

# Changement global et biodiversité polaire

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## BIOMEDICINE

### Solid Tumors in Living Color

The behavior of tumors is profoundly influenced by the microenvironment in which they grow. In addition to diffusible extracellular factors, this environment harbors a complex and dynamic population of stromal cells, including fibroblasts and a variety of immune cells. Because different types of stromal cells can have opposing effects on tumor progression and responses to therapy, it is important to understand how each cell type behaves in actively growing tumors.

Egeblad *et al.* have combined confocal microscopy with multicolor imaging techniques to record in living mice the movement and localization patterns of tumor-infiltrating stromal cells during a 12-hour period. One feature shared by several stromal cell types was greater mobility at the tumor periphery than within the tumor mass. Regulatory T cells were found to migrate near blood vessels, and their movement was sensitive to tumor oxygen levels; in contrast, the movement of myeloid cells (the most heterogeneous group of stromal cells) was insensitive to oxygen, and their localization patterns and migration rates varied according to cell-surface marker expression, probably reflecting important functional differences. By helping to define the contributions of specific stromal cells to

## PHYSIOLOGY

### Not Fat, just Well Covered

Adelie penguins breed on the Antarctic ice, and the chicks, to survive, must rapidly establish a layer of fat to protect themselves against the sub-zero temperatures and to enable them to enter the water a mere 2 months after hatching. Raccurt *et al.* investigated the transcriptional program responsible for this speedy production of adipose tissue by taking autopsy samples from the chicks of 16 out of the 34,000 penguin pairs that breed on the Pointe Geologie archipelago. They then measured the expression levels of transcription factors, hormone receptors, and other genes known from *in vitro* studies of mouse and chicken cells to be involved in the growth and differentiation of adipocytes. In the first 2







## Objectifs

- Identifier les individus d'une population de 300 couples
- Suivre l'évolution de leur condition corporelle

