Appendix I

COP26 Antarctic Events and briefings

Event/discussion/poster /paper	Date	Organisations Involved/ lead	Abstract	Speakers	Location	Initial Audience (where known)[1]
Oceans and Climate						
Superheroes & Blue Carbon Habitats of the Southern Ocean - The role of nature in maintaining a stable climate	8 Nov 2021	WWF, BAS, PML, FCDO, ASOC	The Southern Ocean is one of the planet's largest carbon sinks. Krill are the 'centre of life' above the ocean floor but also play a critical role drawing down and storing vast quantities of carbon. Changes in krill distribution and a growing interest in marine protein necessitates rapid action towards an MPA network incorporating key blue carbon habitats to support marine biodiversity and climate stability Launch of film Superheroes of the Southern Ocean	Prof. Dame Jane Francis DCMG FRS, Director, British Antarctic Survey Dr David Barnes, Marine Ecologist, British Antarctic Survey Jane Rumble OBE, Head, Polar Regions Dept, FCDO Dr Angus Atkinson, Marine Ecologist, Plymouth Marine Laboratory Rod Downie, Chief Adviser, Polar Regions, WWF-UK	WWF Pavilion, Blue Zone https://www.youtube.com/watch?v=_woaTTLm8hE&t=3297s	268 online (32 in person)
Tale of Two Oceans	6 Nov 2021	Plymouth Marine Laboratory (PML)	The Arctic Ocean and Southern Ocean are crucial components of the Earth's systems, and play key roles in regulating climate. They are home to unique ecosystems under serious threat	Dr. Libby Jewett, NOAA; Dr. Richard Bellerby, Norwegian	Cryosphere Pavilion, Blue Zone	51 online (32 in person)

[1] Initial audience numbers may increase significantly with the reach of recordings and subsequent publications

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			from climate change impacts such as warming, acidification and freshening. These polar oceans are already experiencing large changes in their chemistry and through continued warming will see more non-polar species moving into them resulting in altered ecosystem function, and knock-on consequences for food webs, fisheries, and climate regulation.	Institute for Water Research, Norway; SKLEC-NIVA Centre for Marine and Coastal Research at ECNU, China; UCSI, Malaysia; Dr. Angus Atkinson, PML; Dr. Henry Burgess, NERC Arctic Office, British Antarctic Survey; Dr. Helen Findlay, PML; Dr. Adrianne Sutton, NOAA; Dr. Rolf Rødvan, AMAP	https://youtu.be/zOS1R_641WU	
Ocean Acidification in the Polar Regions: Poles Apart, but Not Polar Opposites	6 Nov 2021	National Oceanic and Atmospheric Administration (NOAA)	Oceans are important sinks for carbon dioxide (CO_2), absorbing about 25% of the CO_2 that has been released into the atmosphere since the industrial revolution. This service comes at a cost: the absorbed CO_2 lowers seawater pH and changes the carbonate system (a process termed ocean acidification), which has severe consequences for a wide range of marine life. Polar oceans are especially vulnerable to ocean acidification because of their chemical properties, freshwater influence, and colder water. This session will highlight what changing pH and carbonate chemistry really means for the Polar regions, species, ecosystems and	Dr. Libby Jewett, NOAA; Dr. Nadja Steiner, Fisheries and Oceans Canada, Institute of Ocean Sciences; Dr. Helen Findlay, Plymouth Marine Laboratory; Dr. Thomas Hurst, NOAA; Dr. Richard Bellerby, NIVA; Dr.	Cryosphere Pavilion, Blue Zone https://youtu.be/qmyFxnPYYcs	25 online (32 in person)

