

Open source bio-logger for monitoring and recording inertial movement

**Institute of Movement Sciences, Marseille
Biorobotics Dpt.**

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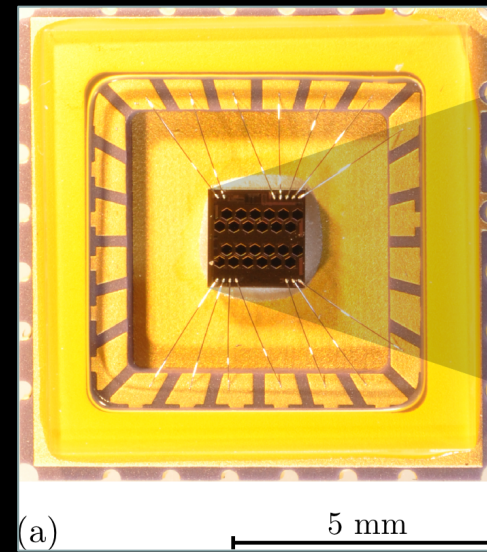
Institut des Sciences du Mouvement (Marseille, France)



Biorobotic Team

Bio-inspired visual sensors

Neuro-ethology

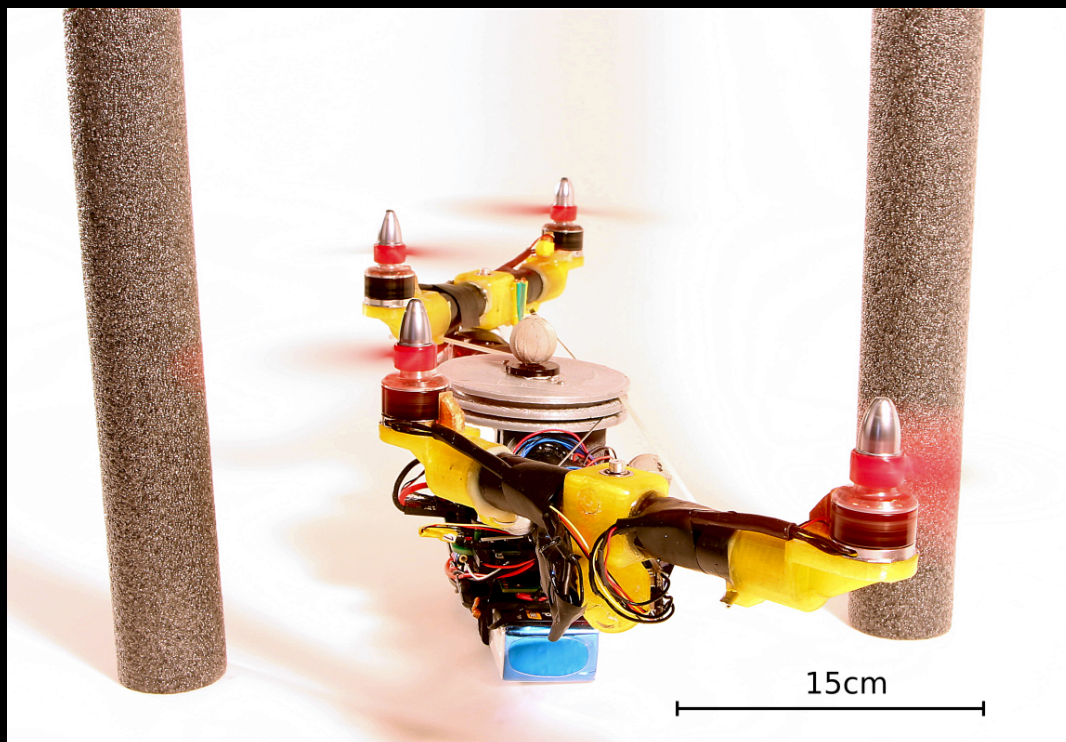


MAPIX



CurvACE

