

**AMAP Report 2010:6**

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## **AMAP Progress Report 30 April 2010 – 1 October 2010**

**Senior Arctic Officials Meeting  
Tórshavn, Faroe Islands, 19 – 20 October 2010**



Recently opened Tiksi Hydrometeorological Observatory in Siberia.

**AMAP**  
Arctic Monitoring and  
Assessment Programme

# **AMAP Progress Report**

## **30 April 2010 – 1 October 2010**

### **Update on ongoing work**

Since the Senior Arctic Officials (SAO) Meeting held in April 2010, a number of AMAP expert groups have met and have been working on their various tasks under AMAP's Work Plan 2009-2011. These include the SWIPA Integration Team (IT) (June 2010), Human Health Assessment Group (June 2010 and in October), Unmanned Aircraft Systems (UAS) (meeting April 2010, teleconference call in Sept 2010 and meeting in October), Mercury Expert Group (in connection with the IPY Science Conference in June 2010), Data Management group for SAON/IPY (June 2010), SAON Steering Group (two meetings in May and August 2010) and the Short-Lived Climate Forcers (SLCFs) Expert Group (meetings and teleconferences in collaboration with the Task Force (May – September 2010 and a meeting in October). AMAP work has also been presented at a number of international events including the UNEP mercury Intergovernmental Negotiating Committee (INC) meeting in Stockholm (June 2010).

### **The AMAP Work plan for 2009–2011**

Over the past six months, AMAP has implemented several parts of its current work plan. The main tasks for AMAP since the last SAO Meeting have been the following:

#### **AC Communications and Outreach**

AMAP has provided input to the AC Contact group on Communications and Outreach and will ensure that the results of this work are taken into account in the development of AMAP's own communication and outreach strategy and related implementation plans.

#### **1. Production of assessment reports**

##### **Climate Change and the Cryosphere: Snow, Water, Ice and Permafrost in the Arctic (SWIPA)**

The SWIPA project, coordinated by AMAP in cooperation with IASC, CliC, IPY, and IASSA, has been a major activity during the past six months, and major progress has been made since the SAO meeting in Ilulissat in April.

All major chapters of the report have been revised based on comments from the review process. The production of the science report has, however, suffered from delays in the delivery of material and comments from peer reviewers, and the different chapters are currently in different stages of development.

Drafting of a layman's style report based on the science report and including science-based policy recommendations is ongoing and a draft report will be discussed at the next SWIPA IT meeting scheduled for 15–17 November in Reykjavik. Thereafter, the draft report will be presented and discussed at the AMAP WG meeting scheduled back-to-back with the SWIPA IT meeting.

The AMAP Secretariat has entered into a contract with Alpha film for the production of three films (natural science aspects, human dimension of cryospheric changes, and an update of the film about the Greenland ice sheet) based on the SWIPA science report. A first draft of the films will be presented and discussed at the next SWIPA IT meeting and AMAP WG meeting.

Revised drafts of the Layman's report will be circulated to SAOs, PPs and other working groups for commenting at the end of 2010, and revised versions of the films will be shown at the extraordinary SAO meeting in spring 2011.

The possibilities to arrange a scientific symposium at which the scientific results of the project can be presented are currently being explored.

Further details of the plans for preparing the SWIPA assessment reports and their delivery to the 2011 Arctic Council Ministerial Meeting will be presented by AMAP at the SAO meeting under agenda point 2.1.

### **Mercury Assessment**

The Mercury Expert Group, co-led by Canada and Denmark, has continued its work on the production of the AMAP 2011 mercury assessment. The peer review has been completed and most chapters of the report have undergone linguistic and technical editing and are ready for layout. Work to prepare a layman's summary report has been initiated, with the aim that both the scientific and layman's reports will be presented at the AMAP HoDs meeting in November 2010 with a view to approving them for delivery to the SAOs and Ministers. The final assessment reports will be released at the Ministerial Meeting in Spring 2011.

AMAP provided information to the first meeting of the INC that has been instituted by UNEP to establish a global agreement on mercury by 2013. AMAP is continuing its cooperation with UNEP Chemicals Branch to ensure that the results of the AMAP 2011 Assessment of Mercury in the Arctic will be fed into the INC process after their delivery to the Arctic Council, and to support related activities, such as the UNEP 'Para 29' study that has been requested by UNEP's Governing Council as an input to the INC, where information on global emission inventories produced by AMAP/UNEP co-sponsored work will be incorporated.

