

# Full Proposals for International Polar Year 2007-2008 Activities

## Proposed IPY Activity Details

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### 1.0 PROPOSER INFORMATION

(Activity ID No: 305)

#### 1.1 Title of Activity

Consortium for coordination of Observation and Monitoring of the Arctic for Assessment and Research

#### 1.2 Short Form Title of Proposed Activity

COMAAR

#### 1.3 Activity Leader Details

Terry Callaghan

Royal Swedish Academy of Sciences, Abisko Scientific Research Station  
Sweden

#### 1.4 Lead International Organisation(s) (if applicable)

Arctic Council

#### 1.5 Other Countries involved in the activity

Canada

UK

Norway

Iceland

France

Japan

Austria

Denmark

Russia

Germany

Finland

USA

Netherlands

#### 1.6 Expression of Intent ID #'s brought together in this proposed activity

6, 24, 129, 133, 138, 139, 268, 282, 409, 436, 439, 452, 475, 510, 544, 546, 601, 656, 732, 882, 899, 914, 1039,

#### 1.7 Location of Field Activities

Arctic

#### 1.8 Which IPY themes are addressed

1. Current state of the environment
2. Change in the polar regions
3. Polar-global linkages/tele-connections

4. Exploring new frontiers
5. The polar regions as vantage points
6. The human dimension in polar regions

#### **1.9 What is the main IPY target addressed by this activity**

4. Legacy
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## **2.0 SUMMARY OF THE ACTIVITY**

COMAAR will be established as a consortium under the auspices of the Arctic Council, composed of AC Working Groups, major observation and monitoring networks, platforms/observatories, government agencies and other relevant institutions involved in observation and monitoring in the Arctic. The main objectives of COMAAR are to increase effectiveness and efficiency in the use of infrastructure, personnel and funding, and to improve coordination for sustained long-term time series observations and for data handling.

COMAAR will bring together conventional scientific approaches to observation and monitoring with local and traditional knowledge approaches. This will lead to synergies and added value in data availability that will underpin a new generation of scientific analysis, publications and assessments for policy making. At the same time, COMAAR will facilitate communication between the scientific community and Arctic residents, as well as society at large that will lead to a better understanding of living conditions and resource availability as well as new opportunities for the next generation of researchers. COMAAR will provide a united front to enhance sustainability of existing observatories/platforms and the development of new observatories/platforms, methodologies and technologies.

COMAAR will be managed by a Steering Committee with balanced representation from different disciplines. Coordination tasks will be undertaken by task teams and thematic and multidisciplinary panels that will be set up to address specific issues that will change over time. They include: establishing centralised data and metadata bases for monitoring and observation of the Arctic, harmonisation and standardisation of methods and metadata, data and metadata handling, and providing information for an Arctic portal. COMAAR will also provide a forum for continuous consultation and interaction between consortium partners. They will meet at regular intervals and in varying configurations to move the coordination process forward.

COMAAR will contribute to: improved capacity for assessing and predicting the current and future state of the Arctic, substantially more efficient overall access to data, improved data management protocols and quality controlled data, international information sharing and dissemination of data, increased capability to identify gaps in the current knowledge base, improved linkages and understanding between Arctic residents, science researchers, logistics operators, political decision makers, funding agencies, and educators, improved knowledge transfer and information flow between platforms and user groups.

Major deliverables provided by COMAAR will include:

- bridges among a range of multi-disciplinary and cross-sectoral stakeholders within and outside the Arctic Council,
- coordinated input of observation and monitoring metadata and data for an Arctic portal, a global system of systems, international and regional conventions and other regulatory frameworks,
- coordinated major multi-disciplinary baseline data sets, agreed metadata, operating guidelines, and protocols,
- a forum for continuous consultation and regular meetings of consortium partners.

#### **2.1 What is the evidence of inter-disciplinarity in this activity?**

The consortium, by design, brings together and ensures interaction among observation and monitoring activities in many disciplines such as marine, terrestrial, freshwater, cryosphere, climate and atmosphere, as well as social science, community-based and indigenous observations

and monitoring that encompasses multiple facets of the human dimension.