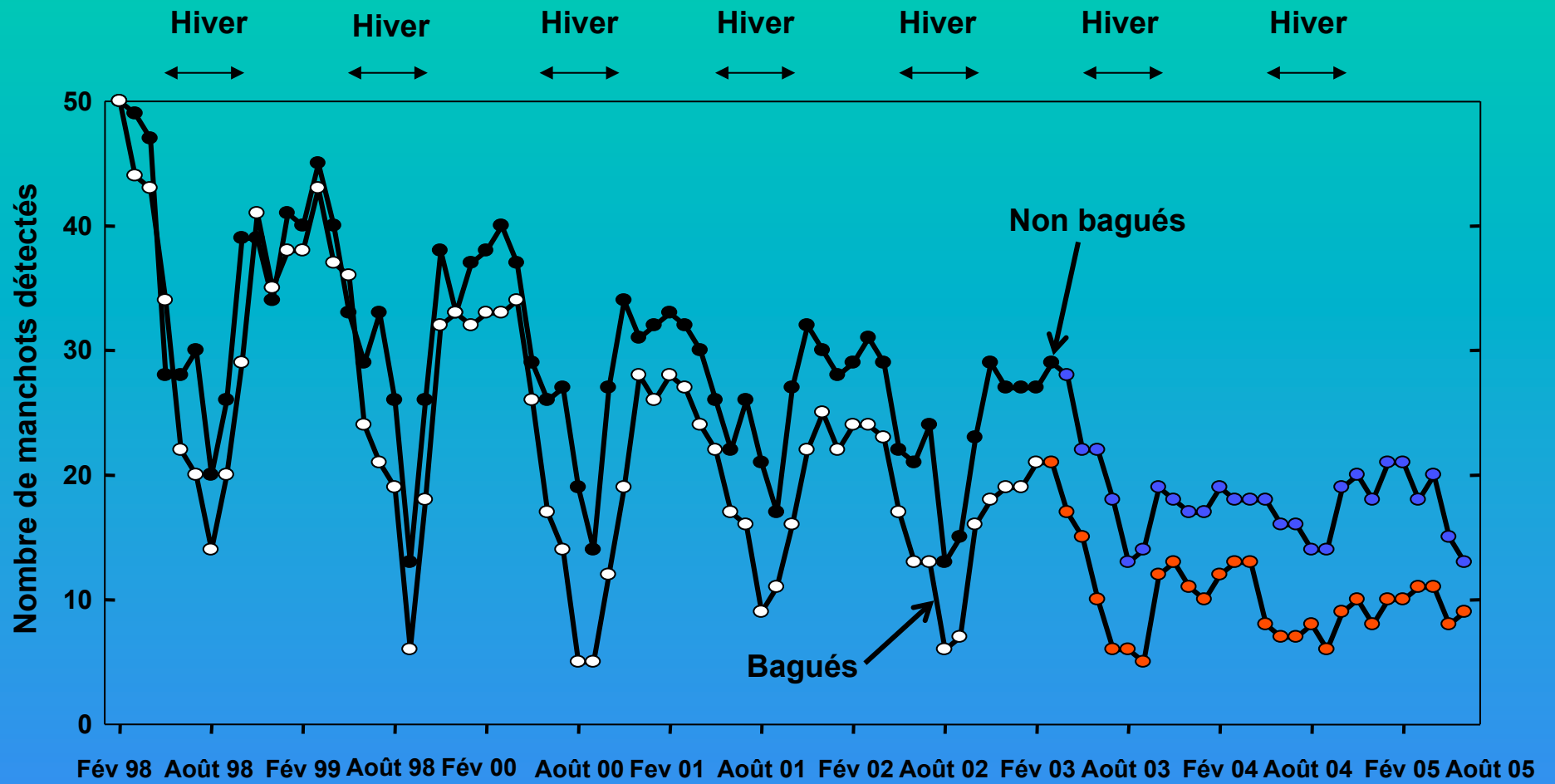


## Identification par RFID

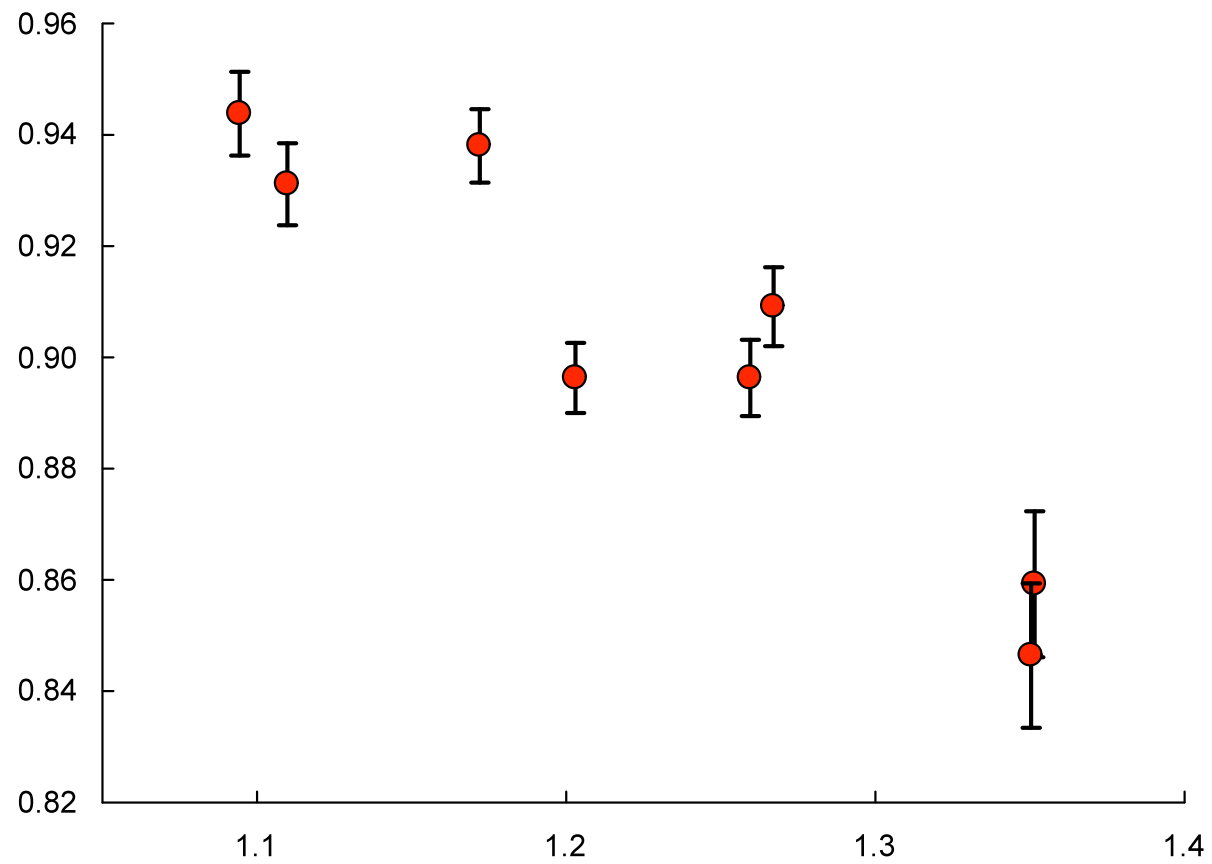
- Qu'est-ce que la RFID?
  - RFID = Radio Frequency Identification
  - Lecture du numéro d'identification unique d'un transpondeur par un champ électromagnétique
  - Deux grandes familles de transpondeurs RFID :
    - Passifs
    - Actifs
- Transpondeur passif implantable