### **Short-Lived Climate Forcers (SLCF) of Arctic Climate Change**

The AMAP SLCFs Experts Group is preparing a scientific report coordinated with the work performed by the AC SLCF Task Force. This report will update the information that was provided by AMAP to the Ministerial Meeting in April 2009 for presentation at the Ministerial Meeting in 2011. There is established contact to the work performed under UNEP and LRTAP.

### **2009 Arctic Report Cards**

AMAP continues to work with the U.S. National Oceanic and Atmospheric Administration to produce an annual set of 'Arctic Report Cards' available on the internet. The current version was released in October 2009. We are in the process of updating the report cards,

expecting to release the updated version in mid-October, to provide as much new information as available after the end of the summer melt season.

Portions of the Report Cards are also published in the Bulletin of the American Meteorological Society as the Arctic chapter of the BAMS State of the Climate Report 2009, which was recently released: <http://www.ncdc.noaa.gov/bams-state-of-the-climate/2009.php>

### **AMAP Assessment 2009, Radioactivity in the Arctic**

The scientific report *AMAP Assessment 2009: Radioactivity in the Arctic* is in print and copies will be shipped before the end of September. Results of the radioactivity scientific assessment were presented in the report *Arctic Pollution 2009*, which was released at the Tromsø Ministerial Meeting in 2009.

### **AMAP Assessment 2009, Persistent Organic Pollutants in the Arctic**

The scientific publications that together constitute the *AMAP Assessment 2009: Persistent Organic Pollutants (POPs) in the Arctic* was published as a Special Issue of the Scientific Journal *Science of the Total Environment (STOTEN)* in June 2010. Results of this POPs scientific assessment were presented in the report *Arctic Pollution 2009*, which was released at the Tromsø Ministerial Meeting in 2009.

### **Arctic Council (2007) Assessment Oil and Gas Activities in the Arctic – Effects and Potential Effects (OGA)**

As reported earlier, the OGA assessment was completed in 2007 but final publication of the scientific documents has been delayed. The overview report *Arctic Oil and Gas 2007* was presented to the SAOs in November 2007, and the Executive Summary was approved in April 2008. The scientific assessment report (*Assessment 2007: Oil and Gas Activities in the Arctic – Effects and Potential Effects*) has been made available in electronic form on [www.amap.no](http://www.amap.no). Due to its size, the results of the scientific assessment will be printed in three volumes. The layout work on the first two volumes is currently being finalized and these volumes are expected to be printed by fall 2010. The final volume will follow as soon as possible thereafter.

### **Arctic Ocean Acidification – A new project**

The AMAP WG meeting held in February 2010 decided to initiate preparation for an assessment of the acidification of the Arctic Ocean and its consequences on biota. All Arctic countries have nominated experts to take part in this assessment. An expert group with representatives from Canada, Iceland, Faroe Islands, Norway, and USA met in Tromsø in May and prepared a first draft outline for the assessment, a proposal of the experts to be involved and a time schedule. The plan is to deliver the assessment report to the Arctic Ministerial meeting in 2013. The SAOs are asked to approve the initiation of this important assessment.

## **2. Monitoring and assessment of the Arctic**

### **Evaluation and updating of the AMAP Strategic Framework, Assessment strategy and monitoring programme**

As part of the work plan for the current period, AMAP is reviewing and updating its Strategic Framework and implementation plans with a view to evaluating the past 20 years of monitoring and assessment activities and developing strategic plans for the next ten years. Preparatory work on this major task started within the AMAP WG and was expanded through the involvement of experts from the AMAP expert groups at a Workshop on the AMAP Strategy and Monitoring Programme that took place on 8–10 February 2010 in San Francisco, USA. In addition to this experts workshop, the AMAP strategic framework, assessment strategy and monitoring plan have undergone an internal review by a small group of AMAP HoDs as well as an external review team composed of six international experts with no current association with AMAP. Based on the input from these initiatives, a draft strategic framework document was prepared and underwent a review by AMAP Heads of Delegation over the period from April to June 2010. A broad consultation process on the strategic framework was then undertaken from mid-June to the end of July 2010 involving the other Arctic Council Working Groups, Permanent Participants, observer nations and international organizations. Significant revisions have now been made and included in the final draft AMAP Strategic Framework document, which is to be presented to the SAOs for approval at the 19–20 October meeting in the Faroe Islands.

