

Minutes of the 22nd Meeting of the Arctic Monitoring and
Assessment Programme (AMAP) Working Group

Quebec, Canada, 7–10 December 2008

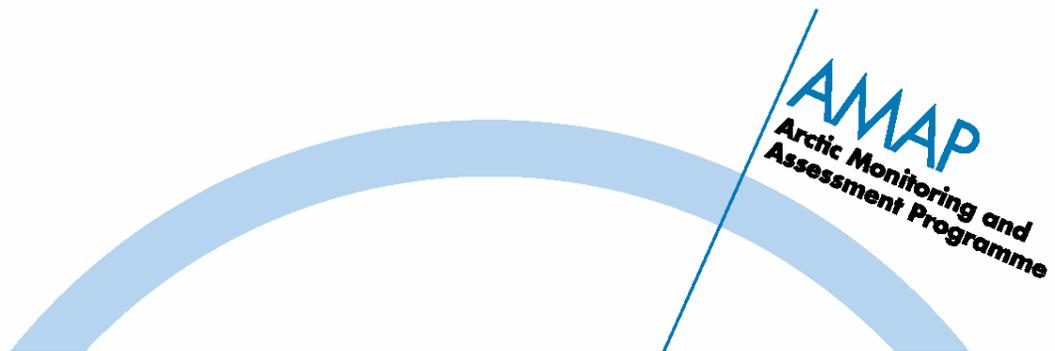


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Minutes of the 22ND AMAP WG Meeting

Quebec, Canada, 7–10 December 2008

1 Opening of meeting, welcome statements

The Chairman, John Calder (USA), opened the 22nd meeting of the AMAP Working Group at 10.00 hrs on 7 December 2008. Russel Shearer (Canada) welcomed the participants and gave regrets from Adèle Dion, Canadian Senior Arctic Official (SAO), who was unable to attend this meeting. He noted that the meeting was being held in Quebec in honour of the 400th anniversary of the founding of the city, which is one of the oldest in North America. The meeting was also being held in association with the Arctic Change Conference, hosted by Arctic Net, which would begin later in the week.

All participants introduced themselves.

2 Approval of the agenda

The agenda was approved with a few small additions and is attached as Annex 1. The list of participants is attached as Annex 2 and the list of documents for the meeting as Annex 3.

3 Short reports from the Chair and the Secretariat

Lars-Otto Reiersen, AMAP Executive Secretary, reported that most actions decided at the AMAP Heads of Delegation (HODs) meeting in Oslo in May 2008 had been completed, with the outstanding actions being completed when the final work on the State of the Arctic Environment (SOAER) 2009 report was finished during the meeting.

He noted that the Arctic Council (AC) Secretariat has requested to receive inputs from all AC WGs by 8 January 2009 so that they can draft the Ministerial Declaration by 20 January.

John Calder reported on the outcome of the recent SAO meeting in Kautokeino, Norway, where the following items were discussed:

- 1) The status of the SWIPA project, where SAOs supported continuation of the work;
- 2) The work on non-CO₂ drivers of climate change, which also received strong support for its continuation; a U.S. proposal in this regard was received for consideration in February 2009;
- 3) Draft text for the Ministerial Declaration in relation to the oil and gas assessment, which was considered too long and therefore needed to be revised during the AMAP WG meeting;
- 4) The Sustaining Arctic Observing Network (SAON) initiative, which received a great deal of support for AC and AMAP engagement.

The next SAO meeting will be held in February 2009 at which time the draft text of the Ministerial Declaration will be reviewed; thus, the AMAP input for this Declaration would need

to be discussed and agreed by the WG during the current meeting if possible. He reported that the Ministers plan to hold a half-day meeting on 27 April addressing climate change in connection with the Ministerial meeting, with a five-hour meeting with ministerial statements and approval of the Ministerial Declaration on the following day.

It was noted that PAME had also proposed that a meeting be convened back-to-back with the Ministerial meeting to consider issues relating to the Arctic Ocean, including recommendations from its work on the AMSA, however, the status of this proposal was uncertain.

4 Approval of Report and recommendations from AMAP to the Arctic Council meeting in April 2009 “The State of the Arctic Environment Report 2009”

Simon Wilson, AMAP Deputy Executive Secretary, reported that the AMAP scientific assessment of human health issues had been completed according to schedule. This, together with the scientific information on selected aspects of climate change had been provided to the science writer, Henry Huntington, to prepare the corresponding texts for the 2009 State of the Arctic Environment Report (SOAER). Compared to the time schedule presented to the AMAP HODs at their meeting in Oslo in May 2008, there had been some delays in the production of the scientific assessments on persistent organic pollutants (POPs) and radioactivity. These delays had caused some problems for Annika Nilsson, the science writer of those parts of the SOAER. Despite this, however, the draft chapters of SOAER were distributed for review on 7 November, as agreed, allowing one month for comment prior to the AMAP WG22 meeting. Comments received from Russia (covering the radioactivity chapter), Denmark and Iceland had been provided to the authors for them to consider. Additional comments from Sweden, Canada, and WWF had been received just prior to the meeting; other countries and ICC had informed that their comments would be available for the meeting discussions. The final texts of the SOAER, and in particular its Executive Summary, needed to be approved by 7 January 2009.

General comments to the draft text of SOAER 2009 included:

- Identification of some unclear or contradictory messages in the text;
- Observations that some subjects received stronger emphasis in the SOAER than they had received in the background science documents;
- Identification of some overlaps or repetition of information in the different chapters;
- A need to have a very clear statement in the preface concerning which documents were used as the background for the SOAER and where references to the scientific details may be found (in particular for the information presented on climate change issues);
- The need for additional work on the recommendations, to make them clearer, more concise, and better written and to ensure that all important recommendations from the science texts have been included.

A number of specific comments were also provided and it was therefore agreed that all comments should be considered initially by the authors together with the scientific assessment lead experts present at the meeting and selected members of the WG (as described below), and that revised texts based on this would be presented to the WG later in the meeting for their approval.

a. Health

The draft chapter on human health in SOAER was considered to be well written and a good reflection of the scientific assessment and it was agreed that comments to this chapter would be reviewed by a small group consisting of the Co-Chairs of the Human Health Assessment Group, Jens Hansen (Denmark) and Jay Van Oostdam (Canada), and the science writer Henry Huntington, joined by Derek Muir (Canada) for POPs issues and Helgi Jensson (Iceland) for recommendations.

The main change after review by this group was to remove the generic discussion of the possible impacts of climate change from this chapter and place it at the beginning of the report together with similar texts from the POPs chapter.

b. Radioactivity

The text of this chapter was reviewed by the author, Annika Nilsson, together with experts on radioactivity present at the meeting: Per Strand (Norway) and Yuri Tsaturov (Russia), the co-leads of the radioactivity assessment, Morten Sickel (Norway) and Dina Solatie (Finland). Based on this, some clarifications and revisions to terminology were made to the text, but no new substance was added.

c. POPs

In the WG discussion, it was considered that the POPs chapter was somewhat technical and quite difficult for a layman to understand, largely due to the long names of the ‘new’ chemicals that were being introduced and discussed. It was suggested that new graphics might be developed to help visualize the material and reduce the detail in the text. The POPs chapter is not based on a single scientific background report, but rather on a series of scientific articles that are intended for publication in the scientific literature (most likely in a single ‘special issue’ of *Science of the Total Environment*). While this publication process provides more recognition for the scientific experts involved in the work, it makes it more difficult to synthesize the material in a layman’s report.

Annika Nilsson worked together with the POPs experts during the meeting, Derek Muir (Canada, co-lead of the POPs assessment), Geir Gabrielsen (Norway), Christian Sonne (Denmark), Frank Riget (Denmark) and Jaakko Mannio (Finland), to revise the POPs chapter in accordance with the comments received. Based on this work, the POPs chapter was revised, as follows: Some of the more technical sections were deleted, and the references to specific chemicals and groups of chemicals were simplified to improve readability for the lay reader. Material on implications of climate change was removed and consolidated with other similar information (as discussed under health, above). The section dealing with biological effects was updated to incorporate the review of this material by experts at a meeting on this subject held in Ottawa just prior to the WG meeting. Some new scientific information, including a text on effects on seabirds at Bjørnøya where there are clear signs of combined effects, and additional information on sledge dog studies in Greenland were introduced. A short additional text was added concerning cyclic siloxanes, a

new class of chemicals, based on information in a recent report funded by the Nordic Council of Ministers. This group of chemicals has been classified by Canada and the EU as potential POPs. The WG agreed to the addition of these new texts.

d. Climate

A number of comments received noted that the draft SOAER chapter on climate covered only a few specific issues and therefore did not represent a comprehensive 'state of knowledge' on climate work. The WG recognized that this was intentional and that, as with the chapter on POPs, this chapter was based on a variety of sources. The intention was to summarize results of AMAP work to follow-up on the Arctic Climate Impact Assessment (ACIA). This included activities relating to non-CO₂ drivers of climate change, the Arctic carbon cycle, the Arctic Climate Report Cards (summarizing developments in key Arctic climate parameters), and work on improving predictive capability (including downscaling of modeling).

In order to avoid the misunderstanding that the material in the draft SOAER report constituted a comprehensive assessment of Arctic climate, the WG agreed that the material on climate issues should be removed from the 2009 SOAER and compiled into a separate 'Issues of Concern' report, which is the standard AMAP title for intermediate documents to update the Ministers on specific subjects of interest in the interim between full assessments. If relevant, such a report could potentially also include other information on, e.g., progress in the Greenland Ice Sheet work and other SWIPA components. The Chairman of the Climate Expert Group, John Walsh, would be asked to assist in compiling this report, for which the main new information is on non-CO₂ drivers.

