A juvenile king penguin (*Aptenodytes patagonicus*) at its first departure to sea. After achieving their first waterproof plumage, when ~1 year old, these birds disperse at sea for an extended period (1–3 years) before returning to the colony to breed. Enstipp et al. (pp. 2666–2678) used subcutaneously implanted biologgers to record pressure and peripheral temperature in juvenile king penguins during this dispersal phase. They found important changes in the development of peripheral temperature patterns during foraging throughout the penguins’ first year at sea, most likely reflecting changes in body insulation that suggest a strong energetic challenge during their early oceanic existence. Photo credit: Florian Orgeret.