

Autumn 2014

## PROGRAMME COORDINATOR: JEREMY WILKINSON

### BRITISH ANTARCTIC SURVEY, UK

As I write this Newsletter I am aware that the Arctic marine environment is transitioning into its winter mode of operation. Most of the region is experiencing below zero temperatures, sea ice is beginning its growth cycle, and the amount of daylight is diminishing. These dramatic seasonal changes affect all aspects of the natural environment, the ecosystem, and the peoples that live in the region. Understanding this linked system is key.



This year saw the summer sea ice reduce to about 5 million square kilometres, the sixth lowest since the satellite era began. It has been postulated that the continued reduction in Arctic sea ice will provide economic opportunities for some industries. This looks likely to be the case as we saw a small number of shipping companies continue to profit from the transport of commodities via the Northern Sea Route. We need to better understand the opportunities and challenges, as well as their potential impacts.

As the World's eyes continue to look North, it is important that policymakers, industry and the public have the most up-to-date and accurate knowledge on Arctic change and its socio-economic consequences. Results from multi-sectoral programmes like ICE-ARC are needed now more than ever.

The articles within this Newsletter highlight the multi-disciplinary nature of ICE-ARC, from fieldwork aimed at identifying the challenges indigenous peoples face, to the deployment of autonomous platforms that monitor the natural environment, through to the better quantifying and understanding of the economic impact of Arctic change. With all these threads to weave together ICE-ARC has its own challenges in integrating this knowledge.

With these challenges in mind and the successes we have already achieved I am sure we are all looking forward to our General Assembly in sunny and warm Barcelona.



## MEETINGS AND EVENTS

27 October **WP4 Integrated Assessment Modelling Workshop**  
*Bremerhaven*

31 October - 2 November: **Arctic Circle 2014 Assembly**, *Reykjavik*.

18-21 November: **ICE-ARC First General Assembly Meeting, and Steering Committee and Advisory Board meetings**, *Barcelona*

8-12 December: **Arctic Change 2014** *Ottawa*

10-12 December: **Polar-lower latitude linkages and their role in weather and climate prediction**, *Barcelona*.

15-19 December: **AGU Fall Meeting**, *San Francisco*

18-23 January 2015: **Arctic Frontiers**, *Tromsø*.

12-17 April: **EGU**, *Vienna*

23-30 April **Arctic Science Summit Week (ASSW)** *Toyama, Japan*

## FURTHER DETAILS:

<http://www.ice-arc.eu/events/>



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## PARTNER NEWS



**Ecorys** has provided an overview of the economic impact of climate change on the Arctic region in a study for the Netherlands Economic Institute (NEI). The study evaluates the implications of physical changes in the Arctic region and highlights the opportunities and threats for specific sectors. Particular focus is given to the impact on local communities and the shipping and energy industries. The full report can be found in the [ICE-ARC dropbox folder](#).



**Flavio Parmiggiani, ISC-CNR** has recently submitted a paper to the SPIE conference titled 'Sea-ice distribution and variability in the East Greenland Sea, 2003–13'. The full paper can be found in the [ICE-ARC dropbox folder](#).

## NEW ICE-ARC PARTNER



The University of Cambridge (UCam), through the Cambridge Centre for Climate Change Mitigation Research (4CMR) are being added to the ICE-ARC Consortium, with the science lead of Prof. Douglas Crawford-Brown.

They will work on the PAGE-ICE model in WP4, and are a link between Chris Hope, EUR (through Jimena Alvarez), WPI (through Peter Wadhams, DAMTP), and BAS (through supervising BAS PhD student Lydia Prieg).

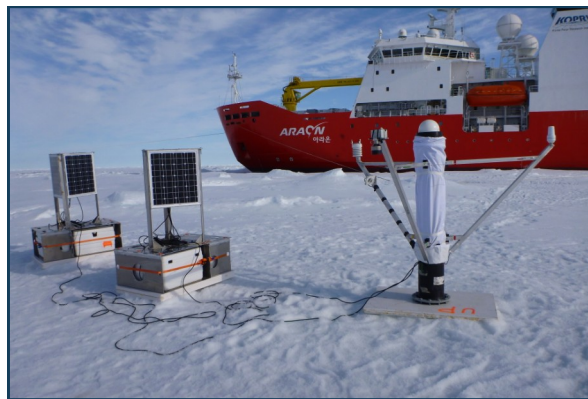
Welcome UCam!