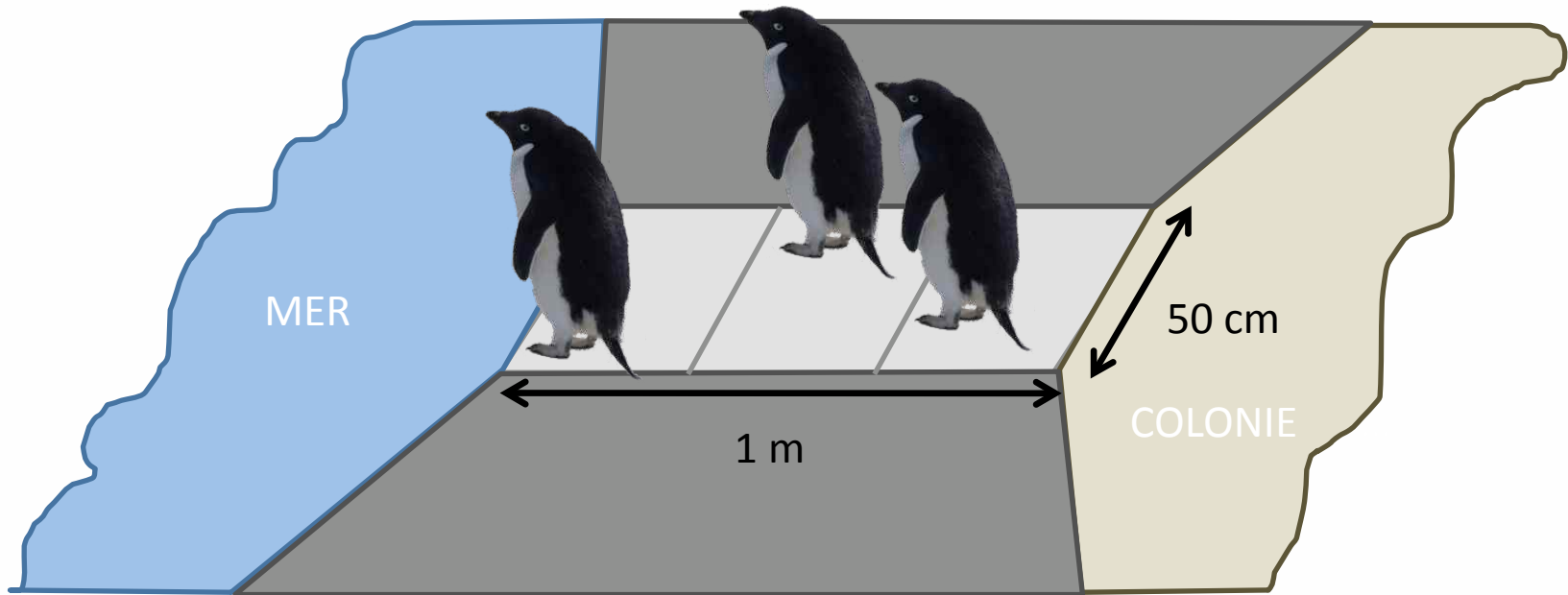
Gauthier-Clerc et al. *Proc. R. Soc. Lond. B* (2004)  
 et Le Bohec et al. (en préparation)



