



# Atmosphere Working Group Meeting

6 April 2014

09.00-16.00

(Lunch 12.00-13.30, Coffee Breaks 10.15-10.45 and 15.00-15.30)

Helsinki, Finland  
The Dynamicum, Finnish Meteorological Institute

## *Agenda*

### **Participants:**

#### **WG MEMBERS PRESENT:**

JIM OVERLAND - USA, CHAIR  
MICHAEL TJERNSTRÖM - SWEDEN, VICE CHAIR  
KATHY LAW - FRANCE, VICE CHAIR  
CLAUDE LABINE - CANADA  
BIAN LINGEN - CHINA  
KAMIL LASKA - CZECH REPUBLIC  
TIMO VIHMA - FINLAND  
EILA LEHMUS - FINLAND  
KLAUS DETHLOFF - GERMANY  
GÜNTHER HEINEMANN - GERMANY  
HALLDOR BJORNSSON - ICELAND  
SURESH BABU - INDIA  
NUNCIO MURUKESH - INDIA  
VITO VITALE - ITALY  
SEONG JOONG KIM - KOREA  
ANNA SJÖBLÖM - NORWAY  
RAJMUND PRZYBYLAK - POLAND  
ANGEL FRUTOS BARAJA - SPAIN  
JOHN CASSANO - USA

#### **WG MEMBERS NOT PRESENT:**

HIROSHI L. TANAKA - JAPAN, VICE CHAIR  
HENRIK KOV - DENMARK  
GUDRUN NINA PETERSON - ICELAND  
KAORU SATO - JAPAN  
YOUNG JUN YOON - KOREA  
KJETIL TØRSETH - NORWAY  
TADEUSZ NIEDŹWIEDŹ - POLAND  
PETER VAN VELTHOVEN - NETHERLANDS

#### **GUESTS AND OBSERVERS:**

SANDY STARKWEATHER - IAOSA  
JUN INOUE (IN PLACE OF KAORU SATO) –  
JAPAN  
GEORG HANSEN (IN PLACE OF KJETIL TØRSETH) -  
NORWAY

#### **SECRETARIAT**

YOO KYUNG LEE (EXECUTIVE OFFICER)  
HEIKE MIDLEJA (IASC SECRETARIAT)  
JANE LEE (KOPRI SUPPORT)

## Table of Content

<b>1</b>	<b>OPENING AND REPORTING</b> .....	<b>3</b>
<b>1.1</b>	<b>WELCOME AND INTRODUCTIONS</b> .....	<b>3</b>
<b>1.2</b>	<b>REPORT FROM THE CHAIR</b> .....	<b>3</b>
<b>1.3</b>	<b>APPROVAL OF THE MINUTES FROM THE LAST MEETING</b> .....	<b>3</b>
<b>1.4</b>	<b>ADOPTION OF AGENDA</b> .....	<b>3</b>
<b>2</b>	<b>REPORTS ON CURRENT ACTIVITIES</b> .....	<b>3</b>
<b>2.1</b>	<b>MOSAIC</b> .....	<b>3</b>
2.1.1	YOPP (YEAR OF POLAR PREDICTION) .....	3
2.1.2	MOSAIC PLANNING .....	3
2.2	IASC WORKSHOP ON ARCTIC DATA RESCUE, CITIZEN-SCIENCE AND COLLABORATIVE RESEARCH .....	4
2.3	ARCTIC – MIDLATITUDE LINKAGES .....	4
2.4	AIR CHEMISTRY.....	4
2.4.1	ARCTIC AIR POLLUTION SESSION/SIDE MEETING AT AGU, SAN FRANCISCO.....	4
2.4.2	ICE -ARC.....	5
2.4.3	IASOA WORKSHOP IN VANCOUVER.....	5
<b>2.5</b>	<b>REVIEW OF IASC ACTIVITIES RELATED TO AWG</b> .....	<b>6</b>
2.5.1	CLIMATE ACTIVITIES OF CLIC.....	6
2.5.2	SECRETARIAL SUPPORT .....	6
<b>3</b>	<b>PLANS FOR 2014 - 2015</b> .....	<b>6</b>
<b>3.1</b>	<b>THIRD INTERNATIONAL CONFERENCE ON ARCTIC RESEARCH PLANNING</b> .....	<b>6</b>
3.1.1	LINKAGES .....	6
3.1.2	MOSAIC .....	6
<b>3.2</b>	<b>PROPOSED ACTIVITIES</b> .....	<b>7</b>
3.2.1	PROPOSAL FOR WORKSHOP ON ARCTIC AIR POLLUTION .....	7
3.2.2	THE 2 <sup>ND</sup> INTERNATIONAL CONFERENCE.....	7
3.2.3	THE DYNAMICS OF ATMOSPHERE – ICE – OCEAN INTERACTIONS IN HIGH LATITUDES.....	7
3.2.4	EUG SESSION: ARCTIC CLIMATE CHANGE AND MID-LATITUDE WEATHER PHENOMENA .....	8
3.2.5	LUNAR PHOTOMETRY WORKSHOP.....	8
3.2.6	OTHER IDEAS.....	8
<b>4</b>	<b>NEXT MEETING</b> .....	<b>8</b>
4.1	ASSW 2015 .....	8
4.2	ASSW 2016 .....	8

