



REPORT ON *34th SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR) BIENNIAL MEETING INCLUDING THE 2016 OPEN SCIENCE CONFERENCE*

KUALA LUMPUR, 20 – 30 AUGUST 2016

1. The 34th Scientific Committee on Antarctic Research (SCAR) Niennial meeting including the 2016 Open Science Conference with the theme “Antarctica in the Global Earth System: From the Poles to the Tropics” was successfully held in Kuala Lumpur from 20-30 August 2016. The events were held at the following venue (Attachment 1) :

- (i) SCAR *Side Meetings* on 20 – 21 August 2016 and 27 – 28 August 2016 at Renaissance Hotel, Kuala Lumpur;
- (ii) SCAR Open Science Conference on 22 – 26 August 2016 at the Kuala Lumpur Convention Centre (KLCC);
- (iii) SCAR Meeting *Standing Scientific Groups* (SSG) and *Standing Committee* (SC) on 24 August 2016 at KLCC;
- (iv) Exhibition on 22 – 26 August 2016 at KLCC;
- (v) *Women in Antarctic – Wikibomb Event* on 23 August 2016 at KLCC; and
- (vi) SCAR Delegates Meeting on 29 – 30 August 2016 at KLCC.

2. The events were co-organised by SCAR, Ministry of Science and Technology Malaysia (MOSTI), Sultan Mizan Antarctic Research Foundation (SMARF), National Antarctic Research Centre (NARC) and supported by the Ministry of Tourism and Culture (MOTAC), the Ministry of Agriculture (MOA) and the Malaysia Convention & Exhibition Bureau (MyCEB). The strategic partners for the events included State Government of Terengganu,

Universiti Malaysia Terengganu, Universiti Teknologi MARA, Universiti Malaya, Universiti Sains Malaysia, Universiti Putra Malaysia, Universiti Kebangsaan Malaysia, Universiti Malaysia Sabah and International Medical University.

3. Members of the the Comittees of the SCAR 2016 were as follow :

STEERING COMMITTEE

Chairperson

- Noorul Ainur Mohd Nur (Until 4 August 2016)
- Mohd Azhar Yahaya (Beginning 5 August 2016)

Members

- Ramzah Dambul
- Azizan Abu Samah
- Salleh Mohd Nor
- Kamel Mohamad
- Mohd Yusri Mohd Yusoff
- Mohd Nasaruddin Abd Rahman
- Nor Azlina Ariffin
- Roshana Alma Mohd Ali

LOCAL ORGANISING COMMITTEE

Advisor

- Bryan Storey

Chairperson

- Azizan Abu Samah

Members

- Osman Muda
- Noor Azlan Ghazali
- Aini Ideris
- Omar Osman
- Nor Aieni Mokhtar
- Mazlan Hashim
- Clemente Michael Wong Vui Ling
- Chu Wan Loy
- Mohd Nasaruddin Abd Rahman
- Nor Azlina Ariffin
- Roshana Alma Mohd Ali
- Alice Suriati Mazlan
- Nordin Ahmad
- Azlikamil Napiah
- Che Gayah Ismail

INTERNATIONAL SCIENCE ORGANISING COMMITTEE

Co- Chairs

- Gary Wilson
- Irene Schloss

Members

- Jeronimo Lopez-Martinez
- Jenny Baeseman
- Azizan Abu Samah
- Jefferson Simoes
- Mauro Guglierlmin
- Carlota Escutia
- Terry Wilson
- Nancy Bertler
- Rachael Downey
- Alexandre Klepikov
- Julian Gutt
- Daniela Ligget
- Marcelo Leppe
- Massimo Pompillio
- Andrew Lenton
- Kunio Takahashi
- Alex Terauds
- Bettine Jansen Van Vuuren
- Oscar Schofield
- Catherine Ritz

4. The whole events were attended by 955 delegates from 43 countries including scientists, researchers, policy makers representing scientific organisations, research institutes, universities and scientific bodies from all over the world.

5. The Opening Ceremony was officiated by the Honorable Minister of Science, Technology and Innovation of Malaysia, Datuk Seri Panglima Wilfred Madius Tangau in which he announced the ratification of Malaysia into Madrid Protocol effective from 16 September 2016.

6. During the Open Science Conference, 4 keynotes have been delivered by 4 eminent scientists including the keynote by the winner of Tinker-Muse Prize Award as in the (Attachment 2) and 5 mini symposia have been held. The Open Science Conference has 41 sub-themes with 434 oral presentations from 34 countries and

349 poster presentation from 34 countries were presented (Attachment 3).

