

# GPS Interferometric Reflectometry measurements of ground surface elevation changes in permafrost areas in northern Canada

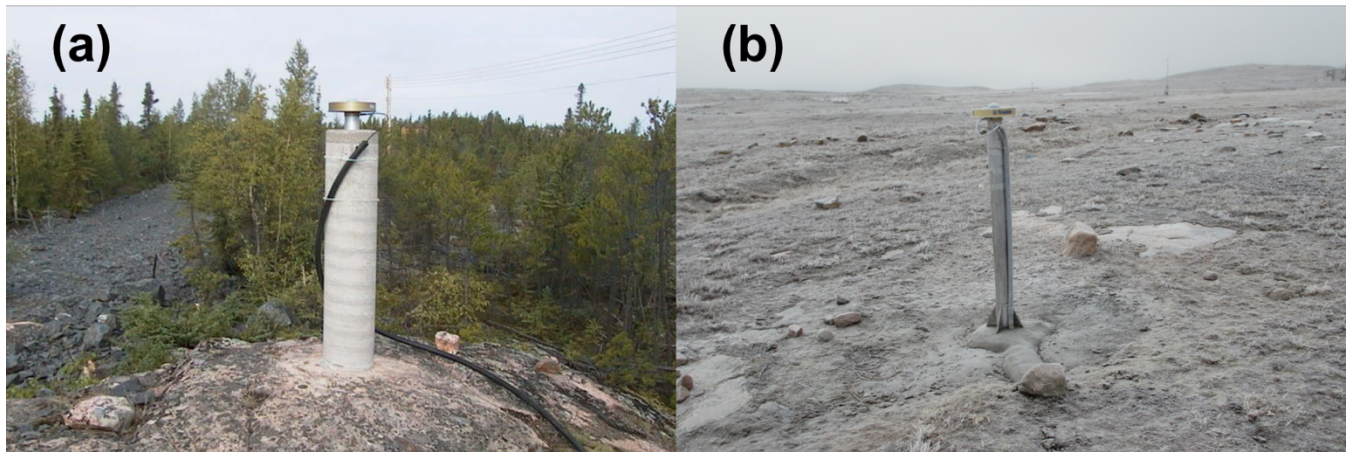
Jiahua Zhang<sup>1</sup>, Lin Liu<sup>1</sup>, Yufeng Hu<sup>2</sup>

<sup>1</sup>Earth System Science Programme, Faculty of Science, The Chinese University of Hong Kong, Hong Kong, 999077, China

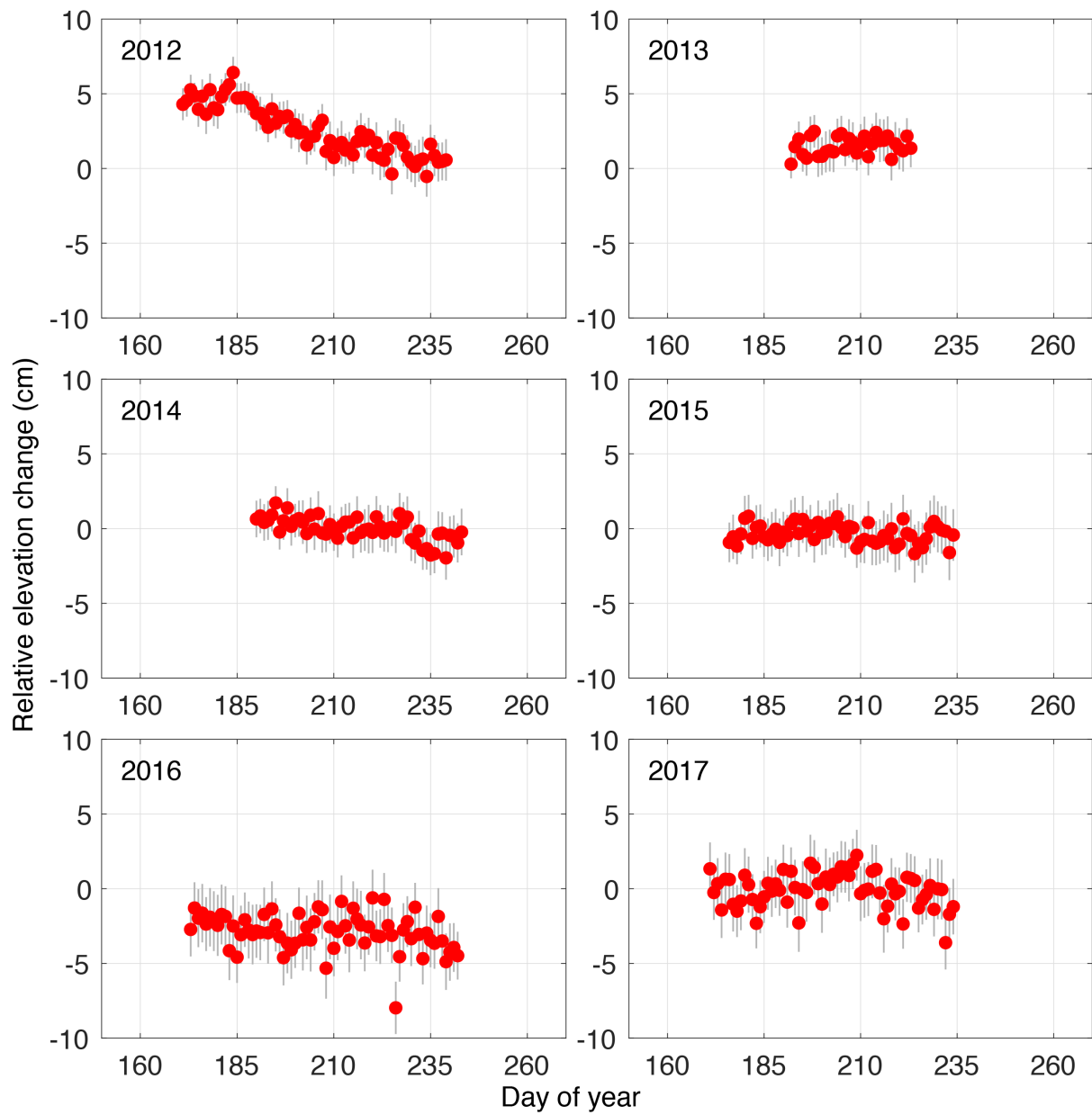
5 <sup>2</sup>College of Geology Engineering and Geomatics, Chang'an University, Xian, 710000, China

