control”

Key Messages of the Workshop

The workshop discussed the important interaction between climate change and aviation and considered in particular the role of air navigation services as an essential enabling infrastructure. It highlighted relevant findings of current scientific research into aviation-related Greenhouse Gas emissions and their expected impact. These facts were then seen in conjunction with political strategies and programmes e.g. the European Union’s Green Deal and the European Commission’s #Fitfor55 initiative as well as concrete operational experiences and goals of aviation stakeholders.

- The central focus of the European Commission’s Environmental Strategy as it relates to aviation is the development of scalable, sustainable and advanced aviation fuels for predominant use in operations by 2050, and the optimisation of current technologies and procedures until then – with air traffic management playing a contributing role. Less emphasis seems to be placed on expected rebound effects
- Our scientific understanding of aviation-related environmental impacts is growing, but there are still high uncertainties over the impact of non-CO2 emissions. Trade-offs between short-term and long-term effects of CO2 versus non-CO2 impacts are a subject of interest and to some extent controversy. There is a substantial lack of data and agreed metrics to drive further environmental improvements in a coherent and systematic way. While technological advances clearly reduce the footprint of individual flights, the historic growth of the number of aviation movements has overcompensated this by a large margin.
- The workshop, recognizing the urgency of mitigating action, supported the need to invest substantially into further research and data acquisition and to develop new metrics to quantify both performance and the potential for improvement. Stakeholders from science, technology and aviation will need to work more closely together, and continued EU support for applied R&D will be instrumental to achieve significant progress.
- The workshop participants expressed the willingness, competence and readiness of the ATM industry to support and further the Green Deal, but observed that a societal consensus, translated into clear policy directives, objectives and targets needs to be more clearly defined by the relevant bodies and authorities. Only a clear, common understanding of the meaning of “green flying” can form the basis for further progress towards a sustainable essential aviation sector.
- Experts warned against delaying concrete trials, tests and quasi-operational experiments and stated the urgency to act now instead of waiting for further scientific proof.
- There is a clear link between *capacity*, defined as a maximum number of flights passing through a sector, and *environmental impact*. A policy decision is required on whether to prioritise reducing emissions by limiting flight numbers or continuing to increase flight numbers but aiming for less environmentally damaging trajectories.
- Air navigation service providers require a legal framework setting unambiguous and clear priorities concerning different aspects of efficiency and environmental targets ranging from noise abatement, and air quality improvement to reducing climate impact.
- Recognizing the need to balance the sometimes-competing performance areas of safety, capacity, environment and cost efficiency, there is a need to adapt the current performance regulation to reflect that the implementation of Free Route Airspace has made the horizontal flight efficiency Key Performance Indicator obsolete.

- A total economic approach monetarizing all areas might be a suitable way forward – on the understanding that safety will never be compromised.
- To safeguard the European dimension, there is a need to provide the Network Manager with clear rules on how to manage the European network in an environmentally friendly way – to be laid down in the Network Managers Performance Plan.
- Some emerging impacts of climate change (e.g. intelligent use of changes to the location, orientation and strength of the jet stream may have a potential for some fuel savings) may help to reduce aircraft emissions while changes to e.g. convective events will lead to more disruptions.
- There is a need to improve the reliability and ease of access to real-time and cross-border weather predictions, including estimates of achievable accuracy.
- To reduce the impact of aircraft emissions on climate change a cross domain approach is required – incorporating policy makers, regulatory institutions, climate researchers, MET providers and all partners in the aviation value chain: airlines, aircraft and systems manufacturers, airports, the Network Manager and air navigation service providers.

As a general conclusion it was felt that while the participants all shared a sense of urgency in mitigating the negative impacts of climate change, and expressed their commitment to contribute to the success of such efforts, overall political guidance and leadership will be essential to achieve a fair, coordinated and successful effort across all sectors and stakeholders in aviation, which will continue to form an essential element of transport and mobility in the face of global challenges ranging from increasingly frequent and damaging natural disasters to pandemics.