7. There were 13 exhibitors who participated in the exhibition during the Open Science Conference. The exhibition booths were placed at the same hall with the poster presentation. The organisers also had established a time tunnel of the Malaysian involvement in Antarctic research and it was open to the public. The list of exhibitors were as follow :

- i. Sultan Mizan Antarctic Research Foundation
- ii. National Antarctic Research Centre
- iii. Asian Forum on Polar Sciences
- iv. Universiti Sains Malaysia
- v. Universiti Kebangsaan Malaysia
- vi. Universiti Teknologi MARA
- vii. Universiti Malaysia Terengganu
- viii. Universiti Malaysia Sabah
- ix. Universiti Teknologi Malaysia
- x. Universiti Tun Abdul Rahman
- xi. BBC News
- xii. Tourism Terengganu
- xiii. Kraftangan Malaysia

8. The 2016 Tinker-Muse Prize for Science and Policy in Antarctica has been awarded to Professor Robert DeConto from University of Massachusetts-Amherst. This recognition comes for his outstanding work on past and future Antarctic climate and for

research integrating geological data with modelling to reveal likely consequences for future sea level rise from ice sheet melt. The Award was presented to Dr. DeConto by Peter Barrett, Chair of the Tinker-Muse Prize Selection Committee and Renate Rennie, President of the Tinker Foundation.

9. Members of the Antarctic Science Community were given highest recognition at the SCAR 2016 Open Science Conference Dinner which was hosted by Honourable Datuk Seri Panglima Wilfred Madius Tangau, Minister of Science Technology and Innovation of Malaysia at the Kuala Lumpur Convention Centre. President of Scientific Committee on Antarctica Research (SCAR), Prof Dr Jerónimo López-Martínez presented several SCAR Medals as well as Certificates of Appreciation for many SCAR leaders.

Among the medal recipients were **Dr. Heinrich Miller**, from the Alfred Wegener Institute, Germany who has been selected to receive the ***2016 SCAR Medal for International Coordination***. **Dr. Robert Dunbar** from USA who has been selected to receive the ***2016 SCAR Medal for Excellence in Antarctic Research*** and **Prof. Francisco Hervé** from Chile who has been selected to receive the ***2016 SCAR President's Medal for Outstanding Achievement***.

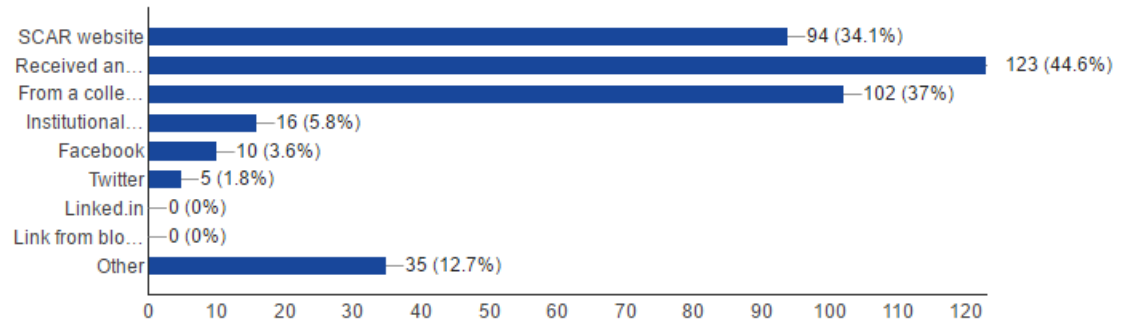
10. SCAR 2016 has achieved new milestone when a special occasion was held to recognise the contribution of women scientistst through an event namely *Women in Antarctic – Wikibomb Event* which was held on 23 August 2016 at KLCC. This

international collaboration event was held to raise the profile and contribution of women Antarctic scientists. The submission of the profiles was managed by SCAR community through *Wikipedia* platform which later been recognised at Wikibomb. 110 profiles of Antarctic women scientists from 30 countries were launched during the event.

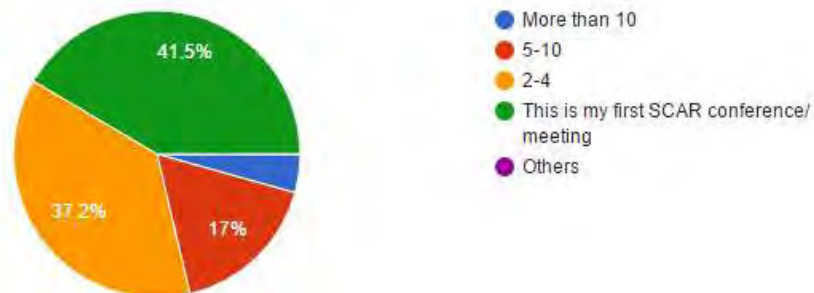
11. SCAR Delegates Meeting meeting was held from 29-30 August 2016 and was attended by 114 delegates from 39 SCAR member countries. The meeting has elected new Executive Committee to be lead by new President, Dr Stephen Chown from Australia.