In accordance with this decision, it was agreed that the recommendations from the recent non-CO₂ drivers workshop should not be included in the SOAER 2009 Executive Summary but would be included in the Executive Summary to the 'Issues of Concern' report. If appropriate, the 'Issues of Concern' report could then also include more of the technical background documentation, for example in an Annex.

e. Mercury

Simon Wilson noted that the AMAP Experts Group on Mercury was meeting in parallel with the AMAP WG to continue the development of an assessment report on mercury that is due to be delivered to the AMAP WG in 2010, for presentation to Ministers in 2011. In accordance with a decision taken at the AMAP WG21 meeting and supported by SAOs, planned AMAP work on atmospheric emissions of mercury and atmospheric transport and fate for this assessment was fast-tracked so as to be available for use in a report that is under preparation for the UNEP Governing Council meeting in 2009. This work has been undertaken in close cooperation with UNEP, with the AMAP Secretariat being engaged by the UNEP-Chemicals Division to assist in coordinating the preparation of the report for the UNEP Governing Council. A number of AMAP experts were engaged in the work, which was funded by both organizations. This arrangement ensured cost-effective use of resources and avoided duplication of work. The resulting 150-page scientific background document will be used by AMAP in its 2011 mercury assessment.

The 30-page summary report for the UNEP GC based on this technical report and on a separate report prepared by the UNEP Fate and Transport Partnership is a UNEP product. Both reports will be available from www.amap.no.

Conclusions

The revisions to the SOAER 2009 report (and its Executive Summary) together with a draft of the 'Issues of Concern' report on selected climate issues (and its Executive Summary), based on the work of the drafting groups as outlined above, were presented to the WG. Due to the limited time available during the meeting to check, review and confirm all of the revisions in detail, it was agreed that updated drafts of these documents would be circulated to the HODs prior to the Christmas vacation for their final review and approval on a teleconference to be organized early in the New Year (provisionally scheduled for 6 January)¹. This would allow the Executive Summaries of these reports to be submitted to the AC by their deadline of 8 January.

The 2009 SOAER and 'Update on Selected Climate Issues of Concern' reports will together constitute the main deliverable from AMAP to the 2009 AC Ministerial.

5 The AMAP Progress Report to the Ministerial Meeting

a. The OGA assessment

The WG discussed the draft text for the report to the SAOs and the Ministerial Declaration in relation to the outcome of the oil and gas assessment. There were a number of comments concerning the initial draft, which had been prepared by Per Døvlø (Norway), Vice-Chair of AMAP, and circulated to HODs for two rounds of comments. Also, as noted above, SAOs considered the initial draft to be too long.

After discussion, it was agreed that Per Døvlø would revise the draft, taking into account the comments received, to prepare a text of about one-half page for the report to SAOs containing the most important issues that AMAP wants to highlight based on the OGA. This was done during the meeting with assistance from Ruth McKechnie (Canada). On the basis of the items highlighted in this re-drafted text for the SAOs report, one or two key recommendations will be selected for inclusion in the Ministerial Declaration.

Per Døvlø presented the revised draft text prepared during the course of the meeting. Most countries accepted the proposed revised version; however, the representative from Sweden stated that he lacked the mandate to approve the new text, and Denmark expressed a possible reservation about the recommendation concerning permanently closed areas. Accordingly, it was decided that this proposal should be sent out for review by all Arctic countries with a final decision on the text to be taken during the teleconference that will take place in early January.

¹ Note: Following agreement by the Arctic Council to extend their deadline for submission of materials for the Ministerial meeting until 20 January, the teleconference to approve these deliverables was delayed until 13 January.

b. The Non-CO₂ drivers workshop

The meeting reviewed the summary recommendations from the Workshop on Addressing Short-Lived Forcers of Arctic Warming and Melting (Oslo, 15–16 September 2008) (Doc. AMAP WG 22/5/2). In the discussion, it was noted that Norway has arranged a side-event at COP14 to highlight work on non-CO₂ forcers and that the USA has proposed that AMAP extend its work on black carbon and tropospheric ozone. It was also suggested that, as the proposed observational systems are already organized under the WMO Global Atmosphere Watch Programme (GAW), it would be beneficial for the AMAP monitoring network to be expanded in close coordination with the GAW. The meeting agreed that these recommendations should be reviewed by the other climate experts at the meeting.

In addition, recommendations in a U.S. paper presented at the SAO meeting in Kautokeino were noted and it was decided that they should also be considered in relation to the re-drafted recommendations from the non-CO₂ drivers workshop.

After further discussion and several iterations, revised draft recommendations were prepared during the meeting. The WG agreed that these should be incorporated in the ‘Update on Selected Climate Issues of Concern’ report, the AMAP Workplan, and the draft texts for the SAOs report/Ministerial Declaration as appropriate, with a final decision on these texts to be taken during the teleconference at the beginning of January.

With respect to the suggestion to consider a request to UNEP to incorporate into its climate change programming information on black carbon and the need to mitigate emissions for Arctic climate benefit, it was agreed that the AMAP Secretariat should consult with appropriate UNEP bodies about such a proposal.

c. Unmanned Aircraft Systems (UAS) and other issues

Lars-Otto Reiersen reported that two workshops have been held in 2008 on this topic arranged by AMAP. The first was held in Stockholm in March to discuss the use of UAS in scientific work, including industry, which concluded that UAS are a useful tool. The second workshop was held in Oslo in October with good representation from the civilian aviation authorities and the industry; problems discussed included the difficulty to receive permission for overflights and potential problems related to safety. As a result of these workshops, it has been proposed that AMAP establish an expert group to coordinate the work on UAS. Because it might take about ten years to develop regulations for the international coordination of UAS, the proposal is to begin with two or three countries to develop their use in the Arctic and serve as a case study for broader development.

The WG discussed the potential establishment of an AMAP group comprising scientific experts and experts from civil aviation responsible for regulation. The USA and Sweden have offered to coordinate this work for AMAP and a dialogue has already been started with civil aviation authorities. However, there are many aspects to this work including monitoring, safety, and the military implications, the latter requiring an open access to the resulting data so it is clear that these systems are being used for environmental monitoring purposes only.

After detailed discussion, the WG agreed to establish a project team comprising scientists and aviation authorities to review the issues and to facilitate and coordinate the use of unmanned aircraft systems for research and monitoring in the Arctic, as detailed in Annex 4. The WG agreed that the organization of a project team to conduct this work will be added to the AMAP workplan.

Yuri Tsaturov (Russia) reported that Russia is establishing a high-orbit satellite system for observations and invited other countries to join in this work; the satellite will be operational in 2013. Russel Shearer reported that Canada also has a high-orbit satellite observation system already in operation.

d. Work plan for 2009–2011

Lars-Otto Reiersen noted, that based on the Salekhard Declaration, AMAP currently has the following activities on its work plan:

- 1) Monitoring and assessment on climate and UV radiation, contaminants, and human health, including combined effects: This should continue in the next work plan with encouragement for all countries to conduct the necessary monitoring and to report their data to the AMAP Thematic Data Centers. However, new action is needed to evaluate the monitoring programme, determine the current priorities, and update the AMAP monitoring programme including the strategy; this review should consider how many stations are needed to monitor the various parameters and at what frequency to be able to draw the desired conclusions. The guidelines for monitoring should be reviewed and revised by the appropriate AMAP expert groups;
- 2) As a follow-up to ACIA, SWIPA will be on the work plan for at least the next two years;
- 3) There is a need for a better strategy for communicating AMAP results to the wider world;
- 4) Special projects, including those on hydrology in Russian rivers, and work regarding Franz Josef Land and other areas in Russia should continue;
- 5) Cooperation with UNEP, UN ECE and IPCC should continue;
- 6) Work will continue with IPY and its legacy, including SAON;
- 7) More coordination is needed with ACAP, CAFF, SDWG, and PAME;
- 8) Regarding work with GIS, the work initiated at the joint EPPR/AMAP workshop on GIS and mapping should be continued and further developed so that relevant datasets and products are available for use both by AC WGs and external parties; the initiative of the Nordic mapping authorities to extend their work to collect GIS data for basic mapping purposes to cover the entire circumpolar region should be supported and continued;
- 9) Tentative deliverables for assessments include the mercury assessment in 2010–2011, and the SWIPA products from 2009-2011.

The oil and gas scientific assessment reports are due to be printed in 2009 and should therefore be removed from the workplan. New items will include the significant activity to thoroughly evaluate and revise the AMAP monitoring programme over the next two years, the probable addition of the ArcRisk project to the item on combined effects, potential continuation of the

work on non-CO₂ drivers, and support for the AC priorities established under the Danish chairmanship.

In the discussion, it was noted that there is also a need to include more work on the cryosphere and how to monitor environmental changes as well as work on the effects of climate change on contaminants in the environment, on ecosystems and biodiversity (with CAFF), and on socio-economics and cultural issues.

The work plan was discussed again at the end of the meeting based on the decisions made. It was agreed that the AMAP Secretariat would circulate a revised draft of the workplan for 2009–2011 to be further discussed and approved during the teleconference at the beginning of January for submission to SAOs by their deadline.

e. Cooperation with AC WGs: PAME, EPPR, SDWG, and ACAP

It was noted that AMAP has projects with PAME, EPPR, SDWG, and ACAP but that it is not clear whether there are enough resources to sustain all of these projects. In particular, AMAP was only partially able to cooperate with PAME in the development of a Regional Programme of Action (RPA), and this was only because Canada was able to support some of this work. PAME has also developed an assessment strategy for Large Marine Ecosystems (LMEs) using indicators; however, since AMAP is the AC WG responsible for assessments and it is important that scientific experts are responsible for conducting such assessments, it was considered both appropriate and important that AMAP also be involved in any such work.