# 1 OPENING AND REPORTING (09.00-09.30)

## 1.1 WELCOME AND INTRODUCTIONS

JAMES OVERLAND

## 1.2 REPORT FROM THE CHAIR

JAMES OVERLAND

## 1.3 APPROVAL OF THE MINUTES FROM THE LAST MEETING

YOO KYUNG LEE

- The minutes of the 2013 meeting is given in ANNEX 1.3.

## 1.4 ADOPTION OF THE AGENDA

JAMES OVERLAND

# 2 REPORTS ON CURRENT ACTIVITIES (09.00-12.00)

## 2.1 MOSAIC

### 2.1.1 YOPP (YEAR OF POLAR PREDICTION)

THOMAS JUNG PPP AND YOPP SCIENCE AND PROGRAM OVERVIEW (20-30MINS)

### 2.1.2 MOSAIC PLANNING

MATTHEW SHUPE AND MICHAEL TJERNSTRÖM

The Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAIC) is motivated by dramatic changes observed in the Arctic related to rapid sea-ice loss and other processes, and by the difficulties in understanding and modeling these changes and processes. The observatory will spend at least one year embedded within the Arctic sea ice to collect the interdisciplinary, process-level observations necessary to evaluate and improve model parameterizations in the central Arctic to support advances in sea ice prediction and numerical weather and climate models.

## **2.2 IASC WORKSHOP ON ARCTIC DATA RESCUE, CITIZEN-SCIENCE AND COLLABORATIVE RESEARCH**

**RAJMUND PRZYBYLAK AND KEVIN WOOD**

This workshop took place in Reykjavik, Iceland on 11 -12 November 2013. In this event 22 scientists attended. During two days there were 24 presentations concerning history of the climate in the Arctic, problems with data and its homogeneity, on-line databases and portals about the Arctic.

- The workshop report is given in ANNEX 2.2.

## **2.3 ARCTIC – MIDLATITUDE LINKAGES**

**JAMES OVERLAND**

### **TIMO VIHMA SCIENCE REVIEW (30 MINUTES)**

A major theme of the AWG is understanding polar prediction. Fall of last year, AWG held a workshop in Iceland. The workshop met the core international science objectives (IASC, CliC and WCRP) of Polar Prediction and potential global impacts of Arctic change. The Iceland Workshop was held in Reykjavik, Iceland in November 2013. It was successful with 33 scientists who had recently worked on jet stream and Arctic linkages issues. A series of presentations based on recent scientific work was held, finishing with a matrix laying out current understanding based on geographic location and relevant dynamics: for example direct forcing, stratospheric control, or amplification of a downstream jet stream pattern. Further modelling statistical and dynamic analyses of recent and future jet stream and storminess changes were recommended.

