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**Minutes of the 33rd Meeting of the AMAP Working Group
Tromsø, Norway; 29–30 October 2019**

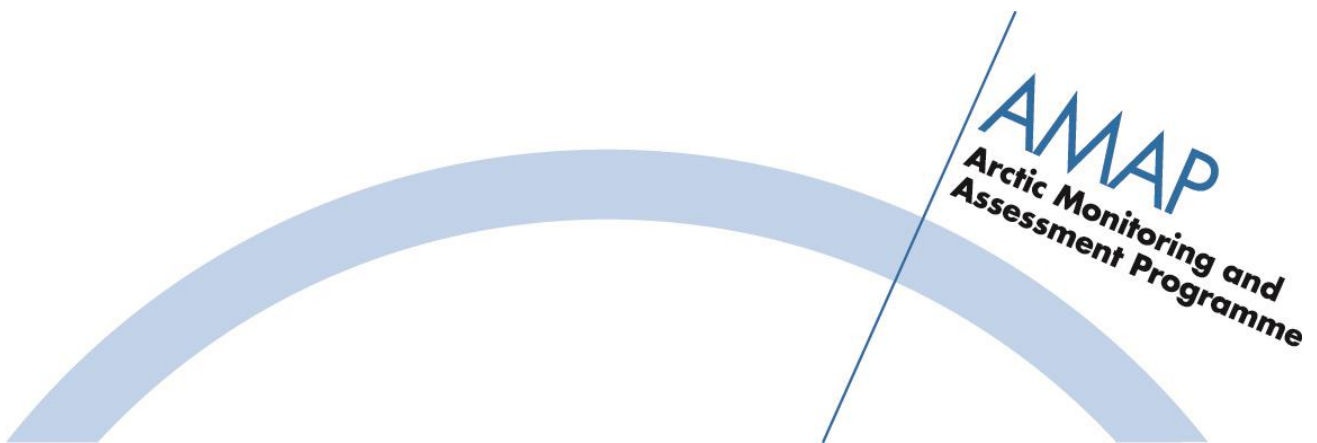


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1 Welcome and opening of the 33rd WG meeting; Welcome statement, practical information and adoption of agenda

The AMAP Working Group Chair, Anders Turesson (Sweden), opened the meeting at 9:00 hrs on 29 October and welcomed the participants to Tromsø. The AMAP WG meeting was attended by representatives from all the Arctic Nations, Permanent Participants (ICC, AAC) and observers or invited experts from Germany, Italy, Japan, The Netherlands, Republic of Korea, Spain; European Commission (JRC), WMO, WWF Global Arctic Programme, IASC, UNEP GRID-Arendal and University of the Arctic. Additional experts attended the meeting using teleconnection. He welcomed the participants to the meeting and outlined the key issues to be discussed.

2 Welcome statement

Nina Buvang Vaaja, Director of the Arctic Council Secretariat, welcomed the participants to Tromsø and to the Fram Center, where the Arctic Council Secretariat has shared offices with the AMAP Secretariat for the past 18 months. She noted that the ACAP, EPPR, and IPS Secretariats are also located in the same office complex, which aids communication and coordination among these groups.

Cathrine Henaug, Center Leader of the Fram Center, welcomed the participants and provided an overview of the members of the Fram Center and the types of research and other activities that are being conducted by them, with the aim of contributing to interdisciplinary research-based knowledge for Norway on environmental, nature and cultural issues as well as education.

The agenda is attached as Annex 1 and the list of participants as Annex 2.

3 Presentation of Iceland AC chairmanship priorities and implications for AMAP work

The Icelandic HoD stated that the overarching theme of the Icelandic AC chairmanship is sustainable development, based on three pillars: the environment, Arctic societies and economic development. Work will be based on four priority themes: 1) the Arctic marine environment (including plastic, ocean acidification, safety, marine tourism, utilization of biological resources); 2) climate and green energy solutions (including reductions of short-lived climate forcers); 3) people and communities of the Arctic; and 4) a stronger Arctic Council.

4 Arctic Council Ministerial Meeting

The AMAP Work Plan for 2019-2021 was adopted at the Arctic Council Ministerial Meeting in Rovaniemi in May. At the June meeting of Senior Arctic Officials (SAOs), there was a positive response to the work of AMAP. SAOs emphasized the need for cooperation and coordination among AC Working Groups and were positive toward the proposed cooperation between AMAP and CAFF on assessing the climate change impacts on Arctic ecosystems.

5 Follow up of actions from previous AMAP meetings

The meeting took note of a table listing actions and decisions prepared by the Secretariat to be used as a steering tool to track the follow up of actions agreed at meetings. The table with outstanding action items will be circulated and open items will be discussed under the relevant agenda item during the meeting.

6 AMAP scientific work. Climate initiatives

6.1 Introductory presentation

Martin Sommerkorn (WWF), lead author of the polar regions chapter of the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC), presented an overview of the SROCC report with a focus on the Arctic-related conclusions. He stated that the chapter on the polar regions represented the first integrated assessment of the polar regions' cryospheric and oceanic change in an Earth system perspective, linking physical changes to ecological systems to social systems. The climate-induced changes in the polar regions will have global consequences, resulting in major changes globally some of which will be unprecedented. Martin Sommerkorn stated that the text on the consequences on human societies in the Arctic was based largely on AMAP products, particularly the AACA reports.

In response to a question on what AMAP priorities should be in the light of the SROCC report, Martin Sommerkorn suggested that there is a need to build a community of practice to be able to conduct integrated assessments, mapping impacts and assessing consequences across physical, biological and societal changes, as was begun in the chapter on polar regions. There is also a need to empower people to participate in decision-making on climate change, bringing in Indigenous knowledge and local knowledge, to create ownership of the responses.

Regarding AMAP work, he stated that frequent updates on climate-related changes in the Arctic and their consequences are needed. Consequences should be shown in an integrated way as well as showing what they mean for people in the region and their responses. This can be done theoretically and through case studies and is new work that uniquely can be done by AMAP and the Arctic Council. Given the complexity of attempting to link physical changes to ecosystem consequences from primary production through changes in food webs ultimately to mammals, this needs to be done at meaningful scale.

In terms of specific needs, Martin Sommerkorn stated that regular updates on the melting of the Greenland ice sheet and glaciers are needed; these are important to assess impacts on sea-level rise and thus are important on a global scale. Another key issue is evaluation of carbon cycle feedbacks from permafrost loss; there is currently a great variability in estimates of carbon loss and hosting events to discuss this would be useful. Other issues include ocean circulation, AMOC changes and weakening, and extremes and threshold changes. Another issue would be to assess the impact of climate change on Arctic fisheries.

The Chair thanked Martin Sommerkorn for his thoughtful presentation and proposals on future AMAP work.

6.2 Climate initiatives

The Secretariat presented document WG33/6/2/1 on the status of the climate work in the AMAP Climate Expert Group (CEG) with a focus on the outline of the six chapters of the 2021 climate issues of concern report.

Comments on the outline of the 2021 climate issues of concern report included:

- The outline is generally good, but it is missing a link with the policy implications;
- There is a need to bring in additional authors and to ensure that countries will support them;
- The report should relate to how AMAP can build off of and complement the IPCC reports.

The need to involve PPs as well as Arctic communities and residents and other sources of knowledge (such as Indigenous Knowledge) in the climate work was emphasized. This should include the co-production of knowledge with Indigenous knowledge holders. The WG was informed that a pilot project on co-production of knowledge on the impacts of climate change on Saami reindeer herding area ecosystems will be funded by the Nordic Council of Ministers in 2020. This can serve as an initial means to start co-production of knowledge for this project.