In preparation for the joint meeting with CAFF, the AMAP WG discussed the proposals for a pilot coordinated AMAP-CAFF monitoring effort that had been presented during the joint AMAP-CAFF meeting in 2007. Although it had been envisaged that this pilot coordinated monitoring effort would be based on only a few projects, countries had proposed a long list of projects for this cooperation. All of these projects had been included in the progress reported to SAOs during 2008. Consequently, the AMAP Secretariat had carried out an exercise to compare the proposed projects with the criteria that had been agreed by AMAP and CAFF for selection of the pilot projects. On the basis of this analysis, five projects that met the criteria agreed for this cooperative effort were identified (several of which combined multiple projects suggested by the countries on specific subjects). This analysis had been circulated to AMAP HODs earlier in the year and was generally supported by the AMAP HODs. Also, since the previous joint meeting with CAFF, CAFF has made progress in the development of its Circumpolar Biodiversity Monitoring Programme (CBMP). A CAFF expert group on marine monitoring has been established, with many of the same experts as in AMAP, and another CAFF expert group on terrestrial monitoring is planned to be established. Given this new situation, the AMAP WG proposed that the CBMP should serve as the vehicle for the joint monitoring with CAFF and, thus, the collaborative work with CAFF could be implemented through the CBMP. Consequently, the AMAP WG proposed that AMAP become a formal co-sponsor of the CBMP. This co-sponsorship would not have funding implications for AMAP as monitoring is conducted under national funding.

The meeting noted that CAFF plan to prepare a ‘snapshot’ Arctic Biodiversity Assessment (ABA) in 2010 to contribute to the International Year of Biodiversity under the Convention on Biological Diversity. Although CAFF has not requested assistance in this assessment, the AMAP WG considered that Chapter 6 of the oil and gas assessment, with Hein Rune Skjoldal (Norway) as lead author, will contain a significant amount of the information needed for this first biodiversity assessment of the Arctic. Maps relating to biodiversity being prepared for this assessment of vulnerability to oil and gas activities and the vulnerability assessments on Arctic species are also pertinent in this respect.

f. Cooperation with international bodies such as UNEP, LRTAP, EU (e.g., EEA, EMMA, Arctic strategy, and the 7th Framework Programme), etc.

Lars-Otto Reiersen reported on the following cooperative efforts with international bodies:

- UNEP Chemicals: the mercury emissions report (see 4(e), above);
- LRTAP: work on methodology and improving, in particular, estimates of the contribution of Asian emissions to Arctic contamination; closer cooperation is desirable with the LRTAP task force on hemispheric transport of air pollution (HTAP) on modeling, and with the LRTAP EMEP on coordination and implementation of monitoring to improve geographical coverage of monitoring stations;
- EU/EEA: the EU have now approved their ‘Marine Strategy’ with policy objectives that extend to the Arctic areas; the EU are planning to hold discussions with Iceland and Norway, as parties to the EEA agreement, concerning application of their Marine Strategy and policies in Arctic marine areas;
- EU/EC DG Research: in accordance with previous AMAP WG discussions, AMAP-affiliated institutes have developed a research proposal on the effects of climate change on contaminants and human health involving experts in Europe and Canada (the ArcRisk project); AMAP Secretariat are supporting the coordination of this project; expectations are that this project may receive financial support under the EU 7th Framework Programme (FP7) amounting to ca. 3.5 million EUR over a 4.5 year period; GEF funding is being sought for a parallel project in Russia; cooperation with the USA on a parallel project will also be sought. AMAP were also invited to present the SAON initiative at a Ministerial meeting in Monaco arranged under the French EU presidency; SAON received support in the Ministerial Declaration arising from this conference.
- UNESCO has recently invited AMAP to a meeting in Monaco in March 2009 on Arctic monitoring and is looking for expertise on ice, indigenous peoples, etc. AMAP will send a representative to inform the meeting of its SWIPA project work.

In addition, AMAP is working with IASC and WMO/CliC on SWIPA and SAON and with IASC on several special projects.

In the discussion, it was noted that closer cooperation is desirable with groups under the UN ECE LRTAP. The AMAP work in cooperation with UNEP to prepare updated global inventories of anthropogenic emissions of mercury to the atmosphere, and to prepare gridded emissions datasets for use in modeling has potential to contribute to the mercury assessment work currently being conducted by the LRTAP’s HTAP group. This group’s planned 2009 assessment of

intercontinental transport and fate of mercury is now delayed to 2010. The AMAP work on non-CO₂ drivers is also relevant to the LRTAP; the HTAP group is currently finalizing its current assessment on hemispheric transport of greenhouse gasses and precursors (which includes work on modeling of ozone and black carbon).

With regard to cooperation with the Nordic Council of Ministers (NCM), some results of the AMAP project work that they are funding on combined effects of contaminants and climate have been used in the human health assessment; there will also be coordination between this project and the future ArcRisk project. An application will also be submitted to the NCM to fund some of the SWIPA work, including some of the funding necessary for publication of the SWIPA report, and for production of a film in connection with the SWIPA project.

The issue of observers was considered, noting that there are a growing number of observers to the Arctic Council. It was noted that participation of AC observers in the work of AMAP is limited. Currently only the Netherlands attends AMAP WG meetings on a regular basis; China and the UK have expressed an interest in contributing to AMAP assessments and using AMAP data. It was suggested that IASC be requested to circulate the AMAP workplan to its member countries. Observers at the Arctic Council meetings should also be requested to circulate the AMAP workplan to the relevant institutes in their countries.

g. Arctic priority issues

The meeting took note of the document 'Guidelines for laboratories producing data for AMAP Human Health Studies' (Doc. AMAP WG 22/5/4), which has been prepared by members of the Human Health Assessment Group. This draft document describes the protocols and methods that should be used for quality assurance in monitoring contaminants in human blood. When approved, it will also be provided to the Stockholm Convention as the suggested protocols to use in their Global POPs monitoring programme.

Note was also taken of an invitation to a workshop in the Czech Republic for an initiative to set up a monitoring network for long-term measurements of POPs in ambient air using passive samplers. These samplers are less expensive than high-volume samples and their use should be considered to fill geographical gaps between stations where high-volume samplers are operating.

6 Sustaining Arctic Observing Networks (SAON)

a. Recommendations from the SAON Initiating Group (IG) and AMAP's views

Odd Rogne (AMAP Secretariat) summarized the history of the work on SAON, based on a request from the Ministers in the Salekhard Declaration. He then outlined the recommendations of the SAON Initiating Group (Doc. AMAP WG 22/6/1) based on the outcome of three workshops held on SAON.

In the discussion, comments were expressed that the SAON IG report was not clear enough in describing the accomplishments of the SAON process or in specifying what is being requested and the added value of this work. However, it was pointed out that there had not been agreement

concerning specific tasks or commitments. AMAP and IASC have agreed to continue to coordinate the SAON work because participants do not want new structures or administrations but would like clear links to monitoring and research.

John Calder introduced the discussion on the SAON IG recommendation to establish an Arctic Observing Forum (AOF) under the Arctic Council. The terms of reference for the AOF proposed by the SAON IG need to be reviewed by AMAP after which they will be provided to SAOs on 8 January for consideration by the Arctic Council in April. IASC will also consider the terms of reference. The characteristics proposed for the AOF are that there should be no barriers to membership; all activities should be voluntary; there should be no veto authority; nothing should be imposed on members; and there should be unlimited opportunity for discovering synergies, efficiencies, and potential for enhancing value. The initial membership will be recommended by the Arctic Council and IASC, after which other groups can apply for membership. The work will build on existing networks and systems and aim to facilitate observing activities in the Arctic and related data management.

There was a detailed discussion of the proposed AOF and its relation to the Arctic Council, as well as whether the AC was the best organization to sponsor this work. There was general support for the idea of AOF as a meeting place and for the AC as one sponsor, as well as having the AMAP Secretariat assist in the AOF work. However, it was considered necessary to have clear terms of reference for the AOF before there could be more specific support for it. These terms of reference have been drafted (see Annex 4 in Doc. AMAP WG 22/6/1) and a timeline is needed to obtain the AMAP perspective on them before the SAO meeting in February. All participants were encouraged to distribute these draft terms of reference to the relevant agencies in their countries for review and response back to the AMAP Secretariat.

The AMAP WG considered several iterations of proposed recommendations for establishing an AOF, and CAFF Board members joined the meeting for a discussion of Recommendation 1. The AMAP WG and CAFF Board agreed to Recommendation 1, below, while the AMAP WG agreed to the entire text below regarding the Arctic Council's response to the SAON process:

The AMAP WG:

- 1) Recommends that SAOs consider the paper defining options for the involvement of the AC in the continuation of the SAON process. The paper will also provide comments on the draft terms of reference for the AOF. (This paper is to be prepared by representatives of AMAP, CAFF, and SDWG during December 2008);
- 2) Recommends that the Ministerial Declaration should be in full support of the recommendations of the SAON Initiating Group;
- 3) Supports the creation of an Arctic Observing Forum to continue the SAON process;
- 4) Recommends that AMAP and other interested WGs participate in the AOF;
- 5) Proposes that AMAP, in partnership with IASC, serve as the AOF Secretariat and, in that role, report to the SAOs on AOF activities.

For resulting decisions, see Agenda Item 9(c).

b. The SAON outreach plan

The WG was informed that the SAON IG report is under finalization; Canada will support the printing of the SAON report and production of a brochure, while Sweden will support the maintenance of the SAON website. Otherwise, there was no specific discussion of this item.

c. AMAP's circum-Arctic network for monitoring, status and future trends

Lars-Otto Reiersen noted that the AMAP monitoring programme identifies ten 'key areas' around the Arctic, but that many areas in Russia are not covered; some Russian stations that were decommissioned in the 1990s are, however, being re-established. The AMAP core monitoring programme should be implemented within all of the 'key areas' in the Arctic, with the Zackenberg monitoring providing a good example of how this can be done for the climate-related components. At present, POPs monitoring in air is only conducted at Alert (Canada), Zeppelin (Norway), Pallas (Finland and Sweden), and Storhofdi (Iceland); Station Nord (Greenland) was re-opened in 2007 and one additional station is being re-opened in Canada. This does not therefore provide adequate circum-Arctic coverage as needed for both AMAP and Stockholm Convention purposes.

