Temporal variation in isotopic composition of Pygoscelis penguins at Ardley Island, Antarctic: Are foraging habits impacted by environmental change?

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Several studies have suggested that penguins are undergoing a major restructuring of their feeding habits and distribution after drastic climatic changes in the Antarctic Peninsula region. With the objective of estimating potential medium-term and inter-annual variations in trophic niche, we measured ?15N and ?13C in feather samples of pygoscelid penguins from museum specimens (1982?1984) and in blood and feather samples from 2009/10?2011 collected from animals on Ardley Island. Current penguin feathers had lower ?13C and ?15N values and were more similar to Antarctic krill values, than feathers in 1982?1984 and blood from 2009/10-2011. Moreover, ?13C and ?15N values from museum feathers and modern samples occupied a larger isotopic space in Gentoo Penguins (Pygoscelis papua), compared to Adélie Penguins (Pygoscelis adeliae) and Chinstrap Penguins (Pygoscelis antarctica). Our results from feathers samples indicated that penguins have decreased