



# SCAR 2020

Antarctic Science -  
Global Connections

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# FULL ABSTRACT BOOK



ABSTRACTS SUBMITTED TO THE (CANCELLED) SCAR 2020 OSC IN HOBART

## Biogeochemistry of surface sediments in an Antarctic nearshore area affected by recent glacier retreat: Collins Harbor, King George Island

**Natalia Venturini**<sup>1</sup>, Luis Cerpa<sup>2</sup>, Pablo Muniz<sup>1</sup>, Noelia Kandravicius<sup>1</sup>, Marcel Rodríguez<sup>1</sup>, Aldo Indacochea<sup>3</sup>, Báslavi Córdor-Luján<sup>3</sup>, Rubens C.L. Figueira<sup>4</sup>

<sup>1</sup>*Oceanografía y Ecología Marina (OEM), Instituto de Ecología y Ciencias Ambientales (IECA), Facultad de Ciencias, Universidad de la República. Iguá 4225, 11200, Montevideo, Uruguay,* <sup>2</sup>*Instituto Geológico, Minero y Metalúrgico (INGEMMET), Av. Canadá 1470, San Borja, Lima, Perú,* <sup>3</sup>*Universidad Científica del Sur, Facultad de Ciencias Veterinarias y Biológicas, Carrera de Biología Marina (UCSUR), Carretera Panamericana Sur 19, Villa EL Salvador 15067, Lima, Perú,* <sup>4</sup>*Laboratório de Química Inorgânica Marinha, Instituto Oceanográfico da Universidade de São Paulo (IOUSP), Praça do Oceanográfico 191, 05508-120, São Paulo, Brasil*

Biochemical composition of sedimentary organic matter, grain size, major and trace elements were analysed at 10 sampling stations in Collins Harbor, Maxwell Bay, to evaluate sources of particulate material in the seafloor. Surface sediment samples were taken with a grab, during the ANTAR XXV expedition in January 2018, onboard the BAP Carrasco from the Peruvian Navy. Coarse sediment fractions decreased, while mud content increased towards the centre of the bay. Positive correlation between mud and biopolymeric carbon (BPC) indicated depositional conditions and organic material accumulation in the deepest central area. Proteins (PRT) predominated over other biochemical classes contributing to labile organic carbon, followed by lipids (LIP) and carbohydrates (CHO). PRT positive correlation with Ba, Ca and Al indicated that labile organic carbon inputs derived from marine primary production. Whereas, PRT positive correlation with K and Ti suggested also the influence of terrestrial supply through Collins Glacier meltwater runoff. Mn/Ti, Mn/Al and Fe/Al ratios decreased towards the centre of the bay, while the Ba/Al ratio showed the opposite trend. This distributional pattern suggested the diminish of glacial and terrigenous sedimentation towards the deepest central area of the bay, with the increment of marine particulate material deposition and accumulation. Igeo values between 0 and 1 showed unpolluted conditions in Collins Harbor for Cr, Ni, Cu, Zn, As and Pb, which concentrations may reflect background values for this area. Natural inputs from weathering, glacial runoff and marine primary production are main sources of particulate material in Collins Harbor, with none detected anthropogenic contributions.