Bio-inspired robots



QuadMorphing



AntBot

Problématiques

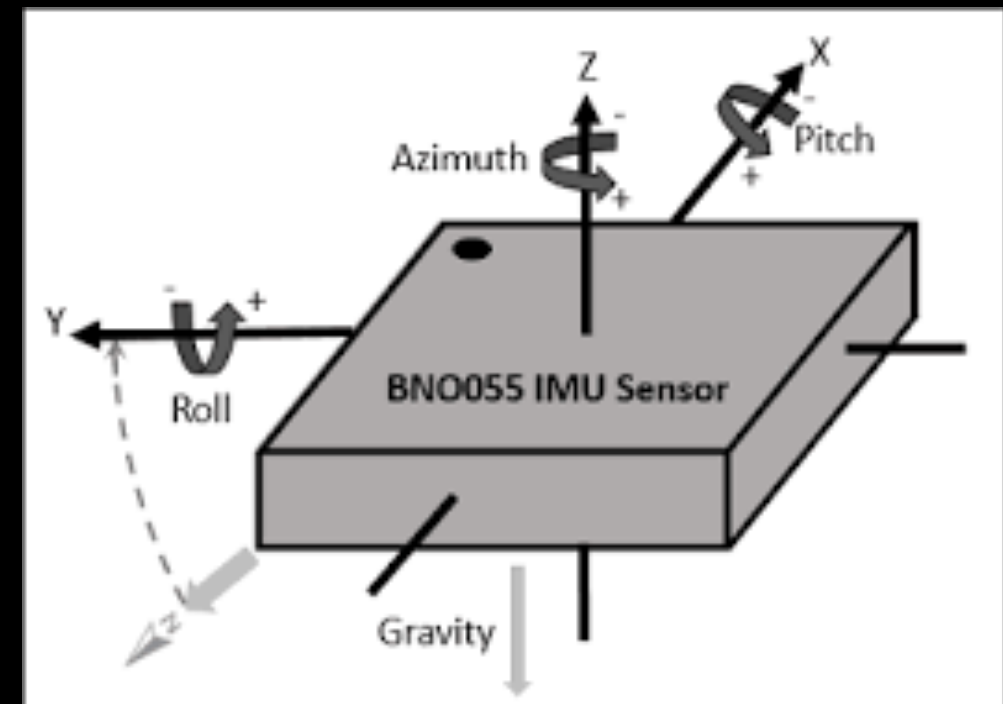
Quels sont les mouvements de coordination tête-corps (si ils existent) chez le manchot ?

Il y a t-il des phases de stabilisation de la tête par rapport au corps pendant la nage et lors de prise de nourriture ?

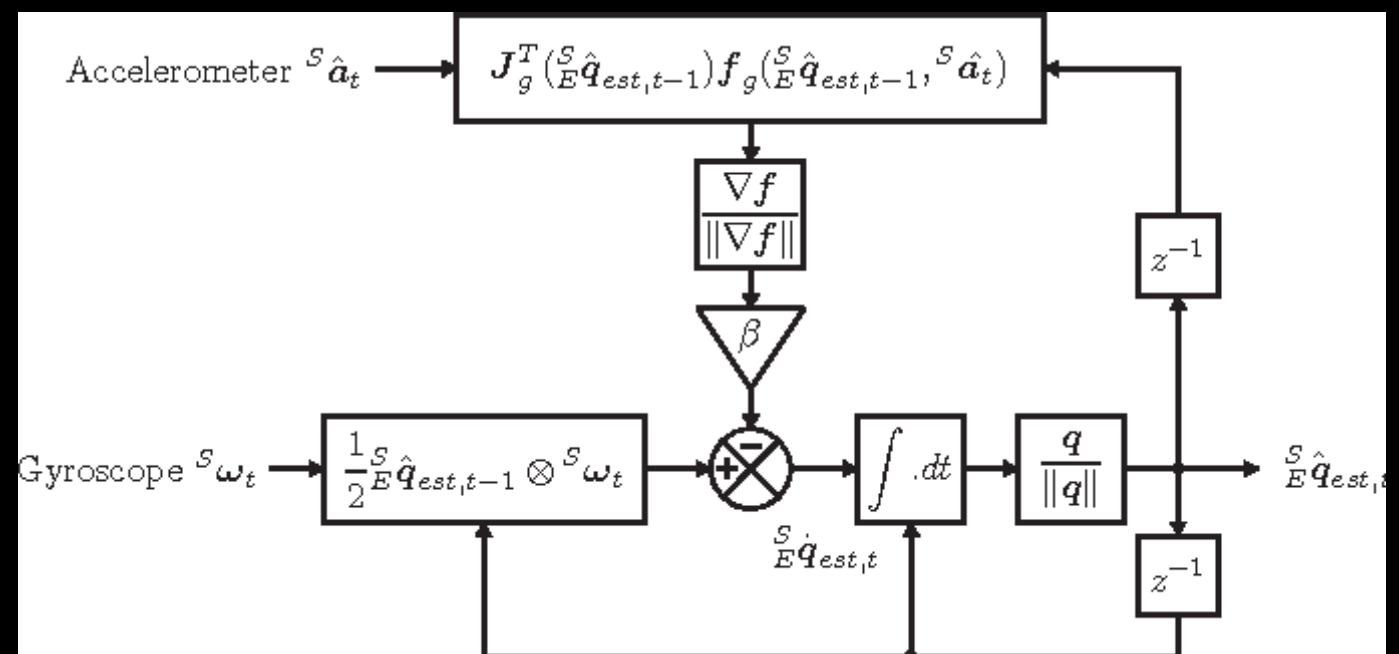
Reconnaitre les phases de capture de nourriture :
manchot comme marqueur