AMAP continues to support the monitoring of mercury in air at Amderma (Russia) from funding received from Norway and Canada; the Amderma site now has the third longest time series for mercury in air after Alert and Ny-Alesund. There are ambitions to add POPs monitoring at the Amderma site, if possible, and also to implement a similar mercury/POPs air monitoring site in eastern Siberia (to monitor possible contaminant transport from Asia in this region). Countries were requested to consider possibilities for co-funding such monitoring sites in Russia.

In a review of the national monitoring programmes, Norway reported that it plans to maintain its current levels of monitoring in the Arctic; Sweden will also maintain current levels but is reviewing its monitoring programme with a view to add measurement related to climate change effects. Finland will add socio-economic and ecological networks and some additional climate-related work. Iceland will review its programmes in 2009 to streamline them and add climate change parameters. The USA is developing a monitoring plan and has significant activity on climate parameters. Canada is running the Northern Contaminants Program and ArcticNet; ongoing IPY work on climate change, human health, and some contaminants will decrease after March 2009 but some will continue. See also Agenda Item 11.

d. Update of AMAP's Monitoring Programme

Lars-Otto Reiersen reported that, after the April 2009 Ministerial Meeting, AMAP Expert Groups will be requested to assess the past ten years of monitoring and develop plans for the next ten years, including the new monitoring needs. The basic AMAP monitoring programme was developed in 1989–1991; one major update was subsequently made, based on the 1998 assessment, and climate effects monitoring was also added in connection with the ACIA. However, it is now time to review the programme again with a view to improving it by possibly eliminating measurements no longer required (e.g., possibly some parts of the acidification

monitoring programme) and adding additional climate-related measurements, and better linking contaminant monitoring with health effects monitoring, etc.

Experts conducting the review of the AMAP monitoring programme should complete this work within two years, so that the new programme is ready by 2011. The process could begin with a meeting of (co-)chairs of the AMAP expert groups together with HODs, similar to the meeting in Oslo in May 2008.

In the discussion, the need for clear objectives for the monitoring was stressed, as well as identifying the information required for future assessments, particularly taking into account new and future threats to the Arctic. New information on the ecosystem level is needed and monitoring is required on many different scales, implying a need to consider the various methods of monitoring.

The WG strongly supported this review of the AMAP monitoring programme. The review should be complete by the end of 2010 so that it will be available at the 2011 Ministerial Meeting. The Secretariat will draft a background document containing an outline of the work that needs to be done and send this out to HODs and lead authors for feedback. Thereafter, the expert groups will be requested to review this outline and develop plans for conducting the full review of the monitoring programme. A workshop should be held in autumn 2009 to discuss and coordinate this work. The WG agreed to add this review to the AMAP workplan and recommended that the dates for the workshop be fixed as soon as possible to ensure the participation of all relevant experts. CAFF will be informed of this review and that the CBMP will also be included.

It was agreed that the review of the monitoring programme should also be linked to the IPY legacy, and this should be stated in the invitation for participation in the review. It would also be useful to develop a meta-database on all current programmes and projects to assist in the determination of the issues to be covered. This review should be linked to other AC WGs, international organizations, and indigenous peoples to identify their concerns regarding what will need to be assessed in the future.

Russel Shearer reported that there will be a review of the Northern Contaminants Program in 2010–2011, so this review of the AMAP monitoring programme is very timely. An AMAP workshop to determine the key products needed and what data can be fed into the international conventions would also assist in the national review process. AMAP should continue to develop networks to support monitoring, and the next issue for consideration will be non-CO₂ drivers.

Jay Van Oostdam (Canada) reported that the Human Health Assessment Group will be reviewing the implications of its human health assessment together with the report on the Northern Contaminants Program to decide the future direction for their work. They will confer with the new SDWG human health experts group on this work.

Lars-Otto Reiersen stated that not all countries have been reporting their monitoring data to the AMAP Thematic Data Centers, but this is necessary as there is a need to quality assure the monitoring data and store them for the future. If a conference on the monitoring programme is

held in the fall of 2009, EMEP and the Stockholm Convention should be invited to participate to ensure coordination with other organizations and avoid duplication. There is a need to assess past results of the monitoring programme and to stress the need for quality assurance and the participation of all laboratories submitting monitoring data in relevant intercalibration exercises. National Implementation Plans are also important and written plans should be submitted for next year's work.

e. IPY legacy

Norway has prepared a paper identifying projects that it felt should be continued as part of the IPY legacy, given that there is a need to secure current networks and include new networks in the monitoring programme. Tana Stratton (Arctic Council Secretariat) reported that the SAOs generally gave strong support for an IPY legacy project covering: 1) the best ways of identifying results that could be useful for decision-makers and how to interpret the results of IPY for society; and 2) the development of proposals for which IPY activities should be continued.

It was noted that, although the SAOs approved the Norwegian paper, they made some changes so that it was not clear exactly what was approved. Norway has requested each SAO to name a contact person for the continuation of this legacy work; this group will decide how to go forward to determine which initiatives should continue.

f. Seminar in Italy in September 2009

John Calder reported that WMO will hold a conference on Oceans Observations (OceanObs'09), organized under GOOS, GCOS, and WCRP, and co-sponsored by IOC, among others. This conference will take place in Venice in September 2009 to prepare a consensus plan for developing and sustaining ocean observations on a global perspective. White papers on types of observations have been requested and those chosen can be presented as a poster. Plenary speakers will use these white papers as a basis for their talks. The results of this conference will be a global ocean observing system and the intention is that more observations will be made in the Arctic.

7 SWIPA—Status and problems to be solved

a. Status of the work

Morten Olsen, Chair of the SWIPA Integration Team (IT), reported on the status of this Arctic Council project that is being conducted in cooperation with IASC, CliC, and IPY. The objective is to provide the AC with updated and synthesized scientific knowledge on the present status, trends, and future regional and global consequences of climate change. A full description of the project is contained in Doc. AMAP WG 22/7/1, and is updated when needed on the AMAP website. SWIPA is trying to capture new knowledge from IPY projects.

There are three main components to SWIPA: 1) the Greenland Ice Sheet, led by Denmark; 2) sea ice, led by Norway and the USA; and 3) terrestrial (snow, permafrost, mountain glaciers and ice caps, and lake and river ice), coordinated by Sweden and Canada. To establish coordination

among the different components and modules, the IT was established, with members comprising the coordinating lead authors and representatives of IASC, CliC/WMO, IPY, IPS, and AMAP. The IT will in the future also invite IASSA (International Arctic Social Sciences Association) to take part in the work.

The second meeting of the IT, in November 2008, discussed a number of cross-cutting issues, including the benchmark for SWIPA (the ACIA report), assessment of global climate models, the Arctic water budget, and feedbacks, how to deal with socio-economic and cultural issues, and interactions between the different components.

An initial report on the Greenland Ice Sheet component is currently under preparation and an extended summary will be provided for the April 2009 Ministerial Meeting, with the intention that it will be accepted for provision to COP15. The full SWIPA report will be completed in 2011.

The meeting was informed that SAOs had expressed general support for SWIPA at their meeting in Kautokeino.

b. Confirming the participants in the SWIPA project

Alona Yefimenko (AC Indigenous Peoples' Secretariat) stated that IPS intends to nominate one person to the SWIPA IT as soon as resources have been identified.

c. How to approach the socio-economic and human health issues in SWIPA

Morten Olsen reported that SDWG will be requested to provide information on the socio-economic consequences of climate change on Arctic peoples and communities. A close relationship has also been established with ECONOR. However, difficulties have been experienced in integrating across the SWIPA components in relation to socio-economic consequences of climate-related changes, and it has been difficult to identify relevant scientists, possibly because there are only a few scientists working on socio-economic issues in the Arctic.

A workshop on socio-economic issues in relation to the Greenland Ice Sheet component had been held in Copenhagen in October and another workshop will be held in early 2009.

d. Appointment of an independent review committee

Lars-Otto Reiersen reported that SAOs have requested AMAP HODs to establish a committee to select international peer reviewers for the SWIPA report. In association with their national science committee, each HoD should nominate one person to take part in the Selection Committee so that this committee is constituted by mid-2009. The nomination of experts to serve as reviewers can be made by anyone, with nominations supported by a CV. There should be three (unpaid) reviewers per chapter as well as one or two persons who will be paid to read the entire SWIPA report to find inconsistencies, etc.

The meeting decided that criteria should be prepared to guide the Selection Committee in the selection of reviewers, e.g., reviewers may be members of SWIPA IT who are not authors, or authors of one chapter may review a different chapter. The selection of peer reviewers must be open and transparent so it is clear how they have been chosen. The Secretariat in association with Morten Olsen will prepare such criteria in early 2009.

e. Any other actions related to climate

Draft instructions for peer review of the SWIPA Science Report have been prepared by the Secretariat (Document AMAP WG 22/7/4, also attached as Annex 5). Participants were requested to review these draft instructions and provide comments to the Secretariat by 30 January so that they can be finalized.

Attention was drawn to the Action List in the minutes of the Second SWIPA IT meeting. There are a number of actions listed there, some already in January, so all participants were requested to review the list and carry out the actions requested.

8 COP15 arrangements

As noted below (Agenda Item 9(f)), Morten Olsen stated that Denmark finds that the UNFCCC COP15 offers an excellent opportunity to highlight Arctic climate change and the consequences of climate change in the Arctic. Consequently, Denmark aims to establish an Arctic stand at the venue and hold one or more Arctic side-events. The Danish Energy Agency (under the Danish Ministry of Climate and Energy) will hire a person to facilitate the preparation and coordination of Arctic events in association with COP15. He requested that all organizations or countries that would like to joint together to create an Arctic parallel event contact him by 30 January at the latest. His agency will hire a person to facilitate the preparation of this event. He noted that there is not much space for side events at the Bella Center, the venue of COP 15, but the municipality of Copenhagen is arranging space for such events at various locations around the city.

