

Marine Black Carbon Emissions: Identifying Research Gaps

Technical Workshop

September 9th and 10th, 2014

River Road Air Quality Laboratory, Atlantic/Prairie/Pacific conference rooms

335 River Road, Ottawa, ON K1V 1H2

Ottawa, Canada

This workshop is the first of three designed to inform and guide a new two-year CCAC funded project on marine black carbon. That project will develop a refined global marine black carbon inventory and technology performance database for mitigation strategies. The goal for this kickoff workshop is to refine the project work plan based upon a solid understanding of the current state of knowledge on BC measurement and testing, emissions inventories, and control strategies for marine vessels. The workshop will identify research gaps; coordinate future research by governments, academics, and industry; and target project research funds to generate the highest quality outputs to aid policymaking by CCAC member nations.

AGENDA

Day One

8:30 – 8:45 am	Welcome and Introduction – Steve McCauley, Environment Canada
8:45 – 9:00 am	Workshop Overview and Goals – Dan Rutherford, International Council on Clean Transportation (ICCT)
9:00 – 10:30am	Session 1 – Background and institutional overview <i>Overall policy landscape</i> – Michael Geller, US EPA <i>IMO activities related to marine black carbon</i> – Jeffrey Smith, Transport Canada <i>Arctic Council work on SLCP</i> – France Jacovella & Rebecca Plumadore, Environment Canada <i>Introduction to CCAC marine diesel initiative</i> – Alyson Azzara, ICCT
10:30 – 10:45 am	Coffee Break
10:45 – 12:30 pm	Session 2 – Black carbon definition and measurement approaches Objective: Develop a common research framework to address measurement of black carbon for research approach <i>Background/overview/facilitation</i> – Hans Moosmüller, Desert Research Institute <i>Existing definitions of black carbon</i> – Dan Lack, Independent Consultant (formerly NOAA) <i>Measurement techniques and considerations</i> - Greg Smallwood, NRC Canada <i>Commercial Instrumentation options</i> – Monica Tutuianu, AVL <i>Practicability of sample preparation (dilution process) for on-board measurements</i> – Kazuyuki Maeda, National Fisheries University
12:35-12:55 pm	Guided tour of the River Road testing facility
12:30 – 1:30 pm	Lunch
1:30 – 3:15 pm	Session 3 – Existing research for marine black carbon inventories Objective: Identify specific elements that require investigation or refinement to produce a more accurate global BC inventory <i>Background/overview/facilitation</i> – Zig Klimont, IIASA

	<p><i>BC inventory map around Arctic sea, based on satellite AIS and updated Emission factors</i>– Shinichi Hanayama, OPRF</p> <p><i>Emission inventory for ships based on aggregated AIS data</i> - Morten Winther, Aarhus University</p> <p><i>Current global inventory capabilities and uncertainties using AIS</i> - Kjetil Martinsen, DNV</p>
3:15 – 3:30 pm	Coffee Break
3:30 – 5:00 p.m.	<p>Session 4 – Control strategies</p> <p>Objective: Identify control strategies recommended for inclusion in emissions testing within this project</p> <p><i>Background/overview/facilitation</i> – Dan Lack, Independent Consultant (formerly NOAA)</p> <p><i>Industry use of control strategies</i> - Tom Kirk, American Bureau of Shipping (ABS)</p> <p><i>Diesel particulate filter experience on marine engines</i> - Joe Kubsh, Manufacturers of Emission Controls Association (MECA)</p>
7:30 p.m.	Dinner at the Empire Grill

DAY 2

9:00 – 9:15	Recap from Day 1 – Outstanding issues, questions, or loose ends
9:15 – 10:30	<p>Session 5 – Emissions Testing</p> <p>Objective: Identify specific emissions testing gaps that could be addressed through this initiative.</p> <p><i>Background/overview/facilitation</i> – Greg Rideout, Environment Canada</p> <p><i>Environment Canada testing work</i> – Tak Chan, Environment Canada</p> <p><i>Emissions testing project for ARB/ICCT</i> – Kent Johnson, University of California, Riverside</p> <p><i>Measurements of emissions of particulate matter: particle number, particle mass and its constituents</i>– Jana Moldanová, Swedish Environmental Research Institute</p>
10:30 – 10:45 am	Coffee Break
10:45 – 12:30 pm	<p>Session 6 – Future Research</p> <p>Objective: Identify areas of focus for CCAC emissions testing</p> <p><i>Background/overview/facilitation</i> – Kevin Thomson, NRC Canada</p> <p><i>Planned Air Resources Board future work</i> – Ryan Huft, Air Resources Board, California</p> <p><i>On-board opportunities for testing</i> – Canada Steamship Lines (CSL)</p>
12:30 – 1:30 pm	Lunch
1:30 – 4:00 pm	<p>Session 7- Outcome: Preliminary blueprint for future testing, including relative roles/responsibilities and areas of CCAC focus</p> <p>Objective: Outline CCAC Marine Initiative work plan and next steps.</p> <p><i>Background/overview/facilitation</i> – Dan Rutherford, ICCT</p>
4:00 p.m.	Adjourn