Head-body movement in penguin

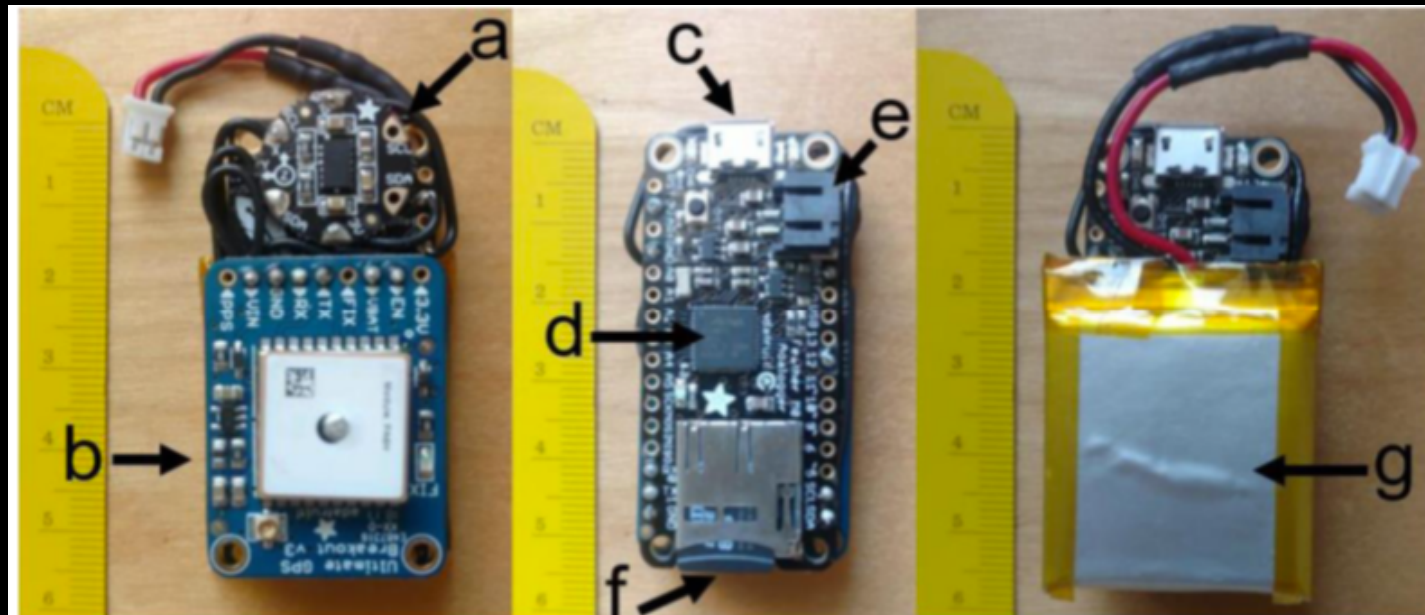


Micro IMU (rate gyro + accelerometer)



