

List of projects for the COMNAP Antarctic Fellowship 2020

Priority Topics for the COMNAP Antarctic Fellowship 2020	
	<ul style="list-style-type: none"> • Alternative energy systems in cold climate and any cold climate engineering: including, but not limited to buildings, mechanical, systems, remote autonomous systems. • Best collaborative use of new marine research vessels in support of science, including advanced exchange of science voyage information. • Human safety, including, but not limited to equipment, clothing, operating procedures and search and rescue. • Improving, developing or exchanging information on education and outreach related to National Antarctic Program / COMNAP activities. • Legal/administrative issues relating to COMNAP's internal functioning and/or its relationship with any other component of the Antarctic Treaty System. • Operation and management of Antarctic aviation capabilities, including, but not limited to application of remotely piloted aircraft for scientific, operational or conservation purposes. • Understanding the environmental issues from direct human impacts arising from Antarctic science and operations including cumulative impacts; Understanding plastic waste introduction and removal options so as to eliminate introduction of plastics including micro-plastics from the Antarctic environment; understanding management implications of environmental change to National Antarctic Program activities; Development of best practice related to risk reduction from non-native species intra-regionally in the Antarctic.
Broader Topics of COMNAP interest	
Air Operations	<ol style="list-style-type: none"> a. Use of Remotely Piloted Aircraft Systems in support of Antarctic science b. Use of Remotely Piloted Aircraft Systems in support of Antarctic operations c. Use of Remotely Piloted Aircraft Systems in support of Antarctic logistics d. Use of Remotely Piloted Aircraft Systems in support of Antarctic science and understanding of wildlife benefits and risks
Energy & Technology	<ol style="list-style-type: none"> a. Stream-lining remote field camp set-up b. Reduction of fossil fuel use at remote field camps c. Reduction of fossil fuel use at winter-over stations d. Reduction of fossil fuel use at seasonal stations e. Cost/benefit analysis of fossil fuel use in Antarctic logistics (ships, aircraft, traverse etc) f. COMNAP Antarctic Roadmap Challenges (ARC) results with a focus on filling a gap in one of the technologies required but not currently available
Engineering	<ol style="list-style-type: none"> a. Station design b. Remote Field Camp/"Super-site" design

	<ul style="list-style-type: none"> c. Ship design d. Science support equipment design e. Medical-related design
Environment	<ul style="list-style-type: none"> a. Waste treatments and waste management at Antarctic facilities b. Mitigation strategies for the introduction of non-native species in the Antarctic
Law	<ul style="list-style-type: none"> a. COMNAP's role within the ATCM b. COMNAP's contribution to discussions in ATCM Working Group 2
Medical	<ul style="list-style-type: none"> a. Medical "wastes" into Antarctic waters b. Best practice for returning medical supplies and medicines from Antarctica c. Ensuring quality of drinking water on stations and in the field, and at those stations which have them, the monitoring of the quality and/or bacteria content of spa waters and the need for associated bacteria monitoring programmes d. Transportation of patients onto and between various aircraft (also linked with engineering/technology) e. Inability to hold certain drugs, such as narcotics, at stations due to legal definitions and domestic legislation restrictions
Safety	<ul style="list-style-type: none"> a. Clothing fit for purpose b. Crevasse detection c. Avoiding carbon monoxide poisoning d. Reducing risk related to fire emergencies e. Snow mobile/ski-doo safe use f. Diving safety g. Technology to deconflict airspace
Science	<ul style="list-style-type: none"> a. Increasing understanding in relation to any of the 80 SCAR Horizon Scan critical science questions b. Understanding uptake and implementation of the recommendations in the COMNAP Antarctic Roadmap Challenges (ARC) project c. Improving facilitation of science d. Improving international co-operation on big science projects e. Data Management
Search and Rescue	<ul style="list-style-type: none"> a. Improving co-ordination and response in times of Antarctic emergency and medical evacuations
Shipping/Ship Operations	<ul style="list-style-type: none"> a. Efficient design strategies for ice-breaking vessels b. The Implementation of the IMO Polar Code c. Technology to better understand sea-ice conditions
Social Science & Humanities	<ul style="list-style-type: none"> a. Human dimension of winter-over situation b. Education c. Outreach/Media/Communications