

10 March 2010

**CO-CHAIRS' SUMMARY REPORT FOR THE SAOs
TASK FORCE FOR SHORT-LIVED CLIMATE FORCERS MEETING
San Francisco, February 11-12, 2010**

Summary

The Task Force welcomed national representatives, observers and invited experts to present on and discuss the status of technical and policy analyses, and the required next steps for the Task Force to fulfill its mandate over the course of the next several months leading up to the 2011 Arctic Council Ministerial meeting. Co-chairs of the AMAP expert group on short-lived climate forcers (SLCFs) participated in the meeting which led to a specific proposal for collaboration between the Task Force and the AMAP expert group. The Task Force also welcomed the newly appointed co-chair of the LRTAP working group on SLCFs. A number of key observations, status updates, decisions, and scheduling proposals were made at the meeting, all of which are outlined here in more detail. This particular meeting focused almost exclusively on black carbon as one of the SLCFs.

Participation:

National representatives from Canada, Denmark, Finland, Norway, Sweden, and the U.S. participated. France attended as an Observer nation. A number of experts, specifically invited by the co-chairs, participated and presented on technical and policy analyses. A list of all participants and their affiliations is attached.

Proposed Products:

The co-chairs presented a proposal for the Task Force to develop two key products : one, an underlying technical report; and two, a brief summary for policymakers articulating the recommendations of the Task Force based on the underlying technical report and any other relevant information. The Task Force is now addressing the question of how the technical report and summary for policymakers should address methane and tropospheric ozone, in addition to black carbon.

The technical paper will address emission inventories, future emission projections (out to ca. 2030), current relevant air quality or climate policies, immediate and longer-term mitigation opportunities with associated costs, and policy delivery mechanisms. This information will include both general and aggregate information taking all Arctic nations into account, as well as more detailed country-specific information. The country-specific information will be especially important with regard to different policy delivery mechanisms that vary across nations.

The draft Task Force working paper on black carbon was proposed to serve as the foundation for the technical report. This proposal was accepted and the Task Force will be working through a plan to further develop, expand and update the information already contained in the draft black carbon working paper. Benjamin DeAngelo and U.S. EPA will continue to serve as the central home and editor of the report, with multiple contributions from other Task Force participants.

Guidance sought from SAOs for reporting out to the Deputy Ministers Meeting:

Because SLCFs are on the agenda for the Deputy Ministers Meeting, the Task Force discussed and agreed it was important for the SAOs to provide the Task Force with further guidance regarding the specificity of recommendations that may be sought by the Deputy Ministers. There was some concern among the Task Force that, given that the AMAP modeling work will have only recently begun, and that much of the Task Force's mitigation and policy analyses are incomplete, that it may be premature for the Task Force to put forward a set of robust recommendations in May.

Work plan

Proposal for collaboration with AMAP expert group and report out to AMAP meeting:

The Task Force co-chairs discussed with Patricia Quinn and Andreas Stohl, the co-chairs of the AMAP expert group on SLCFs, a proposal for AMAP to conduct sensitivity analyses that will help inform the Task Force about the potential Arctic climate benefits of emission reductions and potential increases for key emission sectors and regions. These sensitivity analyses will therefore represent hypothetical emission scenarios rather than specific mitigation policies. The Task Force is now working with the AMAP expert group to further specify the nature and number of these sensitivity modeling runs.

Identification of important sectors:

From national and expert presentations, major sources within Arctic Council nations include:

- Diesel engines: on-road and off-road vehicles plus stationary engines (perhaps especially older diesel generators in Far North communities, an issue needing greater study);
- Wood fuel heating stoves;
- Human-induced field and forest burning; and
- Oil and gas flaring may also be a significant source

Based on country reports, some existing global black carbon inventories may overestimate emissions from diesel engines and underestimate the contribution of wood burning stoves in Nordic countries. Emissions from wood stoves may equal diesel emissions in terms of black carbon reaching the Arctic. Considering the impact on warming in the Arctic of organic carbon emissions in winter season, wood burning may be of more concern than diesel emissions in Nordic countries.

Oil and gas flaring, especially given the location of existing and planned installations, may produce very significant amounts of Arctic-impacting black carbon, but actual measurements and calculations are strongly lacking. It is important here to consider both the methane and black carbon implications of gas flaring emissions and mitigation practices.

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Indeed all sources in the High North – flaring, diesel generators and vehicles, and industrial sources – warrant intensified investigation, since although the amounts produced may be low, their impact on the Arctic climate from the deposition effect may be quite high.

In order to better guide mitigation recommendations at the national and regional levels, the Task Force noted the importance for the nations concerned of urgently completing analysis of existing ice core samples as well as the gathering of snow samples already in the coming season. Lack of source-receptor (deposition) knowledge currently severely hampers any attempt to quantify the Arctic climate significance of different emission sources.

Timeline and schedule:

The Task Force was presented with a general timeline between now and the April 2011 Arctic Council Ministerial meeting, but a more detailed timeline with interim deliverables and draft products was proposed, outlined here. The Task Force needs to decide when its next in-person meeting will take place; currently, the next meetings are being considered in June as an internet-based meeting and September for another in-person meeting.