12. General Feedback & Evaluation

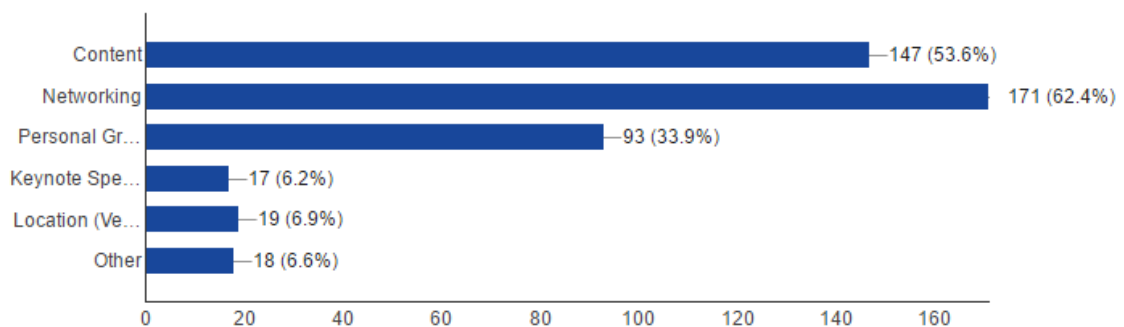
1. How did you hear or learn about this conference? (276 responses)



2. How many SCAR conference/meeting have you attended? (277 responses)

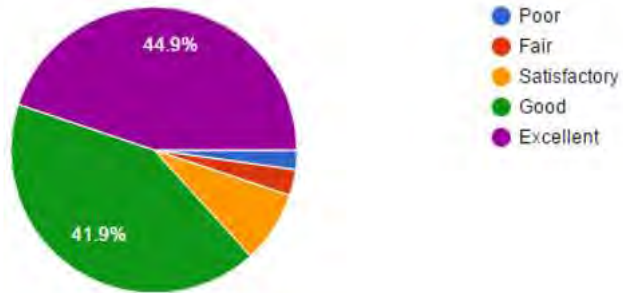


3. Please specify the main reason for attending this conference: (274 responses)

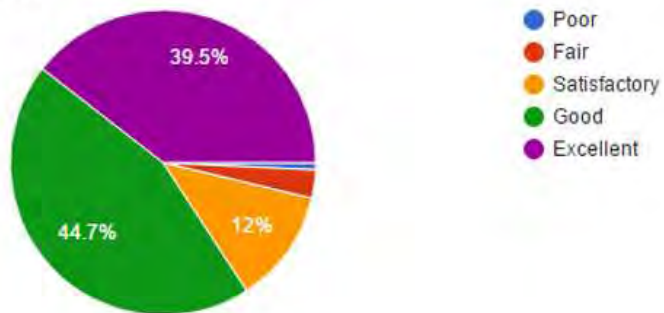


4. How do you assess the quality of the SCAR 2016 conference?
Please rate according to 1: Poor 2: Fair 3: Satisfactory 4: Good 5: Excellent

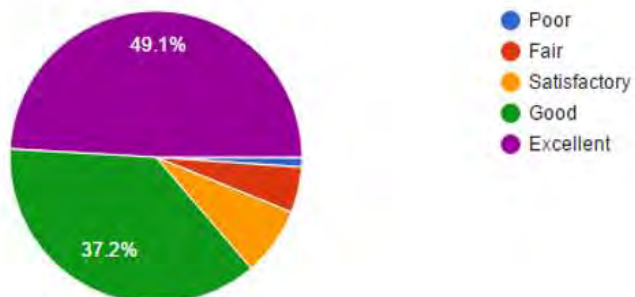
a) Academic content



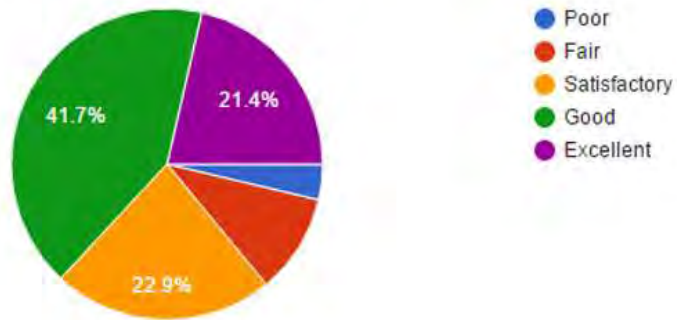
b) Keynote speeches



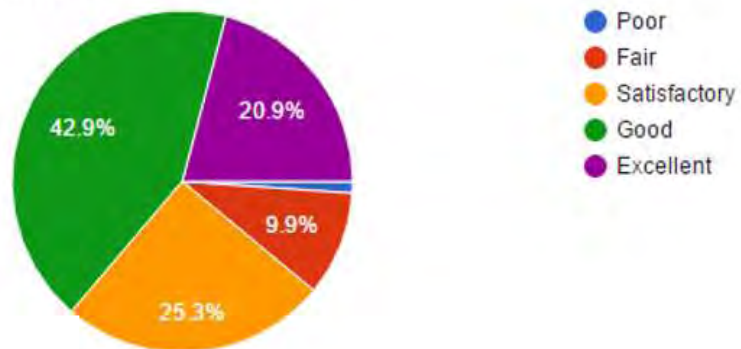
c) Networking possibilities



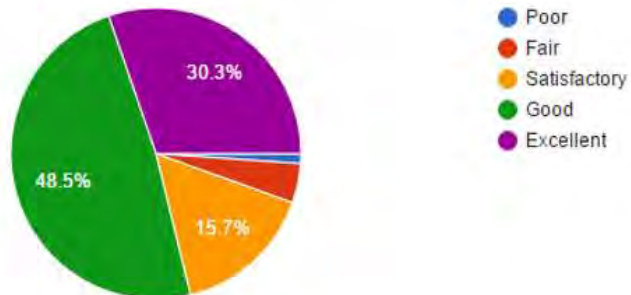
d) Paper presentations in parallel sessions