As noted above, the AMAP external review team conducted an independent review which was based on extensive multi-stakeholder consultations and the development of future-looking scenarios. This group produced a final report in August 2010 that is intended to be published independently of AMAP in a peer-reviewed journal. It addresses a number of very broad issues that in some cases fall outside of AMAP's mandate and may be of interest to the AC and the other Working Groups. The final report from the external review team was therefore distributed by AMAP to the Arctic Council Secretariat and to all WGs in August 2010 for their use. It was noted that this report is considered confidential and should not be officially cited at this time due to the pending approval by a peer-reviewed journal. This report is also being made available for the SAO meeting in October 2010.

The update of the AMAP Implementation Plan—the Assessment Guidelines and the Monitoring Programme for trends and effects—has been initiated and is coordinated by the Secretariat and a core team of experts. The work will involve all expert groups under AMAP. The draft reports will be presented to the next AMAP WG meeting in January 2011.

### **Sustaining Arctic Observing Networks (SAON)**

Following discussions at the previous SAO meeting and the Deputy Ministers Meeting, the SAON Steering Group proposed that SAON undergo a transition from a planning process to an operational activity. In order to become operative, two issues are essential to agree on: An efficient organizational framework and a set of priority tasks to enhance Arctic observing and data management. Both issues have been extensively discussed at the Steering Group meetings (Copenhagen, 25–26 May and in Reykjavik, 25–26 August). The outcome of these discussions will be reported more in detail at the SAO meeting by the SAON Co-chair, Dr. John Calder.

In addition, a SAON Data Management Workshop was held 7–8 June in Oslo. The recommendations from this workshop provided valuable input to the development of several potential SAON tasks focused on data management and access.

### **Unmanned Aircraft Systems (UAS) for Environmental Monitoring**

The Unmanned Aircraft Systems (UAS) Expert Group met in Copenhagen on April 13 and 14 with representation from five of the eight Arctic countries. At that meeting, a better understanding was gained of the major barriers to UAS operations in the Arctic from the perspective of both the users and the Civil Aviation Authorities. From the user or scientist perspective, the major difficulties have been to understand the requirements for accessing the airspace and how to meet those requirements. The primary barriers to the CAAs are resources and a lack of priority attention to UAS within their organizations. Understanding these basic issues has helped to focus the Expert Group's efforts on how best to assist the scientists and CAAs.

To assist with the barriers, the Expert Group is documenting the current regulations and methods of access in each of the Arctic countries, and identifying points of contact from each country for unmanned aircraft expertise. Because safety is the number one concern of the CAAs, the Expert Group has developed an outline and guide for developing an appropriate safety case for a UAS mission. The safety case guide is being reviewed by Expert Group members and CAAs from each country to ensure that it will provide the necessary information to each Arctic CAA. All this information will be made available to scientists via a website hosted by AMAP.

The next UAS Expert Group meeting is planned for 18–20 October 2010 in St. Petersburg, Russia. The survey of current access methods and regulations will be reviewed along with the safety case guideline. An effort will be made to analyze the regulations/methods for commonalities and gaps to help ensure some harmony between the Arctic countries. Since the scientific need to access the Arctic airspace is becoming more urgent with the rapid changes that are occurring, an attempt will be made to identify possible methods that could be used to more rapidly, yet safely, access the airspace that would be available in all the Arctic countries.

A demonstration UAS science mission was discussed initially in Copenhagen and will be planned further in St. Petersburg. The mission would be designed to address critical Arctic science needs in support of the AMAP mission and would demonstrate that it is possible to obtain access to the airspace required. It would also highlight any barriers that exist and help to shed light on how these barriers can be overcome. It has been initially planned that the mission would be designed so that the flights would cross the airspace boundaries of one or two different Arctic countries. Such a mission will help build more collaborative efforts across the Arctic.