- Agree upon modeling sensitivity runs with AMAP expert group on SLCFs, February-March, 2010
- Emissions inventory data submissions and comparisons among all Arctic nations, early April, 2010
- SAO Meeting, April 28-29, 2010
 - Provide a progress report
 - Provide update and summary of draft technical analyses
 - Seek guidance on how Task Force communicates to Deputy Ministers
- Identification and catalogue of existing policies, regulations and programs that influence emissions of black carbon (and methane and tropospheric ozone), end May 2010
- Deputy Ministers Meeting, May 2010
- Identification of key mitigation opportunities and associated costs by country, June 2010
- Task Force meeting via internet, June 2010 (?)
 - Focus on inventories, mitigation opportunities and costs, policy delivery mechanisms
- Task Force meeting, in person, September, 2010 (?)
 - Address remaining gaps in technical analyses
 - Task Force provides comments and feedback on technical analyses and communication of key results for summary for policy makers
- SAO Meeting, November 1-5, 2010
 - Presentation of draft technical report
 - Presentation of first draft of summary for policy makers
- Revised Technical Report and Summary for Policy Makers based on SAO comments, January-February, 2011
- Arctic Council Ministers Meeting, April 4-8, 2011

Special Impacts in the Arctic:

- While on a global level, scientific bodies such as the IPCC express great uncertainty about the overall warming or cooling impact of black carbon sources (since these also co-emit reflective cooling substances such as organic carbon and sulfates that cool the planet), for the Arctic there is a fair degree of consensus that these black carbon sources result in warming: because over ice and snow, even these “lighter” particles are darker. The Arctic regional impact from all sources that produce black carbon, and that reach the Arctic cryosphere, can therefore be assumed with a reasonable degree of confidence to be warming.
- Black carbon deposited on ice and snow has many times (current published estimates range up to six times) the radiative forcing in the Arctic as black carbon in the atmosphere. Black carbon emitted in winter and spring, which has greater likelihood of lofting over or depositing on snow and ice, therefore has greater impact than that emitted during the summer months when snow and ice cover is lower.
- Because of these factors, the black carbon produced by in-Arctic and near-Arctic sources may impact the Arctic much more than sources further away, even though the in-Arctic sources may produce relatively small amounts. As a result, a primary focus by the Task Force on the eight Arctic Council nations appears appropriate through 2010.
- At the same time, the Task Force recognized that a number of unknowns remain, especially around which sources result in black carbon that actually reaches the Arctic and/or deposits. There exists a tension between a desire to act, and the need for greater certainty before being able to make appropriate recommendations rooted in well-grounded research. The Task Force will work closely with AMAP and the Arctic scientific community to close some of those gaps. Nevertheless, “no-regrets” measures, especially those with significant health co-benefits, may prove most appropriate for early Task Force recommendations.

Current Actions and Initiatives outside the Arctic Council Task Force:

- There are a large number of ongoing initiatives on SLCFs in other forums that have grown in part out of the Arctic Council efforts, and on which the Task Force will remain informed and interact, as appropriate. These include LRTAP’s Expert Group on Black Carbon aimed at inclusion of black carbon in the Gothenburg Protocol revision, UNEP’s Integrated Assessment on Black Carbon and Ozone, proposals for targeted funds, and even consideration of creating work programs on SLCFs under the UNFCCC.

Interim opportunities for SAO consideration:

In accordance with its charge from the Tromsø Declaration and Terms of Reference, the Task Force is also to exchange information on opportunities for immediate voluntary action, for Arctic Council and national-level engagement as these arise. Although time constraints prevented the Task Force from discussing these issues in detail at the San Francisco workshop, and therefore it is not formally recommending them, the Task Force is nevertheless aware of these near-term opportunities and wishes to bring them to the attention of the SAOs:

International Maritime Organization (IMO) Submission:

Marine diesel emissions of black carbon in the Arctic produce not only climate impacts, but also impacts on human health. As ice extent decreases however, shipping from non-Arctic as well as Arctic nations in the region can be expected to increase, with many of the non-Arctic nations lacking in the PM controls common to Arctic nations.

Three Arctic nations (Norway, the U.S. and Sweden) recently made a submission to the IMO raising this issue and recommending the exploration of steps to decrease black carbon emissions in the Arctic region. The SAOs or national Council/Observer governments may wish to consider supporting this submission to the Marine Environment Protection Committee (MEPC) 60 meeting March 22-26 or subsequent meetings. A copy of the joint Norway-U.S.-Sweden proposal can be found at: http://legacy.sname.org/committees/tech_ops/O44/imo/mepc/60-4-24.pdf.

Agricultural Burning Conference:

From recent sampling efforts, springtime agricultural burning – or uncontrolled forest/peat burns resulting from crop burning – appears to comprise one of the major sources of black carbon in the Arctic region. Bringing together key stakeholders – in particular, representatives of the agricultural sector, forestry and firefighting organizations, and public health officials – is a valuable step for informing effective action. Several Russian and international NGOs, together with Voikov Observatory for Hydrometeorology and Environmental Monitoring, are in the process of organizing a meeting of technical experts and key stakeholders to discuss these issues in early fall 2010 in St. Petersburg, Russia. The aim of the conference will be to guide future early mitigation efforts aimed at decreasing springtime burning in Arctic nations for strong health and economic co-benefits, as well as for near-term Arctic climate benefits. The Task Force, or individual participants within the Task Force, may wish to engage with the conference organizers and explore the potential to leverage the information and expertise from this conference. The Task Force welcomes any guidance from the SAOs on engaging in such an activity.

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Early Action Funding for Pilot Projects and Source Characterization:

At COP-15, the U.S. announced the creation of a \$5 million fund to support early action mitigation efforts to decrease emissions of black carbon in the Arctic region. The Task Force wishes to remain informed about this funding initiative and how it may support black carbon mitigation and assessment efforts; likewise, proposals from individual countries within the Task Force may help guide the project selection process for the \$5 million initiative. Such initiatives may also help inform and improve Task Force recommendations to SAOs in the future.