Sebastian Madgwick algorithm

State of the art



60x30mm, 60g

No Bluetooth

No Euler angles

50g with battery (500mAh)
Falbusch and Harrington, JEB 2019

Technosmart

70x41mm, 60g

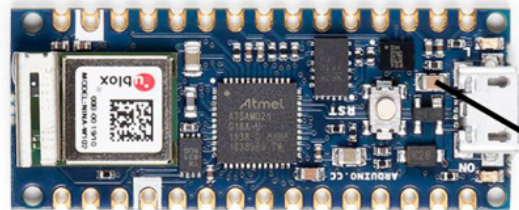
No Bluetooth

No Euler angles



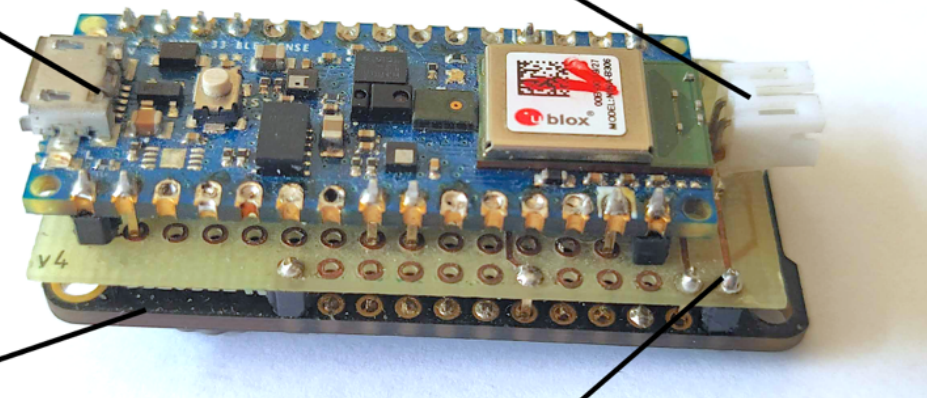
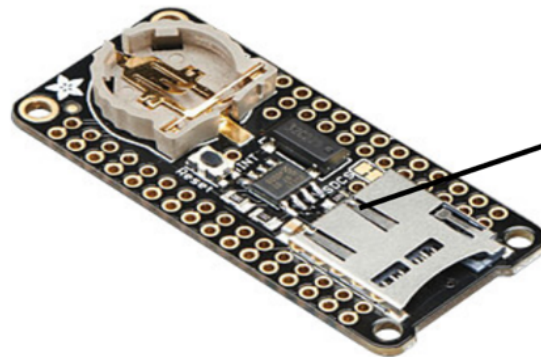
Stand-alone logger

