

SCAR Open Science Conference, Buenos Aires, Argentina 3-6 Aug, 2010

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Title of my oral presentation: Oxidative damage and antioxidant defense in Antarctic sea urchin embryos in response to enhanced UV-B during ozone depletion.

Abstract: Increased UV-B exposure, as a consequence of stratospheric ozone depletion over Antarctica, has had a variety of deleterious impacts on marine organisms and communities. One specific concern is oxidative stress, whereby the accumulation of intracellular reactive oxygen species (ROS) overcomes antioxidant defenses. We examined oxidative stress in the embryonic stage of the Antarctic sea urchin *Sterechinus neumayeri* with respect to (1) depth and sea ice coverage, and (2) changes in overhead ozone conditions in McMurdo Sound during the spring of 2008. Oxidative stress was quantified, both in terms of damage (protein carbonylation, lipid peroxidation and physical abnormality) and activity of anti-oxidant enzymes (superoxide dismutase, catalase and glutathione reductase). We observed higher protein carbonylation and lipid peroxidation in embryos exposed to full ambient UV-B compared to those protected by a layer of sea ice. More importantly, oxidative stress was significantly greater in exposed embryos when overhead ozone concentrations were reduced. We measured a 100% increase in protein carbonyl content and a 42 % increase in the level of lipid hydroperoxides in embryos exposed to full UV-B during low ozone conditions. Additionally we recorded a 19% increase in SOD and a 14% increase in CAT activity. Results indicate that Antarctic embryos are not well adapted to cope with enhanced UV-B when they are not protected by a layer of sea ice. We discuss the implications of this research in terms of future changes in UV-B exposure and associated impacts on Antarctic invertebrate embryos and larvae.

There was a specific session titled "UV in Antarctica: ecosystem effects and interactions with global change" that took place as part of this conference, making it highly pertinent to my previous MSc research and proposed PhD research. My talk came across well, and I received very positive feedback from a variety of international leaders in the field which was really exciting.

It was an excellent opportunity to exchange information and ideas with leading researchers and a major highlight was the request from a German researcher from the Alfred Wegener Institute for my publication details so that she could include my papers in a book that is being published on the topic next year. A possible collaboration with this researcher is now also on the cards so I will be looking into that as I progress through my PhD.

It was also just interesting to be part of such a large event and meet so many different people. The conference was intense, usually from 8AM till 6PM and I suffered from jet-lag for most of the week so it was very tiring but definitely worthwhile.

While I was all the way over there, I decided to spend three weeks travelling around Argentina, which was an absolutely amazing experience! I would not have been able to go to this conference without various travel awards and I am incredibly grateful for the NZMSS support! Thanks so much!!