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			communities, emphasizing what a 1.5°C world looks like compared to a world of 2°C+.	Elizabeth Shadwick, CSIRO; Dr. Agneta Fransson, Norwegian Polar Institute.		
Triple Threat to Polar Oceans	6 Nov 2021	Plymouth Marine Laboratory (PML)	The Arctic Ocean and Southern Ocean play a key role in regulating climate, but are under serious threat from CO_2 emissions causing three main and linked impacts: warming, acidification and freshening; with more non-polar invasive species moving into them; with consequences for food webs, fisheries, and climate regulation. This summary session will highlight the latest scientific findings on this "triple threat." It will discuss the wider environmental and societal impacts, links to policy and showcase the need for raising ambition for reducing emissions.	Dr. Carol Turley, PML; Dr. Bee Berx, Marine Scotland, Government of Scotland; Dr. Helen Findlay, PML; Dr. Sian Henley, University of Edinburgh; Dr. Rolf Rødven, AMAP; Anne Nuorgam, Sámi people, Chair of the United Nations Permanent Forum on Indigenous Issues (UNPFII)	Cryosphere Pavilion, Blue Zone https://youtu.be/Vo1rCU0IghM	679 online (32 in person)
The Polar Connection: Linking Past to Future	20 Oct 2021	UKPN, UKAHT, Pint of Science	Join us LIVE for a fascinating evening with two polar scientists who will share with us their insights into the current status of the polar regions. In particular, we'll hear about krill ecosystems and their role in global climate, as well as how the presence of microbes on the Greenland ice sheet is speeding up how fast it's	Professor Geraint Tarling (British Antarctic Survey) and Professor Martyn Tranter (Aarhus University). Host:	https://www.youtube.com/watch?v=RIY1as7Ul_Y&t=1s	(> 100 live viewers and > 500 total views)

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			melting. It's your chance to engage in these interesting subjects, and get your questions answered, no matter how wild or wacky!	Maxine King (University of Plymouth).		
*Antarctic Marine Ecosystems Under Pressure: P*rotection Needs Action Locally and Globally	6 Nov 2021	SCAR, MEASO, ICED, SOOS	Antarctic and Southern Ocean ecosystems are under increasing pressure from global climate change and direct human impacts. Decisive, immediate action on climate change mitigation is required at the global scale, as well as effective management at the local scale, to protect these ecosystems and their societal benefits worldwide. The first Marine Ecosystem Assessment for the Southern Ocean (MEASO, 2021) has shown significant changes in Antarctic and Southern Ocean ecosystems, driven by global climate change and direct human impacts. MEASO is an international collaboration of over 200 researchers from 19 countries. The Southern Ocean is globally important for regulating climate by taking up atmospheric CO_2, connecting the world's oceans and ocean-climate system, and supporting key species and ecosystem services. Global climate change and ocean acidification are impacting the health and productivity of the Southern Ocean, with knock-on effects on these critical processes as well as regional fisheries (e.g. Antarctic krill) and other ecosystem services. Global reductions in greenhouse gas emissions and climate recovery are required urgently – and must be committed to at the COP26 Conference – to avoid irreversible deterioration of Southern Ocean ecosystems and associated loss of their	Dr Sian Henley, University of Edinburgh, UK Dr Jilda Caccavo, Alfred Wegener Institute, Germany Dr Andrew Constable, University of Tasmania, Australia Dr Susie Grant, British Antarctic Survey, UK Dr Juan Höfer, Pontificia Universidad Católica de Valparaiso, Chile Dr Nadine Johnston, British Antarctic Survey, UK Dr Jess Melbourne-Thomas, CSIRO, Australia	Cryosphere Pavilion, Blue Zone https://youtu.be/gexwtaFfdbo	41 online (32 in person)