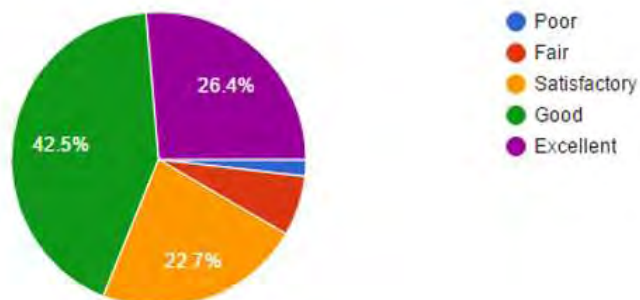
e) Poster presentations



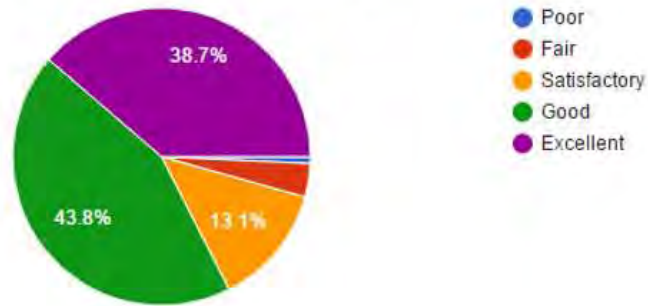
f) Proficiency of session chairs/moderators



g) Structure of the event



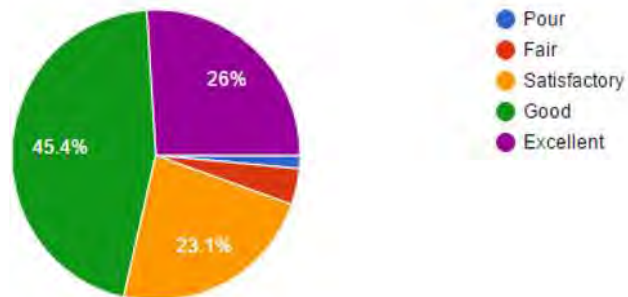
h) Usefulness of the information received



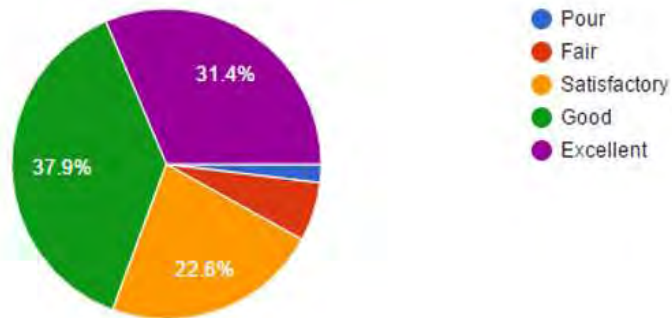
5. How do you assess the services of the conference?