## ICE-ARC SATICE FIRST LIGHT, AND TWIN SISTER

The first SATICE-type sea-ice buoy for ICE-ARC was successfully deployed on August 11th, at 77.4 N and 146.2 W, in the Beaufort/Chukchi Sea region of the Arctic Ocean. The buoy, number five of the SATICE series, or SI05, has been operating continuously for over a month, is going strong, and is relaying precious high-precision GPS data and other geophysical data through a satellite link in near-real time. To date, SI05 has already traveled 450 km at the mercy of Arctic Ocean winds and currents while sampling the Arctic marine environment.

In addition, SI04, a twin sister of SI05 deployed in Summer 2012, remains operational after over 5600-km drift on an Arctic Ocean ice floe. Opportunely, she is currently in the vicinity of SI05, thus unexpectedly becoming the second ICE-ARC platform.

These buoys were deployed from the South Korean icebreaker Araon, thanks to the Korea Polar Research Institute (KOPRI) and the Mar-



Photos: Phil Hwang

iginal Ice Zone Program of the US Office of the Naval Research (ONR). Systems credits: Oriol Sanchez, Rafel Sitjar, Monica Villegas, Markus Olsson, Shane Rodwell, Alistair James, and Bernard Hagan.

- **Pedro Elosegui**  
**CSIC**

## CLIMATE AND ECONOMIC MODELLING WORKSHOP, ROTTERDAM (WP4)

This was the first meeting of the Work Package 4 (WP4) covering both climate and economic modelling in the Arctic. Over 15 participants joined for



the meeting hosted at the Rotterdam School of Management (RSM), and all the WP4 partners were represented. The three main sessions covered (i) the PAGE model and its proposed extension to PAGE-ICE, (ii) modelling climate and ecosystems in the Arctic, and (iii) approaches to economic modelling in the rapidly changing region.

The discussions touched upon multiple scientific issues, giving plenty of food for thought to all the members. We are really excited to be able to bring such a diverse and extensive experience to our 'round table', and we very much look forward to working together to fulfil the goals of the ICE-ARC project. More to follow soon!

- **Dmitry Yumashev, RSM**

## SEDIMENT CORES TAKEN WITH GREENLAND CRUISE (WP3)

A sediment coring program was undertaken from the Danish navy vessel I/F Knud Rasmussen August 14<sup>th</sup> – 20<sup>th</sup> 2014. The Danish Navy had generously placed the ship for the use of the ICE-ARC project team. 26 sediment cores were collected during the cruise and more that 150 kilometers of depth profiles recorded. Coring was undertaken during daytime and depth surveys during night.



No seismic profiles or depth records existed of the Ingfield Bredning prior to the cruise and therefore echo sounding profiles were run to locate sea bottom depressions suitable for coring. The sounding profiles will also be used to establish a coarse topographic map of the fjord in order to outline the glaciation history of the fjord system.

The cores will be analyzed using a suite of different methods and techniques. Based on these data a record of 4500 years of past changes including past climate changes, changes in sea ice cover and productivity will be outlined.



ICE-ARC Work Package 3 holds in addition to the objective of investigating past climate changes also an important component of present socio economic conditions in the Qaanaaq region. Discussions undertaken with hunters from Qaanaaq Settlement after the cruise, revealed a strong interest to obtain copies of all recorded depth data as this information is important for the community to locate the best locations for winter fishing from the sea ice. - **Naja Mikkelsen, GEUS**

## NEW ICE-ARC MEMBERS

We welcome a number of new members to ICE-ARC:

- ◆ Mikhail Itkin, Researcher, MetNo
- ◆ Ingrid Ellingsen, WP2 Leader, SINTEF
- ◆ Nicolas Villacieros Robineau – Research Engineer, LOCEAN-UPMC
- ◆ Zoe Koenig – PhD Student, LOCEAN-UPMC
- ◆ Jean Philippe Savy, Post Doc, CNRS
- ◆ Thomas Diehl, JRC

If you have any new staff who will be working on ICE-ARC please let the Programme Office know so they can be added to the mailing lists, it also a requirement that we keep a record of all staff involved in the programme.