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			wide-ranging societal benefits. Only by mitigating global climate change, alongside effective local conservation and management, can we effectively safeguard these vulnerable polar oceans now and into the future.			
Polar warming, global warning	3 Nov 2021	EU-PolarNet 2	At the "Polar Warming, Global Warning" session that occurred as a side event of the COP26 on 3 November 2021, scientific facts and community knowledge of polar change was provided by EU Polar Cluster Members to protect and support adaptation, resilience, & sustainability, of communities and habitats, and the Polar Regions impact on European society.	Larisa Lorinczi, European Commission; Prof. Frank Pattyni, Université libre de Bruxelles; Dr. Tamsin Edwards, King's College London; Asso. Prof. Bruno Danis, Université libre de Bruxelles; Prof. Ricarda Winkleman, Potsdam Institute for Climate Impact Research; Prof. Dame Jane Francis, Director of the Brithish Antarctic Survey	Brussels Studio Room B, Brussels Bloom Hotel, Rue Royale 250, 1210 Brussels https://www.youtube.com/watch?v=5JKaoyiISHM	
Ice Sheets, Glaciers and Global Sea Level Rise						
Glaciers and Ice Sheets: the Long Tail of Climate Change	1 Nov 2021	ICCI and ETH Zurich	Smaller glaciers around the world are disappearing quickly with global warming; but until the past couple of decades, many of the world's largest glaciers, including in Canada	Dr. Matthias Huss, ETH Zurich; Dr. John Pomeroy,	Cryosphere Pavilion, Blue Zone	226 online (32 in person)

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			and Alaska seemed more stable. Today however, even these massive glaciers clearly are losing ice; and projections show that they may continue losing mass for decades or centuries even should temperatures stabilize, and especially should peak temperatures exceed Paris goals. In this, they are similar to the polar ice sheets of Greenland and Antarctica: hear IPCC and other scientists discuss this "long tail" of glaciers and ice sheets in a warming world.	University of Saskatchewan; Dr. Jonathan Bamber, University of Bristol; and Dr. Rob DeConto, University of Massachusetts-Amherst	https://youtu.be/hFVoRw1LH64	
Why "Committed" SLR? A Science-Youth Dialogue	2 Nov 2021	University of Bristol and NSIDC.	"Committed" sea-level rise occurs when the world's great ice sheets of Greenland and especially, Antarctica pass certain temperature thresholds, after which ice loss cannot be stopped but may take several centuries to actually occur. These thresholds may be passed as early as 2030 given current emissions; or in the case of the West Antarctic Ice Sheet, may already have occurred due to today's 1.2°C of warming. What are the inter-generational justice implications of this science?	Dr. Twila Moon, Research Scientist at NSIDC; Dr. Jonathan Bamber, University of Bristol; Divya Nawale; Amy Imdieke	Cryosphere Pavilion, Blue Zone https://youtu.be/PhPYU5RwBZ8	43 online (32 in person)
Antarctica and Paris Goals: Risks of Massive Sea-level Rise	2 Nov 2021	University of Massachusetts-Amherst.	Recent published research shows the danger of massive, potentially irreversible, global sea-level rise within the next couple of centuries should temperatures overshoot 2°C. Perhaps most sobering, this loss may become rapid and permanent, with no halt in ice loss even should CO_2 concentrations return to pre-industrial levels; and rates approaching 5cm/year by 2150, and 10 meters of sea-level rise by 2300 should today's emissions levels continue. IPCC scientists provide a clear-eyed look at risks from Antarctica, and implications for the Paris Agreement temperature goals.	Dr. Rob DeConto, University of Massachusetts-Amherst	Cryosphere Pavilion, Blue Zone https://youtu.be/H-qn2e9v38o	1,780 online (32 in person)

