

TAC-5 detailed
AGENDA

Schedule of presentations

–

Oral programme and poster

Preliminary

TAC-5 AGENDA

Sunday, 26 June 2022	
17:00	Registration
19:00	<i>End of Sunday registration time</i>

ORAL PRESENTATIONS

Monday, 27 June 2022	
09:00	Registration / Coffee
Opening ceremony	
Chair: R. Sausen	
10:45	NN <i>Opening Address</i>
11:00	M. Fischer: <i>DLR research for a sustainable aviation and transport</i>
11:30	R. Sausen: <i>Information on the venue and technical information</i>
Mitigation of transport impacts by operational means	
Chair:	
12:00	Zengerling Z. (DLR): <i>Flying low and slow: Climate mitigation potential of reduced cruise altitudes and speeds in different seasons</i>
12:15	Lim L. (MMU): <i>Theoretical potential of CO2 emissions reduction through fleet and flight network optimization</i>
12:30	Dietmüller S. (DLR): <i>Investigation of weather, altitude and season dependency of non-CO2 aviation effects by using algorithmic climate change functions</i>
12:45	Lunch
POSTER SESSION A – F Authors in Attendance	
Chair:	
14:00	<i>Poster groups A – F</i>
15:45	Poster / Coffee
Mitigation of transport impacts by operational means (continued)	
Chair:	
16:10	Linke F. (DLR): <i>Robust climate-optimized flight planning of intra-European flights considering meteorological uncertainties</i>
16:25	Matthes S. (DLR):

	<i>Concept for integrating uncertainties when identifying climate-optimized aircraft trajectories: FlyATM4E</i>
16:40	Niklaß M. (DLR): <i>Testing of a Monitoring, Reporting & Verification (MRV) Scheme for the integration of non-CO2 aviation effects into EU ETS</i>
16:55	Bussell E. (Satavia): <i>Contrail prevention exercises through commercial flight planning</i>
17:10	Sausen R. (DLR): <i>A real life trial for avoiding contrails</i>
Mitigation of transport impacts by technological changes in vehicles and engines	
Chair:	
17:25	Arunachalam S (University of North Carolina): <i>Air quality and health-related impacts of traditional and alternate jet fuels from airport aircraft operations in the U.S.</i>
17:40	Deck K. (TU Delft): <i>Model development for climate optimized aircraft design</i>
17:55	<i>End of presentations</i>
18:15	Welcome Reception
19:00	Dinner
20:00	Evening lecture

Tuesday, 28 June 2022	
08:30	Registration
Vehicle emissions	
Chair:	
09:00	Muller, M. (ONERA): <i>Comparison of CEDRE and LASPORT plumes for a single aircraft engine at ground</i>
09:15	Durdina L. (ZHAW): <i>Certification versus research measurements: Investigating the variability of particle emissions of commercial jet engines from a long-running series of emission tests</i>
09:30	Yazdani M. (Raytheon Technologies Research Center): <i>A Predictive modeling framework for post-inception growth soot particles in aero-engine combustors</i>
09:45	Baughcum S. (Boeing): <i>Overview of On-Wing Emissions Testing on the Boeing ecoDemonstrator using SAF Fuels</i>
10:00	Moore R. (NASA): <i>Particle and Trace Gas Emissions Indices Measured During the 2021 Boeing ecoDemonstrator Emissions Ground Test</i>
10:15	Posters / Coffee (group photo)
10:40	Voigt C. (DLR): <i>In-flight measurements of particle emissions and contrails from an A319neo with lean burn engine technology</i>
10:55	Schripp T. (DLR): <i>Overview of gas and particle emissions during ground measurements with an Airbus A350 burning conventional and 100% sustainable jet fuel</i>
Excursion to Wendelstein	
Chair:	
11:10	<i>Wendelstein presentation</i>
11:40	P. Naoum: <i>Technical information on the excursion</i>
11:45	Lunch
13:00	Departure of bus at Hotel St. Georg
13:30	Scientific Excursion to Wendelstein Observatory
18:45	Return to Hotel St. Georg
19:00	Dinner
20:00	Evening lecture