Arduino Nano 33 board: Bluetooth + IMU



Battery connector

Adafruit Datalogger board: Micro SD + RTC

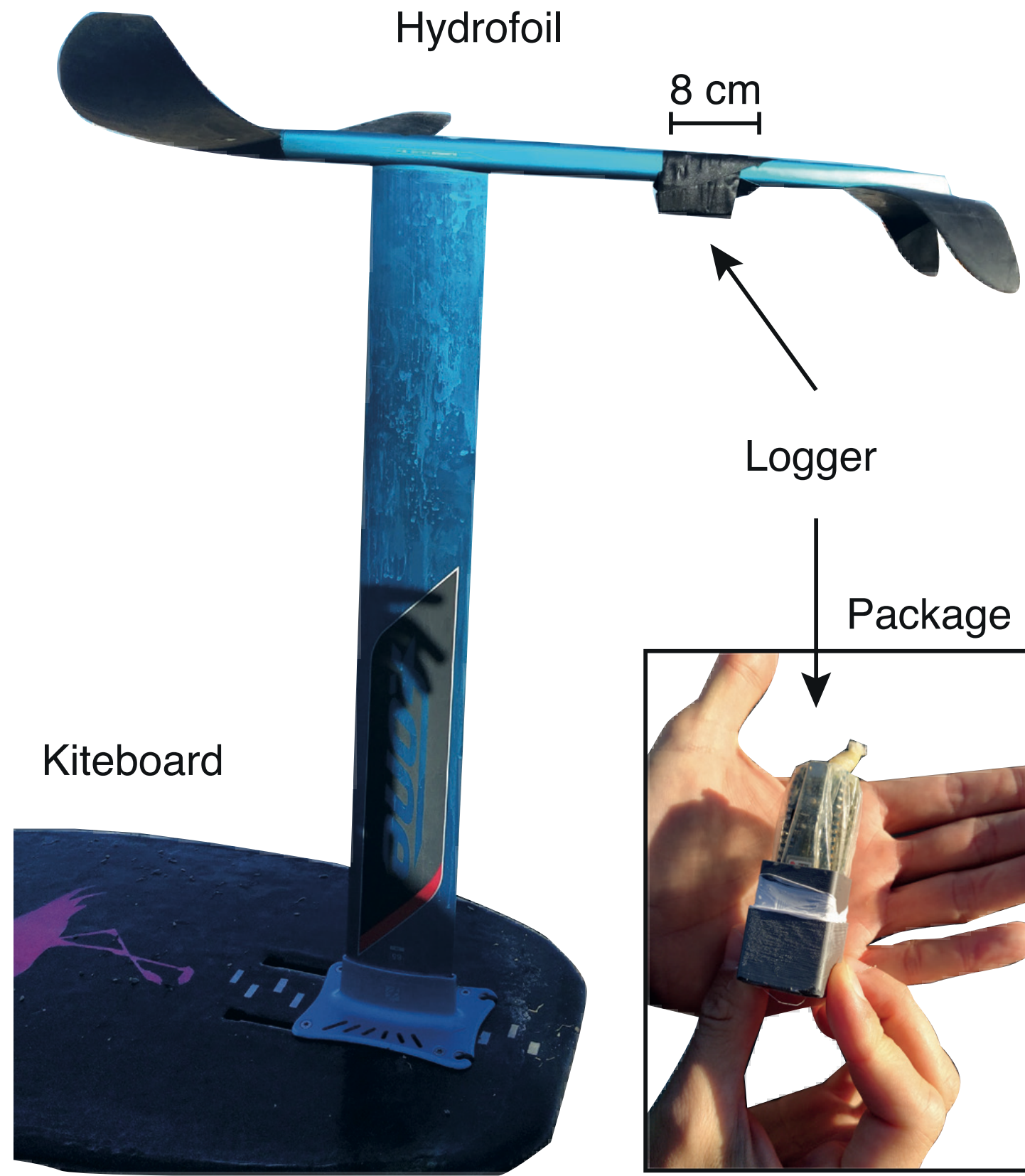


Custom-made connection board

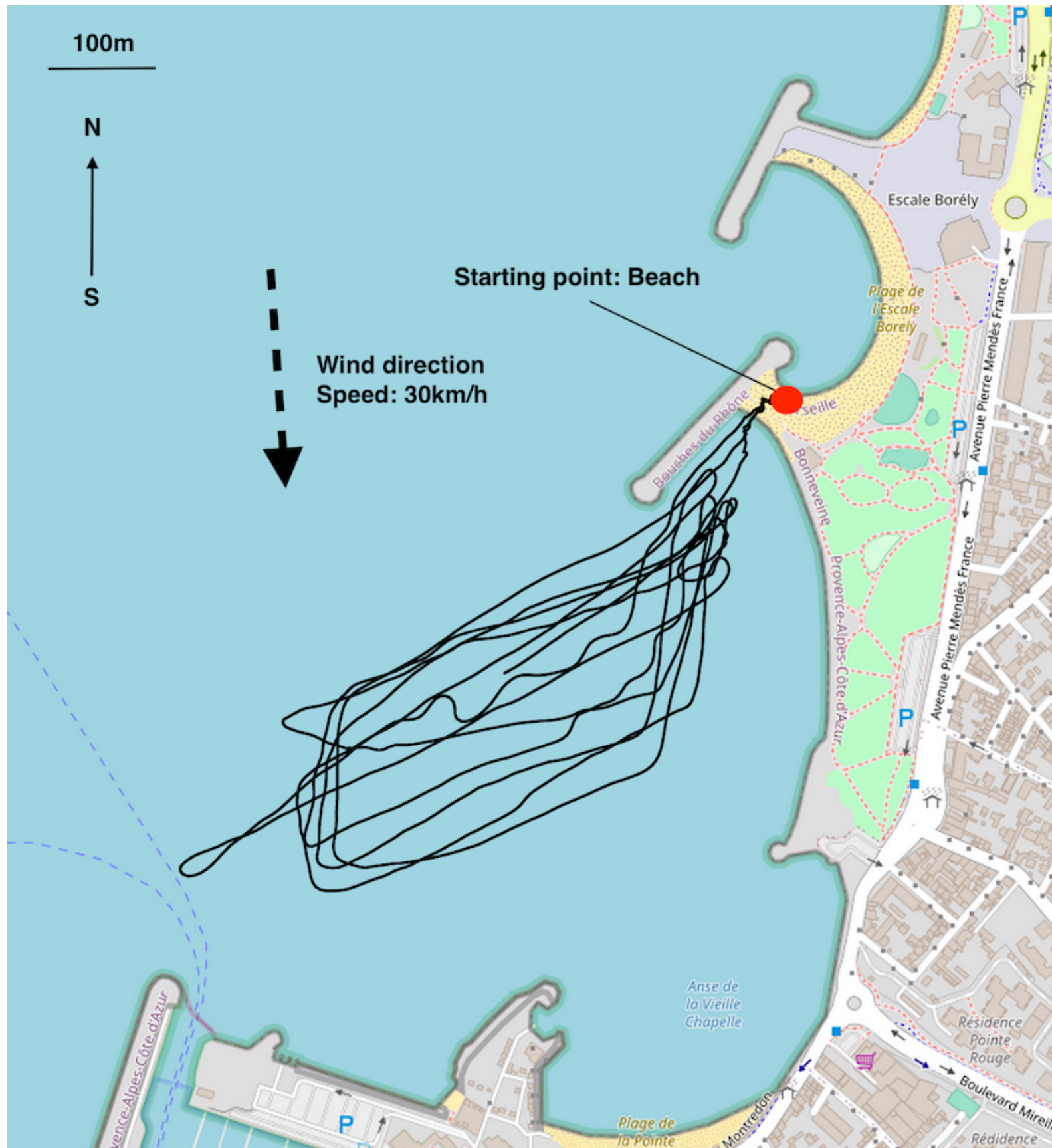
Without package and LiPo battery, mass of 13g for a size of 51x23mm.
Package : 19g et full size of 65x27x27mm. Total mass including battery :
38,1g. SD memory card of 16Go and sampling frequency of 100Hz.

