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Hamburg Aerospace Lecture Series

Hamburger Luft- und Raumfahrtvorträge

RAeS Hamburg in cooperation with the DGLR, VDI, ZAL & HAW invites you to a lecture

Aviation and the Climate – An Overview

Prof. Dr.-Ing. **Dieter Scholz**, MSME, HAW Hamburg

Date: **Thursday, 27 January 2022, 18:00 CET**
Online: https://purl.org/ProfScholz/zoom/2022-01-27

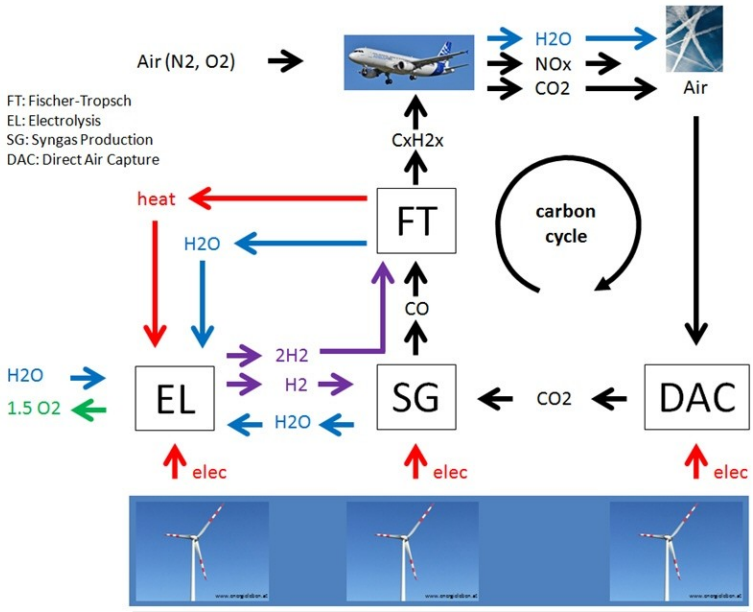
Introduction to Emissions from Aviation
Are emissions from aviation relevant?
What climate goals does the EU have for aviation?
LH2 and SAF, the new energy carriers in aviation
From Energy to Emission Comparison
What is better for the environment - plane or train?

Sustainable Aviation Fuel (SAF) in Germany
History of SAF in Germany. SAF from Atmosfair
SAF Production. Virtual SAF. The SAF-Seal

Kerosene and Hydrogen Emissions
Primary Energy for SAF and Hydrogen
Altitude-Dependent Equivalent CO2 Mass
Aviation-Induced Cloudiness (AIC): Contrail Cirrus & Persistent Contrails
Schmidt-Appleman Criterion for Contrail Formation
Heating Value Q, Emission Index EI, and Slope G
Hydrogen: Less NOx in Lean Combustion
The "Ice Sphere Model". Estimating the Emission Characteristics of Kerosene and Hydrogen

Mitigating Aviation Emissions at Altitude
Operational Measures to Avoid Contrails
Flying Lower. Redirecting Flights
Regulatory Policies for Aviation Emissions

Action?
Ecolabels for Aircraft
What can we actually do ourselves?



The **carbon cycle**. CO2 that is released into the atmosphere has to be captured from the air. In the long run CO2 from e.g. a coal power plant cannot be used, because there will be no such plants left. The carbon cycle by itself does not make aviation climate neutral, because NOx and H2O are still released. How much more CO2 would need to be captured and stored underground to make **synthetic fuel a truly sustainable aviation fuel (SAF)?**

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Hamburg Aerospace Lecture Series (DGLR, HAW Hamburg, RAeS, VDI, ZAL)

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