Wednesday, 29 June 2022	
08:30	Registration
Emission inventories and scenarios	
Chair:	
09:00	Mathes T. (Federal Institute of Hydrology): <i>Measuring the contribution of inland shipping on air pollution along the federal waterways in Germany</i>
09:15	Thomsen N. (DLR): <i>Forecasting the Spatial Distribution of Road-Based Transport Emissions – A Modeling Framework for Central Europe</i>
09:30	Grobler C. (MIT): <i>Commercial civil aviation emissions from 1980 to the present day</i>
09:45	Aulinger S. (Hereon): <i>Current and future scenarios of NO_x emissions from inland navigation</i>
10:00	Badeke R. (Hereon): <i>Application of a flexible plume approach for ship emissions in a city-scale air quality model</i>
10:15	Kurchaba S. (Leiden University): <i>Towards quantification of NO₂ emission from individual seagoing ships using machine learning on TROPOMI satellite data</i>
10:30	Posters / Coffee
POSTER SESSION G & H Authors in Attendance	
Chair:	
11:00	Poster groups G & H
12:45	Lunch
Contrails and contrail cirrus	
Chair:	
14:00	Bräuer T. (DLR): <i>Airborne Contrail Measurements from Sustainable Aviation Fuels during the ECLIF II/NDMAX experiment</i>
14:15	Jurkat-Witschas T. (DLR): <i>CIRRUS-HL – the HALO mission on cirrus and contrail cirrus measurements in mid and high latitudes</i>
14:30	Miake-Lye R. (Aerodyne Research): <i>Microphysical Analysis of ND-MAX/ECLIF2 Contrails</i>
14:45	Unterstrasser S. (DLR): <i>Contrail formation on ambient aerosol particles for aircraft with hydrogen combustion</i>
15:00	Rosenow J. (TUD): <i>Validation of a Contrail Life Cycle model in Central Europe</i>
15:15	Burkhardt U. (DLR): <i>Impact of parameterizing contrail formation processes on global contrail cirrus radiative forcing and its dependency on soot number emissions</i>
15:30	Verma P. (DLR): <i>Cirrus perturbations due to contrail formation within cirrus</i>
15:45	Poster / Coffee

Contrails and contrail cirrus (continued)	
Chair:	
16:15	Li Y. (FZ Jülich): <i>Airborne observations of contrail cirrus over Europe and the Northeast Atlantic</i>
16:30	Ponsonby J. (Imperial College London): <i>Comparing Ground-based Contrail Observations with Flight Data and Model Forecasts</i>
16:45	Wolf K. (IPSL): <i>Contrail formation distributions derived from a 10-year radiosonde data set: Climatologies, model representation, and prospective effects of alternative fuels</i>
17:00	Gierens K. (DLR): <i>Towards a better prediction of persistent contrails using dynamical proxy variables</i>
17:15	Shapiro M. (Orca Sciences): <i>Forecasting Contrail Climate Forcing for Flight Planning and Air Traffic Management Applications</i>
17:30	Meijer V. (MIT): <i>Using satellite-based observations of contrails to inform contrail avoidance strategies</i>
17:45	Teoh R. (Imperial College London): <i>Targeted Use of Sustainable Aviation Fuels to Minimise Contrail Climate Forcing</i>
18:00	<i>End of presentations</i>
19:00	Conference Dinner

Thursday, 30 June 2022	
08:30	Registration
Indirect cloud effects	
Chair:	
09:00	Sauer D. (DLR): <i>Inflight measurements of particle emissions and contrails of passenger aircraft at cruise altitudes burning 100% sustainable jet fuel</i>
09:15	Testa B. (ETHZ): <i>Ice nucleating properties of aircraft turbine engine soot particles with respect to cirrus clouds formations</i>
09:30	Mahnke C. (FZ Jülich): <i>Aviation induced aerosol within the UTLS: properties and processing observed from the IAGOS-CARIBIC Flying Laboratory</i>
09:45	Prashanth P. (MIT): <i>Aerosol formation pathways from aviation emissions</i>
10:00	Purseed J. (IPSL): <i>Large Eddy Simulation of interactions between aviation-aerosols and cirrus clouds</i>
10:15	Tully C. (ETHZ): <i>Evaluating cirrus cloud thinning efficacy using prognostic seeding particles along flight tracks in the ECHAM-HAM GCM</i>
10:30	Righi M. (DLR): <i>Exploring the uncertainties in the aviation soot-cirrus effect</i>
10:45	Posters / Coffee
Ship tracks	
Chair:	
11:15	Gryspeerd E. (Imperial College London): <i>Global observations of shiptrack formation and properties</i>
Transport impact on the chemical composition of the atmosphere	
Chair:	
11:30	Schlager H. (DLR): <i>Impact of reduced emissions from aviation during the COVID-19 pandemic on reactive nitrogen and ozone in the UTLS over Europe and the eastern North Atlantic</i>
11:45	Hahn J. (Hereon): <i>Future air quality changes due to ship emission mitigation in the North and Baltic Seas</i>
12:00	Terrenoire E. (Onera): <i>Impact of present and future aircraft Nox and aerosol emissions on atmospheric composition</i>
12:15	Lunch
Transport impact on climate	
Chair:	
13:15	Omanovic N. (ETHZ): <i>Assessing the impact of non-CO2 aircraft emissions on cirrus cloud formation in ECHAM-HAM GCM</i>
13:30	Thor R. (DLR): <i>Sensitivities of climate impact of supersonic aviation</i>

13:45	Bickel M. (DLR): <i>Effective radiative forcing and rapid radiative adjustments of contrail cirrus</i>
14:00	Schumann U. (DLR): <i>The Energy Forcing Concept for Climate</i>
14:15	Hendricks J. (DLR): <i>The climate forcing of global transport emissions in the Shared Socioeconomic Pathways (SSPs)</i>
14:30	Summary & Conclusions
15:00	<i>End of conference</i>