The Secretariat presented document WG33/6/2/2, which contains a list of potential questions on societal impacts of climate change prepared by the CEG leads and Secretariat in response to a request by AMAP HoDs. The document included an example of a table, also requested by HoDs, of societal impacts that had been identified in the three AACA reports and the Arctic Ocean acidification assessment. These materials are intended to assist the preparation of the chapter on societal impacts in the 2021 climate report.

The WG considered this document a useful way forward for this chapter but agreed that the list of questions for review should be expanded by questions from PPs regarding their concerns so that they can be added in the development of this chapter. In addition to questions regarding observed societal impacts, there is a need ultimately to consider projected societal implications over the next few decades. However, at this stage of the work, the chapter should focus on issues contained in the other chapters of the report, particularly extreme events.

Given the short amount of time for the production of this report, the WG agreed that the main focus should be on the first four chapters, providing the foundational science, with the last two chapters, on societal impacts of climate change and climate impacts on Arctic ecosystems, providing initial information that would serve as a beginning to be followed up by more detailed assessments in 2023. Regarding the structure of the report, it was agreed that the order of the last two chapters should be reversed, with the societal impacts chapter as the final chapter in the report.

The representative of the World Meteorological Organization (WMO) reported on various relevant projects and activities in WMO and asked how these projects could contribute to this report. In the discussion, it was pointed out that many scientists associated with AMAP are well-connected with CLIVAR and other WMO activities and scientists. AMAP also has a close association with the WMO EC-PHORS group. This was considered a useful link, but better mechanisms should be established to attain closer coordination and cooperation between AMAP and WMO. Closer cooperation with the WMO Arctic regional climate centers will also be useful; this cooperation is facilitated by the fact the meteorology co-chair of the CEG, Helge Tangen, is also the coordinator of the Arctic regional climate centers.

The WG agreed that AMAP should prepare a climate update for every AC Ministerial Meeting, with more detailed assessments on specific issues as determined.

The Head of Delegation of Finland offered to host a meeting of the CEG in Helsinki, preferably in April 2020. Exact dates will be decided after discussion with the CEG leads.

6.3 Climate change ecosystem impacts

The Chair reported that the CAFF Board had a generally positive response to the scoping document on a joint AMAP/CAFF initiative on climate change impacts on Arctic ecosystems and ecosystem feedbacks (Document WG33/6/3/1). There was a question of the timetable and availability of resources and the need for PP participation was stressed, but it was considered that conceptual work on this initiative should go forward.

Johanna Mård, Co-lead of CEG for ecosystems, joining remotely stated that she had attended part of the CAFF CBMP Freshwater Scoping Workshop in Uppsala in early October and presented AMAP work on ecosystem impacts of climate change. Interest in this work was expressed by many participants and it was suggested to start with a review of relevant past AMAP and CAFF assessments, particularly the 2012 CAFF Arctic Biodiversity Assessment report and the table of stressors.

It was questioned as to whether PAME would be involved in the work, given their work on ecosystem integrity and ecosystem approach to management as well as on governance issues. In reply, it was stated that all AC Working Groups have been informed about this project, but that it has been decided to start with CAFF only at first. There may be a possibility for other AC WGs to join at a later stage.

In the discussion it was proposed that, following on from the SROCC report, one key role for AMAP could be ultimately to prepare an integrated physical/biological/societal assessment. This overall assessment could use the freshwater/marine/terrestrial ecosystem assessments as a basis for an integrated assessment with societal implications, thus integrating the societal aspects at the final stage.

It was also suggested that this work could be used to ensure that the Arctic observing system is functioning appropriately and to connect it to SAON observing systems, with essential variables and a roadmap for observing.

The WG confirmed that AMAP would like to engage in a scoping process with CAFF to outline the development of an assessment of climate impacts on Arctic ecosystems for 2023; the full scope will depend on the resources available. There is a need to move the scoping process forward more quickly to meet the timeline. ICC pointed out that they have been repeatedly requested to be involved in the scoping work to enable Indigenous participation in the process and the work, and renewed that request.

7 AMAP scientific assessment work. Contaminants/pollution issues.

7.1 Introductory presentation

Nathan Borgford-Parnell, UNEP Climate and Clean Air Coalition (CCAC) Secretariat, described recent UNEP work on pollution. He gave an overview of the UNEP Implementation Plan Toward a Pollution-free Planet, which aims to address pollution problems on a holistic basis, covering all environmental media and including increased coordination, sharing of knowledge, good practices, and innovative solutions. Indicators will be developed for a pollution status report in 2021; AMAP was invited to contribute to this report.

He stated that the CCAC has 12 cross-cutting initiatives and 16 national implementation plans; it works mainly in developing countries. This program has been extended to 2030 and CCAC is interested in having AMAP assist it in the development of its program for the next decade.

Tina Schoolmeester, UNEP Grid-Arendal, noted the parallel work between UNEP and AMAP on chemicals and the importance of data sharing. The long collaboration on mercury pollution has resulted in highly regarded Global Mercury Assessments (GMA) in 2013 and 2018, which are major sources of information. There is now a need to formalize the methodology used in GMA emission estimates. UNEP is looking forward to the AMAP mercury assessment report in 2021.

Regarding the Stockholm Convention, Tina Schoolmeester reported that five regional and one global monitoring reports on POPs have been prepared based on the Global Monitoring Plan for POPs. AMAP is an important strategic partner for the GMP and the storage of the monitoring data.

A new plastic waste partnership has been established under the UN Basel Convention. The management of plastic waste can be a challenge in remote areas. UNEP is also the secretariat for work related to the UN Environment resolutions on marine litter and microplastics. There are many ways for possible cooperation with AMAP on this and other issues of common interest, including exchange of expertise, knowledge and data.

7.2 SCLFs 2021

The Secretariat presented an update on the work of the SLCF Expert Group (Document AMAP WG33/7/2/1). This assessment is also associated with other activities, including the EU-funded Action on Black Carbon (EU-BCA), the Arctic Council EGBCM, and CLRTAP work connected to the Gothenburg Protocol. New emissions scenarios are being prepared by IASSA for the EU-BCA and these are being used in the ongoing AMAP assessment work. The EUA-BCA has also produced a report on best available techniques to reduce black carbon emissions from gas flaring, as well as technical reports on black carbon reporting emissions and observing systems in the Arctic.

Kaarle Kupainen (Finland), joining remotely, reported on recent activities of the expert group, which will meet the following week. This meeting will review the texts on the main sections of the report, review the emissions results, and consider the material on health effects of PM_{2.5}, which have been added by JRC. The meeting will also determine whether they have been able to respond to the policy-relevant scientific questions that were reviewed by HoDs as well as identified gaps. Key messages for the summary for policy-makers will also be discussed.

The representative of the World Meteorological Organization (WMO) queried the measurement methodology used for the data in the report, noting that international globally harmonized protocols should be used. In response, it was stated that standard methods are used at the stations in the Arctic, but monitoring guidelines may not always be followed precisely. It was noted that issues are addressed for BC in the EUA-BCA report on BC observing systems. The AMAP assessment is using specially compiled data sets and coordinated modelling approaches involving a number of modelling groups because the Arctic is an area with processes and impacts that are not covered well by other work.

Other issues in the discussion included the following:

- The assessment outline does not currently show where the policy-relevant questions are being addressed; it is important to see where the relevant information will be able to be found; there

should be a clear relationship between the questions and the outline. This issue would be addressed at the upcoming EG meeting;

- There was a wish that the assessment include to the extent possible information on relevant health and ecosystem impacts of SLCFs;
- The application of CMIP6 models to SLCFs is of interest, in particular in relation to how methane is modelled;
- Interest was expressed in the planned work to include radiative forcing from clouds and work beyond black carbon and methane; this may make it challenging to keep to the timeline, however;
- Information was requested on the relationship between dust and the growth of ice sheets: is it dust or biological growth that changes albedo?