## DISSEMINATION

### ACTIVITIES

A reminder to record your dissemination activities (presentation at a conference, blog, interview etc.) on the [EU SESAM](#) system. Ask your Science Lead for a login or use the template saved in [Drop-box](#) and send it to [ice-arc@bas.ac.uk](mailto:ice-arc@bas.ac.uk).

## ACCESS ARCTIC INDIGENOUS PEOPLE'S WORKSHOP, PARIS

During July [ACCESS](#) (EU FP7 project – Arctic Climate Change Economy and Society, predecessor to ICE-ARC) held a workshop on Arctic Indigenous People and the results of the project on the long term climate change effect on the Arctic. This was hosted by the ACCESS coordinator at the University of Pierre and Marie Curie (UPMC) in Paris (9th-10th July 2014) and was joint funded by ICE-ARC. Ten indigenous peoples attended from around the Arctic – Inuit from Greenland, Sami from Norway, Sweden, and Russia, Aleut from the USA (Alaska), Gwich'in from Canada and Athabaskan from Canada.



Project members gave an overview of results obtained for each of the work areas in ACCESS, which is in its final year. The workshop participants then discussed the thoughts, impacts, and priorities of the different Indigenous People. More details can be found on the [ICE-ARC website](#), a full report will be published in the ACCESS newsletter. - **Elaina Ford, BAS**

## PROGRAMME OFFICE NOTICES

### Work Package Leader changes

The Steering Committee has approved two changes in Work Package leadership.

**WP2 leader Dag Slagstad** (SINTEF) has retired and whilst he will still be involved in ICE-ARC the role of WP leader will be taken up by Ingrid Ellingsen (SINTEF)

**WPI Leader Pedro Elosegui** has moved to the United States to take up a new role at MIT. He will continue to work on ICE-ARC and will take the role as WPI co-leader. Christine Provost (UPMC) has accepted the role of WPI leader.

### New Advisory Board members

The Steering Committee has agreed to invite two new members on to the Advisory Board:

- ◆ Dr Charles Kennel , former Director of the Scripps Institution of Oceanography.
- ◆ Indigenous Peoples representative (yet to be confirmed)

### Communications Leads

We are looking for communication leads for each Work Package within ICE-ARC, if you use social media, blog or are just keen to keep everyone informed of your area of work please let us know.

### General Assembly, Barcelona

Thank you to everyone who has registered for the General Assembly, we have over 50 ICE-ARC members attending so it should be a great meeting. Further details including timetable will be sent out nearer to the time. Please note the deadline for abstract submission is **31st October**. Registration has now closed, please contact [Katie Gosling](mailto:Katie.Gosling@bas.ac.uk) with any late registrations. We look forward to seeing everyone in Barcelona!

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## UPCOMING DELIVERABLES AND MILESTONES

Deliverable/ Milestone	Month Due
D6.02 - Steering Committee Meeting Minutes 2014 Autumn	10
D2.71 - Assessment of the relative importance of nutrient sources in present climatic regime	12
MS421 - Detailed report of Industry Sector Analysis	12
D4.21 Report on improved parameterizations within PAGE-ICE for each industrial sector	16
D6.03 Steering Committee Meeting Minutes 2015 Spring	16
MS422 Input parameterization by sector	16

Thank you to those who contributed to this newsletter. If you would like to contribute to the next edition please send your text and images to [ice-arc@bas.ac.uk](mailto:ice-arc@bas.ac.uk).

**Deadline for contributions: 15th December 2014**

