



# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada



# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada



## Day 1 – Monday, 16 September 2024

	Assembly Hall (AH)
09:00 – 09:25	<p><b>Welcome and Opening</b></p> <ul style="list-style-type: none"><li>• <b>Salvatore Sciacchitano</b>, President of the ICAO Council, International Civil Aviation Organization – ICAO</li><li>• <b>Mohammed Rahma</b>, Director, Air Transport Bureau, International Civil Aviation Organization – ICAO</li></ul> <p><i>Keynote Speech by Jan Fuglestedt, Research Director, CICERO and Vice-Chair, Working Group III, Intergovernmental Panel on Climate Change - IPCC</i></p>
09:25 – 09:40	<p><b>Setting the Scene by ICAO</b></p> <ul style="list-style-type: none"><li>• <b>Jane Hupe</b>, Deputy Director, Environment, International Civil Aviation Organization – ICAO</li></ul>
09:40 – 10:45	<p><b>Session 1: Scientific Knowledge – Historical overview &amp; State-of-the-art</b></p> <ul style="list-style-type: none"><li>• This introductory session will give an historical overview of non-CO<sub>2</sub> aviation emissions and the current state of the scientific research.</li><li>• It will also share information on the latest scientific knowledge amongst different organizations, including the impact modelling of non-CO<sub>2</sub> aviation emissions.</li></ul> <p><b>Moderator: Dr. Neil Dickson</b>, Chief Environmental Standards, International Civil Aviation Organization - ICAO</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"><li>• <b>Nicolás Rivaben</b>, Scientific Officer, Observing Networks and Measurement Division, Infrastructure Department, World Meteorological Organization - WMO</li><li>• <b>Dr. Alex Rap</b>, Associate Professor, University of Leeds</li><li>• <b>Dr. Christiane Voigt</b>, Professor, Head of Department of Cloud Physics, German Aerospace Center – DLR</li></ul>
10:45 – 11:15	<p><b>Coffee Break</b> </p>
11:15 – 12:30	<p><b>Session 2: Enhancing Scientific Knowledge – Part I: NO<sub>x</sub> and Particulate Matter.</b></p> <ul style="list-style-type: none"><li>• This Session will provide detailed information on non-CO<sub>2</sub> aviation emissions, including NO<sub>x</sub> and nvPM, and the latest knowledge on the impact of these emissions.</li><li>• It will also share initiatives aiming at enhancing scientific knowledge on these emissions.</li></ul> <p><b>Moderator: to be announced.</b></p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"><li>• <b>Philippe Novelli</b>, ONERA The French Aerospace Lab</li><li>• <b>Rick Miake-Lye</b>, Vice-President and Principal Scientist, Aerodyne Research, Inc.</li></ul> <p><b>Other panellists to be announced.</b></p>

# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada



12:30 – 14:00	<b>Lunch Break</b> 
14:00 – 15:15	<p><b>Session 2: Enhancing Scientific Knowledge – Part II: Contrails</b></p> <ul style="list-style-type: none"> <li>This Session will provide detailed information on contrails and the latest knowledge on contrails and their climate impact.</li> <li>It will also share initiatives aiming at enhancing scientific knowledge on contrails.</li> </ul> <p><b>Moderator: <i>to be announced.</i></b></p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li><b>Nicolas Bonne</b>, ONERA The French Aerospace Lab</li> <li><b>Richard Moore</b>, Research Scientist, NASA Langley Research Center</li> <li><b>Pr. Ian Waitz</b>, Vice President for Research, Massachusetts Institute of Technology (MIT)</li> </ul>
15:15 – 15:45	<p><b>Coffee Break</b>  <b>sponsored by</b>  Silver Sponsor / Exhibitor</p> <p style="text-align: right;"><b>ATR</b></p>
15:45 – 17:00	<p><b>High-Level Panel: When Policy Development meets Science</b></p> <ul style="list-style-type: none"> <li>This High-Level session will include discussions on the interaction between the state of the science and the development of policy.</li> <li>Discussions will involve the readiness of the scientific work to facilitate policy development, as well as how policy can encourage research projects and partnerships.</li> </ul> <p><b>Moderator: Ambassador Michel Arslanian</b>, Permanent Representative of Brazil on the ICAO Council</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li><b>Jim Hileman</b>, Vice President and Chief Engineer of Sustainability and Future Mobility, Boeing</li> <li><b>Philippe Mattei</b>, Aviation &amp; Environment Expert, Airbus</li> <li><b>Maxime Meijers</b>, Co-Founder &amp; Chief Executive Officer, Estuaire</li> <li><b>Matteo Mirolo</b>, Head of Contrail Policy &amp; Strategy, Breakthrough Energy</li> <li><b>Adam Morton</b>, Head of Technology – Sustainability and Strategy, Aerospace Technology Institute – ATI</li> </ul>
17:00 – 19:00	<b>Welcome Reception (TBD)</b>
<b>End of Day 1</b>	

# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada



## Day 2 – Tuesday, 17 September 2024

Assembly Hall (AH)	
09:00 – 09:45	<p><b>Setting the Scene <i>by the Industry</i></b></p> <p><b>Moderator:</b> <b>Capt. Claude Hurley</b>, Director, Environment &amp; Flight Operations, International Business Aviation Council - IBAC</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li>• <b>Michelle Bishop</b>, Director, Programmes, Civil Air Navigation Services Organisation - CANSO</li> <li>• <b>Alejandro Block Novelo</b>, Manager, New Technologies, International Air Transport Association - IATA</li> <li>• <b>Charles Renard</b>, Senior Emissions Advisor, International Coordinating Council of Aerospace Industries Associations - ICCAIA</li> <li>• <b>Michael Rossell</b>, Advisor, International Relations, Airports Council International – ACI World</li> </ul>
09:45 – 11:00	<p><b>Session 3: Mitigating Non-CO<sub>2</sub> Aviation Emissions – What is possible – Part I: Innovative Technologies</b></p> <ul style="list-style-type: none"> <li>• This Session will showcase ongoing and future initiatives on innovative technologies to mitigate Non-CO<sub>2</sub> Aviation Emissions.</li> </ul> <p><b>Moderator:</b> <b>Dr. Bethan Owen</b>, Manchester Metropolitan University - MMU</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li>• <b>Dr. Peter de Bock</b>, Program Director, US Department of Energy, Advanced Research Projects Agency – Energy (APRA-E)</li> <li>• <b>David Ostdiek</b>, RISE Program Systems Senior Engineer, GE Aerospace</li> <li>• <b>Raphael Felipe Gama Ribeiro</b>, Conceptual Studies Lead, Embraer Energia</li> <li>• <b>Theo Rindlisbacher</b>, Federal Office of Civil Aviation Switzerland - FOCA</li> <li>• <b>Dr. Feijia Yin</b>, Assistant Professor, Climate Effects of Aviation, Faculty of Aerospace Engineering, TU Delft</li> </ul>
11:00 – 11:30	<p><b>Coffee Break</b> </p>
11:30 – 12:45	<p><b>Session 3: Mitigating Non-CO<sub>2</sub> Aviation Emissions – What is possible – Part II: Innovative Operations</b></p> <ul style="list-style-type: none"> <li>• This Session will showcase ongoing and future initiatives on innovative operations to mitigate Non-CO<sub>2</sub> Aviation Emissions.</li> </ul> <p><b>Moderator:</b> <b>Capt. Robert Brons</b>, Chairperson, Climate Working Group, International Federation of Air Line Pilots' Associations - IFALPA</p>

# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada

	<p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li>• <b>David Antonello</b>, Green Operations ATM Leader, Thales AMS</li> <li>• <b>Asuka Boehm, P.Eng</b>, Sustainable Aeronautics Analyst, NAV CANADA</li> <li>• <b>Philippe Masson</b>, CICONIA Programme Manager, Airbus</li> <li>• <b>Stella Saldana</b>, Programme Manager, SESAR Joint Undertaking</li> <li>• <b>Raimund Zopp</b>, Director Innovation, FLIGHTKEYS</li> </ul>
12:45 – 14:00	<p><b>Lunch Break</b> </p>
14:00 – 15:15	<p><b>Session 3: Mitigating Non-CO<sub>2</sub> Aviation Emissions – What is possible – Part III: Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF), and Cleaner Energy</b></p> <ul style="list-style-type: none"> <li>• This Session will provide information and initiatives to better understand the impact of aviation fuel composition on mitigating Non-CO<sub>2</sub> Aviation Emissions, including SAF, LCAF and cleaner energy, such as Hydrogen.</li> </ul> <p><b>Moderator: Mr. Ross Adams</b>, Permanent Representative of Australia on the ICAO Council</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li>• <b>Māra Dāme</b>, Environment Project Manager, European Aviation Safety Agency – EASA</li> <li>• <b>Mukund Karanjikar</b>, Chief Executive Officer, CleanJoule</li> <li>• <b>Pr. Mohamed Pourkashanian</b>, Managing Director of the Energy Innovation Center (EIC), University of Sheffield</li> <li>• <b>Astrid Sonneveld</b>, SAF Technical Development &amp; Partnership Manager, Neste</li> </ul>
15:15 – 15:45	<p><b>Coffee Break</b> </p>
15:45 – 17:00	<p><b>High-Level Panel: Mitigating Non-CO<sub>2</sub> Aviation Emissions – What is possible: Policy development</b></p> <ul style="list-style-type: none"> <li>• This High-Level Session will provide the opportunity for ICAO Member States and Industry to discuss the latest work on policy developments on non-CO<sub>2</sub> emissions from international aviation.</li> </ul> <p><b>Moderator: Ambassador Anita Adjei-Nmashie</b>, Permanent Representative of the Republic of Ghana on the ICAO Council</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li>• <b>Michelle Bishop</b>, Director, Programmes, Civil Air Navigation Services Organisation - CANSO</li> <li>• <b>Jill Blickstein</b>, Vice President, Sustainability, American Airlines</li> <li>• <b>Denis Bonnet, PhD</b>, Vice President Research, Technology &amp; Innovation, Thales AVS</li> <li>• <b>Andrei Mungiu</b>, Team Leader – Environment and International Organisations; CAEP EU Observer, European Union Commission</li> <li>• <b>Cesar Augusto Souto Pereira</b>, Advisor, Sustainability Strategy, Embraer</li> <li>• <b>Lukas Söffing (M.Sc.)</b>, R&amp;D Engineer, Royal Netherlands Aerospace Center (NLR)</li> </ul>
17:00 – 19:00	<p><b>Reception (TBD)</b></p>
<p><b>End of Day 2</b></p>	

# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada



## Day 3 – Wednesday, 18 September 2024

Assembly Hall (AH)	
09:00 – 09:10	Daily Kick-Off
09:10 – 10:30	<p><b>Session 4: Partnerships to act on (Part I) Research and Monitoring</b></p> <ul style="list-style-type: none"> <li>This Session will discuss the role of each stakeholder and partnerships to increase research on Non-CO<sub>2</sub> Aviation Emissions.</li> </ul> <p><b>Moderator: Dr. Urs Ziegler</b>, Head Environmental Affairs Section, Federal Department of Environment, Transport, Energy and Communications DETEC, Federal Office of Civil Aviation Switzerland - FOCA</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li><b>Dr. Adam Durant</b>, Chief Executive Officer, SATAVIA Ltd.</li> <li><b>Pierre Quintard</b>, Business Development Manager, ELLONA</li> <li><b>Philippe Very</b>, Eurocontrol</li> </ul> <p><i>Other panellists to announced.</i></p>
10:30 – 11:00	Coffee Break 
11:00 – 12:15	<p><b>Session 4: Partnerships to act on (Part II) Implementing Mitigation Measures</b></p> <ul style="list-style-type: none"> <li>This Session will discuss the role of each stakeholder and partnerships in implementing Non-CO<sub>2</sub> Aviation Emissions mitigation measures.</li> </ul> <p><b>Moderator: to be announced.</b></p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"> <li><b>Stephen Arrowsmith</b>, Chief Expert - Environmental Protection, EASA - ANCEN project</li> <li><b>Irène Boyer-Souchet</b>, Sustainability Manager, in charge of non-CO<sub>2</sub> effects, Air France</li> <li><b>Ellen Ebner</b>, Director, Sustainability &amp; Future Mobility, Boeing Research &amp; Technology</li> <li><b>John Santurbano</b>, Director Maastricht UAC, EUROCONTROL Maastricht UAC</li> <li><b>Marc Shapiro</b>, Director, Contrails, Breakthrough Energy</li> <li><b>Yannick Vos</b>, Senior Strategy Expert, LVNL</li> </ul>
12:15 – 12:30	<p><b>Keynote Speech by Airbus</b></p> <p><b>Sabine Klauke</b>, Chief Technology Officer &amp; Executive Vice President Engineering, Airbus</p> <p> Gold Sponsor / Exhibitor</p> <p><b>AIRBUS</b></p>
12:30 – 14:00	Lunch Break 

# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada



<b>14:00 – 15:15</b>	<p><b>Session 5: Panel Discussion on the Way Forward on Non-CO<sub>2</sub> Aviation Emissions</b></p> <ul style="list-style-type: none"><li>This Session will discuss possible ways forward, including by showcasing future inspiring initiatives and ideas on this topic worldwide.</li></ul> <p><b>Moderator: Ms. Annick Goulet</b>, Permanent Representative of Canada on the ICAO Council, Permanent Mission of Canada to ICAO</p> <p><b>Panellists:</b></p> <ul style="list-style-type: none"><li><b>Dr. Neil Dickson</b>, Chief Environmental Standards, International Civil Aviation Organization - ICAO</li><li><b>Haldane Dodd</b>, Executive Director, Air Transport Action Group - ATAG</li><li><b>Tim Johnson</b>, CAEP Observer for ICSA, International Coalition for Sustainable Aviation – ICSA</li><li><b>Pr. Dr. Andreas Petzold</b>, IAGOS Executive Board Member, Institute of Climate and Energy Systems 3 - Troposphere, Forschungszentrum Juelich GmbH</li><li><b>Dr. Ibrahim Yimer</b>, Vice President, Transportation and Manufacturing, National Research Council of Canada</li></ul>
<b>15:15 – 15:45</b>	<p><b>Coffee Break</b> </p>
<b>15:45 – 16:45</b>	<p><b>High-Level Panel: Way Forward on Non-CO<sub>2</sub> Aviation Emissions</b></p> <ul style="list-style-type: none"><li>This High-Level Session will provide the opportunity for ICAO Member States and Industry to discuss what the sector can do now and in the future on non-CO<sub>2</sub> emissions from international aviation.</li></ul> <p><i>Panellists: to be announced soon.</i></p>
<b>16:45 – 17:00</b>	<p><b>Closing Session</b></p> <ul style="list-style-type: none"><li><b>Juan Carlos Salazar</b>, Secretary General, International Civil Aviation Organization – ICAO</li></ul>
<b>17:00 – 19:00</b>	<p><b>Closing Reception (TBD)</b></p>

**End of the ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions**

# ICAO Symposium on Non-CO<sub>2</sub> Aviation Emissions

16 — 18 September 2024  
Montréal, Canada

## Event Sponsor

---



Ministry of Infrastructure  
and Water Management  
of the Netherlands

## Gold Sponsor / Exhibitor

---

# AIRBUS

## Silver Sponsor / Exhibitor

---

# ATR