In response, Kaarle Kupainen stated that there is a tool to evaluate ecosystem effects, but there is a lack of expertise on this aspect in the SLCF EG. When the EGBCM report has been approved, the SLCF EG will review its recommendations and address them to the extent possible with respect to emissions reporting considerations. Health effects also relate to OECD work, which is coordinated with the AMAP assessment work and may be ready in the spring. Other issues would be addressed at the forthcoming meeting. With regard to the timeline for the work, this would also be addressed at the forthcoming meeting as much work is still ongoing. While the emission data are ready, not all model outputs have been submitted.

The Delegation of Russia reported on the Russian observation network and monitoring of SLCFs as well as other contaminants in air. He noted that consideration needs to be given to the transport of black carbon to the Arctic from wildfires in Siberia. Russia is interested in an active participation in the SLCF EG and will particularly contribute to modelling.

The Delegation of Norway reported that the Norwegian co-lead, Andreas Stohl, is stepping down from this role. Norway will nominate a replacement shortly. The WG accepted the new co-chair without review.

HoDs were requested to identify additional experts for ecosystem and health impacts and the issue of dust/‘biological albedo’ components.

In conclusion, this is a very complex report, but it is moving forward for delivery in 2021. As valuable additional information may be available thereafter depending on the outcome of the assessment, there will be a need to review what it is possible to include in the 2021 assessment and what might need to be continued or carried over to the work plan for 2021-2023.

7.3 Human health assessment 2021/22

Pál Weihe, Co-lead of the Human Health Assessment Group (HHAG), presented the status of the work on the assessment report (Document AMAP WG33/7/3/1). Drafts of the main chapters had been reviewed at an editorial meeting in Nuuk during the first week of October and revised versions will be considered by the full HHAG at its meeting in St. Petersburg on 11-12 November. The complete draft will be submitted to the Secretariat by mid-December for the national data check, which will occur during January and February 2020. He then outlined the full report and listed the preliminary key findings.

In response to a question concerning cooperation of HHAG with the World Health Organization, Dr. Weihe stated that cooperation is occurring regarding guidelines for monitoring mercury in human hair and cord blood. The WHO was encouraged to nominate peer reviewers for this assessment report.

The meeting expressed satisfaction with the progress of this report and noted that it appeared to be on track for delivery in 2021. Plans for communication were emphasized, including a summary for policy-makers and any additional outreach products.

7.4 Mercury assessment 2021

Rune Dietz, Lead of the Mercury Expert Group, participating remotely, presented the outcome of the meeting of the expert group that was held the previous week, which focused on the mercury assessment currently under way as a follow-up to the 2011 mercury assessment (Document AMAP WG33/7/4/1). Presentations were made on all chapters of the assessment including important new information and data that would be included in the assessment. At the meeting, some initial key findings and preliminary recommendations were drafted and the timeline was updated. All chapters provide an action plan for the work. It is planned that all chapters will be published in journal publications and/or a special issue that will be prepared following the publication of the AMAP report. Collaboration with ACAP was also discussed.

John Chetelat, also participating remotely, stated that new questions have been developed for chapter 3 on the pathways of transport of mercury to and within the Arctic to resolve issues of potential overlap with chapter 4. Information on human health issues has been provided by the HHAG and this is being supplemented by contributions from other mercury-health experts. A section on Indigenous perspectives has been prepared based on information from Indigenous people concerning how they are contributing to the study of mercury in the Arctic and it is proposed that this will become a separate chapter in the assessment.

The Secretariat reported that Jennifer Balmer has been engaged to serve as the scientific secretary for both the mercury and the POPs assessments and she may also write the summary for policy-makers. The compiled preliminary key findings from the recent expert group meeting will be circulated in the near future.

In the discussion, the use of the question-based approach to this assessment was considered very effective. It was noted that ACAP has a project on gold mining in Russia; AMAP and ACAP have established a liaison process so that results of the AMAP Hg assessment will be communicated to ACAP for use in their work, including the Russian project to study Hg releases from gold mines. It was noted that this assessment contains important new information, including mercury releases to the oceans and bioavailability; this new information should be highlighted. The assessment is also being prepared in such a way as to provide input to the new global regulatory framework associated with the Minamata Convention.

In conclusion, the question-based approach in this assessment was considered very effective. The assessment is on track according to the revised timeline. It is focused on new issues and can be used as a tool for cooperation with ACAP.

7.5 POPs and climate change interactions

Katrin Vorkamp (Kingdom of Denmark, co-lead of the POPs Expert Group) reported on the development of this assessment report (Document AMAP WG33/7/5/1). The work was begun at a workshop in Stockholm with 44 participants from 12 countries, and built on previous AMAP assessments, earlier joint work between AMAP and UNEP on this subject including the UNEP/AMAP report on impact predictions for climate change and POPs, and the outcomes of the EU FP7 project ArcRisk. The assessment report contains four main chapters covering emissions and long-range transport of POPs and CEACs under climate change; levels and trends in abiotic media; changes in food webs and migratory species; and time trends in biota. All of these

topics are being viewed through the lens of climate-POPs interactions. The assessment uses a question-based approach and relies on published literature. The first draft will be available by the end of 2019.

In the discussion, the ICC delegate regretted the lack of possibility for Indigenous participation in this assessment, owing to the short timeline of the work and limited capacity to engage in all ongoing AMAP work. She indicated that there is much Indigenous information on climate-related changes in POPs that could have been contributed and suggested that the time schedule be expanded to allow the addition of this material.

The delegations of ICC, Finland and the Kingdom of Denmark remarked that outcomes of this assessment could be relevant for the UN Stockholm Convention.

Appreciation was expressed for the question-based approach that is being employed in this assessment. The questions also address the implications of the findings for national and international regulations and the future projections of the implications of climate change on POPs.

Appreciation was also expressed for the list of challenges that were identified in the presentation and it was noted that it would be useful for other expert groups to prepare similar lists of their challenges.

The Russian delegation stated that there is relevant information based on monitoring of POPs in soil, water, and biota in various areas of Russia over the past several decades. He will nominate an expert to the group to be able to contribute this information.

The U.S. delegation pointed out that identification of knowledge gaps and research needs should be a key component of this assessment.

The time frame for this assessment was considered challenging and adjustments would be made to hold the national data check in advance of the peer review.

7.6 Litter and microplastics

The Secretariat presented Document AMAP WG33/7/6, an update on the status of the work of the AMAP Litter and Microplastics Expert Group (LMEG), which was established at the HoDs meeting in April 2019 to develop monitoring guidelines, as a first objective. Jenn Provencher (Canada) and Eivind Farmer (Norway) are co-leads of LMEG, which has 38 experts from all Arctic countries and two observer countries. The first meeting of LMEG is scheduled for 13-14 November in Copenhagen and a second meeting is planned for 20 April 2020. The document contains an outline of the contents of the monitoring guidelines, which will support baseline monitoring in the Arctic and contain a toolbox of monitoring strategies that can be used in the PAME Regional Action Plan on Marine Litter in the Arctic. This will be the first phase of a three-phase program on plastics pollution.

Magnus Johannesson, Special Coordinator of issues on marine plastics under the Icelandic Arctic Council Chairmanship, joining remotely, reported that there will be a session on marine plastics at a conference at the Harvard Kennedy School and Iceland is currently preparing for *The International Symposium on Plastics in the Arctic and Sub-Arctic Region* that will be held in Reykjavik on 21-23 April 2020. This issue is a priority of the Icelandic chairmanship, but there is a need to find a balance between ambitions and realistic possibilities.

