

A photograph of the ALMA radio telescope site in San Pedro de Atacama, Chile. The image shows several large, white, parabolic radio telescope dishes mounted on concrete bases. The ground is dark and rocky, with patches of snow or ice. The sky is a clear, deep blue. The text 'Impact Report' is overlaid on a dark blue rectangular background at the bottom of the image.

Impact Report

ALMA Safety Week 2014: High Altitude Medicine & Occupational Health and Safety

Sarah Topps, MPH

September 23 - 25, 2014

San Pedro de Atacama, Chile

ALMA Safety Week 2014: High Altitude Medicine and Occupational Health and Safety

Impact Report by Sarah Topps

October 6, 2014

Conference Summary

This conference¹ attracted the interest of over 50 participants from Chile, Peru and Canada, and included workers, industry representatives, clinicians, and researchers from a variety of disciplines. There were many opportunities for interdisciplinary discussions at the inaugural three-day symposium on high altitude medicine and physiology, and occupational health and safety. Knowledge translation was also a clear intention of the meeting, as ALMA's workers from every area were strongly encouraged to attend and participate.

This symposium of high altitude researchers in South America was graciously hosted during September 23rd to 25th, 2014 by the Atacama Large Millimeter/submillimeter Array (ALMA), an international astronomy facility (the highest in the world at 5,050m above sea level), near San Pedro de Atacama, in Chile. Given its success this year, both presenters and hosts agreed that this conference could become a key meeting for researchers interested in high altitude medicine, and the organizers look forward to hosting an even more well-attended event in 2015 or 2016.

Conference Presenters

Iván López, Manager of Health and Safety (ALMA)

Dr. Daniel Jiménez, Medicina de Altura

Jorge Osorio PhD., Jorge Osorio y Cia. Ltda

Marc Poulin, PhD. (University of Calgary)

Fernando Moraga, PhD. (Catholic University of the North (UCN) in Coquimbo, Chile)

Dr. Luis Pérez Villasanté, (Latin American Health Manager - Barrick Gold Corporation)

Dr. José Méndez C

Roberto Ibañez (Empresa de Servicios Asociacion Chilena de Seguridad (ESACHS)

Alberto Pérez (Engineer – Indura)

Paulo Correa Labarca (General Manager - Correa Ingenieria)

Jaime Díaz (Commercial Manager - TermoFrio)

Víctor Varela (Indura)

Alicia Morales (Indura)

Key Interactions

Face to face meetings are highly valued in Chilean culture, and there is much emphasis placed on building strong long-term relationships. One of the keys to our success at this meeting was our strong focus on putting people and relationships first, and searching for mutually beneficial partnerships. This was noticed and received positively by many of our Chilean colleagues, and we believe that it will pave the way for more sustainable, transparent and resilient collaboration as we move forward. Our University of Calgary Global Health representative, Ms. Sarah Topps, MPH facilitated this relationship building

¹ <http://www.almaobservatory.org/en/press-room/announcements-events/766-alma-a-natural-laboratory-for-high-altitude-medicine>

²Moore, LG (1983) "Human genetic adaptation to high altitude". High Alt Med Biol 2 (2): 257-279.

process by initiating discussions with potential collaborators and aiding with translation.

The ALMA research facility has offered to explore potential joint research projects with the University of Calgary, which would open up many potential areas of research (i.e., astronomy, biomedical engineering, medicine). ALMA and the University of Calgary are in a position to uniquely benefit from one another, as we have specialized laboratories including Sleep Medicine and High Altitude Medicine & Physiology research specialists (Drs. Patrick Hanly and Marc Poulin, respectively), and ALMA presents a unique environment where it is possible to travel from sea level to their base camp (2800m) and on to their high site (5050m) with minimal interruption or delays. This novel factor, along with the impressive research facilities available to us at the ALMA site would allow us to undertake studies that could have a global impact. With the specialization program in Mountain Medicine and High Altitude Physiology at the University of Calgary (Cumming School of Medicine) and the Global Health and International Partnerships Program, there is a great opportunity to help increase the capacity of highly qualified personnel in Chile.

In an ancillary meeting, arranged as a result of discussions at the conference, the University of Calgary has also been offered a potential partnership with the University of the Andes (ranked in the top 10 universities in Chile according to Revista Qué Pasa).

Benefits for the University of Calgary

Given the interdisciplinary nature of this meeting, there are strong indications towards the potential for collaboration between the University of Calgary and various industry partners. Importantly, Chilean universities are also keen to foster collaborations and intercultural exchange of knowledge and pooling of resources.

There is also a keen interest in Dr. Marc Poulin's research at the University of Calgary stemming from four-years of partnership-building initiatives in South America (i.e., Chile, Peru, Ecuador and Argentina) and the well-received presentations on the discoveries made by his lab as a consequence of studying acute and chronic intermittent hypoxia / acute mountain sickness. Ms. Topps and Dr. Poulin also met with several candidates who are interested in pursuing their graduate education at the University of Calgary.

Benefits for Canada and the World

At least 140 million people currently live at high altitudes (above 2800m)² around the world, and many thousands more travel to high altitudes for work. The cross-cutting biomedical research on hypoxia that could benefit those people could also help to identify solutions to such diverse audiences as pre-term infants, diabetics and an aging population which is increasingly suffering from mental health issues which have been linked to low blood oxygen such as Alzheimer's disease and other degenerative diseases.

The extraction industry is a strong component of the Canadian economy, and any research findings, which might improve worker productivity at high altitudes, could have a global impact. With these research partnerships, the University of Calgary is uniquely placed to be a leading contributor to new knowledge in this important new area.

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