*Correspondence to:* Jiahua Zhang (zhangjiahua@link.cuhk.edu.hk)

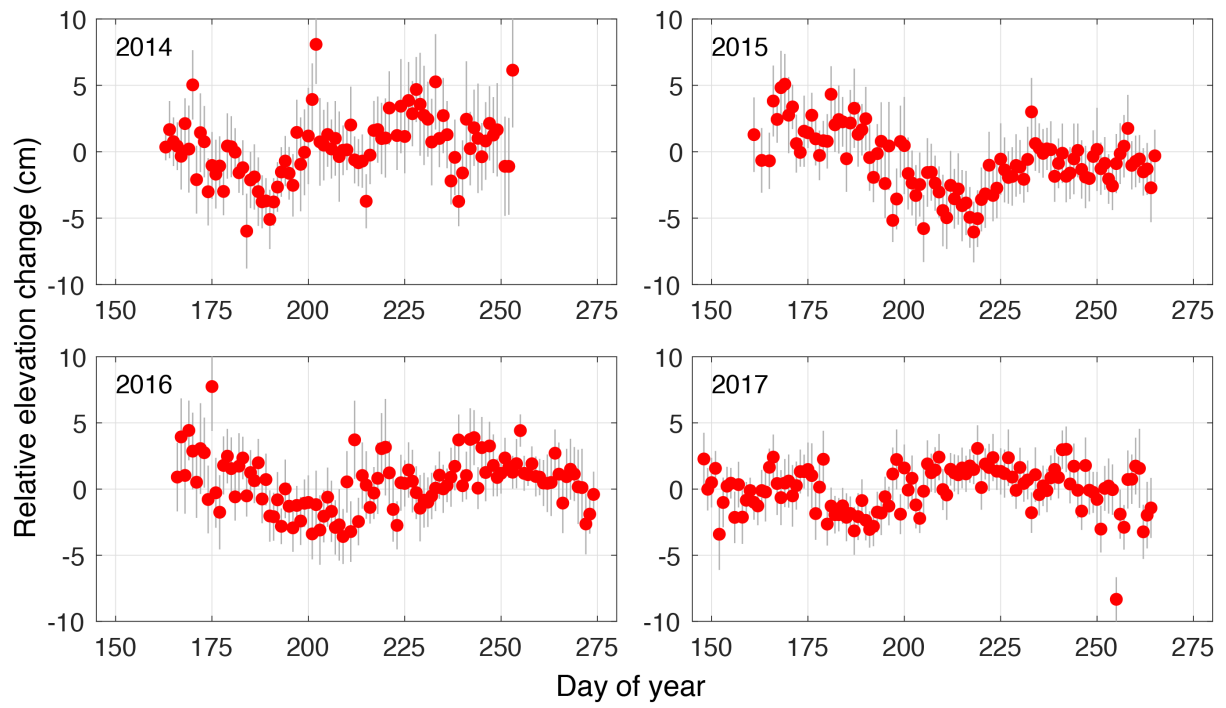
## Supplementary



10 **Figure S1: Ground photos of two GPS stations (a) KGLK and (b) REPL (source: <https://webapp.geod.nrcan.gc.ca/geod/data-donnees/cacs-scca.php?locale=en>). (a) shows that KGLK is located above an undulated and inhomogeneous surface and surrounded by tall shrubs. This is a negative example and no azimuth range can be selected. (b) shows a positive example that surrounding surface of REPL is open, nearly flat, and relatively homogeneous.