In the discussion, the delegations considered it remarkable that so much had been accomplished on this issue in such a short time. It was noted that Canada is working to enhance its monitoring of plastics and microplastics in Canada's North through the Northern Contaminants Program, the results of which will contribute to AMAP's work. Several countries also take part in the OSPAR and HELCOM marine plastics monitoring work. Coordination among the different programs is important.

Although the draft guidelines, in particular, are well described and progressing well, there is not yet a clear description of the microplastics and litter monitoring plan for the circumpolar region (and not just for the marine environment). Information was requested on the status of progress or planning for that deliverable and the associated timelines. Information was also requested on the LMEG recommendations on what to monitor and where. The components (guidelines, monitoring plan) should be considered separate. The observer from the Netherlands proposed considering developing possible cooperation with the tourism industry, which is already active in beach clean-ups.

WG33 agreed that the timeline for this work should be reviewed in the light of the decisions on deliverables. Adequate time should be ensured for both the national check and the external review. In addition, HoDs were requested to identify additional experts for this work, particularly leads for sub-chapters that currently have none. Nominations for leads should be sent to the Secretariat together with a CV indicating the specific expertise of the expert.

7.7 Contaminants-Health

The Delegation of Canada reported on a session at the *Northern Contaminants Program (NCP) Results Workshop* in Whitehorse that was held to begin work on this issue (Document AMAP WG33/7/7/1). The session was attended by Indigenous Peoples/organizations, federal and regional governments, and scientists, and included presentations on zoonoses, One Health in the North, and the application of omics (e.g., genomics) to studies of contaminants. Participants in this session were positive to the One Health approach, which is a holistic approach toward a healthy environment, healthy species and healthy humans. The conclusions were that the rapid changes in the Arctic are causing changes in wildlife health, disease and mortality and more focus should be given to monitoring zoonoses. There was clear interest in a focus on this work in Canada.

The Delegation of the Kingdom of Denmark offered to host a continuation workshop on contaminant-human health linkages in Denmark in June 2020. Katrin Vorkamp, Co-lead of the POPs EG, and Eva Bonefeldt-Jørgensen, Key National Expert on the HHAG, would prepare a draft plan for the workshop for further consideration by the tracking HoDs and Secretariat.

7.8 Radioactivity

Louise Kiel Jensen presented information on the status of the next radioactivity assessment (Document AMAP WG33/7/8). The Radioactivity Expert Group met in Tromsø on 8-9 October to plan the assessment topics, writing groups and timelines. The report will use the chapter headings from the previous radioactivity assessment and add material on new sources of radioactive contaminants, including a nuclear submarine that sunk near Murmansk. The report will also cover naturally occurring radioactive materials (NORM), including radon, in various regions of the Arctic and a chapter on radioactivity from Fukushima comparing modelling data from 2014 with current observations in the Arctic.

In the discussion, comments included:

- The AAC stated that, in terms of data coverage, there is a site in Yukon (Fort Radium) for which AAC provided information on after the HoDs meeting in Washington. AAC is interested in describing community involvement on this issue as part of a case study;
- It was noted that there may be a need for some climate experts to look at an apparent increase in radon levels at Resolute associated with climate change and it was questioned as to who could follow up on this;
- A document should be prepared for next AMAP WG meeting on possible solutions for database issues including the Radioactivity TDC, given that the current database is not interactive;
- A suggestion was made to use a question-based approach for this assessment report.

The WG welcomed the information on this assessment and agreed on the list of materials that will be included.

8 Engagement with other organizations

8.1 PP engagement

Discussion of this issue was moved to the HoDs meeting to be held immediately following WG33.

8.2 Requests to/from other AC WGs/TFs/EGs

8.2.1 General issues

There was no discussion under this item

8.2.2 ACAP

The Executive Secretary of ACAP reported that an ACAP Workshop on Black Carbon will be held on 28-29 April 2020 in Moscow which will build on the ACAP project to mitigate flaring. There will be extensive representation from the private sector and researchers to review available knowledge on flaring from oil and gas installations in the Arctic.

8.2.3 CAFF

This was considered under agenda item 6.3.

8.2.4 EPPR

There was no specific discussion on this group.

8.2.5 PAME

The Secretariat described the PAME decision to prepare two fact sheets on Marine Protected Areas (MPAs) under change (Documents AMAP WG33/8/2/1/5/1 and 8/2/1/5/2). These fact sheets will draw on AMAP and CAFF information and information from Indigenous Peoples. PAME would like to receive names of experts to contribute to this work. These fact sheets may be up to eight pages long. Concern was expressed

about the overlap with AMAP and CAFF work as well as with the scientific review and integrity of the products.

The Delegation of Finland stated that this work is led by a Finnish expert, Jan Ekebom. It will be purely a PAME product, so AMAP will have no responsibility for the content. The fact sheets will use already published material and will follow the model of the United Kingdom for fact sheets of eight pages.

In the discussion, it was considered that the AMAP material should be traceable back to the original source and that AMAP scientists should approve the text. In addition, a document of eight pages is not really a fact sheet, but a summary for policy-makers, emphasizing the need for careful review of the text. The participation of Indigenous people in the work also needs to be ensured.

It was noted that this activity has been reviewed by SAOs, who have requested the AC WGs to work together; however, now PAME has decided to take sole responsibility for the products.

The meeting decided that this activity should be discussed with PAME at the next SAO meeting to establish a dialogue and create greater togetherness on this work. Two perspectives for this discussion include the AMAP mandate and Indigenous participation.

The Secretariat reported that there is another issue regarding PAME. Now that the first term of the PAME/ICES/PICES working group on the Central Arctic Ocean has finished, there will be a second workshop on this topic, which AMAP has been invited to join.

8.2.6 SDWG

The Delegation of Finland stated that one of the goals of the Finnish chairmanship of the Arctic Council had been to prepare a report on Arctic environmental impact assessments (EIA). The report *Environmental Impact Assessment and Meaningful Engagement* is now complete and is available on the SDWG web page. This Arctic EIA has received global approval for promoting environmental protection in the Arctic.

8.2.7 EGBCM

This was considered under agenda item 7.2.

8.2.8 Arctic Council Task Forces

The Secretariat reported that no new AC Task Forces have been established. The now-completed Task Force on Cooperation on Marine Issues prepared a long list of recommendations for how institutes should work together and also recommended that a SAO-based mechanism be created to coordinate activities on marine issues. One recommendation is to hold regular meetings of marine experts to develop marine programs in the Arctic. These recommendations will be discussed at the SAO meeting.

8.3 Cooperation with international organizations

Document AMAP WG33/8/3/1 applies to this agenda item.

8.3.1 UN Environment

BRS Conventions: AMAP is contributing to the Stockholm Convention effectiveness evaluation via participation in the work on the WEOG regional report.

Minamata Convention: AMAP is participating in the development of the effectiveness evaluation by providing comments on the monitoring procedures and evaluation plans, and Arctic countries as well as a PP representative were part of the effectiveness evaluation group. The next COP will include a side event on the science of mercury. There is a question of AMAP participation in Minamata work when AMAP is not an observer to the Convention.

The Kingdom of Denmark stated that there are three draft documents on the Minamata Convention website that need to be reviewed: the effectiveness evaluation and a new document on monitoring that should be reviewed and commented by AMAP. The Secretariat stated, however, that potential AMAP involvement depended on the arrangements for the process for this review, i.e., whether organizations who are not observers can have a role in such reviews.