**2.2 What will be the significant advances/developments from this activity? What will be the major deliverables? What are the outputs for your peers?**

There are numerous observation and monitoring activities collecting data on various elements of the Arctic environment. The IPY will significantly increase the number of projects and add considerably to the data collected. The COMAAR consortium will integrate these multiple efforts within the longer term. Significant advances from such coordination of observation and monitoring will be:

1. More efficient coordination for sustained long-term time series observations.
2. Improved capacity for assessing and predicting the current and future state of the Arctic.
3. Substantially more efficient overall access to data.
4. Improved data management protocols with better standardized, harmonized and quality controlled data.
5. International information sharing and dissemination of data through an Arctic portal.
6. Increased capability to identify gaps in the current knowledge base.
7. Improved linkages and understanding between Arctic residents, science researchers, logistics operators, political decision makers, funding agencies, and educators.
8. Added value from sharing of information on observation and monitoring approaches and data from local and traditional knowledge and from conventional science.
9. Improved knowledge transfer and information flow between data producers and user groups.
10. Increased effectiveness and efficiency in the use of infrastructure, personnel and funding.

Major deliverables would be:

1. Bridges among a range of multi-disciplinary and cross-sectoral stakeholders within and outside the Arctic Council.
2. Coordinated input of observation and monitoring metadata and data for an Arctic portal, a global system of systems, international and regional conventions and other regulatory frameworks.
3. Coordinated major multi-disciplinary baseline data sets, agreed metadata, operating guidelines, and protocols.
4. A forum for continuous consultation and regular meetings of consortium partners.

Major outputs for the peer community are:

1. The underpinning of a new generation of scientific analyses and publications.
2. The underpinning of a new generation of assessments for policymaking and policy analyses.
3. A better understanding of changes in living conditions and resource availability in the Arctic, and their effects on the communities of Arctic residents.
4. A united front to enhance sustainability of existing observatories/platforms and the development of new observatories/platforms, methodologies and technologies.

**2.3 Outline the geographical location(s) for the proposed field work (approximate coordinates will be helpful if possible)**

Locations	Coordinates
Circum-Arctic. COMAAR has no expedition plans, but baseline data from relevant IPY campaigns would be collated.	

**2.4 Define the approximate timeframe(s) for proposed field activities?**

Arctic Fieldwork time frame(s)	Antarctic Fieldwork time frame(s)
	MM/YY - MM/YY
	MM/YY - MM/YY
	MM/YY - MM/YY

**2.5 What major logistic support/facilities will be required for this project?**

**Further details** – No additional logistic support/facilities needed for this initiative per se. All COMAAR activities will make use of existing and new observatories and other monitoring facilities as well as a wide range of ongoing and future projects and programmes.

## 2.6 How will the required logistics be supplied? Have operators been approached?

Source of logistic support	Likely potential sources	Support agreed
Consortium of national polar operators		
Own national polar operator		
Another national polar operator		
National agency		
Military support		
Commercial operator		
Own support		
Other		

## 2.7 If working in the Arctic regions, has there been contact with local indigenous groups or relevant authorities regarding access?

Yes. Indigenous institutions are involved in the planning process and will be consortium members.

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## 3.0 STRUCTURE OF THE ACTIVITY

### 3.1 Origin of the activity

This activity is the start of a new programme that will outlive IPY

### 3.2 How will the activity be organised and managed? Describe the proposed management structure and means for coordinating across the cluster

COMAAR will be organized under the auspices of the Arctic Council. COMAAR will be a long-term consortium, launched during IPY, and will consist of a currently unspecified number of partners. The consortium will be open to new partners as the process evolves.

A number of potential consortium partners attended an organizing workshop at the Abisko Scientific Research Station on 18-21 May. Other potential partners include those who were invited but were unable to attend and those that expressed interest (see Section 4.2 below, and [www.abisko.kiruna.se](http://www.abisko.kiruna.se)). Additional partners will be identified in collaboration with the Arctic Observing Network (AON) process, and from the observation and monitoring components of upcoming IPY projects.

A planning group was established at this workshop to advance the initial phases of COMAAR. Thereafter, COMAAR will be managed by a Steering Committee supported by a small secretariat. Representation on the Steering Committee will be drawn from Arctic Council Working Groups, indigenous organisations/institutions, major observation and monitoring networks and platforms/observatories, and other relevant institutions e.g. government agencies, WMO, EEA, etc.