### **National Implementation Plans (NIPs) for AMAP**

Documenting the national implementation plans for AMAP is a continuing activity. The work is now being coordinated with work performed under SAON to document the SAON-relevant observing systems. Hopefully, the two processes will provide a more comprehensive picture of the monitoring networks currently in place.

## **The AMAP Project Directory**

The Project Directory (<http://www.amap.no/Resources/ProjectDirectory.htm>), a tool that supports the process of documenting monitoring and research activities relevant to AMAP, currently registers information on 650 monitoring and research projects and programmes concerned with Arctic environmental issues. This user-maintained online system is also available for use by other AC Working Groups to support their activities and has been proposed for use in connection with SAON data activities concerned with documenting observing activities. Updating the content of this system is a continuous ongoing process and countries are reminded to ensure that their scientists and experts register (or update existing registrations) concerning all projects that are relevant to the work of AMAP, and in particular projects that might contribute to ongoing and planned assessments.

## **AMAP Website**

New information is routinely added to the AMAP website [www.amap.no](http://www.amap.no).

All AMAP reports and products are available as electronic documents from the AMAP website, including several hundred mapping and graphical products produced for the AMAP assessments. The site also provides log-in areas that support the work under the various expert and assessment groups.

Work is currently ongoing to redevelop the AMAP website so it can serve the increasing demand for access to information and data, with work planned on this activity during the latter part of 2010. This work is taking into account communications and outreach strategy considerations ongoing under both AMAP and the AC.

## **AMAP Data handling**

AMAP continues to operate the following Thematic Data Centres (TDCs):

- Atmospheric TDC located at Norwegian Institute for Air Research (NILU), Norway;
- Marine TDC located at International Council for the Exploration of the Sea (ICES), Denmark;
- Freshwater and Terrestrial TDC located at University of Alaska-Fairbanks (UAF), USA;
- Radioactivity TDC located at Norwegian Radiation Protection Agency (NRPA), Norway.
- Human health data are handled by the AMAP Secretariat and the health expert group.

The Arctic countries, observing countries and organizations have all been called upon several times to report relevant data to these TDCs so that the data are available to experts engaged in the production of ongoing and future AMAP assessments. However, the response to this call from some countries has not been as good as might be hoped. The Arctic countries are again kindly requested to ensure that AMAP-relevant data are reported to the AMAP TDCs, and also provide financial support for the continued operation of these TDCs.

## **Russian atmospheric stations – Tiksi and Amderma**

AMAP is a partner in the Tiksi Hydrometeorological Observatory, with a focus on contaminant monitoring. The Observatory was officially opened in August, 2010 and the AMAP-sponsored POPs sampler has been installed at the 'Clean Air Facility'. A partnership among the Russian Federation, United States of America, and Finland provides the bulk of the resources to equip and operate the Observatory, whose output will be of great value to AMAP in future assessments.

### **3. Special Projects**

The proposed *Siberian hydrology project* has received considerable interest from within the GEF organizations (UNEP and UNDP), and after a period of delays while the GEF was being reorganized is now back on track. The project has been signed by the Russian Focal Point for GEF in Moscow and handed over to GEF. The project is part of the follow-up to the *Lena River project* and the ACIA. In Russia, federal, regional, and local authorities will be involved as well as RAIPON. The project is closely linked to the Arctic HYDRA project in the IPY, therefore several scientific institutions and experts from Arctic countries will be involved in the project. AMAP took part in a planning workshop which was held in St. Petersburg in March 2010.

The follow-up project of the RAIPON/AMAP/GEF *PTS project* has been presented to the Russian Focal Point for GEF in Moscow. UNEP GEF has expressed great interest for this follow-up project so therefore it is hoped that this project will be back on track again after the delay.

### **Remediation of Contaminated Areas of Franz Josef Land**

The Russian government has initiated a project to clean up contaminated sites at Franz Josef Land (FJL) and, at the same time, it has been open to the establishment of a research and monitoring station at these islands. The AMAP Secretariat has assisted the Polar Foundation in planning and implementation since the first survey of sites was made in 2004.

