Weather influence in aviation
H₂O and NOₓ climate impacts

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Project Overview

Aviation contributes to climate change in the order of 5%. Roughly a third is due to aviation nitrogen oxides (NOₓ) emissions. NOₓ emitted by aviation mixes with NOₓ from other sources and leads to the formation of ozone. A major sink for aviation NOₓ and naturally H₂O, is rain-out. Hence the meteorology plays a major role in the climate impact of aviation NOₓ.

In numerical simulations it is feasible to track and tag the emitted NOₓ and the chemical products such as ozone. The relation between locally emitted H₂O/NOₓ at cruise levels and its climate impact has been established in so-called climate change functions (CCF).

Project Goals

Identification of the relations of local weather data with H₂O and NOₓ climate change functions for representative weather situations

- Analysis of the variability in aviation NOₓ and H₂O climate impacts
- Identifying relations between weather data at the time of emission and the respective climate impact
- Development of algorithm-based climate change functions

Thesis will be performed in cooperation with DLR
Contributions the $\text{NO}_x$ concentration