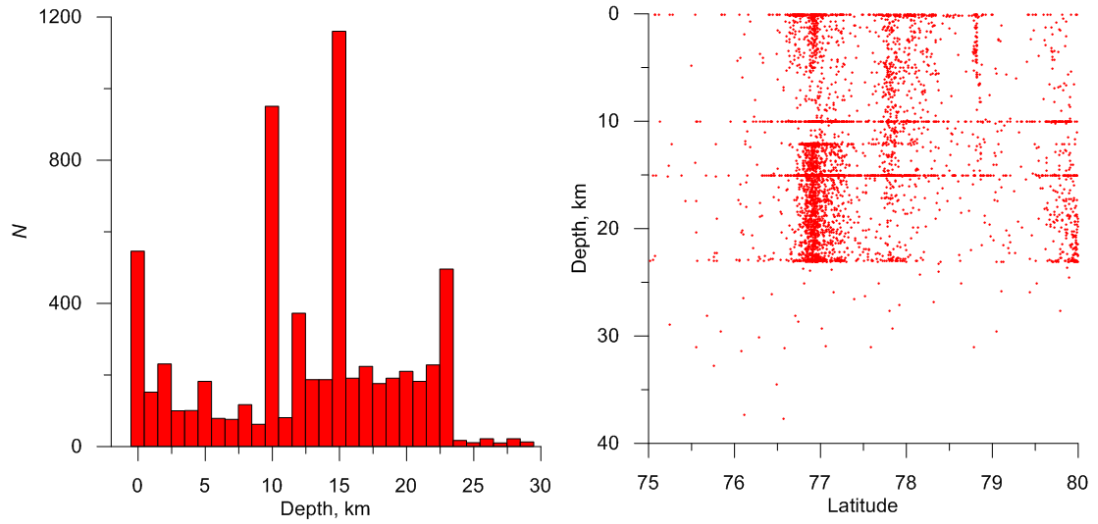


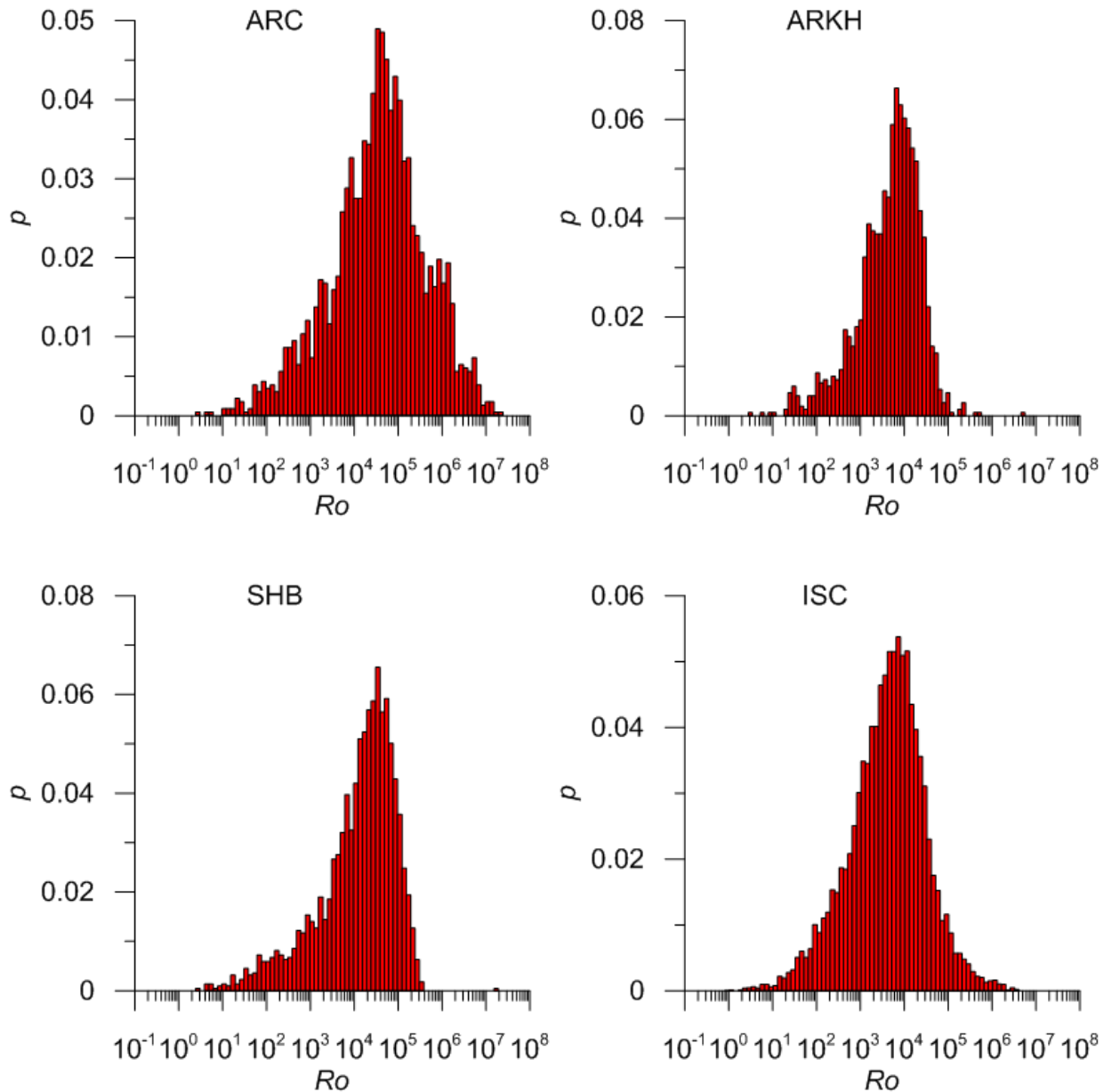
## SUPPLEMENTARY

We check the hypothesis that small events recorded in Svalbard are ice-quakes, as proposed in [18,19]. We suppose ice-quakes must have focal depth smaller than 1km. The distribution of focal depth for earthquakes with magnitude  $M \leq 2.2$  (Figure S1) shows that more than 90% events are too deep to be ice-quakes.

