

ビデオおよび加速度データロガーで観察したアデリーペンギンの餌取り

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Foraging behavior of Adélie penguins monitored by video and acceleration loggers

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Continuous monitoring of animals' feeding behavior is important to understand their ecology, but has been difficult especially in marine ecosystem where direct observation is rarely possible. We deployed accelerometers on the head and back of free-ranging Adélie penguins to record head acceleration relative to body acceleration, which might indicate prey captures. A miniaturized video camera was also attached, allowing us to observe penguins' feeding behavior directly and to validate the use of accelerations as a feeding sensor, although the record was short. Video showed that penguins caught many krill (*Euphausia* spp.) in the water column and fish (*Pagothenia borchgrevinki*) just under the sea ice, and both types of prey capture were detected by acceleration with a high sensitivity and specificity (0.83-0.90). The validated acceleration signals showed that the number of krill caught per dive varied greatly from zero to 61, and its frequency distribution fit a power-law model, indicating that krill are unpredictable resources. In contrast, the number of under-ice fish caught per dive fell in a narrow range (0-4), indicating that fish are predictable resources.