The Steering Committee will delegate specific tasks to task teams, and thematic and cross-disciplinary panels drawing on existing consortium partners, such as CEON, iAOOS, IPA etc., and new partners that will be identified. Substructures, already in place, such as the CAFF Circumpolar Biodiversity Monitoring Program (CBMP) will execute coordination tasks within thematic areas of their competence.

Consortium partners will meet at regular intervals and in varying configurations to move the coordination process forward.

Partners will implement coordination mechanisms to ensure proper attention to Arctic conditions in a wider global context inter alia climate negotiations, GEOSS, etc.

### **3.3 Will the activity leave a legacy of infrastructure and if so in what form?**

Yes. COMAAR creates a legacy of information through its coordinated database and metadata that will be available via an Arctic portal. Further, this legacy is represented by better collaboration between networks, improved access to and better quality and quantity of data, and the interdisciplinary and cross-sectoral integration of observation and monitoring related to the Arctic. A coordinated forum to stimulate development and deployment of new sensors, sampling and measurement technology; the sustained function of existing observatories; and the construction of new observatories for new generations of observation and monitoring.

### **3.4 Will the activity involve nations other than traditional polar nations? How will this be addressed?**

Yes. The COMAAR initiative has global reach, through widespread coordination of observation and monitoring of the Arctic by institutions around the world, and the international dissemination of information. The COMAAR consortium of partners extends far beyond the traditional polar nations and includes indigenous peoples and other Arctic residents.

### **3.5 Will this activity be linked with other IPY core activities? If yes please specify**

Yes, those that contain components of observation and monitoring of the Arctic. The COMAAR Planning Group has examined those submissions for observation and monitoring components of relevance and included them in the coordination effort undertaken by COMAAR.

### **3.6 How will the activity manage its data? Is there a viable plan and which data management organisations/structures will be involved?**

COMAAR will not own any observation and monitoring data.

Consortium partners will endeavour to streamline, harmonize and standardize data management with a view to i.a. simplify access, ensure data quality, protect data integrity and secure long term financing for data maintenance.

True partnership between the science and indigenous community has an high priority, likewise traditional knowledge is integrated into conservation, management and monitoring of the natural environment in the Arctic.

Existing data management centres that handle observation and monitoring data will be reviewed, used, and expanded as necessary. Better linkages will be identified and established with and among data centres, and new centres may be employed.

Existing guidelines and operating protocols will be reviewed and refined by groups of consortium partners to coordinate relevant aspects of data handling. New agreements to facilitate interaction will be developed.

Special action will be taken to safeguard sensitive aspects of data related to personal integrity and cultural identity. COMAAR will highlight and seek to solve existing problems of copyrights and other intellectual property rights, licensing, and charges for access to data.

COMAAR will facilitate data rescue.

Through COMAAR, data and information will be communicated via an Arctic portal (to be submitted as a separate IPY initiative) or an equivalent concept for a centralized web-based gateway. This portal will provide linkages to all consortium partners' websites, web-accessible data sets, and metadata.

In addition, such a portal, through state-of-the-art mapping technology, will allow for interactive and instantaneous mapping of available data sets. COMAAR will also produce spatially explicit metadata.

### **3.7 Data Policy Agreement**

**Will this activity sign up to the IPY draft Data Policy (see website)**

Yes

### **3.8 How will the activity contribute to developing the next generation of polar scientists, logisticians, etc.?**

COMAAR, by bringing together data and metadata from multiple disciplines and across sectors, will encourage and support a new generation of integrative and interdisciplinary researchers, logisticians, and policymakers. COMAAR's assemblages of observatories/platforms, networks, metadata and data, will provide vantage points through which they will have: (1) enhanced access to data and metadata; (2) new opportunities to gain experience; and (3) wider visions for innovative research. The knowledge gained through this will be communicated via the community, workshops, coordination meetings and the regular channels of media and will provide indigenous organizations and relevant local, regional and governing agencies concerned with the health and vitality of indigenous communities with direct insight and new knowledge.

### **3.9 How will this activity address education, outreach and communication issues outlined in the Framework document?**

COMAAR will provide information to a wide range of users, from school children to professional researchers and educators. COMAAR will present metadata, protocols, sources of metadata, methodologies, and instrumentation; and will additionally supply text in popular language for schools, the media, and the general public whenever possible. COMAAR contributions to education, outreach and communication issues will include:

1. Enhanced access to data and metadata for the next generation.
2. Enhanced networking that gives greater opportunities and expanded experience to young people.
3. Enhanced accessibility of metadata for a range of users including schools and the general public.
4. Enhanced access to information on logistics, infrastructures, observatories and monitoring platforms and their activities (e.g. satellites, ice breakers, monitoring stations, indigenous methodologies).
5. Enhanced access to data useful for developing sustainability within traditional indigenous culture and industries.