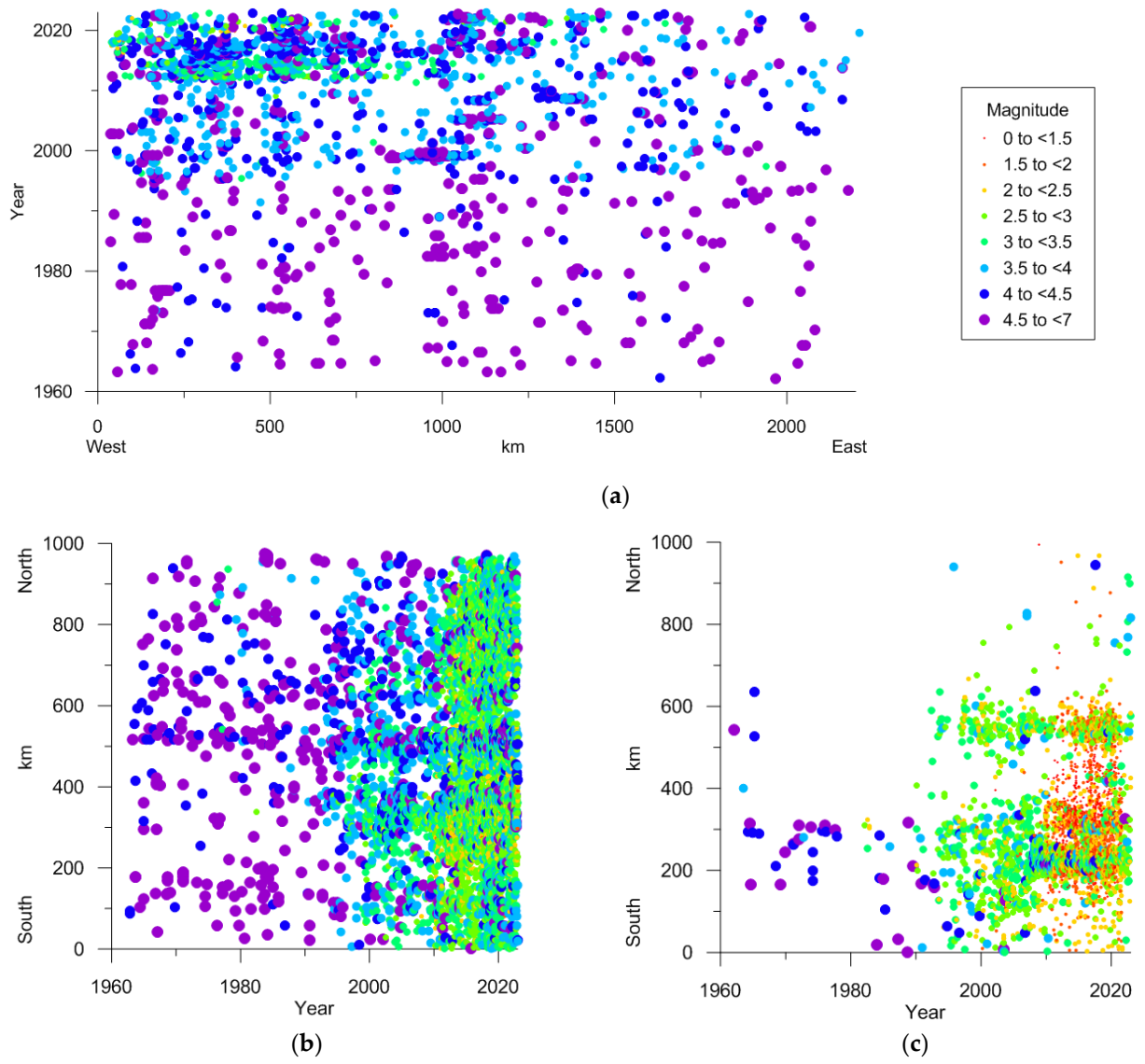


**Figure S1.** Distribution of focal depth for events with  $M \leq 2.2$  in Svalbard.

Before the merging process, each of the source catalogs (Table 1) was checked for internal duplicates. Statistical analysis did not reveal any anomalous groups of close events (Figure S2). It should be noted that duplicates typically have a metric value (1)  $Ro < 10$  [26,27]. The number of such close events within each catalog is small, and there are no statistical reasons to consider such events as duplicates. Analysis (Figure S3) was performed with metric parameters  $\sigma_T = 0.05 \text{ min}$ ,  $\sigma_X = \sigma_Y = 15 \text{ km}$ .



**Figure S2.** Distribution of the metric for events within the source earthquake catalogs (Table 1). The catalog name is indicated on the histogram.



**Figure S3.** Distribution of earthquakes in space and time. **(a)** Gakkel ridge; **(b)** Knipovich ridge; **(c)** Svalbard.