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Antarctica and Paris Goals: Risks of Massive Sea-level Rise	10 Nov 2021	University of Massachusetts-Amherst.	Recent published research shows the danger of massive, potentially irreversible, global sea-level rise within the next couple of centuries should temperatures overshoot 2°C. Perhaps most sobering, this loss may become rapid and permanent, with no halt in ice loss even should CO_2 concentrations return to pre-industrial levels; and rates approaching 5cm/year by 2150, and 10 meters of sea-level rise by 2300 should today's emissions levels continue. IPCC scientists provide a clear-eyed look at risks from Antarctica, and implications for the Paris Agreement temperature goals.	Dr. Julie Brigham-Grette, former Chair, U.S. Polar Research Board	Cryosphere Pavilion, Blue Zone https://youtu.be/Xxf_kO-8Sjc	547 online (32 in person)
Important Role of Ice Shelves	2 Nov 2021	University of Massachusetts-Amherst and NSIDC.	Ice shelves play a key role in stabilizing ice sheets; especially on Antarctica. We have seen rapid ice loss occur on both Greenland and the Antarctic Peninsula when glaciers lose their supportive or "buttressing" ice shelves; and once lost, it appears difficult for them to grow back. Why is this the case, and why is this so important for Paris temperature goals? threshold	Shaina Sadai, University of Massachusetts-Amherst; Dr. Twila Moon, Research Scientist at NSIDC	Cryosphere Pavilion, Blue Zone https://youtu.be/wxHJ9vwRwZE	81 online (32 in person)
Why is West Antarctica So Important to Near-term Sea-Level Rise?	2 Nov 2021	University of Bristol.	The geography of the West Antarctic Ice Sheet holds the key as to why this part of the continent may be subject to rapid collapse, leading to sea-level rise of several meters per century at higher temperatures.	Dr. Jonathan Bamber, University of Bristol; Dr. Rob DeConto, University of Massachusetts-Amherst	Cryosphere Pavilion, Blue Zone https://youtu.be/z7YQFzHLjZ8	56 online (32 in person)
Antarctica and the Limits of Adaptation	2 Nov 2021	University of Bristol,	Antarctica holds nearly 70 meters of sea-level rise and may be subject to thresholds where its	Dr. Jonathan Bamber,	Cryosphere Pavilion, Blue Zone	38 online (32 in person)

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		University of Massachusetts-Amherst and Climate Central.	ice sheet loses mass for many thousands of years. A discussion between cryosphere scientists and people from low-lying nations on the limits of adaptation and need for preventive mitigation.	University of Bristol; Dr. Rob DeConto, University of Massachusetts-Amherst; and Dr. Benjamin Strauss, Chief Scientist, President, and CEO of Climate Central	https://youtu.be/4EmVksFd_mU	
UNFCCC Side Event Antarctica and Overshoot Scenarios: Risks of Irreversible Sea-level Rise	3 Nov 2021	UNFCCC, SCAR, ICCI, ASOC	Recent published research shows the danger of massive, potentially irreversible, global sea-level rise within the next couple of centuries should temperatures overshoot 2°C. SCAR and IPCC scientists provide a clear-eyed look at risks from Antarctica and implications for SIDS and future generations.	SCAR Scientific Research Programme leaders Tom Bracegirdle, Florence Colleoni, Rob DeConto, IPCC CLAs Joeri Rogelj and Elisabeth Holland (virtual).	COP26 Media Room 2	audience uncertain (but likely at least several hundred or more)
West Antarctica: Getz on the Run	10 Nov 2021	University of Leeds	The Getz region of West Antarctica is losing ice at an increasing rate. A recent study used satellite observations and an ice sheet model to measure ice speed and mass balance for this lesser studied area over the last 25-years, and found an average increase in speed of 24 % between 1994 and 2018, with three glaciers accelerating by over 44 %. Much of the Getz region has never been stepped on by humans;	Dr. Heather Selley, University of Leeds; Dr. Bryony Freer, University of Leeds/British Antarctic Survey	Cryosphere Pavilion, Blue Zone https://youtu.be/KtmDLyVdXa0	89 online (32 in person)