Please rate according to 1: Poor 2: Fair 3: Satisfactory 4: Good 5: Excellent

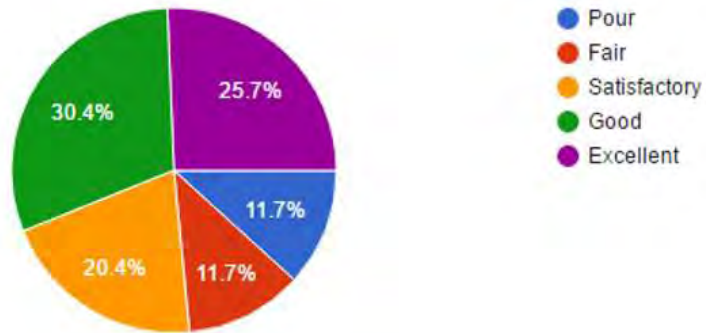
a) Conference website



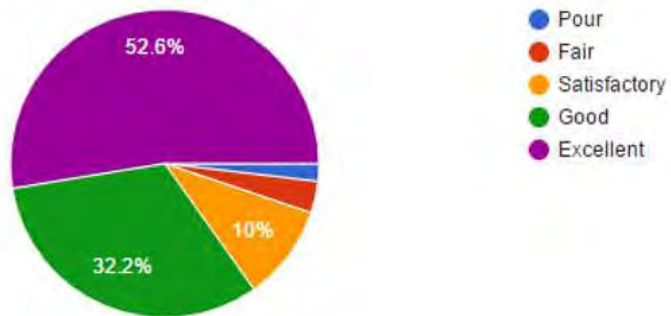
b) Pre-conference online assistance



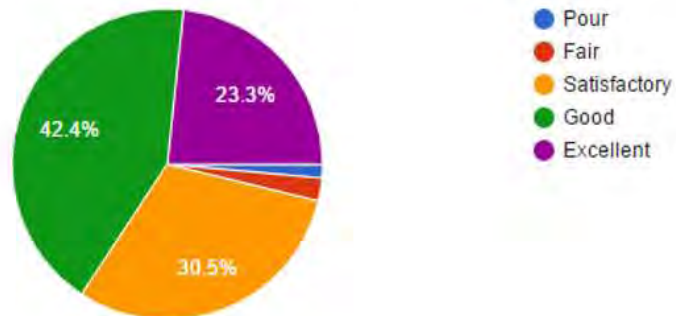
c) Conference Dinner



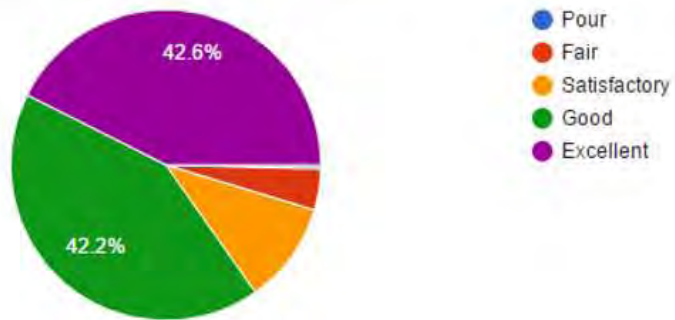
d) Registration Desk services



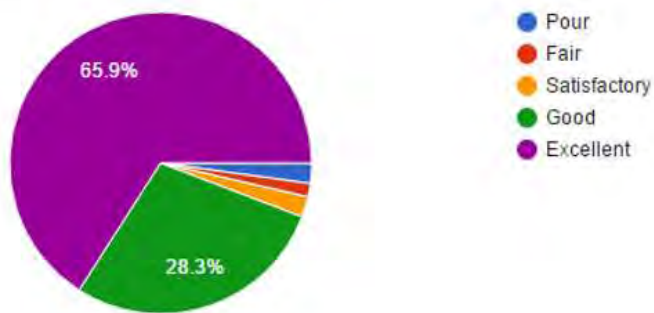
e) Online social networking activities (Facebook, LinkedIn, Twitter)



f) Equipment and IT assistance in the sessions

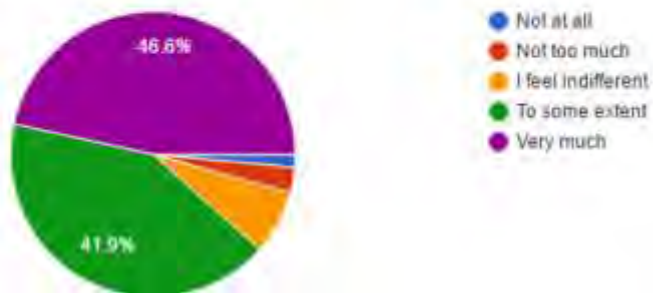


g) Wifi access for participants

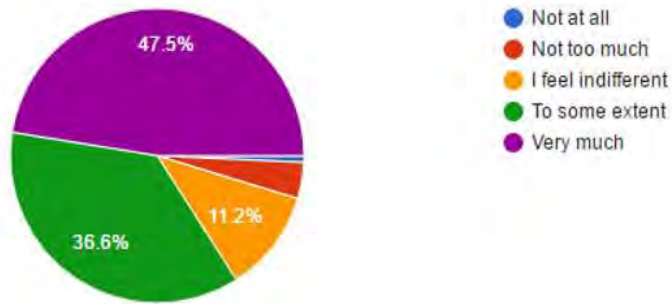


6. What is your overall impression? Please rate according to 1: Poor 2: Fair 3: Satisfactory 4: Good 5: Excellent

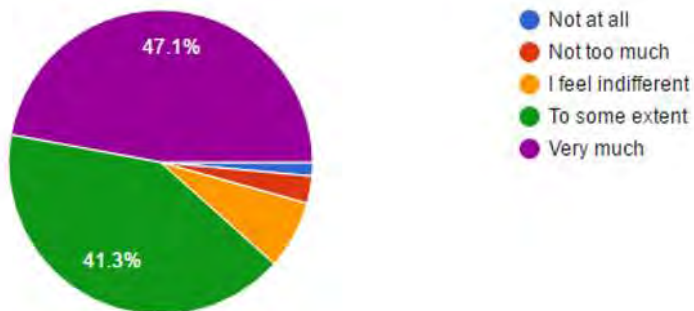
a) Did the Conference fulfill your expectations in academic/professional terms?