Température moyenne de surface de la mer (°C)  
à 56°S de latitude et 46°-56°E de longitude

# Pesée

# MASSTRACKER



Installation

Passerelles du bas

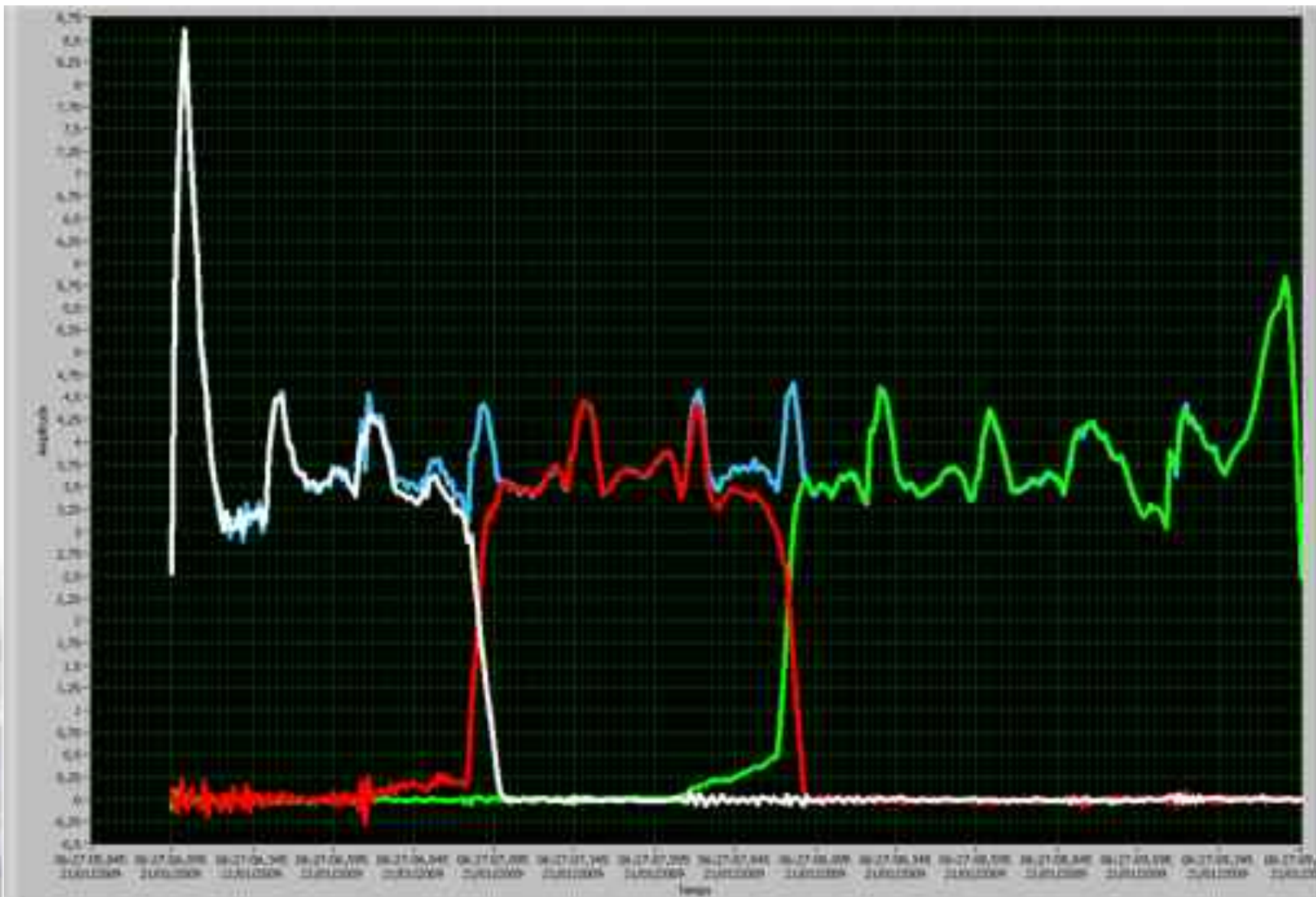
**MASSTRACKER**



## Résultats

### Courbes de pesée : cas de figure possibles

- Passage standard (3,5 s)