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			and 9 of the 14 glaciers are unnamed, showing the importance of high resolution satellite data as an early warning system to detect rapid change in this key region of Antarctica.			
Tale of Two Ice Sheets	10 Nov 2021	NSIDC and the University of Massachusetts Amherst	The two polar ice sheets of Greenland and Antarctica are both losing mass and contributing to sea-level rise, but they have key differences. In particular, AR6 noted that Greenland tends to lose ice, at least in the early stages of ice sheet loss in a more straight-line manner; whereas portions of Antarctica may be subject to relatively sudden collapse. The two ice sheets also seem to interact with one another via ocean currents. This event will explore these differences and connections, and their implications for future sea-level rise.	Dr. Mark Serreze, NSIDC; Dr. Julie Brigham-Grette, University of Massachusetts Amherst	Cryosphere Pavilion, Blue Zone https://youtu.be/YpWWLQZPhFs	112 online (32 in person)
Past is Present: Why 1.5° is the Ice Sheet Temperature Limit	10 Nov 2021	University of Wisconsin and University of Massachusetts-Amherst	At times in the Earth's past when temperatures were similar to today, sea levels were up to 4 meters higher; by 2°C, they range up to 12 meters higher than today or more. What does the past tell us about temperature thresholds and risks from global warming causing massive ice sheet loss, even at Paris Agreement-consistent temperatures? Is a return to pre-industrial temperatures necessary?	Dr. Andrea Dutton, University of Wisconsin (virtual); Dr. Julie Brigham-Grette, University of Massachusetts-Amherst	Cryosphere Pavilion, Blue Zone https://youtu.be/nBwVMGtP2Pc	65 online (32 in person)
Antarctica and Overshoot Scenarios: Risks of Irreversible Sea-level Rise	6 Nov 2021	SCAR, ICCI, ASOC	Recent published research shows the danger of massive, potentially irreversible, global sea-level rise within the next couple of centuries should temperatures overshoot 2°C. SCAR and IPCC scientists provide a clear-eyed look at risks from Antarctica and implications for SIDS and future generations.	Prof Robert M. DeConto, School of Earth & Sustainability at the University of Massachusetts-Amherst, USA	Skomer, Multimedia Studio 2	Closed session, 888 views online (as of 18 Feb 22)

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			SCAR Scientific Research Programme leaders (including IPCC SROCC, SR1.5 and AR6 lead authors on Antarctic ice loss and committed sea level rise even with later CDR) and 1.5 emissions pathways experts will discuss the risk of irreversible sea-level rise at this event.	Dr Florence Colleoni, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS, Italy Dr Thomas Bracegirdle, British Antarctic Survey, Cambridge, UK Dr Joeri Rogelj, Grantham Institute/Imperial College London, UK Prof Elisabeth Holland, Pacific Center for Environmental and Sustainable Development, Fiji Divya Nawale, 2041 Foundation		
What Antarctica can teach us about climate change – BBC Unlocking Science Series (Article)	Launch of SCAR article: 17 Nov 2021 Launch of series: 31 Oct 2021	SCAR, ISC, BBC StoryWorks	SCAR is excited to be featured in the new Unlocking Science series. Produced for the International Science Council (ISC) by BBC StoryWorks Commercial Productions, Unlocking Science addresses the need for accessible science – through compelling and innovative storytelling for the public.	A/Prof Pippa Whitehouse, University of Durham, UK Dr Laura de Santis, INOGS, Italy	https://www.bbc.com/storyworks/specials/unlocking-science/what-antarctica-can-teach-us-about-global-climate-change/ Users from UK:	902.2k impressions online, 6,455 website views, 20.5k engagements across social media

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	(to coincide with COP26)		Antarctic ice sheets are a unique record for studying past climate change and informing predictions about the future. Locked away in the Antarctic ice sheets is valuable information about our climate past, but extracting that information requires multinational and interdisciplinary collaboration. The dynamic article "What Antarctica can teach us about climate change" highlights how SCAR brings together scientists from different disciplines and countries to make more precise predictions about future climate change. The article features the work of three of SCAR's large and overarching current and past Scientific Research Programmes PAIS, SERCE and INSTANT.	Prof Timothy Naish, Victoria University of Wellington, New Zealand	https://stories.council.science/ unlocking-science-antarctica-climate-change/	Note: article has second highest number of impressions and engagement across the series
The Uncertain Future of Antarctica's Melting Ice (Paper) Colleoni, F., Naish, T., DeConto, R., DeSantis, L., and Whitehouse, P.L. (2022) 'The Uncertain Future of Antarctica's Melting Ice' EOS	10 Jan 2022	SCAR Scientific Research Programme INSTANT	A new multidisciplinary, international research program aims to tackle one of the grand challenges in climate science: resolving the Antarctic Ice Sheet's contribution to future sea level rise.	Dr Florence Colleoni, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS, Italy Prof Timothy Naish, Victoria University of Wellington, New Zealand Prof Robert M. DeConto, School of Earth & Sustainability at the University of	Online	n/a