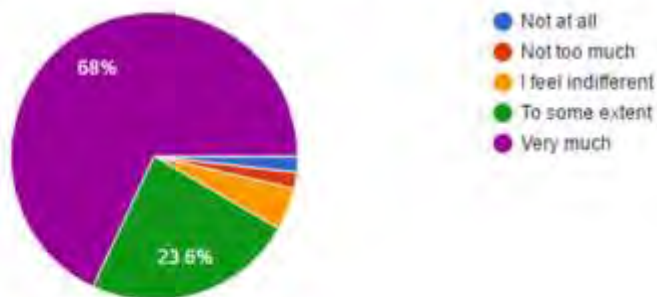
b) Did the Conference fulfill your expectations in organisational terms



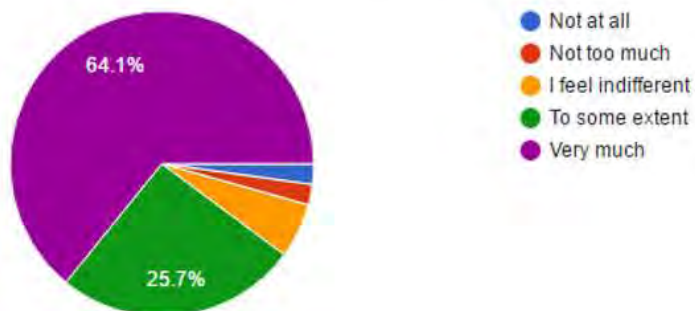
c) Did the Conference fulfill your expectations as a networking event?



d) Are you planning to attend future SCAR Conferences?



e) Would you recommend your colleagues/peers to attend SCAR conferences?



Schedule of SCAR 2016

TIME	DAY 1 (SAT) 20 Aug	DAY 2 (SUN) 21 Aug	DAY 3 (MON) 22 Aug	DAY 4 (TUE) 23 Aug	DAY 5 (WED) 24 Aug	DAY 6 (THU) 25 Aug	DAY 7 (FRI) 26 Aug	DAY 8 (SAT) 27 Aug	DAY 9 (SUN) 28 Aug	Day 10 (MON) 29 Aug	Day 11 (TUE) 30 Aug			
0800														
0900	Side Meetings <i>(Benevolence Kuala Lumpur Hotel)</i> 0800-1800	Side Meetings <i>(Benevolence Kuala Lumpur Hotel)</i> 0800-2100	Open Science Conference (KLCC) 0830-1730	Open Science Conference (KLCC) 0830-1730	SSG - Plenary <i>(Ballroom 1, KLCC)</i>	Open Science Conference (KLCC) 0830-1730	Open Science Conference (KLCC) 0830-1730	Side Meetings <i>(Benevolence Kuala Lumpur Hotel)</i> 0800-2100	Side Meetings <i>(Benevolence Kuala Lumpur Hotel)</i> 0800-1800	SCAR Delegates Meeting (Conference Hall 1&2, KLCC) 0830-1800	SCAR Delegates Meeting (Conference Hall 1&2, KLCC) 0830-1800			
Exhibition and Poster Session (22 – 26 Aug) <i>(Ballroom 2, KLCC)</i> 0900-1730														
1000														
1100														
1200			LUNCH								LUNCH			
1300														
1400														
1500			Open Science Conference (cont)	Open Science Conference (cont)	SSG –PS, LS, GS Meetings 1430-1830 <i>(Open to all)</i>	Open Science Conference (cont)	Open Science Conference (cont)	Side Meetings <i>(Benevolence Kuala Lumpur Hotel)</i> 0800-2100	Side Meetings <i>(Benevolence Kuala Lumpur Hotel)</i> 0800-1800	SCAR Delegates Meeting Meetings (cont)	SCAR Delegates Meeting Meetings (cont)			
1600														
1700		Registration for OSC (KLCC) 1500-1730												
1800		Ice and The Sky: Screening and Discussion <i>(Benevolence Kuala Lumpur Hotel)</i> 1730-1940					Closing Ceremony (Banquet Hall) 1630-1730							
1900														
2000														
2100			OSC Opening Ceremony & Ice-Breaker Party (Conference Hall 1, 2 & 3, KLCC) 1945-2200	Women in Antarctic Science Wikibomb <i>401&402, KLCC</i> 1900-2100										
2200						Open Science Conference Dinner (Conference Hall 1, 2 & 3, KLCC) 1945-2230					SCAR Delegates Dinner (Conference Hall 3, KLCC) 1945-2200			
2300														

**LIST OF KEYNOTE SPEAKERS OF THE OPEN SCIENCE
CONFERENCE 2016**

Speaker : Dr Christina Hulbe

Session : *Weyprecht Lecture*

Title : *The Ross Ice Shelf: 190 years (or more) of exploration*

Dr Christina Hulbe is Professor and Dean of the National School of Surveying at the University of Otago, in Dunedin, New Zealand. She is lead PI for the Aotearoa New Zealand Ross Ice Shelf Programme. The multi-institutional, interdisciplinary programme investigates rate-determining processes associated with deglaciation in the Ross Sea, working across scales in space and time and visiting sites where critical observations can be made. Christina began her Antarctic career working with Ian Willans on what was at the time named Ice Stream B. She earned her BS in Engineering Geology at Montana Tech, her MS in Geology at The Ohio State University and her PhD in Geophysics at the University of Chicago (1998). She moved to Otago in 2013. She is engaged in a number of service activities, including co-chaired the Local Organising Committee of the SCAR 2012 OSC and chairing, since 2003, the International Glaciological Society's Publications Committee.