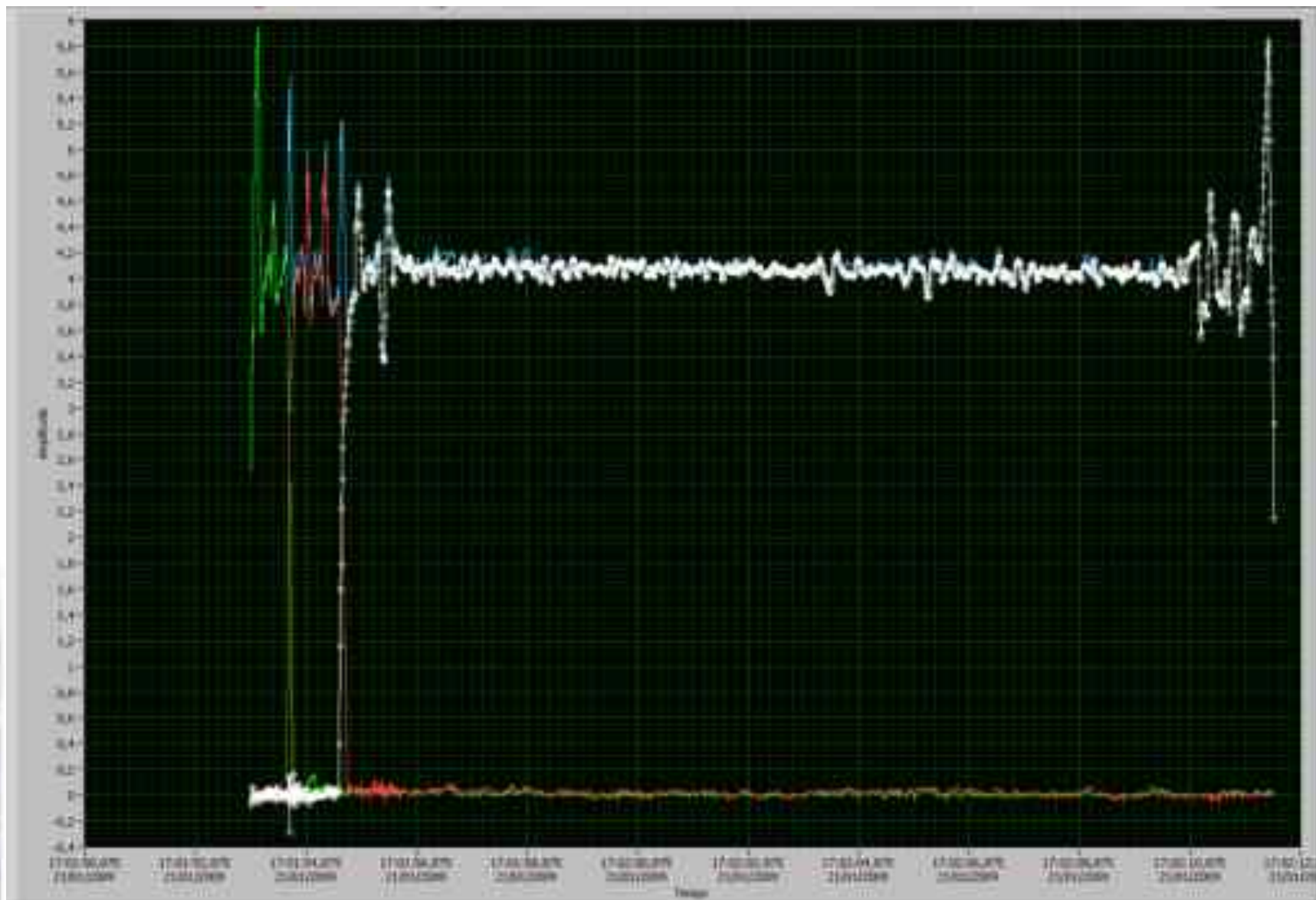
**MASSTRACKER**



## Résultats

### Courbes de pesée : cas de figure possibles

- Passage long (20 s)



**MASSTRACKER**



# BIO-LOGGER & BIO-LOGGING



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## Accéléromètres à 2 ou 3 axes



## Budget d'activité