Russel Shearer noted that contacts between the Danish Energy Agency and the Department of Northern and Indian Affairs in Canada have been established so that Canadian experiences from the Arctic Day at COP11 could be shared.

9 Joint meeting with CAFF

The Joint Meeting between the AMAP WG and the CAFF Advisory Board was opened by the Chair of AMAP, John Calder, together with the Chair of CAFF, Inge Thaulow (Denmark) at 8.30 hrs on 9 December 2008. There was a tour de table to introduce all participants. The agenda was reviewed and adopted.

a. Circumpolar Biodiversity Monitoring Programme (CBMP)

Risa Smith (Canada) presented an overview of the Circumpolar Biodiversity Monitoring Programme (CBMP), which is a circumpolar network of species and ecosystem-based

monitoring programmes to improve understanding of Arctic biodiversity; it is essentially a network of networks. Canada will lead the CBMP at least until the end of 2010. There is funding for the programme from a number of sources as well as in-kind support. The CBMP is a flagship programme within CAFF and a source of information for the Arctic Biodiversity Assessment (ABA), for which a highlights report covering 21 indicators will be prepared in 2010. It is anticipated that the Highlights Report will be submitted to the UN Convention on Biological Diversity (CBD) for incorporation into the Third Global Biodiversity Outlook Report (GBO3). CBMP is one of the partners in the 2010 Biodiversity Indicators Partnership, which is a Global Environment Fund (GEF) project charged with developing indicators for the GBO3.

There is a five-year implementation plan for CBMP, with a number of strategies and outreach projects in relation to five themes: marine, coastal, terrestrial fauna, terrestrial vegetation, and freshwater. A Marine Expert Group has been established with Norway and the USA as co-leads and a Freshwater Expert Group is under establishment with a Canada as a possible co-lead. CBMP is looking for commitments from other countries to lead the four outstanding expert groups (freshwater, coastal, terrestrial fauna and terrestrial vegetation).

CBMP has 60 global partners of which 33 are operating monitoring networks.

In terms of AMAP-CAFF links, CBMP has been represented at SAON workshops and has been proposed as the biodiversity component of SAON. Biodiversity has also been added to the Arctic Report Cards—an important function for CAFF. A joint AMAP-CAFF monitoring project has been identified covering seabirds, polar bears, Arctic char, and caribou/reindeer. There are also biodiversity issues in SWIPA.

John Calder noted that the joint AMAP-CAFF monitoring programme considered at the previous joint meeting had been developed before the CBMP was established. However, four of the joint monitoring programme networks have now been incorporated in the CBMP. Furthermore, to understand changes in biodiversity, broader monitoring of physical and chemical conditions is needed to determine the sources of the changes, and this type of monitoring occurs under AMAP. Thus, AMAP proposes that the CBMP serve as the focus of joint activities between AMAP and CAFF; AMAP also proposes that it co-sponsor CBMP, which will maintain its focus on biodiversity but add a number of additional measurements. In addition to highlighting to the Arctic Council that AMAP and CAFF are working closely together, this co-sponsorship is also a reflection of the fact that there is little distinction between AMAP and CAFF monitoring experts, especially in the smaller countries. For example, the CAFF Marine Experts Group has a number of AMAP-associated members.

John Calder reported that the previous day AMAP agreed to re-evaluate its entire monitoring programme over the next two years and look especially at links between climate, contaminants, and biodiversity. This will create a link with CBMP when the revised plan is completed in 2011.

Inge Thaulow suggested that AMAP sign the CBMP partnering document to signal its support for this programme. All partners in the programme have been asked to sign this document.

After discussion, however, it was agreed that the Secretariats of AMAP and CAFF should prepare a paper on AMAP-CAFF cooperation stating that coordination will be via the CBMP. This paper will be presented to SAOs for their acceptance and then no signing of the partnering document will be required. The 'green paper' prepared last year can serve as a basis for this paper, which will be drafted well before the February SAO meeting.

b. Joint Monitoring Programme

The joint meeting noted that four of the five monitoring networks considered for the joint AMAP-CAFF monitoring programme have now been incorporated in the CBMP, which AMAP will cooperate with and has proposed to co-sponsor. Thus, the joint monitoring programme has essentially been subsumed into the CBMP and it was agreed that there is no longer a need to develop this as a separate programme. The SAOs will be informed of this at their next meeting.

c. SAON

John Calder provided an overview to CAFF participants of the SAON work, which is to achieve a vision that users should have free, open access to observation data on the Arctic. He summarized the key aspects of this work, noting that SAON should be open to all, not only Arctic, countries and that a forum is needed to begin this dialogue. He stated that the SAON Initiating Group has prepared four recommendations concerning the continuation of SAON, the first of which is that the Arctic Council should lead the facilitation of international collaboration among government agencies, scientific institutes, and northern residents to promote sustainable pan-Arctic observing systems and a forum should be created to accomplish this. It has been proposed that the first meeting of this forum should be called by AMAP, on behalf of the Arctic Council, and IASC, at a time to be determined. He stated that the SAOs gave support for continuing the SAON process, but the terms of reference for the proposed Arctic Observing Forum (AOF) were not available at the most recent SAO meeting. Draft terms of reference have now been prepared and will be presented by AMAP to the SAOs at their February 2009 meeting. AMAP would like to cooperate with CAFF and SDWG on this forum, which is proposed to work in the way that AMAP expert groups work, namely, they conduct their own work and AMAP extracts what it would like from the groups and reports the results to the Arctic Council.

In the discussion, it was stressed that there must be a clear reporting mechanism so that governments can see the results of this work. It was noted, however, that SAON is not a monitoring programme in itself, nor will it conduct assessments as these are the responsibility of the WGs. Nonetheless, several delegations felt that the terms of reference were vague and the value of AOF to the Arctic Council was not clear.

Based on this, it was agreed that the Secretariats of CAFF, AMAP, and SDWG should cooperate to prepare a paper showing the needs of CAFF, SDWG, and AMAP and how they can be assisted by the AOF; the paper should also clearly state the benefits and added value of this work to the Arctic Council. This paper should accompany the draft terms of reference for AOF, supporting them by specifically showing the Arctic Council context for this work and what the AC can obtain from it.

d. The Arctic Biodiversity Assessment

An overview of the development of the biodiversity assessment was presented. The first phase is a highlight report in 2010 directed at the CBD biodiversity targets. Two-page descriptions covering trends, future concerns, etc., will be prepared for each of the 21 indicators from the CBMP, as an Arctic contribution to the Third Global Biodiversity Outlook and the UN International Year of Biodiversity in 2010. The scientific biodiversity report will be prepared by 2013. A chief scientist has been appointed and lead authors are being chosen for each of the six chapters: species, marine, freshwater, terrestrial, ecosystem goods and services, and genetic diversity. Co-leads are from Finland, USA, and Denmark-Greenland, with Canada also represented on the Steering Committee. It is intended that all lead authors will be in place by February 2009. There are strong links with AMAP and Chapter 6 of the oil and gas assessment in this work.

The AMAP WG expressed its support for these assessment activities.

e. Follow-up to the oil and gas assessment

John Calder reported that the SAO Chair had requested AMAP to prepare draft text for the SAO report and the Ministerial Declaration in relation to the oil and gas assessment. The views of CAFF on newly revised text were requested.

f. Emerging priorities for the Danish AC Chairmanship

Morten Olsen stated that he could only provide some general indications of the Danish priorities under its chairmanship as they have not yet been fully decided. The Scandinavian priorities established under the current Norwegian chairmanship—climate change, integrated management, IPY, and indigenous people and local living conditions—must be continued. In addition, at the 2009 Ministerial Meeting there will be some products with recommendations that will need to be followed up, e.g., the Arctic Marine Shipping Assessment. Deliverables already decided include the 2010 Biodiversity Assessment and the SWIPA and mercury reports in 2011.

Denmark is also hosting UNFCCC COP15 and there will be a number of other activities planned in relation to Arctic issues. He requested participants to contact him regarding what they would like to do regarding COP15 on the Arctic. Denmark will facilitate cooperation between the various planned activities.

In the discussion, it was agreed that COP15 represents an excellent opportunity for the Arctic Council to hold an AC side-event/Arctic Day at the venue. Applications for a side-event must be directed to the UNFCCC Secretariat.

Accordingly, the joint meeting agreed that a one-page paper should be prepared requesting SAOs to arrange an Arctic Day in association with COP15 and determine how it can have maximum impact on negotiators. This paper will be prepared by the AMAP and CAFF Secretariats together with the Arctic Council Secretariat and the Inuit Circumpolar Council (ICC). Consultation with AMAP HODs and the CAFF Board will be made by e-mail so that the paper can be ready for

presentation at the February SAO meeting. Thereafter, an action team will need to be established to prepare more details of the event.

As the Arctic Day arranged at COP11 in Canada had been a large undertaking, it was suggested that a person involved in the organization of that event be contacted to provide strategic advice and experience. Lesley Whitby at Indian and Northern Affairs in Ottawa was suggested as a main contact.

g. Workplan review

John Calder reported that AMAP and SDWG had agreed at their joint meeting in May to share workplans to enhance cooperation and he suggested the same procedure between AMAP and CAFF.

Inge Thaulow agreed to this suggestion on behalf of CAFF. The two Secretariats will exchange workplans when they are ready and hold a teleconference to smooth out any issues before the workplans are submitted to SAOs. The two secretariats should discuss the timing for this activity.

h. U.S. paper on assessment

Lars-Otto Reiersen reported that a U.S. paper on assessments has been prepared by PAME for SAOs that could have a great impact on AMAP and CAFF work.

The AMAP and CAFF WGs noted that, over the last 15 years they have produced a number of scientific assessments; they expressed their regret that they were not consulted in the PAME process and expressed concern regarding the lack of transparency for this process.