The updated inventory regarding the pollution on *Franz Josef Land* was finalized in 2008. The report is available from [www.amap.no](http://www.amap.no). Russia has allocated some 300 000 USD for this work and NEFCO has allocated 200 000 Euro.

The clean-up project could be a very interesting joint project between several Russian institutions and international organizations, such as the Arctic Council and the Barents-Euro Arctic Council (BEAC). From an AMAP perspective, it is important to remove any significant local sources of contaminants at FJL, and AMAP would welcome the establishment of an upgraded monitoring and research station on Franz Josef Land that can perform monitoring and research on climate, UV/ozone, contaminants, and basic Arctic physical, chemical and biological parameters in general.

#### **4. Collaboration with AC WGs**

AMAP is continuing to work with several other Arctic Council WGs as described in the report to the Ministerial meeting in April.

##### **Conservation of Arctic Flora and Fauna (CAFF)**

The cooperation between AMAP and CAFF has mainly been related to the on-going SAON work and the development of the CBMP. An AMAP representative from Canada is a member of the Marine and Freshwater Expert Groups under CBMP and has fully participated in several meetings over the past six months. The CBMP draft marine monitoring implementation plan was distributed to key AMAP marine experts for comments. A continued close working relationship between AMAP and CBMP will be carried out.

##### **Protection of the Arctic Marine Environment (PAME)**

PAME, AMAP, CAFF and SDWG representatives met several times to discuss PAME's request to contribute to the follow-up of the PAME Arctic Marine Shipping Assessment (AMSA) recommendation II (c): identifying marine areas of heightened ecological and cultural significance in the light of a changing climate. AMAP has organized an experts group (co-led by Norway and USA) together with CAFF (co-led by Canada and Greenland) to identify vulnerable marine areas in relation to shipping. AMAP has information relevant to this topic, particularly the yet-unfinished Chapter 6 of the Oil and Gas Assessment. AMAP is providing substantial funding and resources to this important initiative to ensure that a product is produced in time for presentation at the AC Ministerial meeting in May 2011. AMAP and CAFF are undertaking the work on the 'ecological significance' part of the PAME request, whereas the 'cultural significance' aspect is being led by SDWG.

AMAP representatives attended a PAME workshop on the Arctic Ocean Report held in September 2010 in Washington, DC and gave a presentation on the status of the marine environment. AMAP is supportive of this initiative and will work with PAME, as needed. AMAP representatives also participated in the PAME WG meeting which took place in September 2010.

##### **Sustainable Development Working Group (SDWG) – Health**

There has been established a close cooperation between the expert groups on health under AMAP and SDWG.

##### **Arctic Contaminants Action Program (ACAP)**

AMAP is assisting ACAP in the administration of the Obsolete project. AMAP will work closely together with ACAP regarding the new projects on Short Lived Climate Forcers.

## **5. International cooperation**

### **The International Polar Year (IPY)**

There has been close contact and cooperation between AMAP and IPY. The IPY projects are creating an influx of data and process understanding that is very useful for assessments and reviews undertaken by AMAP and other AC working groups. Although the IPY has formally come to an end, data and scientific outputs continue to flow from this comprehensive undertaking. The IPY Oslo Science Conference, 8–12 June 2010, fully demonstrated this fact.

Both data and understanding environmental processes are important to the work of AMAP (and the Arctic Council). Developing and extending the relationships with the science community (IASC) and the data capture (SAON) should continue.

AMAP participated in an IPY Legacy workshop, chaired by the Norwegian Polar Institute, which was held in conjunction with the IPY Oslo Science Conference in June 2010. Norway and AMAP will report on the results of this workshop to SAOs at the October meeting with some recommendations on future activities.

AMAP was also represented at the joint SAON/IPY data management meeting held in Oslo in June 2010. Recommendations from this meeting were produced and later considered as SAON work tasks by the SAON Steering Group during its meeting in August 2010.

### **IASC**

AMAP and IASC have worked closely together, especially in work related to the follow-up of the SAON initiative and the SWIPA project. AMAP and IASC are co-chairing the SAON Steering Group and have established a joint SAON Secretariat.

New cooperation on work relating to Arctic coastal dynamics and contaminant inputs due to coastal erosion is currently under discussion.