Version 2.0 : 26x31mm

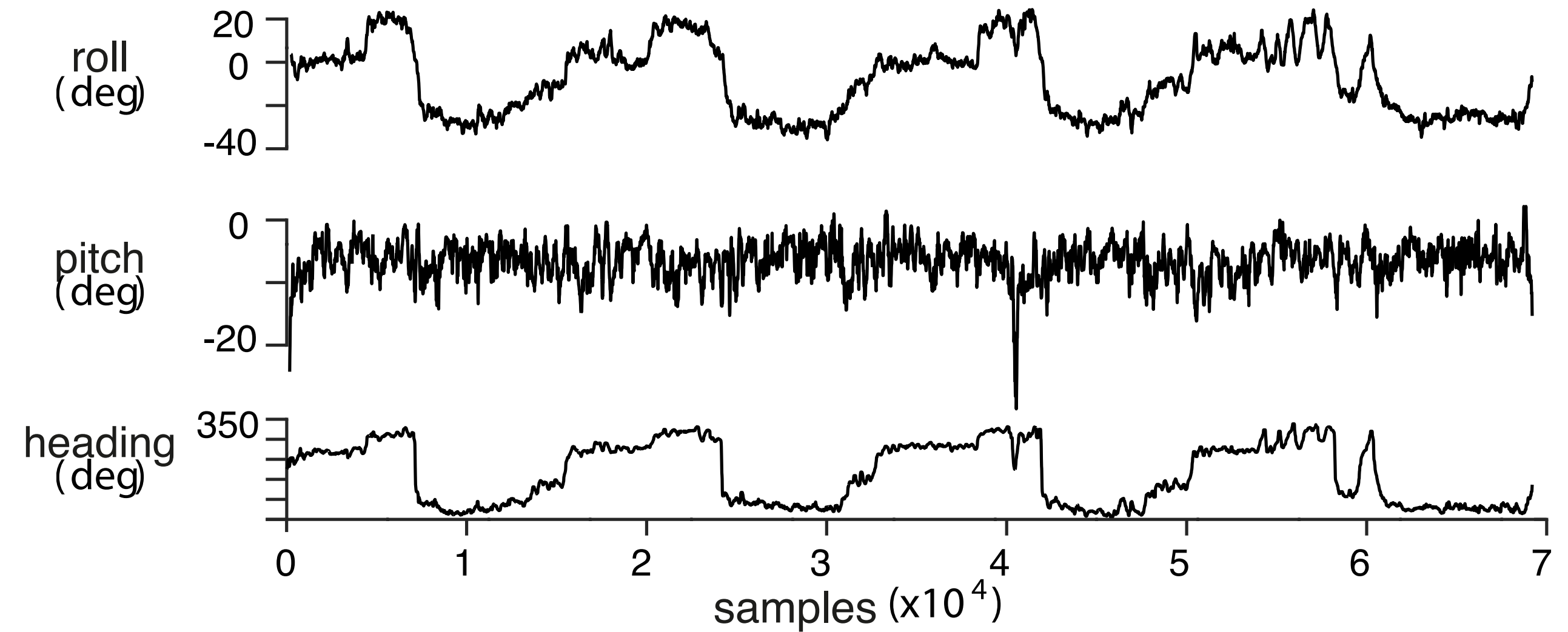
Hydrofoil equipped with the bio-logger



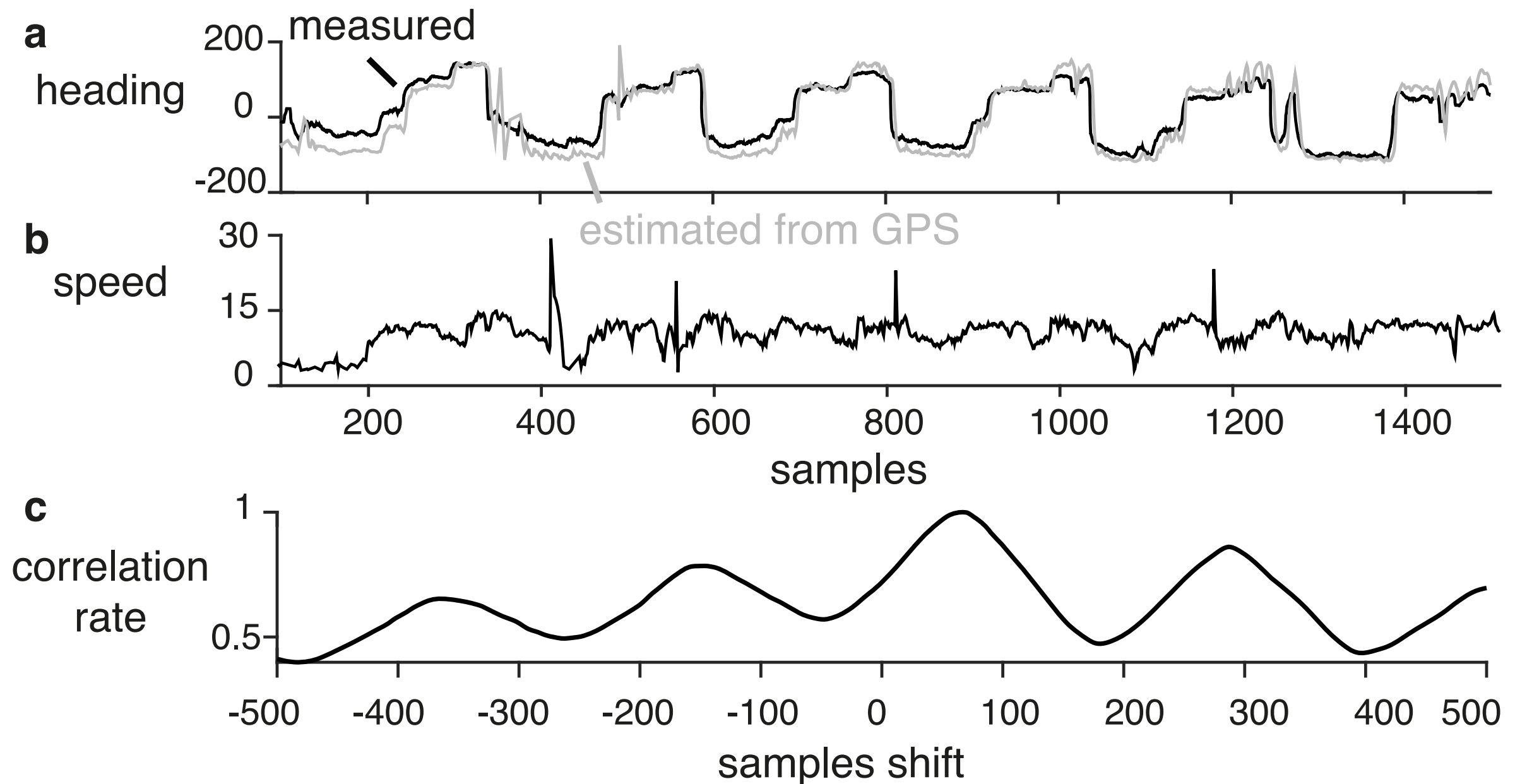
13 straight two-way trajectoires