- The workshop report is given in ANNEX 2.3.

## **2.4 AIR CHEMISTRY**

### **2.4.1 ARCTIC AIR POLLUTION SESSION/SIDE MEETING AT AGU, WORKSHOP IN SAN FRANCISCO**

**KATHY LAW**

Oral and poster sessions were held at AGU on Local Air Pollution. IASC AWG sponsored 3 invited speakers at the oral session covering aspects related to Arctic shipping (J. Corbett, U. Deleware), local pollution in Alaska (N. Molders, U. Alaska) and IASI satellite observations of sulphur dioxide from metal

smelting in Russia (S. Baudin, ULB, Belgium – student contribution). A side meeting was also held to discuss on-going and future field and modelling activities in the Arctic including up-coming airborne campaigns and ground-based initiatives. The possibility to organise a workshop in fall 2014 about Arctic air pollution was also discussed. The proposal was favourably received by more than 30 participants.

#### **2.4.2 ICE-ARC** **KATHY LAW**

Ice, Climate and Economics – Arctic Research on Change (ICE-ARC) is a new 4 year project, funded by the Framework 7 of the European Union, to investigate processes and impacts related to sea-ice change in the Arctic. It is coordinated by the British Antarctic Survey, and includes new observations and model evaluation/improvement and examination of socio-economic vulnerabilities as well.

#### **2.4.3 IASOA WORKSHOP IN VANCOUVER** **SANDY STARKWEATHER**

The IASOA (International Arctic Systems for Observing the Atmosphere) consortium aims to combine ground-based pan-Arctic atmospheric science planning with research infrastructure planning. The consortium is comprised of science and operational leads from Arctic flagship observatories and national atmospheric organizations.

Two IASOA working groups (Net Radiation, Equivalent Black Carbon) formally convened at a side meeting in conjunction with the Arctic Observing Summit in Vancouver, 3 May 2013. The purpose of this meeting was to identify observing assets, clarify paths forward toward interoperable datasets, and frame potential contributions to the 2013 Arctic Report Card (<http://www.arctic.noaa.gov/reportcard/>). IASC funds were used to cover for one working group lead and one APECS steering committee member. The groups successfully identified key problems during the meeting and made provisional plans for moving datasets towards interoperable formats. We continued to work through the summer and fall on developing contributions to the Arctic Report Card. The near term results were inclusion of two integrated analyses in the 2013 Arctic Report Card (Sharma et al., 2013; Key et al., 2013) and the presentation of an AGU poster (Burkhart et al., 2013). We plan to build on these results in 2014 and expand our working group activities into new directions.

- The workshop report is given in ANNEX 2.4.3.

## **2.5 REVIEW OF IASC ACTIVITIES RELATED TO THE AWG**

### **2.5.1 CLIMATE ACTIVITIES OF CLIC JENNY BASEMAN**

### **2.5.2 SECRETARIAL SUPPORT VOLKER RACHOLD**

- The White Paper is given in ANNEX 2.5.2.

## **3. Plans for 2014 - 2015**

### **3.1 3<sup>RD</sup> INTERNATIONAL CONFERENCE ON ARCTIC RESEARCH PLANNING (ICARP III) JAMES OVERLAND**

Under this agenda item, the Chair will introduce the selected proposals from the ExCom meeting. The IASC WGs are expected to play an important role in the ICARP III.

#### **3.1.1 LINKAGES JAMES OVERLAND**

The proposed Linkage activities have two goals, first, to produce a synthesis manuscript on Linkages for submission to a leading peer-review climate/science journal during 2014, which provide **consensus** statements on the state of the science and future directions as the basis for an ICARP III symposium session. Second, to promote Linkages research by supporting participation by leading scientist and early-career investigators in workshops and symposium sessions.