### **WMO/CliC**

In connection with the SAON and SWIPA projects, AMAP has had a close cooperation with WMO/CliC.

WMO has proposed a Global Cryosphere Watch initiative, which could become of mutual interest.

### **Nordic Council of Ministers (NCM)**

Over the past decades, NCM has been a major financial support for the assessments that AMAP has been implemented. The first part of a multi-year project on Combined Effects of Contaminants and Climate Change, partially funded by the Nordic Council of Ministers, has been completed and the final project report is scheduled for printing in the latter part of 2010. The results of this project will be of use for the EU-funded ArcRisk project (see below). Partial funding for the first year of a second phase of this project has been received from the NCM. Other projects that have also received financial support are the project on

Short-Lived Climate Forcers, Arctic Ocean Acidification, and the SWIPA assessment and SWIPA film production. AMAP is very thankful for this financial support.

### **Stockholm Convention**

A report on the combined effects of climate change and Persistent Organic Pollutants (POPs) will be prepared as a joint report between AMAP and the Stockholm Convention Secretariat. This should be completed by March 2011 in time to be presented at the Stockholm Convention's COP-5 to be held in April 2011. A letter of understanding between the Stockholm Convention Secretariat and AMAP was prepared, similar to that with UNEP Chemicals for the mercury report. A number of teleconference meetings have taken place over the summer and in September 2010. AMAP plans to participate in a face-to-face meeting of experts at a special meeting to prepare a final draft report to be held in October 2010 in Geneva.

### **UNEP and UN ECE – Coordination of Mercury Assessment activities**

In connection with the preparation of the *AMAP Update Assessment on Mercury in the Arctic* (due to be completed in 2010 and delivered to Ministers in 2011), parallel work on mercury-related activities under other international bodies including UNEP and the UN ECE has been undertaken, as agreed by the AMAP WG and SAOs.

AMAP participated in the first UNEP Inter-governmental Negotiating Committee (INC-1) held in June 2010 in Stockholm, which will lead to a global legally-binding agreement on mercury by 2013. AMAP set up a booth at INC-1 and distributed information to delegates concerning the impact of mercury on the Arctic environment and its people. During a side-meeting of the Arctic countries at the INC-1, it was agreed that information from the AMAP Mercury Assessment should be made available at future INC meetings (e.g., INC-2 to be held in Japan in January 2011).

In April 2009, AMAP participated in a joint workshop in St. Petersburg with the EMEP Task Force on Hemispheric Transport of Air Pollutants (HTAP). The focus was on monitoring of POPs and mercury in Eastern Europe, Asia and the Arctic. The HTAP group prepared assessments which were released in June 2010 that included chapters on POPs and mercury with contributions from AMAP. Due to heavy commitments to producing AMAP assessments, AMAP had to decline to take a leading role in this work. AMAP intends to further discuss with HTAP and other LRTAP bodies how its strategy for the future (AMAP Strategic Framework) can better serve the ongoing activities under these and other international organizations.

### **EU cooperation**

The AMAP Secretariat, as coordinator of the EU-funded ArcRisk project and also in charge of communication and dissemination, has established a project website ([www.arcrisk.eu](http://www.arcrisk.eu)) containing general information on the project as well as a password area for internal communication among the 21 partner institutes. A number of field sampling activities have been conducted as well as modelling activities and health reviews, with several peer-reviewed papers already published based on the project. A meeting of the partners to review the progress will be held on 3–5 November hosted by the Spanish partner in Barcelona.

## **Barents Euro-Arctic Council (BEAC)**

The AMAP Secretariat has provided information to the BEAC work on ‘Hot Spots’.

## **Arctic Frontiers**

AMAP is an active partner in using the Arctic Frontier as an outreach for AMAP assessment reports.

## **7. Requests to the SAOs**

### **Monitoring and Observation activities**

SAOs are again kindly requested to secure the necessary national funding to allow AMAP to fulfill its work plan as requested by Ministers and SAOs. It is also vital to ensure that observations of levels, trends and effects of contaminants and climate in the Arctic continues, even during the periods between major assessments, in order to guarantee uninterrupted time series and ensure that future assessment reports presented by the AMAP WG are complete and reliable. Continuation of core observations and establishment of both baseline and long-term records are especially important in this connection.