The Arctic portal (or equivalent) will be available to professionals (media, educators, planners, policymakers etc.) to obtain an overview of what is being done, who is doing what, and where the gaps in knowledge lay. Such information will facilitate their work on climate change, social issues, state of the environment, resource use, etc.

### **3.10 What are the proposed sources of funding for this activity?**

Research councils, government agencies, and international organizations. Substantial parts of COMAAR's activities will be developed as integral parts of existing, long-term observation and monitoring programs, research projects, networks and/or activities in the Arctic Council Working Groups.

### **3.11 Additional Comments**

1. Link to the Arctic Council. The Arctic Council through the coordination activities of its Working Groups can facilitate and contribute to the COMAAR process. The improved information arising from the COMAAR process will then be channelled back to the Arctic Council and enhance future decision making.
2. Social science actors are still underrepresented in the COMAAR process. Additional work to identify relevant actors will be done.
3. The COMAAR planning process has responded to needs expressed by partners at the Abisko

coordination meeting and will continue to respond to such needs as they are articulated in IPY submissions.

Beside the EoI:s presented in 1.6, following Full Proposals are connected to COMAAR:

FP#11, FP#13, FP#14, FP#21, FP#40, FP#46, FP#48, FP#50, FP#59, FP#72, FP#76, FP#90, FP#95, FP#105, FP#113, FP#124, FP#125, FP#133, FP#138, FP#139, FP#151, FP#162, FP#169, FP#185, FP#187, FP#188, FP#196, FP#202, FP#213, FP#235

## 4.0 CONSORTIUM INFORMATION

### 4.1 Contact Details

#### Lead Contact

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#### Second Contact

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### 4.2 Other significant consortium members and their affiliation

Name	Organisation	Country
Leif Anderson	ISAC (International Study of Arctic Change)	SE/International
John Calder	NOAA (National Oceanic and Atmospheric Administration)/ AMAP	US/International
Jerry Brown	IPA (International permafrost Association)	US/International
Göran Ståhl	Swedish University of Agricultural Sciences	SE
Craig Tweedie	CEON (Circumarctic Observatories Network)	US/International
Mai-Britt Utsi	Saami University College	NO
Tatiana Vlassova	Russian Academy of Sciences, Institute of Geography	RU
Patrick J. Webber	IASC (International Arctic Science Committee)	US/International
Torben Christensen	CONGAS (Biospheric Controls on Trace Gas Fluxes in Northern Wetlands)	SE/International
Bob Corell	ICARP II	US/International
Paul Cutler	AON (Arctic Observatories Network)	US/International