Tana Stratton (Arctic Council Secretariat) stated that several iterations of the PAME paper have been reviewed SAOs and Norway has agreed to prepare a revised document; all WGs will be consulted before it goes to SAOs again.

i. PAME work on LMEs

The PAME Chair, Chris Cuddy, reported that PAME has started to build an application of the Large Marine Ecosystem (LME) approach into its work. For this, PAME has developed a working map of LMEs in the Arctic and has identified the indicators that could be used in the Arctic. Ken Sherman (U.S. NOAA) is leading this work with a group of experts and a draft document has been distributed among PAME HODs. It should also have been distributed to AMAP and CAFF HODs. The proposal is that the global UN system for LMEs should be applied in the Arctic. Norway is working with the USA on an activity plan for PAME regarding LMEs during the next two years, but no decisions have yet been made regarding the indicator approach.

It was stressed that AMAP has conducted scientific assessments over a long period and does not support a strategy to base assessments only on indicators. AMAP experts have expressed a number of reservations about the strategy that PAME is proposing to adopt and AMAP is

therefore concerned to learn about this work. AMAP WG consider it important that future assessment strategies are planned by all of those implementing such work and not only by a WG that has not previously been involved in this work

10 International conferences relevant to the present assessment reports

The meeting was informed that the Human Health Assessment Report will be presented at a conference in Iqaluit, Canada in late May or early June 2009 together with the Northern Contaminants Assessment Program report. It would be useful to have a European venue for the presentation of the AMAP report in addition; the Arctic Science Summit Week in Bergen, Norway in March 2009 was suggested as a possibility.

Regarding the radioactivity assessment, a new Arctic radioactivity conference was proposed; a possible option might be the 3rd IRPA conference planned for June 2010 in Helsinki.

The SETAC Europe conference in Göteborg at the beginning of June 2009 and the EuroChem meeting in Stockholm were suggested as events where the results of the POPs assessment could be presented.

11 AMAP NIPs for 2009–2010

The Canadian NIP, which is updated every year, was presented in Doc. AMAP WG 22/11/1 and the Norwegian NIP was presented in Doc. AMAP WG 22/11/2. The Swedish NIP has not been updated recently because the monitoring programme is under review to add measurements related to climate change effects, but current levels of monitoring in the Arctic will be maintained. Finland has not updated its NIP, but will also maintain the current level of monitoring in the Arctic; in addition, socio-economic and ecological networks will be added. Denmark will prepare a NIP as part of its plan for the AC chairmanship. The USA will submit a paper on its Arctic observing network as a NIP.

Russia submitted a report on its NIP implementation during the period 2006–2008. This report is available from the AMAP website.

12 The financial situation

Lars-Otto Reiersen reported that finances are in place for printing the oil and gas assessment scientific assessment reports. Work will now start on the printing of the first two volumes (Chapters 1, 2 and 3; and 4 and 5, respectively) and he hoped that they would be ready by April 2009, although work to produce the layout of Chapter 2 still needs to be conducted. The final volume (Chapter 6) has not yet been submitted for technical/linguistic editing; however, mechanisms are in place to finalize the work on this chapter during 2009 and parts of this chapter will be placed only on the web. Chapter 7 is finalized and will be included in all volumes.

For the SOAER 2009, funding from the Nordic Council of Ministers is expected to cover the linguistic editing and the graphical production costs, but additional funding is required.

The radioactivity and human health assessment reports will be produced as typical AMAP reports, but the POPs report is to be published in a peer-reviewed journal, which may also create costs if countries wish to purchase copies for distribution, and if the publications are to be ‘openly-accessible’ on the web.

The Nordic Council of Ministers will also fund some of the climate work. Morten Olsen and Lars-Otto Reiersen will prepare an application to NCM to fund SWIPA work by 15 January 2009. Funding is also needed for graphical layout work for the first SWIPA report on the Greenland Ice Sheet for COP 15.

The Nordic Council of Ministers has provided DKK 500,000 for production of a 15-minute film on the Greenland Ice Sheet component of SWIPA for COP15, but a rough budget for this film is at least DKK 1.6 million. When the film company has been selected, further funds will be solicited.

The Secretariat will prepare a paper describing the costs of all of the above activities and when the funding is due.

Two applications to GEF have been prepared by Russia in close cooperation with the AMAP Secretariat and AMAP experts, but not yet submitted to GEF for funding. One is related to the effect of climate change on Russian rivers (hydrology) and the other is on human health – as a follow-up of the PTS study conducted in 2002–2004.

Funding for the AMAP Secretariat is adequate at present. Norway raised the budget for contributions to support the Secretariat staff to NOK 3.7 million and some other countries provide funding for core activities.

13 Election of Chair and Vice-Chair

The WG agreed to postpone the election of AMAP Chair and Vice-Chair for the time being.²

14 Any other business

The Secretariat was requested to prepare a Master Calendar for all AMAP activities, given the large number of meetings and activities agreed at this meeting.

The meeting agreed that the work to draft suggested texts for the SAOs Report to Ministers and the Ministerial Declaration should be finalized as follows:

POPs and human health: Russel Shearer to draft
Radioactivity and SAON: Lars-Otto Reiersen to draft
Climate change including non-CO₂ drivers: Morten Olsen to draft

² The election was held during the teleconference on 22 January. See minutes from the January teleconferences in Annex 8.

These texts will be distributed to HODs before Christmas for final adoption at the January teleconference.

A full list of actions agreed at the meeting is attached as Annex 6.

Lars-Otto Reiersen noted that this is the last WG meeting that Jens Hansen (Denmark) would attend in his official capacity as Co-Chair of the AMAP Human Health Assessment Group, which has been one of the most effective AMAP expert groups. On behalf of the AMAP WG, he expressed sincere appreciation to Jens Hansen for his excellent work.

15 Next Working Group Meeting

The following schedule for teleconferences and meetings was agreed:

Teleconference #1: 6 or 7 January 2009 (NOTE: this was subsequently re-scheduled for 13 January with a second teleconference on 22 January; see minutes in Annex 7)

Teleconference #2: before February 2009 SAO meeting

HoD meeting: before April 2009 Ministerial Meeting

Meeting of AMAP HODs and chairs of expert groups to kick off review of monitoring programme: May 2009

Tentative WG meeting in autumn 2009

16 End of WG meeting

As all business was completed, the Chair thanked the hosts for the excellent facilities and organization, and the participants for their contributions, and closed the meeting at 15.00 hrs on Wednesday, 10 December.

Annex 1

Annotated Agenda for the 22nd AMAP WG meeting, December 7-10, 2009 in Quebec, Canada

- 1. Opening of the meeting, welcome statements,**
 - a. Welcome by Adèle Dion, (the Canadian SAO)
 - b. Practical information and tour de table
- 2. Approval of the Agenda**
- 3. Short reports from the Chair and the Secretariat**
- 4. Approval of Report and recommendations from AMAP to the Arctic Council meeting in April 2009. “The State of Arctic Environmental Report 2009”.**

Background papers (chapters) have been circulated prior to the meeting.

 - a. **Health** – HODs from Denmark and Canada to lead this discussion
 - b. **Radioactivity** – HODs from Russia and Norway to lead this discussion
 - c. **POPs** - HODs from Canada and Sweden to lead this discussion
 - d. **Climate** - HODs from US and Norway are asked to lead this discussion
 - e. **Mercury** - Emission report prepared also for UNEP Chemicals - Simon to lead this discussion
- 5. The AMAP Progress Report to the Ministerial meeting.**

– Chair and ES to lead this discussion

Recommendations to be presented; e.g. from

 - a. The OGA assessment. Background paper has been circulated
 - b. The Non-CO2 drivers workshop. Background paper has been circulated
 - c. Unmanned Aircrafts (UAS), other issues. Background paper has been circulated
 - d. Workplan for 2009 – 2010.
A draft plan will be circulated prior to the meeting
 - e. Cooperation with AC WGs: PAME, EPPR, SDWG and ACAP
 - f. Cooperation with International bodies like UNEP, LRTAP, EU (e.g. EEA, EMMA, Arctic strategy and the 7th frame work programme), etc
 - g. Arctic priority issues to be covered like: SAON, SWIPA, etc, according to the outcome of the relevant agenda item discussions.
- 6. Sustaining Arctic Observing Networks (SAON)**

- Chair and ES to lead this discussion

 - a. The recommendations from the SAON Initiating Group (IG) and AMAP WGs view on those. – A final proposal from the SWIPA IG group will be circulated prior to the meeting.
 - b. The SAON outridge plan
 - c. AMAPs circum Arctic network for monitoring, status and future trends. The countries are kindly requested to update the WG regarding the monitoring network and the future plans.

- d. Update of AMAP's Monitoring Programme.
 - c. IPY Legacy – A Norwegian paper has been circulated prior to the SAO and AMAP meeting. The HOD from Norway to lead this discussion
 - d. Seminar in Italy September 2009 on IOC/WMO (observing climate in the Arctic).
- 7. SWIPA – status and problems to be solved.**
- ASG Chair to lead this discussion
 - a. Status of the work. Report from the Integration Team (IT) meeting in Oslo. An update version of the SWIPA Implementation plan has been circulated and the Minutes from the IT meeting will be circulated.
 - b. Confirming the participants to the SWIPA project.
 - c. How to approach the socioeconomic and human health issues in SWIPA.
 - d. Appointment of an independent review committee (as decided by SAOs in Svolve)
 - e. Any other actions related to Climate.
- 8. COP XV arrangements,**
- ES and HOD from Denmark to lead this discussion
 - a. Danish and Arctic Council tentative plans.
 - b. Deliverables from AMAP/SWIPA: Greenland ice sheet & SWIPA film, etc.
- 9. Joint meeting with CAFF.**
- AMAP and CAFF Chairs to lead this discussion
- a. Joint Monitoring Programme.
 - b. CBMP
 - c. The Biodiversity assessment
 - d. SAON.
- 10 International Conferences relevant to present the assessment reports**
- ES will lead this discussion
 - Iqaluit March 2009, AMAP/NCP Release of the Health report
 - A European event for the same report, time and venue to be decided upon
 - A conference for the presentation of the Radioactivity report, time and venue to be decided upon
 - A conference for the presentation of the POP report.
 - Others
- 11 AMAP NIPs for 2009-2010**
- Countries are invited to present their monitoring plans for 2009 – 2010 and special projects under preparation, e.g. GEF projects.
- 12 The Financial situation**
- for the production of 2009 and 2011 Assessment reports
 - for the Secretariat
 - for special projects, e.g. the SWIPA production, the GEF projects,