Speaker : Professor Robert DeConto

Session : *Tinker-Muse Awards Lecture*

Title: *Thresholds for the Birth and Death of an Ice Sheet*

The 2016 Tinker-Muse Prize for Science and Policy in Antarctica has been awarded to Professor Robert DeConto, University of Massachusetts-Amherst. Rob DeConto's background spans geology, oceanography, atmospheric science and glaciology. He studied at the University of Colorado in the late 1980s and early 1990s before undertaking one of the first PhD studies on Earth System modelling to help understand warm climates in the geologic past. This was followed by post doctoral positions at the National Oceanic and Atmospheric Administration (NOAA) and the National Center for Atmospheric Research (NCAR), before joining the faculty of the University of

Massachusetts. In the last fifteen years, Rob's work has focused on the climate of Antarctica, the dynamics of ice sheets, and the sensitivity of the Antarctic Ice Sheets (and sea level) to conditions warmer than today. The need for model/field data integration was born in part from an international workshop he organized in 2002 that laid the ground work for what would eventually become the SCAR Antarctic Climate Evolution (ACE) and SCAR Past Antarctic Ice Sheet Dynamics (PAIS) scientific research programmes. His leadership has been instrumental in bringing ice sheet modelling and data acquisition communities together, enabling a data-constrained modelling approach to understanding the past and future behaviour of Antarctica's ice sheets. This initially led to the now classic 2003 Nature paper with modeller David Pollard, Pennsylvania State University, which presented a new coupled ice sheet-climate model showing how atmospheric CO₂ levels declining below ~3 times pre-industrial levels could initiate ice sheet growth on Antarctica.

Speaker: Professor Mahlon “Chuck” Kennicutt II

Session: Keynote

Title: *The Path to the Promise of Antarctic Science in Two Decades*

Professor Mahlon “Chuck” Kennicutt II received a Bachelor of Science degree in chemistry from Union College, Schenectady, NY (1974) and a Ph. D. in Oceanography from Texas A&M University, College Station, TX (1980). After graduation, he served as a Department of Energy Post-doctoral appointee and adjunct Professor of Chemistry at the University of Tulsa for 1½ years. Dr. Kennicutt returned to Texas A&M University as a founding member of the Geochemical and Environmental Research Group (GERG). He worked as a Research Scientist for more than 23 years in GERG rising to Director from 1998-2004.

In 2004, Professor Kennicutt was named the Director of Sustainable Development in the Office of the Vice President for Research (OVPR) at Texas A&M University and continued to lead the Sustainable Coastal Margins Program (SCMP) created in 2000. In the OVPR, he was involved in developing concepts for research programs at a branch campus in Doha, Qatar and worked on university/private sector partnerships. In 2004, Dr.

Kennicutt returned to the Oceanography Department and the Environmental Programs where he taught oceanography, polar science, and science and policy. Professor Kennicutt's interests include: environmental chemistry; organic geochemistry, the fate and effect of pollutants, environmental monitoring, ecosystem health, Antarctic environmental issues and sustainability science. Dr. Kennicutt was a Professor in the Department of Oceanography from 2002-2013 and was named Professor Emeritus upon his retirement (2013).

Professor Kennicutt first travelled to Antarctic as a graduate student in 1977 on a cruise with the Argentine Navy on the ARA Islas Orcadas (the USNS Eltanin). He next went south in 1990 in response to the grounding of the Argentine ship Bahia Paraiso and the subsequent oil spill at Palmer Station. This marked the beginning of more than 22 years of research on the impact of humans on Antarctica. Professor Kennicutt served as the U.S. Alternate Delegate (5 yrs.) and Delegate (9 yrs.) to the Scientific Committee on Antarctic Research (SCAR). He served as a SCAR Vice President from 2004 -2008 and SCAR President from 2008-2012. Dr. Kennicutt was an ex officio member of the National Academies Polar Research Board for 14 years, a science advisor to the U.S. State Department Antarctic Treaty Delegation for 7 years, and attended 10 Antarctic Treaty Consultative Meetings. Among other honors, Professor Kennicutt was named a National Associate of the U.S. National Academy of Sciences for life and was awarded the Antarctic Service Medal of the U.S. An Antarctic geographic feature was officially named Kennicutt Point in 2006.