**



15 **Figure S2: Surface elevation changes in each thaw season in Alert during 2012–2017. Red dots denote the measurements in thaw seasons. Grey error-bars denote the uncertainties. The mean value of the measurements has been removed.**



**Figure S3: Similar to Fig. S2 but for Repulse Bay during 2014–2017.**

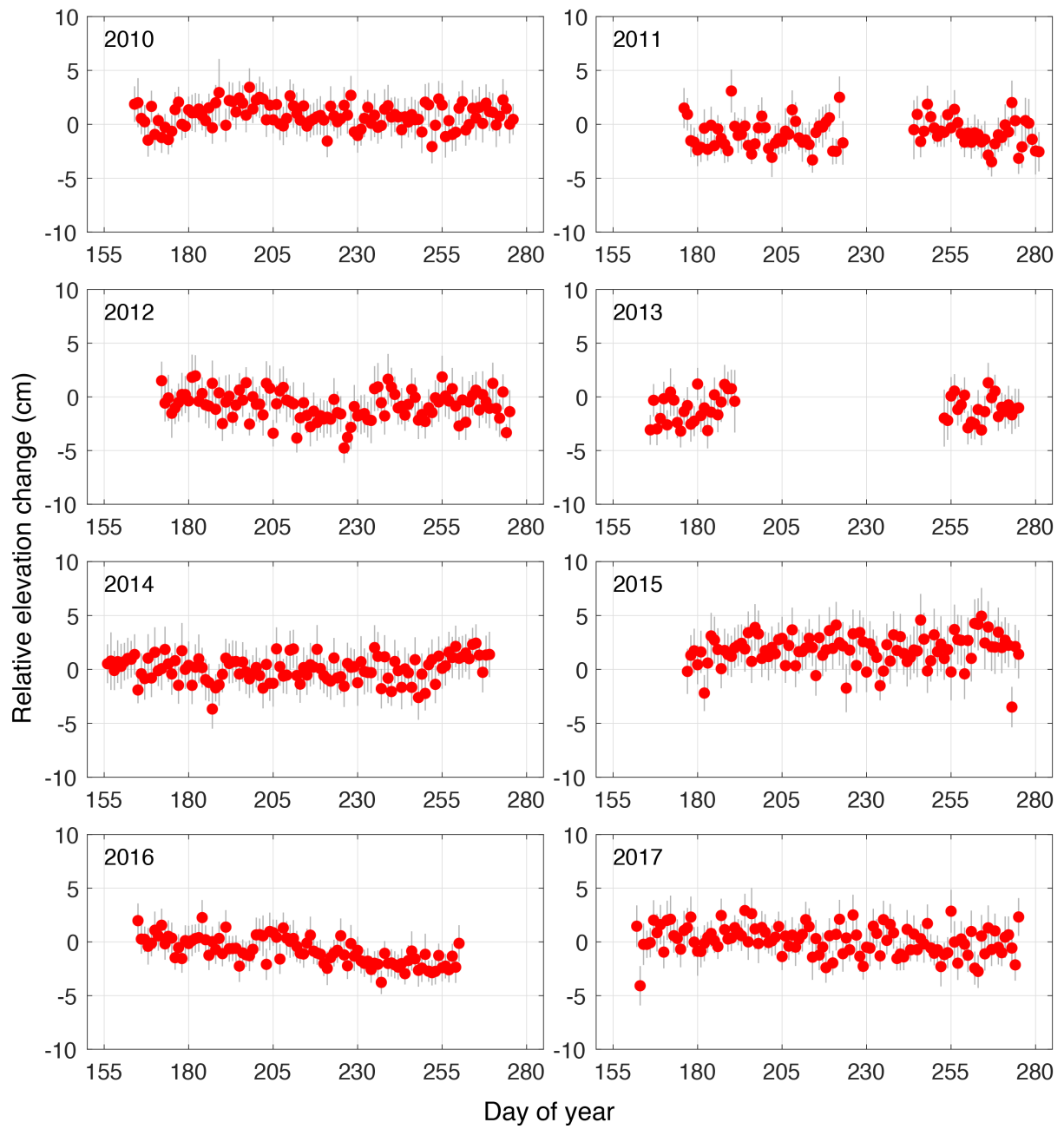


Figure S4: Similar to Fig. S2 but for Baker Lake during 2010–2017.