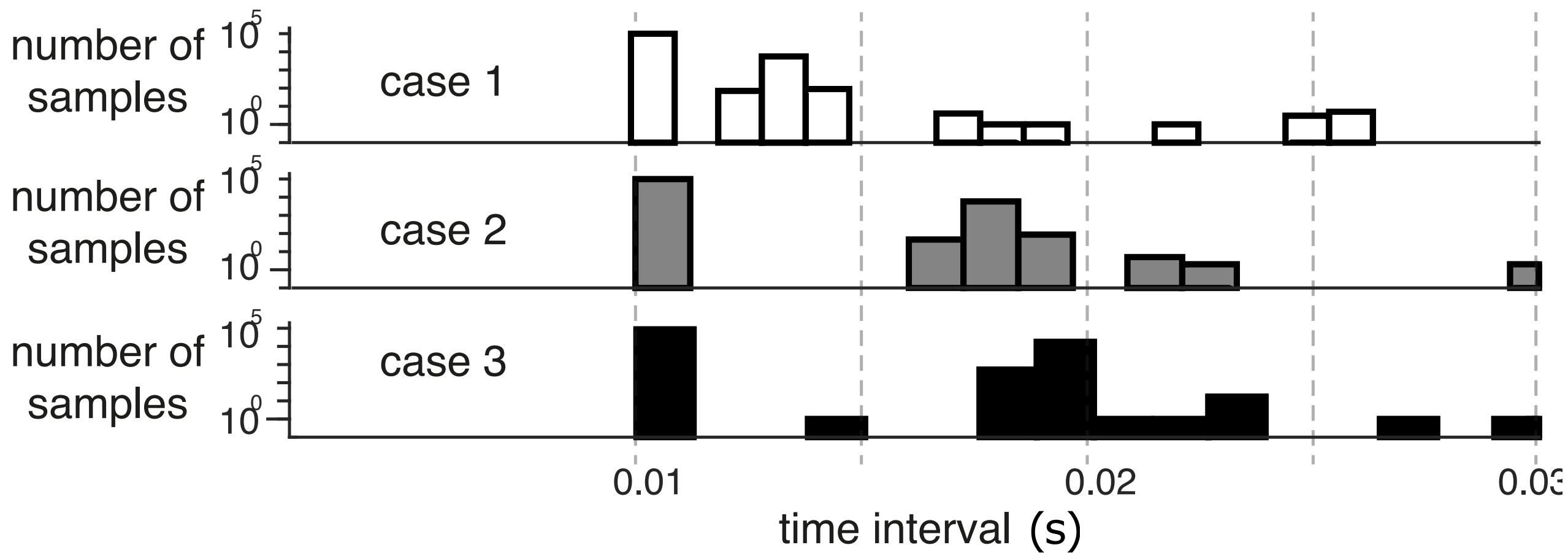
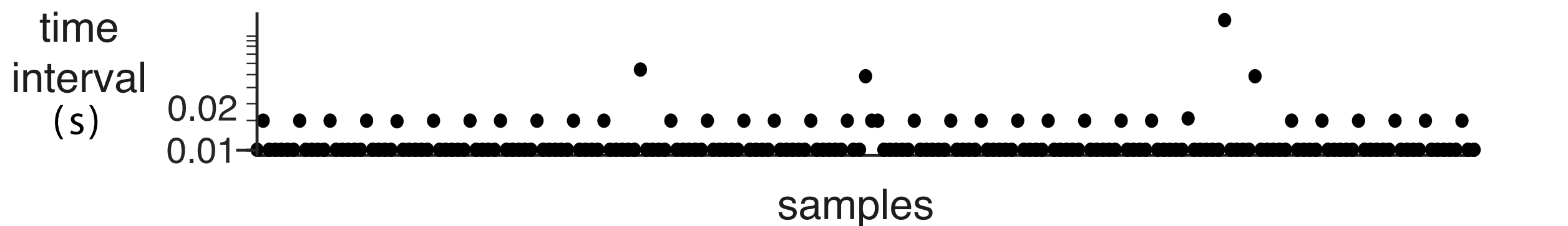


Measured Euler angles (roll, pitch, heading)



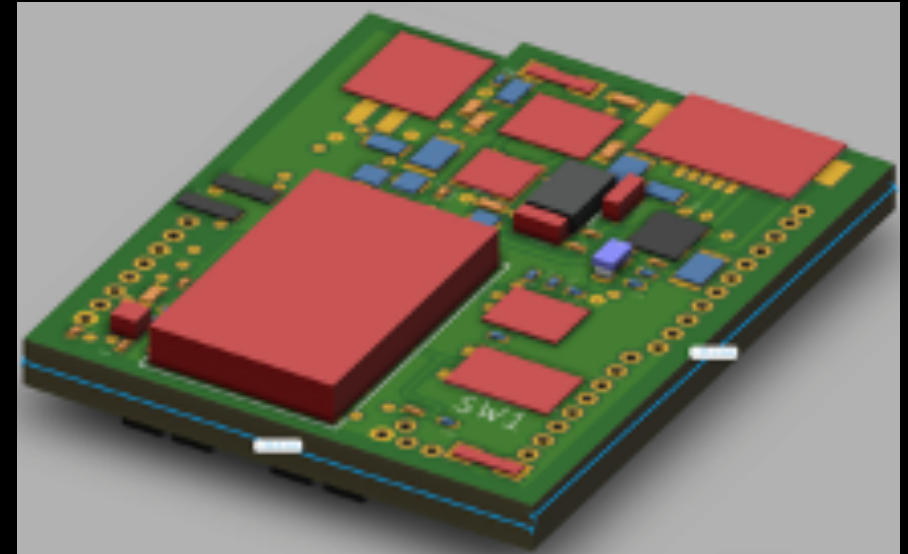
Heading signal synchronization





Futur

Miniaturisation du logger :
26x31mm



Banc de calibration dynamique
pour IMU



Merci



Programs on Github : <https://github.com/StephViollet/BioLogger>