Speaker: Dr. Elie Poulin

Session: Antarctic Science Sponsored Lecture

Title : Diversification of marine benthic fauna in the southern Ocean: A Phylogeographic and Phylogenetic Perspective

Dr. Elie Poulin has a long trajectory in Antarctic and sub-Antarctic Science. In 1992 he initiated his research on reproductive modes among Antarctic marine invertebrates in the course of his Ph.D. studies in Ecology and Evolution in Montpellier II University in France. During this time, he participated in several

expeditions, including a 13 month overwintering expedition with the French Polar Institute, based in the sub-Antarctic Kerguelen Archipelago, but visiting as well Terre Adélie in East Antarctica. After his Ph.D. thesis Dr. Poulin moved to Chile in 1999 for a post-doctoral position at the Catholic University in Santiago, mainly focused on ecological and evolutionary processes in the Humboldt Current. In 2003 he accepted a position of Assistant Professor at the Department of Ecological Sciences, Faculty of Sciences. In 2004 he participated in the first of a series of Antarctic expeditions with the Chilean Antarctic Institute (INACH), to be followed in 2005, 2006, 2008 and 2011. During 2008 he organized a collaborative diving expedition between Chilean and French researchers along the Antarctic Peninsula, with joint Chile-French funding from the CONICYT-CNRS ECOS program. Similarly, Dr. Poulin participated to a French expedition to Kerguelen Island during Austral summer 2013. Dr. Poulin has trained 11 PhD and 6 M.Sc. postgraduate students since 2005 among which several in Antarctic research (4 M.Sc. and 3 Ph.D. students), has published 60 ISI papers among which 20 deal on marine species from Antarctic and sub-Antarctic areas, including prestigious journals such as Evolution, Trends in Ecology and Evolution, Molecular Ecology and BMC Evolutionary Biology, among others. He has led several national and international research projects, such as FONDECYT, International ECOS program, and has had important responsibilities in the Millennium Institute of Ecology and Biodiversity (IEB) from 2005 to 2013, as leader of the Evolution group. He is currently director of PhD program in Ecology and Evolutionary Biology in Universidad de Chile. Dr. Poulin is member of the Chilean Council of Antarctic Research and has been Work Package 3 leader (Patterns of gene flow and consequences for population dynamics) of the International SCAR-EBA (Scientific Committee on Antarctic Research-Evolution and Biodiversity) program until it ended. He has also participated in numerous national and international Antarctic congresses, such as SCAR Open Science Conferences, SCAR Biology Symposia and Antarctic Latin-American congresses.

ATTACHMENT 3

Total number of Oral Presenter at SCAR 2016 according to the Country

NUM.	COUNTRY	TOTAL
1	Amerika	90
2	Australia	53
3	New Zealand	45
4	United Kingdom	35
5	Malaysia	25
6	Germany	24
7	Itali	14
8	South Africa	13
9	Chile	12
10	China	11
11	Belgium	10
12	Brazil	10
13	Netherland	10
14	India	9
15	Japan	8
16	Spain	8
17	Norway	7
18	Portugal	7
19	France	6

20	Russia	6
21	Switzerland	6
22	Finland	4
23	Poland	4
24	Argentina	3
25	South Korea	3
26	Canada	2
27	Peru	2
28	Ukraine	2
29	Denmark	1
30	Iceland	1
31	Romania	1
32	Taiwan	1
33	Thailand	1
34	UAE	1
GRAND TOTAL		434

Total number of Poster Presenter at SCAR 2016 according to the Country

NUM.	COUNTRY	TOTAL
1	Amerika	39
2	Malaysia	36
3	Brazil	27
4	Itali	25
5	New Zealand	25
6	Germany	23
7	United Kingdom	22
8	China	19
9	Spain	16
10	South Korea	14
11	Japan	11
12	Australia	9
13	Belgium	9
14	Chile	8
15	Poland	8
16	Portugal	8
17	South Africa	8
18	India	7
19	Romania	5
20	Russia	4
21	Argentina	3

22	Canada	3
23	Republik Czech	3
24	Netherlands	3
25	France	2
26	Norway	2
27	Peru	2
28	Switzerland	2
29	Colombia	1
30	Finland	1
31	Guatemala	1
32	Namibia	1
33	Thailand	1
34	Ukraine	1
Grand Total		349

ATTACHMENT 4

Breakdown of 107 delegates attended the Delegates Meeting based on the country represented sorted in alphabetical order.

Num	Country	Associate Member	Delegate or Alternate Delegate	Observer	SCAR Group Representative	Secretary	Grand Total
1	Argentina		2	1			3
2	Australia		2	7	1	1	11
3	Belgium		2	1			3
4	Brazil		2				2
5	Bulgaria		2				2
6	Canada		1				1
7	Chile		1				1
8	China		2	1			3
9	Colombia			3			3
10	Czech Republic	1					1
11	Denmark	1					1
12	Finland		2				2
13	France		2	1			3
14	Germany		2	2			4
15	India		2				2
16	Iran	1					1
17	Italy		2	4	2		8
18	Japan		2				2
19	Malaysia		2	2			4
20	Netherlands		2	1			3
21	New Zealand		1	3			4
22	Norway		1	1			2
23	Peru		1				1
24	Poland		2				2
25	Portugal	1					1
26	Romania	1					1
27	Russian Federation		1				1
28	South Africa		2	1			3
29	South Korea		2				2
30	Spain		2		1		3
31	Sweden		2				2

32	Switzerland		2	1			3
33	Thailand			4			4
34	Turkey			3			3
35	Ukraine		1				1
36	United Kingdom		2	3		2	7
37	United States		2	3			5
38	Uruguay		1				1
39	Venezuela	1					1
	Grand Total	6	52	42	4	3	107