13 Election of Chair and Vice-chair

14 Any other Business

15 Next Working Group Meeting

Countries are invited to decide on tentative time for the next WG meeting and to present any invitation to host the next WG meeting

16 End of WG meeting

Annex 2

List of participants

Final List of Participants: AMAP WG 22 Meeting and Joint AMAP WG – CAFF Board Meeting

Country	First name	Last name	Institute name	Mailing address	Direct phone	Direct fax	e-mail	Institute phone	Institute fax	Will attend meeting(s):
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Annex 3

List of documents

List of Documents for the 22 AMAP Working Group Meeting

Ref	Title	Notes
WG22/2/1	Draft Annotated Agenda and Time Schedule for the 22nd AMAP WG meeting, December 7-10, Quebec, Canada Draft Version 26 November 2008	
WG22/2/2	Draft List of Participants: The 22nd AMAP Working Group Meeting Updated Draft Version 4 December	
WG22/2/3	List of Documents for the 22nd AMAP Working Group Meeting Updated Draft Version 4 December 2008	
WG22/4/Info. 1	The State of Arctic Environmental Report 2009: List of Documents on the Password Area.	
WG22/4/1	AMAP Mercury Expert Group – Agenda for Dec 8-9th 2008 Meeting in Quebec	
WG22/4/2	Draft List of Comments to the 2009 SOAER Draft Version 4 December, 2008	
WG22/5/1	AMAP report to the meeting of Senior Arctic Officials, Kautokeino, November 19-20, 2008. Prepared by the AMAP Board	
WG22/5/2	Summary Recommendations: Addressing Short-Lived Forcers of Arctic Warming and Melting. AMAP Workshop on Non-CO ₂ Forcers. Oslo Norway, September 15 – 16, 2008 Final Version 29 October 2008	Please note that the pdf. file is NOT labeled with the document no.
WG22/5/3	Potential Action to Reduce Emissions of Short-term Arctic Climate Forcers Draft July 30, 2008 Draft	
AMAP Info Paper to WG 22/5/2 & WG 22/5/3	How to get access to 2 additional scientific background documents	

WG22/5/4	Guidelines for laboratories producing data for AMAP Human Health Studies	
WG22/5/5	Recommendations for Safe and Expeditious use of Unmanned Aircraft to Take Critical Environmental Measurements in the Arctic: Results of the Arctic Monitoring and Assessment Program Workshop of Scientists and Aviation Authorities from the Arctic Countries. Oslo, October, 2008	
WG/22/5/6	ArcRisk. Information Paper	
WG/22/5/7	Information Concerning RECETOX Initiative on POPs Passive Sampler Deployment	
WG/22/5/8	26 th Session of the Executive Body for the UNECE LRTAP Convention Geneva, 15-18 December 2008 Contribution from the Arctic Monitoring and Assessment Programme (AMAP)	
WG/22/5/9	DRAFT PROJECT PROPOSAL, PAME WORK PLAN 2009 – 2011 Project Title and Product Version 27 th of Nov 2008	
WG/22/5/10	PAME LME Document	
WG22/5/ Background Paper 1	“The Arctic: Observing the Environmental Changes and Facing their Challenges.” Final Declaration Monaco Conference – 9 – 10 November 2008	Please note that the pdf. file is NOT labeled with the document no.
WG22/5/ Background Paper 2	Communication from The Commission to the European Parliament and the Council. The European Union and the Arctic Region	Please note that the pdf. file is NOT labeled with the document no.
WG22/5/ Background Paper 3	The Arctic Merits the European Union’s Attention – First Step towards an EU Arctic Policy	
WG22/6/1	The SAON Recommendations and Report. Final Draft 1.12.08.	

WG22/6/2	Maximizing the Legacy of IPY in the Arctic	Please note that the pdf. file is NOT labeled with the document no.
WG22/6/3	Annex to: Maximizing the Legacy of IPY in the Arctic	Please note that the xls. file is NOT labeled with the document no.
WG22/7/1	Climate Change and the Cryosphere: Snow, Water, Ice, and Permafrost in the Arctic (SWIPA). Version 25 November 2008	
WG22/7/2	SWIPA Timetable Version 25 November 2008	
WG22/7/3	Minutes from the SWIPA Integration Team Meeting, 17 – 18, Oslo, November 2008	Please note that the pdf. file is NOT labeled with the document no.
WG22/7/4	Draft outline of Instructions for Peer Review of the SWIPA Science Report	
WG22/8/1	AMAP Guidelines to Authors Applicable to All AMAP Assessments	
WG22/9/1	Review of Projects Proposed for a Pilot ‘Coordinated AMAP-CAFF Monitoring Effort’	
WG22/10/1	Report Production Timetable	
WG22/11/1	Canadian National Implementation Plan for Contaminants under AMAP 2008/09	

WG22/11/2	Norwegian Monitoring and Assessment related to AMAP.	Please note that the pdf. file is NOT labeled with the document no.
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Annex 4

Facilitation and Coordination of Unmanned Aircraft Systems for Research and Monitoring in the Arctic

Goals:

- Coordinate and facilitate unmanned aircraft missions for environmental research, monitoring, and assessment of the Arctic
- Prevent collisions involving unmanned aircraft
- Prevent loss of unmanned aircraft to crashes
- Avoid international incidents

Plan of Action:

- 1) AMAP should create a project team consisting of scientists and aviation authorities to work towards the above goals.³ The team will undertake projects such as:
- 2) Develop a detailed work-plan for, and implement, the items below.
- 3) Conduct a pilot project to explore the issues and challenges for achieving the goals. Communicate findings to Arctic Council Working Groups and other supporting entities.
- 4) The project team should develop a report that includes the following:
 - Findings from the pilot project.
 - Recommendations for international standards, protocols, and principles of best practice for special use airspace for unmanned aircraft in the Arctic. (Principles of good behavior discussed at Oslo and Stockholm may be useful.)
 - Options of entities that could house, and funding mechanisms for, a body that would coordinate and facilitate missions for unmanned aircraft in the Arctic.

³ A group, led by Dr. Elizabeth Weatherhead and Dr. Olle Norberg, conducted two workshops on this issue and prepared a paper that served as background material for this proposal: “Recommendations for Safe and Expeditious use of Unmanned Aircraft to Take Critical Environmental Measurements in the Arctic: Results of the Arctic Monitoring and Assessment Program Workshop of Scientists and Aviation Authorities from the Arctic Countries” (October 2008). The members of this group may be an ideal starting point for populating the project team.

Annex 5

Draft outline of Instructions for Peer Review of the SWIPA Science Report

The International Peer Review should include a minimum of three members for each component/module. The purpose of the technical review is to provide a quality-controlled set of technical products that are unbiased and with data, related interpretations, and conclusions of the highest scientific standards that can serve as a solid foundation for any subsequent programmatic or policy related summaries and recommendations. The review will be conducted by scientific experts selected from the process previously described and overseen by the International Peer Review Selection Committee.

Peer reviewers of the scientific chapters of the SWIPA report should:

Check for the scientific integrity, correctness, and accuracy of the statements in the report;

Check that all major statements have been referenced;

Check that the references used are papers published or in press in respected, peer-reviewed scientific journals or other scientific publications;

Check that Russian literature used is on the list of Russian journals accepted for use in the SWIPA project, based on a list prepared by the Russian State Commission of Academic Degrees;

Check that any new data included in the report are from standard monitoring programmes that employ accepted quality assurance procedures (according to a list to be compiled by the AMAP Secretariat);

Check that any model results using new input have been obtained using peer-reviewed published models for which there has been no change in the forcing and no user intervention allowed.

For the socio-economic chapters of the SWIPA report, peer reviewers should:

Check that all major statements have been referenced;

Check that no probability statements have been made based on grey literature;

[Further criteria will be included when information has been received on the quality control standards used for the Arctic Human Development report].

Annex 6

Action List

Agenda item	Action	Action for:	Action due by:
4	Review and approve Arctic Climate Issues of Concern report by e-mail and teleconference	AMAP HODs	15 January 2009
4	Review final text of SOAER 2009	AMAP HODs	30 December 2008
5	Review and agree text on oil and gas assessment for SAO report and Ministerial Declaration	AMAP HODs	7 January 2009
5	Prepare and send out final draft Workplan 2009–2010	Executive Secretary	19 December 2008
5	Finalize draft recommendations on non-CO ₂ drivers	AMAP HODs	7 January 2009
5	Finalize Arctic Climate Issues of Concern report according to agreement at AMAP WG meeting	Authors	20 January 2009
5	Establish project team of scientists and aviation authorities to facilitate and coordinate use of unmanned aircraft systems (Annex 4)	AMAP Secretariat	
5	Add organization of UAS project team to AMAP Workplan 2009–2010	Executive Secretary	19 December 2008
5	Consult with appropriate UNEP bodies to include black carbon in their work	Executive Secretary	31 March 2009
6	Draft background document with an outline of work to do for the review, evaluation, and revision of the AMAP monitoring programme and send to HODs and lead authors for feedback	AMAP Secretariat	16 February 2009
6	Review and provide feedback to Secretariat on outline of monitoring review	AMAP HODs and lead authors	20 March 2009
6	Review revised outline of monitoring review and develop plans for conducting the full review of the monitoring programme	AMAP expert groups	
6	Schedule workshop on revision of monitoring programme in autumn 2009	AMAP Secretariat	30 January 2009
6	Report Arctic monitoring data to AMAP Thematic Data Centres	All AMAP countries	Annually
6	Submit National Implementation Plans	All AMAP countries	Annually
6	Distribute terms of reference for AOF to relevant national agencies for review and send response to AMAP Secretariat	All participants	7 January 2009
7	Prepare criteria to guide the Selection Committee in the selection of reviewers for the SWIPA report	AMAP Secretariat and Morten Olsen	30 March 2009
7	Review draft instructions for peer review of SWIPA report (Annex 6) and send comments to Secretariat	All participants	30 January 2009
7	Review and carry out relevant actions listed in minutes of Second SWIPA IT meeting	All participants	