8.3.2 CLRTAP

Coordination between AMAP and CLRTAP is going well, with work facilitated through initiatives under the EU-funded Action on Black Carbon in the Arctic (EUA-BCA). In CLRTAP, there is a desire to better connect air pollution and climate issues, and this would be good for AMAP to consider also; decision-making addressing these two aspects needs to be coordinated to avoid solutions to one resulting in negative consequences on the other.

8.3.3 IPCC

This was considered under agenda item 6.2.

8.3.4 European Commission

The observer from the EC, Elisabetta Vignati, Joint Research Centre, noted that the JRC conducts research on Arctic policy and EU policy on science and research, covering among others climate change and the Arctic environment, sustainable development and international cooperation on Arctic issues. The EU is a major investor in Arctic research, with Horizon 2020 funding 45 Arctic-related projects. There are currently ten Arctic projects, including EU-PolarNet, in the Arctic Cluster of projects. Other activities include the EU Space program of earth observation satellites Copernicus, which has an Arctic regional analysis service, and Galileo for navigation. The JRC Arctic projects and research contributions are supporting the AMAP 2021 assessments on SLCFs and POPs.

8.3.5 Horizon 2020 projects

There was no discussion of this item, which is covered in the document on the overall agenda item 8.3.

8.3.6 ICES

The Secretariat reported that a joint AMAP/OSPAR workshop had been held at ICES in the early summer to harmonize AMAP and OSPAR time-series analysis systems. Data extracted from the ICES database could now be combined with data not archived at ICES and subjected to a common temporal trend analysis. Nordic

Council of Ministers funding that has supported this work will also be applied to the development of an on-line system for presenting the results of this work by developing an AMAP portal based on the portal developed by ICES for OSPAR. In this connection, the on-line OSPAR assessment tool should be reviewed by HoDs to determine whether they have any comments or suggestions on it. The aim is to align the AMAP and OSPAR systems to ensure that they are aligned and easier to maintain in the future.

8.3.7 OSPAR

This was considered in agenda item 8.3.6.

8.3.8 Sustaining Arctic Observing Systems (SAON)

Sandy Starkweather (USA), speaking remotely, presented an update on work under SAON. She stated that in its strategic plan, SAON identified the need for a Roadmap for Arctic Observing and Data Systems (ROADS) to set a path for collective work toward an integrated Arctic observing system. The ROADS approach is based on *The International Arctic Observations Assessment Framework* (with STPI, 2017) which defined 12 Societal Benefit Areas. ROADS will be organized around Essential Arctic Variables that are conceptually broad and will be evaluated for their ability to achieve Arctic social benefits. An advisory panel will be established to align with partners. ROADS should bring a clear list of observing targets, robust collaboration, and definition and integration of observing system requirements on a pan-Arctic basis.

In the discussion, it was noted that AMAP and SAON are not as integrated as they could be. There are a number of opportunities for a closer relationship, and it was pointed out that AMAP is a founding partner together with IASC, and also appoints the SAON chair. Priority should be on trying to determine how SAON work can provide direct input into AMAP and vice versa. The question is how these direct linkages can be drawn to ensure that the two bodies are well integrated. An example could be if SAON could assist in AMAP work on plastics and marine litter.

It was considered that the issue of cooperation between AMAP and SAON in terms of benefits and risks should be discussed. The Secretariat should prepare an analysis for how to improve cooperation between AMAP and SAON.

8.3.9 World Meteorological Organization (WMO)

The observer from WMO, Oksana Tarasova, stated that a revision of WMO after 60 years has resulted in a new strategic framework with a stronger focus on water, oceans and climate. To simplify the structure and reorient the goals, the previous eight intergovernmental technical commissions will be merged into two commissions: a commission on services and a commission on infrastructure. There is a panel of experts to control work across the commissions and this will include coordination with AMAP. There are three global atmospheric research programs: World Weather, World Climate and Global Climate Watch. EC-PHORS will be reconstituted in this system. Other activities include the World Climate Research Program coordination of the CMIP6 exercise and 13 Arctic-focused regional climate models. The Year of Polar Prediction has been coordinated by WMO from 2017-2019 and the results are now being finalized. The Arctic Regional Climate Center will be coordinated by Norway for the next three years, which can strengthen cooperation with AMAP.

It was noted that Helge Tangen, Co-lead of the AMAP Climate Expert Group, is also Chairman of the EC-PHORS Services Task Team, and Secretariat member Johanna Ekman is a member of the EC-PHORS Services Task Team. AMAP is also represented on EC-PHORS.

8.4 Upcoming conferences and meetings

A list of AMAP-related meetings is provided in Document AMAP WG33/8/4.

The observer from The Netherlands extended an invitation to participate in an expedition to Svalbard organized by several European countries in association with the Svalbard SAOS conference.

The observer from Japan reported that Japan will host an Arctic Science Ministerial Meeting in Tokyo on 21-22 November 2020.

The observer from the University of the Arctic reported that the Arctic Science Summit Week will be held in Iceland in March 2020. The University of the Arctic scientific conference will be held in association with the Arctic Circle Assembly in 2020.

9 Observer engagement

The Secretariat presented document AMAP WG33/9/1, which contains a proposal for a process to ensure that the AMAP agenda is more interesting to observers and to the help that they can offer in AMAP work. The proposal is to establish a small group to consider activities to engage observers and develop the next steps.

The observer from Germany stated that he was interested in learning how representation in AMAP is organized in other observer countries. Currently Germany has nominated one expert for nearly every AMAP expert group. The science is very important for policy in Germany.

The observer from Italy stated that Italy has a similar process, with experts on the various AMAP groups in dialogue with the Foreign Ministry and resources to support participation. AMAP is very important to Italy.

The observer from The Netherlands stated that a similar process exists in his country. The number of scientists interested in the Arctic is growing, but most are on five-year funding so they have problems with participating in AMAP activities.

The observer from Spain reported that there will be an internal coordination meeting next month to better organize participation in national and international programs.

The observer from Japan echoed the previous comments and noted that Japan is particularly contributing to the AMAP climate work.

The observer from South Korea reported that a Korean Polar Weather Workshop had been held in May to review Arctic/mid-latitude weather connections in the Asian region. The results have been contributed to AMAP climate work. A handbook of plants on Svalbard has been prepared in four languages.

The observer from UNEP Environment stated that better two-way dialogue and communication are necessary to look for opportunities to work together.

The Chair thanked the observers for their comments and for their work on AMAP assessments. A small group will be created to discuss how to structure the dialogue with observers. AMAP and observer countries who would like to be part of this process should inform the Secretariat of their interest within the next two

weeks. As an item for the first meeting, it would be useful to learn how observer countries deal with Arctic issues, how AMAP is part of this and how they appoint experts to AMAP expert groups.

10 Any other business

10.1 New AMAP website launch

The Secretariat reported that, after some delays, the new AMAP website has been launched. It is now 'responsive' so that it displays properly on tablets and phones, with numerous further improvements to, for example, make it easier to find publications. The log-in for internal documents is still under development and the Secretariat needs to conduct additional work to update the content of several parts of the site. The website includes a searchable 'Maps and graphics' database from which products produced for recent AMAP publications together with their metadata can be downloaded in different formats together with metadata describing rights and credits, etc. Comments and suggestions, as well as relevant photos that can be used on the AMAP website, should be sent to the Secretariat.

10.2 Arctic Report Card 2019

The Secretariat stated that AMAP is coordinating the peer review of the Arctic Report Card, as it does every year. It is scheduled to be complete on 6 November.

The Delegation of the USA expressed appreciation for this review work and invited AMAP to suggest new topics. Currently a core set of indicators is covered in the ARC and essay topics are added on special issues. There could be an essay on Indigenous topics or possibly summaries of AMAP assessments. Although it is a NOAA report, it is open for topics from AMAP.