Kjel Danell	Swedish University of Agricultural Sciences	SE
Cynan Ellis-Evans	British Antarctic Survey	UK/International
Soffia Gudmundsdottir	PAME (Protection of Arctic Marine Environment)	IS/International
David Hik	ArcticNet/Canadian IPY (Network of Centres of Excellence of Canada, International Polar Year)	CA
Ola Inghe	Swedish Environmental Protection Agency	SE
Esko Jaakkola	CAFF Chair (Conservation Arctic Flora & Fauna)	FI/International
Margareta Johansson	SCANNET (Scandinavian/North European network of terrestrial field bases)	SE/International
Niklas Labba	Nordic Saami Institute	NO/Indigenous
Jesper Madsen	Danish National Environmental Research Institute	DK
Ole Henrik Magga	Saami University College	NO/Indigenous
Svein Mathiesen	Saami University College	NO/Indigenous
Trofim Maximov	Russian Academy of Sciences/Institute of Biological Problems of Cryolithozone	RU
Lis Mortensen	Faroese Geological Survey	FO
Olle Norberg	SSC - ESRANGE (Swedish Space Corporation - European Sounding rocket Range)	SE
Lars-Otto Reiersen	AMAP (Arctic Monitoring and Assessment Programme)	NO/International
Ingrid Sandahl	IRF (Swedish Institute of Space Physics)	SE
Gunnar Sander	Norwegian Polar Institute	NO
Eduard Sarukhanian	WMO (World Meteorological Organisation)	International
Sune Sohlberg	Swedish Environmental Protection Agency	SE
Vladimir Solovyev	Russian Academy of Sciences/Institute of Cosmophysical Research and Aeronomy	RU
Greg Henry	University of British Columbia International Tundra Experiment	CA
Wolfgang Schöner	Central Institute of Meteorology and Geodynamics	AT
Gerhard Duhaime	Pavillon De Koninck University	CA
Shari Gearheard	NOAA/Harvard	US
David Stanners	European Environment Agency	International
Taneil Uttal	National Oceanic and Atmospheric Administration, Colorado,	US/International
Ad Huiskes	Netherlands Institute for Ecology	NL
Paul Egerton	ESF (European Science Foundation) Polar Board network	FR/International
Yvon Csonka	International Arctic Social Sciences Association (IASSA)	GL/International
Mark Parsons	University of Colorado	US
Gilles Gauthier	Centre d'études nordiques, Université Laval	CA
Martin Jeffries	University of Alaska Fairbanks	US
John Bainbridge	Nunavut Tunngavik Inc.	CA
M. Jesse Ford	Department of Fisheries and Wildlife, Oregon	US
Alan Parkinson	US Centers for Disease Control and Prevention, Alaska	US
Bernie Funston	SDWG (Sustainable Development Working Group)	CA/International
Igor Veselov	EPPR (Emergency, Prevention, Preparedness and Response)	RU/International
Martin Gude	University of Jena	DE

Terry Prowse	National Water Research Institute	CA/International
Barry Goodison	CliC (chair of Arctic Climate Panel)	CA/International
Yves Begin	Centre d'études nordiques, Université Laval	CA
Toshio Koike	University of Tokyo	JP
Ivan Frolov	Arctic & Antarctic Research Institute, Saint-Petersburg	RU
Roger Bales	Atwater	CA/GL
Jamie Morison	Polar Science Center, APL-UW	US/International
Frederick Nelson	University of Delaware, CALM	US/International
Ola Johannesson	Nansen Environmental and Remote Sensing Centre	NO
Morten Skovgaard Olsen	Danish Environmental Board	DK
Hanne Petersen	Danish Polar Centre	DK
Colin Summerhayes	GEOSS, GOOS and GTOS	UK/International
Jean Claude Gascard	AOSB (Arctic Ocean Science Board)	FR/International
Audhild Schanche	Nordic Saami Institute	NO/International
Boris Morgunov	SDWG (Sustainable Development Working Group)	RU/International
Kari Laine	Thule Institute	FI
Christoph Zöckler	WCMC (World Conservation Monitoring Centre)	UK/International
Henry Huntington	Indigenous Peoples Monitoring	CA/International
Robert McGhee	Indigenous Peoples Monitoring	CA/International
Marianne Lilliesköld	Swedish Environmental Protection Agency	SE
Anders Karlqvist	Swedish Polar Research Secretariat	SE
Magnus Friberg	Swedish Research Council	SE
Camilla Hansen	Swedish Research Council	SE
Philp Woodworth	Proudman Oceanographic Laboratory	UK
Robert Winfree	National Park Service, Alaska Region	US
Winfried Dallman	Norwegian Polar Institute	NO
Jon Børre Ørbaek	Norwegian Polar Institute	NO
Roland Kallenborn	Norwegian Institute for Air Research	NO
Volker Rochald	Alfred Wegener Institute	DE
Don Perovich	Cold Regions Research and Engineering Laboratory	US
Scott Dallimore	Geological Survey of Canada	CA
Guillaume Ramillien	CNRS	FR
Pavel Groisman	UniversityCorp. For Atmospheric Research	US
Annika Hofgaard	Norwegian Institute for Nature Research	NO
Don Russel	Environment Canada	CA
Fred Wrona	National Water Research Institute	CA
Markus Dyck	Nunavat Arctic College	CA
Hanne Christiansen	IPA (International Permafrost Association)	NO/International
Joan Eamer	UNEP	NO/International
Peter Kuhry	Stockholm University	SE
Grete K. Hovelsrud	Centre for International Climate and Environmental Research	NO/International
Morten Rasch	Danish Polar Center	DK