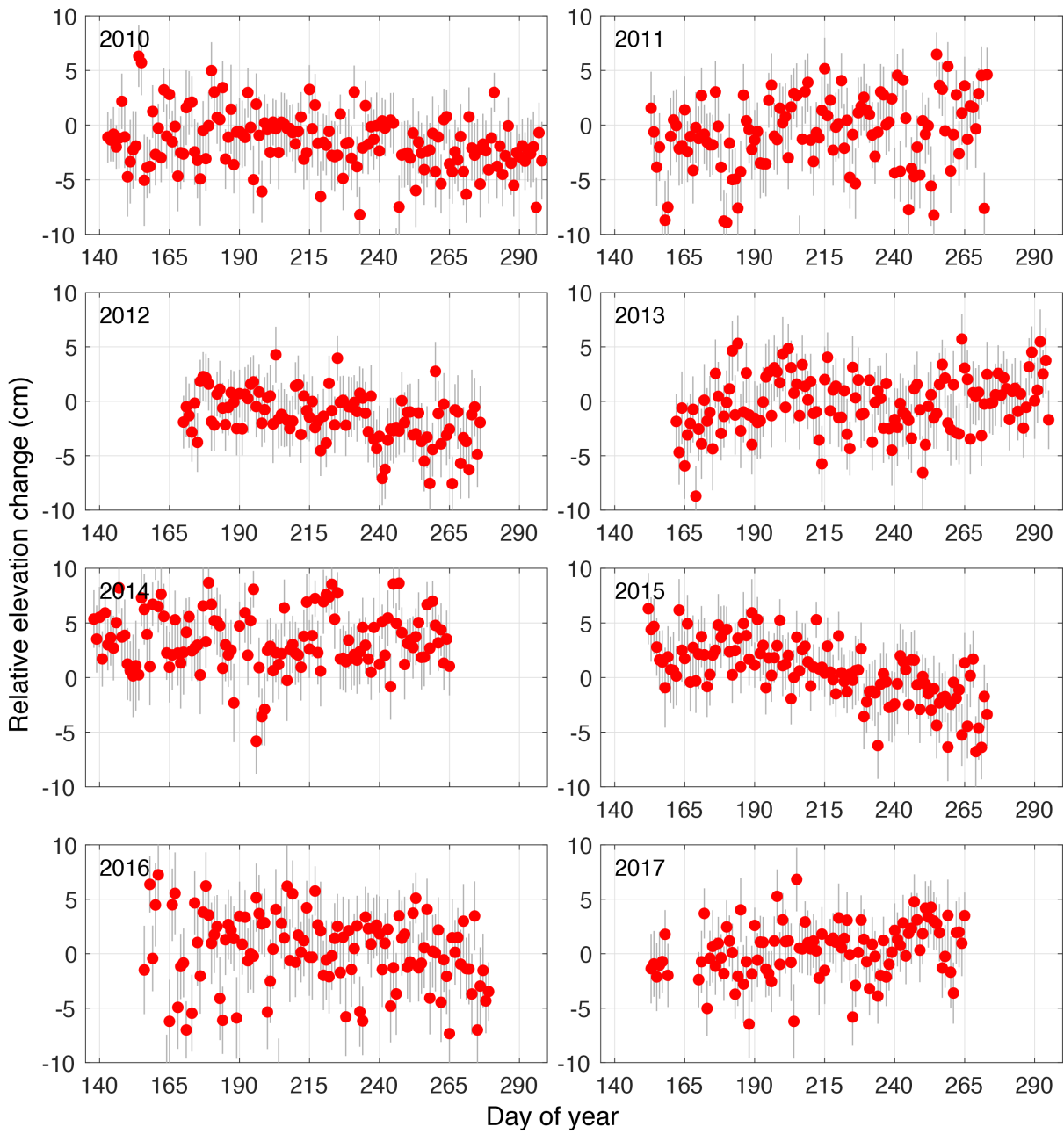


Figure S5: Similar to Fig. S2 but for Iqaluit during 2010–2017.