10.3 Arctic Environment/Ocean Ministerial Meeting

The Delegate of Iceland stated that the Arctic Ocean Ministerial Meeting will be held in April 2020. The themes for this meeting need to be determined and depending on the choice, there may be requests to AMAP.

The Secretariat reported that AMAP has received an invitation to join work on the Blue Bioeconomy. It is not clear how AMAP could contribute to this work, but the Secretariat will participate in relevant teleconferences on the topic.

10.4 Other issues

The Chair reported that AMAP has been approached by the Carnegie Climate Governance Initiative (C2G), which is encouraging a discussion of new technologies for carbon dioxide removal and solar radiation modification with a focus on governance issues. Some pilot studies are being conducted on a small scale, so this is an issue that AMAP needs to keep informed of relevant activities. For AMAP, there would need to be a thorough environmental impact assessment, and this could never be a substitute for mitigation.

The Delegation of the USA reported that this issue is under discussion in NOAA. The U.S. National Academies is preparing a set of regulations for the use of technology for solar radiation management; however, this is not an Arctic-specific issue. He requested that an item on this issue be placed on the agenda of future AMAP meetings to share information on developments.

It was reported that C2G has been approaching countries at a national level and the issue will not go away. There is a necessary to prepare how to handle this issue.

In conclusion, it was agreed that developments on climate modification technology need to be followed and consideration needs to be given to how to handle this issue. When further information is available, the issue should be raised at a SAO meeting, given that WGs are being approached directly.

11 WG meeting summary

The Chair stated that a short summary of the meeting will be prepared for SAOs during the following week. A first draft will be sent to HoDs in advance.

The Chair thanked the participants for their work during the meeting, noting that work on is moving forward on the Work Plan.

He then closed the meeting.

Annex 1: Agenda

AMAP WG33 Meeting

Tromsø, Norway 29-30 October 2019

1. Opening of the 33rd AMAP WG meeting. Welcome statement, practical information and adaptation of the agenda

The Chair will open the WG meeting, invite welcome statement and practical information, review the meeting objectives, and present the draft agenda for approval.

2. Welcome statement

Welcome statements from Nina Nina Buvang Vaaja, Director of the Arctic Council Secretariat and from a representative from the Fram Centre.

3. Presentation of Iceland AC chairmanship priorities and implications for AMAP work

The Icelandic HoD will present the Icelandic AC chairmanship priorities with a focus on AMAP relevant issues, followed by questions from WG participants.

4. Arctic Council Ministerial Meeting

The Chair and Secretariat will provide a short update on the outcome of the 2019 Arctic Council Ministerial Meeting and the June 2019 SAOX meeting, with a focus on AMAP relevant issues

5. Follow up of actions from previous AMAP meetings

Actions from the previous WG and HoD meetings will be reviewed and any outstanding items that will not be considered under other agenda items addressed

For agenda items 6 and 7:

The Secretariat (Rolf Rødven) will provide a short introduction to the AMAP 2019-2021 work plan that was approved at the 2019 Arctic Council Ministerial meeting.

AMAP Expert Group leads and representatives participate in the meeting and will present their plans for the implementation of the agreed work. AMAP Expert Group leads and representatives have been asked to formulate specific questions/needs where they need guidance/feedback

Implementation of the AMAP Strategic Framework to be covered under each initiative. Expert AMAP Expert Groups have been asked to report on the implement the different components of the Strategic Framework.

Observers are invited to engage in relevant initiatives. Initiatives are categorised according to phases: Initial, mid, and late-phase, and request to observers are formulated accordingly. The invitations to Observers are formulated as specific requests concerning the types of input and expertise that would be useful.

The consideration of the individual assessment work topics will also be in the light of engagement with other Arctic Council WGs and international organizations.

6. AMAP scientific assessment work. Climate initiatives

6.1 Introductory presentation

The Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) is scheduled to be released in September. Martin Sommerkorn (WWF), coordinating lead author of the chapter on the Polar Regions, will participate in the meeting. He has been asked to provide an overview of this chapter and indicate gaps and issues on which AMAP could contribute to a better understanding

6.2 Climate initiatives

Outcome: *Comments on a more detailed outline of the 2021 issue of the 'Climate issues of concern'. Agreement on CEG meeting end 2019/beginning 2020.*

Phase: *Mid-phase*

Expert(s) participating: *Johanna Mård*

Relationship with international organisations: *IPCC, WMO*

6.3 Climate change ecosystem impacts

Outcome: *Agreement on scoping process*

Phase: *Initial phase*

Expert(s) participating: *Johanna Mård*

Relationship with other AC WGs: *CAFF*

Relationship with international organisations: *IPCC*

7. AMAP scientific assessment work. Contaminants/pollution issues

7.1 Introductory presentation

Presentation by Nathan Borgford Parnell from the Climate and Clean Air Coalition secretariat at UNEP and Tina Schoolmeester from GRID-Arendal.

7.2 SLCFs 2021

Outcome: *Update on assessment status; consider preliminary findings (if available)*

Phase: *Late-phase*

Expert(s) participating: *Karle Kupiainen, Andreas Stohl (remotely (TBC)) / Mark Flanner (remotely (TBC))*

Relationship with other AC WGs: *EGBCM*

Relationship with international organisations: *EUA-BCA, CLRTAP*

7.3 Human health Assessment 2021/22

Outcome: *Review of initial Key Findings / Draft Guiding Questions for SPM?*

Phase: *Late-phase*

Expert(s) participating: *Pál Weihe, Cheryl Khoury (TBC, remotely?)*

Relationship with other AC WGs: *SDWG*

Relationship with international organisations: *WHO (tentatively), Minamata convention*

- 7.4 Mercury Assessment 2021
Outcome: Information on plans and request to HoDs
Phase: Interim-phase
Expert(s) participating: Rune Dietz / John Chetelat (remotely), Heli Routti
Relationship with other AC WGs: ACAP
Relationship with international organisations: UN-ENV GMA and Minamata Convention
- 7.5 POPs and climate change interactions
Outcome: Update on assessment status
Phase: Interim-phase
Expert(s) participating: Katrine Vorkamp, Derek Muir (remotely (TBC)) / Cynthia de Wit (remotely (TBC))
Relationship with international organisations: UN-ENV (Stockholm Convention)
- 7.6 Litter and microplastics
Outcome: Discussion and guidance on work
Phase: Initial phase
Expert(s) participating: Eivind Farmen (remotely (TBC)), Jenn Provencher (remotely)
Relationship with other AC WGs: PAME, CAFF
Relationship with international organisations: ICES, OSPAR, UNEP
- 7.7 Contaminants-Health
Outcome: Proposals for workshop in early-2020
Phase: Initial
Relationship with other AC WGs: SDWG
- 7.8 Radioactivity
Outcome: Guidance on Table of Contents
Phase: Initial phase
Expert(s) participating: Louise Kiel Jensen, Will Standing (remotely), Yuri Tsaturov, Justin Gwynn (TBC)
Relationship with other AC WGs: EPPR?
Relationship with international organisations: (IAEA)
8. Engagement with other organisations
The agenda item is for topics not covered under agenda item 6) and 7)
- 8.1 PP engagement
Presentation from a representative from one of the Arctic Council Permanent Participants (Indigenous organisations)