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				Massachusetts-Amherst, USA Dr Laura de Santis, INOGS, Italy A/Prof Pippa Whitehouse, University of Durham, UK		
Other						
The future of UK Antarctic science: strategic priorities, essential needs and opportunities for international leadership	Oct 2021	Imperial College London	The Antarctic region has been experiencing rapid change in recent decades due to human-induced factors. Most notably, climate heating is causing ice sheet melting, leading to sea level rise and disruption in global ocean heat circulation, with far-reaching consequences. At the same time, this region holds unique research potential that can help address a range of critically important scientific priorities, including climate change impacts, ecosystem protection, the likelihood of extra-terrestrial life and monitoring of space debris. Due to its long and impressive record of Antarctic research and its scientific, engineering and logistical capabilities in the region, the United Kingdom (UK) is strategically well-positioned to lead or play a key role in the delivery of these research priorities. To achieve this potential, the UK must act collectively and in partnership with others, as the best and most urgent research benefits from collaboration, cooperation and cost sharing. Crucially, it must mobilise experts both from within the UK and internationally	Mike Bentley (Chair of the UK National Committee on Antarctic Research), Martin Siegert (Chair of the UK Arctic and Antarctic Partnership Committee), Anna Jones, Michael Meredith, Katharine Hendry, Jennifer Arthur, Ian Brooks, Peter Convey, Klaus Dodds, Mervyn Freeman, Kevin A. Hughes, Nadine M. Johnston, Jim	https://doi.org/10.25561/92181	

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			from a range of disciplines, including the social sciences. In the twenty-first century, Antarctic research must not exist within its own bubble.	Marschalek, Keir Nichols, Charlotte Plaschkes, Rachael Rhodes, Michelle L. Taylor		
Exploration Untold	14 Oct 2021	UKPN, UKAHT, Pint of Science	In this special show with the UK Antarctic Heritage Trust (UKAHT) and the UK Polar Network, meet three researchers each of whom will offer us insight into Antarctica's scientific past. We take a new look at the heroic era, at the early days of the famous Halley station and reflect upon the stories of those whom are not usually given the spotlight, but whose contributions have been vital to our understanding of our planet.	Alice Oates (PhD researcher, University of Cambridge), Dr Daniella McCahey (Assistant Professor, Texas Tech University) and Henrietta Hammant (Postgraduate research student, University of Reading). Host: Camilla Nichol (CEO of UKAHT)	https://www.youtube.com/watch?v=9vap0zq_xUA	(>180 live viewers and > 1000 total views)
New polar ship RRS Sir David Attenborough pre-COP26 visit to London Greenwich	28-30 October	BAS, UKRI-NERC, FCDO, Cabinet Office, GO Science, Royal Museum's Greenwich etc	RRS *Sir David Attenborough* visits London as pre-COP event ahead of first mission to Antarctica. The UK's new polar research ship makes its London debut in Greenwich (Thursday 28 October – Saturday 30 October) in support of the UK Presidency of COP26.	Senior leadership team BAS; Chief Science Adviser Patrick Vallance; COP26 champion Anne Marie Trevelyan MP, Science Minister George Freeman;		

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				Amanda Milling MP, FCDO Minister; Jo Churchill MP DEFRA Minister		