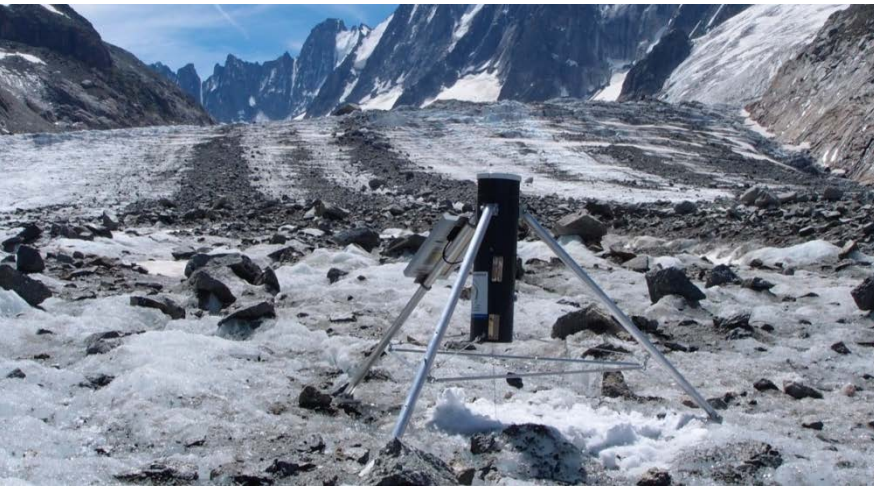
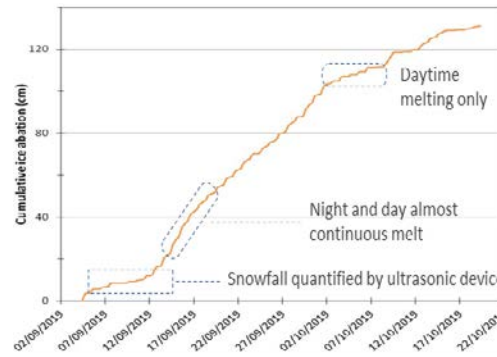


# SmartStake: an autonomous measurement station for high resolution glacier ablation monitoring



Tracking the glacier mass loss along the melt season with sub-hourly time step and millimetric accuracy



**Argentière Glacier, French Alps**  
Late summer 2019 continuous ablation monitoring at 2400 m a.s.l.

*SmartStake :*  
Designed and validated by A. Rabatel & R. Biron - I.G.E., Grenoble  
CNRS / UGA / IRD / G-INP

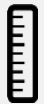
## Key features



High temporal resolution monitoring  
User-defined time step (typical 15')



Battery powered  
Min. 2-years life



High resolution meas. (<1cm)  
Up to 10-m cumulative ablation



Light and compact  
Can be handled by a single person



Direct and non-ambiguous measurement (automatic reel)



Easy to install and set-up



Internal data logger



Winter resistant

## Options



Wireless data transmission  
LoRa / LTE-M / 4G / SigFox



GPS



Snowfall height  
Temperature  
Humidity