8.2 Requests to/from other AC WGs/TFs/EGs

8.2.1 General issues

8.2.2 ACAP

8.2.3 CAFF

8.2.4 EPPR

8.2.5 PAME

8.2.6 SDWG

8.2.7 EGBCM

8.2.8 Arctic Council Task Forces

8.3 Cooperation with international organizations

8.3.1 UN Environment:

- BRS conventions
- SAICM
- Minamata conventions

8.3.2 CLRTAP

8.3.3 IPCC

8.3.4 European Commission

Presentation from a representative from the European Commission

8.3.5 Horizon 2020 projects

EU-PolarNet, INTERACT, LC-CLA-20-2020, ITN-GMOS-Train

8.3.6 ICES

Trend data systems development

8.3.7 OSPAR

Trend data systems development

8.3.8 Sustaining Arctic Observing Systems (SAON)

The vice-chair for SAON Sandy Starkweather (NOAA, USA) will remotely present the draft Roadmap for Arctic Observing and Data Systems (ROADS)

8.3.9 World Meteorological Organisation (WMO)

8.4 Upcoming conferences and meetings

9. Observer engagement

10. Any other business

(New amap.no web site launch

- 10.1 Arctic Report Card 2019
- 10.2 Arctic Environment/Ocean Ministerial meeting
- 11. WG meeting summary

Annex 2. List of Participants

AMAP 33rd Working Group Meeting, 29-30 October 2019, Tromsø, Norway

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Annex 3: WG33 Actions/Decisions

WG33 Actions/Decisions

A/D	What	Who	When
1. Opening (Minutes: JP)			
Summary:			
2. Welcome (Minutes: JP)			
Summary:			
3. Presentation of Iceland AC chairmanship priorities and implications for AMAP work (Minutes: JP)			
Summary:			

4. Arctic Council Ministerial (Minutes: JP)			
Summary:			
5. Follow up of actions from previous AMAP meetings (Minutes: JP)			
Summary:			
A	Circulate outstanding action items to HoDs	Secretariat	1 November 2019
A	Make a dynamic/regularly updated list available for HoDs	Secretariat	1 December 2019
A	Label each Action/Decisions with a number in sequence	Secretariat	1 December 2019
6.1. Introductory presentation (Minutes: JP)			
Summary:			
6.2 Climate initiatives (Minutes: JP)			

Summary:

A climate report—either new assessment or brief synthesis update—should be prepared for every Arctic Council Ministerial meeting, with in-depth coverage of specific topics.

The 2021 climate report should focus on the first four chapters providing physical science, foundational information, with work on the last two chapters, focused on risks and impacts, phased to continue into the 2021-2023 work plan.

The list of questions on societal impacts of climate change prepared for chapter 5 should be supplemented with a list of concerns and questions of PPs. This chapter should be prepared based primarily on material already available. Co-development of knowledge with PPs should also be initiated in preparing chapter 6 on climate-related changes in Arctic ecosystems.

The order of chapters 5 and 6 should be reversed so that the chapter on societal impacts of climate change is the final chapter in the report.

A	Owing to the short amount of time, focus on chapters 1-4 of the 2021 climate report, the physical science and foundational basis together with chapter 6 (ecosystem impacts).	CEG and authors	1 August 2020
A	Use a phased approach for both chapter 5 to briefly review the societal implications of climate change and chapter 6 to address ecosystem effects, i.e., include brief information on these topics for the 2021 report but continue greater in-depth work in these areas for the 2021-2023 work programme.	CEG and authors	1 August 2020
A	The societal impact questions to chapter 5 should also include questions from indigenous people on their issues.	PPs	1 January 2020
A	Switch the order of chapter 5 and 6 so that chapter 6 on ecosystems comes before chapter 5 on societal impacts.	CEG	1 August 2020
D	FMI has agreed to host the Climate Expert Group meeting in early spring 2020.		

6.3 Climate change ecosystem impacts (Minutes: JP)

Summary:

A revised timeline for the joint AMAP/CAFF scoping process needs to be developed in the near future so that this joint work can begin without additional delay.

A	At the next SAO meeting the AMAP and CAFF Chairs and Executive Secretaries should discuss the joint AMAP-CAFF project to develop a new timeline for the scoping. A country will be invited to host a joint scoping workshop.	AMAP chair and Executive Secretary	1 December 2019
7.1 Introduction presentation (Minutes: JP)			
<u>Summary:</u>			
7.2 SLCF 2021 (Minutes: SW)			
<u>Summary:</u>			
This is very complex work, but it remains on track. The timing issue is important; it needs to be determined what can be achieved for 2021 and what will carry over into the next work plan. The appointment of a new co-chair needs to be sorted out soon by Norway.			
A	Nominate co-lead to replace Andreas Stohl	Norway	asap
A	Identify where/how policy-relevant questions are addressed in report outline	SLCF EG leads/Secretariat	after Ann Arbor meeting
A	Identify additional experts for ecosystem/health impacts and dust/'biological albedo' components	HoDs	Asap
A	Correct Annex 4 (list of experts) for Iceland	Secretariat / HoD (Iceland)	asap
A	Arrange for archiving of model output	SLCF EG	1st July 2020

A	Update 'assessment scoping' document (3 annexes to WG document)	Secretariat	31st December 2019
7.3 Human health Assessment 2021/22 (Minutes: JP)			
<p><u>Summary:</u></p> <p>This assessment is on track to be ready for 2021 so it was upgraded to be prepared for publication in 2021. Communication of the results, especially the SPM, needs to be considered fairly soon.</p>			
A	The Secretariat to distribute the HHAG chapters to HoDs for national review.	Secretariat	5 January 2020
A	Send nominations for peer reviewers including CVs	HoDs (Anyone)	31 January 2020
A	Submit <i>national information checking</i> comments to Secretariat	HoDs	28 February 2020
D	Re-prioritise human health publication for spring 2021		
7.4 Mercury Assessment 2021 (Minutes: SW)			
<p><u>Summary:</u></p> <p>This assessment is on track according to its revised timeline. It is focused on new issues, especially the new regulatory environment under the Minamata Convention. There is a good link to ACAP so that the results can be used in their projects.</p>			
A	Activate ACAP/Mercury liaison. Follow-up with ACAP (in relation to possible ARCRISK and mining projects)	Secretariat /ACAP contacts	asap
A	Provide overview of available time-series data sets being addressed under chapter 2	Secretariat	asap
A	Communicate written comments provided by Norway to relevant (chapter) leads to consider	Secretariat and co-leads	asap

D	Presentation of an AMAP side-event at COP4 where the assessment is being presented	Sec Co-leads T HoDs	Summer 2020
A	Update 'assessment scoping' document (3 annexes to WG document) (one of these is a timeline document to be update) [<i>Consider for other assessments as well</i>]	Secretariat	31 December 2019
7.5 POPs and climate change interactions (Minutes: SW)			
<p><u>Summary:</u></p> <p>There is a timing issue regarding the review of this report if a national data check will be conducted before the scientific peer review.</p>			
A	Reconsider timeline (to allow time for separate national data check – to be done everywhere) (to be revisited at HoDs meeting)	Secretariat /POPs EG	15th November 2019
A	Review process for PP engagement in POPs-CC assessment (to mitigate if possible the current status and learn lessons for future)	Secretariat /POPs EG	By WG34
A	Add a new question on implications of findings for national and international regulations	POPs EG	15th November 2019
A	Consider possible side-event at POPRC 2020	POPs EG/ Secretariat	Mid-2020
A	Update 'assessment scoping' document (3 annexes to WG document)	Secretariat	31 Dec
A	Highlight research needs from the assessment	Expert Group Co-leads	By WG34
7.6 Litter and microplastics (Minutes: JRL)			

Summary:

The work is in good progress. There is a need to clarify the relationship between the monitoring guidelines, the monitoring programme and the input to the anticipated *Regional Action Plan on Marine litter in the Arctic* (ML-RAP). It should be given priority to prepare an outline of the monitoring programme. Concern was raised about the time set aside to the national review. Updates are expected after the Copenhagen EG meeting 13-14 November.