Agenda item	Action	Action for:	Action due by:
9	Prepare a paper on AMAP-CAFF cooperation in relation to the CBMP for February SAO meeting, including information that this cooperation replaces the joint AMAP-CAFF monitoring effort	AMAP and CAFF Secretariats	23 January 2009
9	Cooperate to prepare a paper showing needs of CAFF and AMAP [and SDWG] in relation to Arctic observing networks and how they can be assisted by AOF	AMAP and CAFF [and SDWG] Secretariats	23 January 2009
9	Prepare one-page paper requesting SAOs to arrange an Arctic Day in association with COP15	AMAP and CAFF Secretariats, with AC Secretariat and ICC	23 January 2009
9	Exchange workplans for 2009–2010 and hold teleconference to coordinate	AMAP and CAFF Secretariats	23 January 2009
12	Seek additional funding for publication of SOAER 2009	AMAP Executive Secretary	30 January 2009
12	Prepare application to Nordic Council of Ministers to fund SWIPA work	AMAP Executive Secretary	15 January 2009
12	Seek additional funding for production of film on GRIS	AMAP Executive Secretary	30 January 2009
12	Prepare a paper describing the costs of all publication and film production activities and when the funding is due	AMAP Executive Secretary	30 January 2009
14	Prepare a master calendar for all AMAP activities in 2009	AMAP Executive Secretary	30 January 2009
14	Prepare final draft text for SAO report and Ministerial Declaration, as follows: POPs and human health Radioactivity and SAON Climate change including non-CO ₂ drivers	Russel Shearer Lars-Otto Reiersen Morten Olsen	7 January 2009

Annex 7

Combined Minutes from AMAP teleconferences of 13 and 22 January 2009

1 Opening of the meeting

The teleconferences were held at 15.00 hrs Central European Time on 13 and 22 January. HODs or their nominated representatives from all countries participated in the calls, with the following exceptions: Yuri Tsaturov (Russia) was unable to participate in the call on 13 January and Yuri Sychev acted on his behalf, Helgi Jensson (Iceland), Per Dovle (Norway) and Yuri Tsaturov (Russia) were unable to participate in the call on 22 January. Documents agreed on the call on 13 January were circulated to all for confirmation of approval before being submitted to the Arctic Council on 16 January. Helgi Jensson (Iceland) and Per Dovle (Norway) confirmed decisions taken during the teleconference on 22 January.

2 Approval of the agenda

The agenda was approved with additions under any other business.

- 3 Approval of the SOAER and Executive Summary;
- 4 Approval of AMAP's Update of Selected Climate Issues of Concern;
- 5 Approval of the draft text for the Ministerial Declaration; and
- 6 Approval of the draft text for the SAO report to Ministers

The main business of the teleconference on 13 January was to approve five documents for submission to the Arctic Council Secretariat (deadline 20 January) for consideration by SAOs at their meeting in February. The five documents concerned were:

The AMAP 2009 SOAER (Arctic Pollution 2009), and its Executive Summary; the AMAP 2009 Update on Selected Climate Issues of Concern report (including its Executive Summary); the AMAP proposals for texts to be included in the SAOs report to Ministers; the AMAP proposals for texts to be included in the Tromsø Ministerial Declaration; and the AMAP Workplan for 2009–2011 (and tentative list of deliverables for 2009–2013).

Issues outstanding from the AMAP WG22 meeting in Quebec were discussed and resolved. Revised documents (showing all agreed changes) were circulated following the conference call (e-mails sent on 14 January) to all HODs, and confirmed by responses received (or lack of response, which it was agreed would represent confirmation). The above documents, thus approved by the AMAP HODs, were submitted to the Arctic Council Secretariat on 16 January.

Following approval of the AMAP 2009 Update on Selected Climate Issues of Concern report (as described above), Peter Murdoch (USA), on the teleconference on 22 January, noted that some late comments received from scientific experts raised a concern that parts of this report and associated text in its Executive Summary might take the emphasis away from the primary necessity of reducing CO₂ emissions in relation to climate change and this can send an incorrect message. It was agreed that the comments would be communicated to Simon Wilson who would

coordinate a discussion/decision among HODs by e-mail on how to handle this matter. A number of comments and proposed amendments were made in subsequent e-mail exchanges. The resolution of the matter was to add a sentence to the first paragraph on SLCFs in the Update on Selected Climate Issues report with a corresponding addition to the report's Executive Summary. Proposed suggestions for related changes to the SAO report to Ministers would be compiled by John Calder and conveyed to SAOs at their drafting meeting in February, if needed to clarify the points made in the comments.

7 Comments to the draft Progress Report from AMAP

The AMAP Workplan, which will be part of the Progress Report, was approved on the teleconference call on 13 January (see above).

During the call on 22 January some comments were raised on the draft progress report that has been circulated to HODs. Lars-Otto noted that this draft needs to be finalised before the SAO meeting in February but can still be revised prior to the meeting in April. It was agreed that texts relating to SWIPA, SAON, and various meetings would be updated. Regarding the contamination problems on Franz Josef Land, AMAP has given a presentation to ACAP on clean-up activities; Mikala Klint agreed to provide suggestions for revisions to this part of the document. One correction noted was that ACAP is the Arctic Contaminants Action Program (not Arctic Council Action Plan). It was noted by several participants that the text on cooperation with other WGs should be updated to reflect the current cooperation (ACAP, CAFF). Russel Shearer noted that Canada should be added to the list of countries that have supported the air monitoring at Amderma.

8 SAON; status of the joint work with CAFF and SDWG

A total of 2500 copies of the SAON report have been printed, of which 800 are already earmarked for distribution within Europe (from Sweden) and within North America, including to all SAON workshop participants (from Canada). The AMAP Secretariat has ordered 1200 that will be delivered to Oslo and distributed to AC SAOs, PPs, Observers, AC WGs, etc. Russel agreed to supply the AMAP Secretariat with the distribution lists from Canada and Sweden so that duplication in the distribution from the AMAP Secretariat in Oslo could be avoided.

Lars-Otto reported that, on the call between AMAP, CAFF and SDWG, it had been agreed to use the AMAP draft letter as the basis for a letter from AMAP, CAFF and SDWG to SAOs concerning support for implementing the proposed SAON/AOF, with a few revisions to incorporate possible options for SAOs to consider. A revised draft had been sent to CAFF. CAFF had not yet responded to the revised draft.

It was noted that it would be useful to have cost estimates of the SAON cooperation available for the SAO meeting in February.

Lars-Otto has been invited to present SAON to the European Parliament on 25 February in Brussels. The EC Commissioner for Marine Transport expressed support for SAON at the Arctic Frontiers Conference in Tromsø in mid-January.

Regarding the Circumpolar Biodiversity Monitoring Programme (CBMP), HODs agreed that, as described in the WG22 minutes AMAP has proposed that it be a co-sponsor of the CBMP. A first meeting of the CBMP marine sub-group was held in Tromsø during the week of 12 January and a number of AMAP experts participated in this. Some concern was expressed that the CBMP work may take key experts away from ongoing and planned AMAP work; HODs agreed that key experts engaged in AMAP work should not be asked to make major commitments to CBMP activities that might be at the expense of the AMAP work.

9 Election of Chair and Vice-Chair

The following officers were elected for a two-year period beginning after the Ministerial Meeting in April: Russel Shearer, Chair of the AMAP Working Group; Morten S. Olsen, Vice-Chair; and John Calder, Vice-Chair, especially on SAON issues. It was agreed that the Vice-Chairs would share responsibility for chairing the Assessment Steering Group pending further consideration of this issue when the AMAP work plan has been approved. Thanks will be communicated to Yuri Tsaturov (Russia) and Per Døvle (Norway) for their work in serving as AMAP Vice-Chairs in the past years, in particular to Yuri Tsaturov for his long period of service in this capacity.

10 Any other business

Regarding the SWIPA project, it was reported that the Sea Ice Component had held a good workshop in Oslo during the week of 12 January, including a preparatory meeting on socio-economic issues. Morten Olsen reported that a workshop will be held in Copenhagen on 16–17 March devoted to socio-economic issues in SWIPA. There may be a need for additional experts for this work, so HODs were requested to consider new nominations of socio-economic experts. At least one Permanent Participant should be represented at the socio-economic workshop; representatives from ICC (Canada and Greenland) were potential participants, and a Saami representative might also attend.

The next meeting of the SWIPA IT is planned for the last week of May in Lund, Sweden.

For outreach for COP 15, a 15-minute film on the Greenland Ice Sheet will be produced giving results of the scientific work, and a 15-minute film on other SWIPA issues is planned. All SWIPA lead authors will be requested to list the three most important topics from their part of SWIPA so that an outline can be prepared for what the film should cover.

Lars-Otto Reiersen or Morten Olsen should be informed of any existing film footage on any SWIPA topic that might be used in this production.

Outi Mahonen extended an invitation for the next ASG and HODs meetings to be held in Helsinki. It was agreed that the meeting will start on the morning of Tuesday 2 June and run until the afternoon of Thursday 4 June, with 1.5 days for ASG and the remainder of the time for HODs, with the possibility of overlap on Wednesday. On 4 June the (reduced) meeting would take place at a different location.

There may also need to be a teleconference after the SAO meeting in February; this will be decided at a later date.

A UNESCO Arctic Initiative meeting will be held on 3–6 March in Monaco; this will be attended by Lars-Otto Reiersen.

11 End of meeting