- The ICARP III proposal is given in ANNEX 3.1.1

#### **3.1.2 MOSAiC**

- The ICARP III proposal is given in ANNEX 3.1.2.

## **3.2 ADDITIONAL PROPOSED AWG ACTIVITIES FOR 2014 AND 2015 (13.30 – 14.30)**

### **NEW ACTIVITIES/TASKS BROUGHT FORWARD BY THE MEMBERS**

Under this agenda item, new suggestions and proposals on WG activities will be brought forward by members of the Working Groups. This will include short presentations followed by a discussion.

#### **3.2.1 PROPOSAL FOR WORKSHOP ON ARCTIC AIR POLLUTION KATHY LAW**

Following the fruitful discussions at AGU, San Francisco, during an IASC/IASOA-led side meeting, a workshop was proposed to discuss recent results from on-going projects and plans for future research on Arctic air pollution. The main aim is to discuss the possibility of initiating a new international coordination activity which builds on previous activities, in particular POLARCAT-IPY (that was not sponsored by IGAC). There will be between 20 to 30 participants in this workshop that is to be held in the fall of 2014, Toronto, Canada

#### **3.2.2 THE 2<sup>ND</sup> INTERNATIONAL CONFERENCE 'POLAR CLIMATE AND ENVIRONMENTAL CHANGE IN THE LAST MILLENNIUM' RAJMUND PRZYBYLAK**

The 1<sup>st</sup> International Conference 'Polar climate and environmental change in the last millennium' was organized in Toruń 1-3 February 2010. The success of this Conference influenced on the decision that this kind of conference should be cyclical, every 5 years. Therefore the preparation for the 2<sup>nd</sup> International Conference, 'Polar climate and environmental change in the last millennium,' which is scheduled for 24-26 August 2015, has started.

#### **3.2.3 THE DYNAMICS OF ATMOSPHERE – ICE – OCEAN INTERACTIONS IN HIGH LATITUDES JOHN CASSANO**

The workshop on the Dynamics of Atmosphere – Ice –Ocean Interactions in High Latitudes which is being planned for spring of 2015 outside of Bergen, Norway is a follow up on the results from WWRP – THORPEX, and an effort to contribute to the WWRP Polar Prediction. The main objective is to bring together international scientists to explore the connections between their areas of expertise encompassed of operational forecasting, observational and theoretical research, climate dynamics, predictability and the impact of severe weather events in the Polar Regions. A specific focus of the workshop will be on the processes acting in the couple atmosphere-ocean-ice system and their

state of the art modeling and understanding. Partial funding for this project has been provided by the University of Bergen and additional funding is being sort from Norwegian funding agencies and their private sector.

- The proposal is given in ANNEX 3.2.3.

**3.2.4 EGU SESSION: ARCTIC CLIMATE CHANGE AND MID-LATITUDE WEATHER PHENOMENA**  
**HALLDÓR BJÖRNSSON**

- The proposal is given in ANNEX 3.2.4.

**3.2.5 LUNAR PHOTOMETRY IN THE ARCTIC**  
**VITO VITALE**

- The proposal is given in ANNEX 3.2.5.

**3.2.5 OTHER IDEAS**

**4 NEXT MEETING (14.30-15.00)**  
**YOO KYUNG LEE**

**4.1 ASSW 2015**

The 2015 meeting will be held at the ASSW 2015 in Toyoma, Japan on 23-30 April 2015, in conjunction with IASC's 25th Anniversary, the ICARP III and the 4th International Symposium on Arctic Research.

- The first circular is given in ANNEX 4.1.

**4.2 ASSW 2016**

The 2016 meeting of the WG will be held in conjunction with the ASSW 2016 in Fairbanks, Alaska, USA.