A	Develop a proposal on the relationship between the monitoring plan, monitoring guidelines and the ML-RAP.	Secretariat in consultation with co-leads, Expert Group, HoDs	1 January 2020
A	Review the timelines in the light of the decisions on the deliverables. Reconsider the time allocated to national and external review.	HoDs and Expert Group	1 January 2020
A	Identify experts and especially leads for subchapters where these are missing. Circulate the titles of the subchapters where there is a need for having a lead.	HoDs and Secretariat	15 November 2019

7.7 Contaminants - Health Workshop (Minutes: JP)

Summary:

Based on the meeting document, detailed plans will be prepared for a workshop to be held in Copenhagen in June 2020.

A	Detail plans for contaminants-human health workshop to be held in Copenhagen in June 2020 with respect to content (focusing on OneHealth/public health connections and based on data but incorporating other options; building-on outcomes of NCP session; desired participants, etc.) (Danish local organizers: Katrin Vorkamp and Eva Bonefeldt-Jørgensen)	Secretariat (in consultation with KoD)	January 2020

7.8 Radioactivity (Minutes: JRL)

Summary:

This assessment is on track; however, there are several questions that need consideration.

A	Review overview of contributions to assessment in order to identify additional data/information.	HoDs	asap
A	Prepare a note on the radioactivity database for next HoDs meeting, including a needs analysis and options.	Secretariat	1 December 2019
A	Iceland to confirm to host a workshop in autumn 2020.	Iceland	1 January 2020

8.1 PP engagement (Minutes: JP)

Summary: (From HoDs meeting)

The proposals for greater and more formal engagement by PPs in the paper presented by ICC should be carefully reviewed and feedback presented.

A	Investigate the SDWG arrangements for PP representation in the leadership.	Secretariat	1 February 2020
A	Report feedback from the NCM project on co-production of knowledge on ecosystem impacts of climate change	Secretariat	
A	Seek feedback from Indigenous experts in the LMEG	Secretariat	
A	Explore pilot projects where the objective is to learn how to improve engagement and inclusion of PPs in an integrated way in AMAP work	Secretariat and HoDs	

8.2.1.1 General issues (Minutes: JP)

Summary:

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8.2.1.2 ACAP (Minutes: SW)			
<u>Summary:</u>			
8.2.1.3 CAFF (Minutes: JP)			
<u>Summary:</u>			
8.2.1.4 EPPR (Minutes: JRL)			
<u>Summary:</u>			
8.2.1.5 PAME (Minutes: JRL)			
<u>Summary:</u>			
The PAME project on the preparation of fact sheets should be discussed with PAME representatives at the next SAO meeting to determine a potential way forward.			

D	The Secretariat will attend the fact sheet strategic planning meeting that will take place 5-6 December 2019 in Washington DC. (Rolf to discuss with PAME chair).		
8.2.16 SDWG (Minutes: JP)			
<p><u>Summary:</u></p> <p>A means of implementing the SDWG procedure of environmental impact statements for projects in the Arctic on a national level should be discussed.</p>			
8.2.1.7 EGBCM (Minutes: SW)			
<p><u>Summary:</u></p>			
8.2.1.8 Arctic Council Task Forces (Minutes: JRL)			
<p><u>Summary:</u></p> <p>The outcome of the SAO discussion on the recommendations of the Task Force on Cooperation on Marine Issues should be reviewed to determine its impact on current working procedures.</p>			

8.3.1 UN Environment (Minutes: SW)

Summary:

It is very important that AMAP be involved in the work of the Minamata Convention and contribute to its work, currently in relation to the development of the monitoring requirements.

A	Review Minamata COP documents and participate as a observer in the proposed Minamata monitoring expert group. It was agreed the secretariat takes part in this work.	Secretariat (SW)	Date ?
D	Secretariat to continue communication exchange with UN bodies	Secretariat	ongoing

8.3.2 CLRTAP (Minutes: SW)

Summary:

D	Continue communication exchange with CLRTAP	Secretariat	continuing
A	Explore arrangements for EUA-BCA side-event at 40th Anniversary Event. Decide if there is to be an AMAP representative at Event.	Secretariat	asap

8.3.3 IPCC (Minutes: JP)

Summary:

8.3.4 European Commission (Minutes: JP)

Summary:

8.3.5 Horizon 2020 projects (Minutes: JP)			
<u>Summary:</u>			
8.3.6 ICES (Minutes: SW)			
<u>Summary:</u>			
A	Review 'OSPAR web-based assessment platform' link to confirm that an AMAP version could meet AMAP needs and/or suggest additional requirements	HoDs	15 November
A	Initiate work with ICES to develop AMAP assessment platform (subject to above)	Secretariat	15 December
8.3.7 OSPAR (Minutes: SW)			
<u>Summary:</u>			
A	Confirm that Norwegian, (East) Greenland and Faroe time-series data that are submitted for use in AMAP assessments but not formally submitted to OSPAR can be used in OSPAR assessments.	HoDs (KoD, Norway)	by 12 November
8.3.8 SAON (Minutes: JRL)			

Summary:

Cooperation between AMAP and SAON needs to be discussed among the HoDs. The Secretariat should prepare an analysis with recommendations on how to improve cooperation with SAON.

D	Cooperation between AMAP and SAON should be discussed among HoDs.	HoDs	Next HoDs meeting
A	Prepare an analysis on what could be done in order to improve interaction and cooperation.	Secretariat	1 December 2019
A	Invite SAON to the April Climate Expert Group (develop invitation). A representative (like the Chair of SAON) that can see if a role for SAON could be defined.	Secretariat with SAON tracking HoDs	
A	Put on the HoDs agenda to appoint a new chair for SAON		
A	Share with SAON the list of upcoming AMAP events		

8.3.9 WMO (Minutes: JRL)

Summary:

There are many activities in WMO that are relevant to AMAP.

D	Helge Tangen and Johanna Ekman in EC-PHORS Services Task Team, Vito Vitale (Italy) in Observations Team serve as links between EC-PHORS and AMAP.		

8.4 Upcoming conferences and meetings (Minutes: JRL)

Summary:

	Observers to submit information on upcoming conferences and meetings of relevance	Observers	asap
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9 Observer engagement (Minutes: JRL)			
<u>Summary:</u>			
D	The potential of Observers must be used more efficiently. A group with representatives from member countries and Observers will be established in order to identify options to structure the dialogue with observers more effectively		
A	Nominate participants to the group.	Observers and HoDs	15 November 2019
D	The first activity of this group should be to determine how countries handle Arctic issues, how AMAP is a part of their Arctic work and how observers appoint experts to AMAP EGs		
10.1 web site (Minutes: SW)			
<u>Summary:</u>			
A	Send comments on new website and/or suggestions for further developments; provide photos that can be used on the website	WG members	
A	Review meeting document delivery system to provide options in addition to the current zip file functionality with access to figures, tables etc.	Secretariat	Next HoD January 2020
10.2 Arctic Report Card (Minutes: JRL)			
<u>Summary:</u>			
10.3 Arctic Environment/Ocean Ministerial meeting (Minutes: JRL)			

<u>Summary:</u>			
A	Awaiting further information about the meeting	HoD?	ASAP
10.4 Blue Bioeconomy in the Arctic Region (Minutes: JRL)			
<u>Summary:</u>			
D	The Secretariat engagement should be limited to offer information from existing assessment reports, especially AACA and AOA.		
10.5 Climate altering technologies (Minutes: JRL)			
<u>Summary:</u>			
AMAP should maintain a review of this issue but no particular action is needed at this time.			
D	The topic should be on future WG agendas for information sharing.		