PRELIMINARY

POSTER

A. Mitigation of transport impacts by operational means	
A.01	Baumann (DLR): First results of EU funded aeronautic projects
A.02	Castino (Delft University of Technology): Eco-efficient aircraft trajectories in the European airspace
A.03	Elmourad (MIT): Flight level optimization for contrail avoidance
A.04	Frömming (DLR): Climate Change Functions as a basis for weather dependent climate optimized aircraft trajectories
A.05	Rubin-Zuzic (DLR): Aviation induced contrails and their avoidance by flight correction
A.06	Sausen (DLR): Flying lower in Germany: Does it reduce the climate impact of aviation?
A.07	Sausen (DLR): D-KULT: A Demonstrator for Climate and Environment Friendly Aviation
A.08	Unterstrasser (DLR): The mitigation potential of aircraft formation flight scenarios
A.09	Yin (Delft University of Technology): Research towards weather induced uncertainties for contrail persistence and mitigation strategies for contrail impact (BeCoM project)
B. Mitigation of transport impacts by technological changes in vehicles and engines	
B.01	Nalianda: Contrails from LH2-fuelled aircraft – what could we expect?
B.02	Prashanth (MIT): Post-combustion emissions control in aero-gas turbine engines
C. Vehicle emissions	
C.01	Miake-Lye (Aerodyne Research, Inc.): Volatile Contributions to nvPM: AMS analysis of nvPM emissions from a variety of commercial aircraft engines
C.02	Miake-Lye (Aerodyne Research, Inc.): Parameterization of H ₂ SO ₄ and Organic Contributions to volatile PM in aircraft plumes
C.03	Moore (NASA): Time-Varying Aircraft Take-Off Emissions Indices Measured at Los Angeles International Airport
C.04	Muller (ONERA): Comparison of CEDRE and LASPORT plumes for a single aircraft engine at ground
D. Emission inventories and scenarios	
D.01	Righi (DLR): ELK: a DLR project on global transport emission inventories
E. Indirect cloud effects	
E.01	Sharma (DLR): Towards an improved estimate of aviation-aerosol effect on low level clouds
F. Transport impact on the chemical composition of the atmosphere	
F.01	Cohen (CNRS): Impact of aircraft NO _x and aerosol emissions on atmospheric composition: a model intercomparison
F.02	Matthes (DLR): Comparing reactive species aircraft observations with EMAC global chemistry-climate model simulations
F.03	Righi (DLR): The global impact of the transport sectors on aerosol and climate in the Shared Socioeconomic Pathways (SSPs)

F.04	van 't Hoff (Delft University of Technology): Global ozone sensitivity to supersonic transport emissions above the transatlantic flight corridor
G. Transport impact on climate	
G.01	Dahlmann (DLR): Eco2Fly – Towards an aviation climate impact assessment
G.02	Kim (MIT): Effect of aircraft altitude on tradeoffs between monetized impacts of CO ₂ and NO _x
G.03	Matthes (DLR): ACACIA: Improved understanding on aviation's climate effects thru combination of numerical modelling and observations
G.04	Mertens (DLR): The contribution of transport emissions on ozone and methane lifetime in 2015 and 2050 in the Shared Socioeconomic Pathways (SSPs)
G.05	Thor (DLR): The Effects of Supersonic Aviation on Ozone and Climate
G.06	Xu (Civil Aviation Flight University of China): Climate Impacts on Density Altitude of Nine Airports in China
H. Contrails and contrail cirrus	
H.01	Bickel (DLR): Climate impact of contrail cirrus
H.02	Bugliaro (DLR): Temporal evolution of a contrail outbreak and its effect on the radiative budget
H.03	Dischl (DLR): Variation of Contrail Probability over Europe
H.04	Eleftheratos (National & Kapodistrian Univ. of Athens): Statistical analyses of cirrus cloud cover during the COVID-19 air traffic shutdown in spring 2020 and comparison with previous years
H.05	Gierens (DLR): Contrail formation conditions for various propulsion systems
H.06	Gryspeerd (Imperial College London): Multi-sensor satellite observations of contrail lifecycles
H.07	Hahn (DLR): Inflight measurements of the evolution of microphysical contrail properties during the CIRRUS-HL campaign
H.08	Lán (Czech Technical University in Prague): Connection of most common flight levels and contrail occurrence
H.09	Lottermoser (DLR): Intermediate Complexity Modelling of Contrail Formation
H.10	Marjani (Universität Leipzig): Aviation impact on the number of ice crystals in already existing thin cirrus clouds
H.11	Peter (DLR): Investigating contrail formation in the mid latitudes with a Lagrangian approach in EMAC in order to identify climate change functions
H.12	Sanchez (NASA): A Neural Network for Contrail Detection for Forecast Validation
H.13	Teoh (Imperial College London): Comparing In-situ Measurements of Emissions and Contrail Properties with Model Estimates
H.14	Verma (DLR): Contrail formation within cirrus: the impact of cirrus properties on contrail formation
H.15	Wang (DLR): Improved relative humidity in the upper troposphere and lower stratosphere and application to evaluating contrails persistence