

# Ice layer detection, distribution, and thickness in the near-surface firn on Devon Ice Cap: a new dual-frequency radar characterization approach

Property of UTIG

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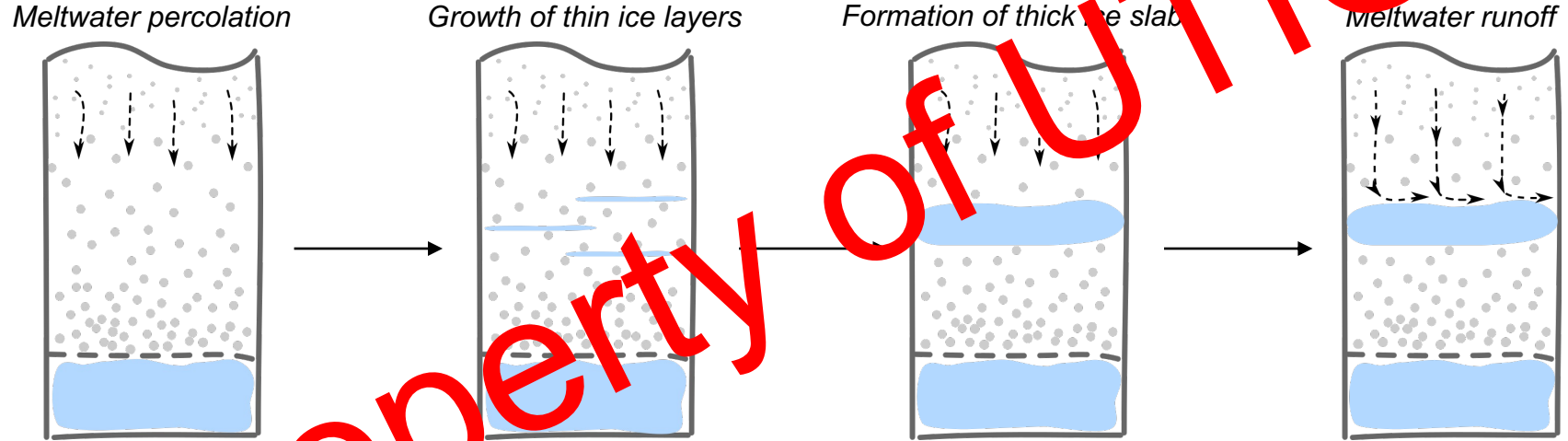
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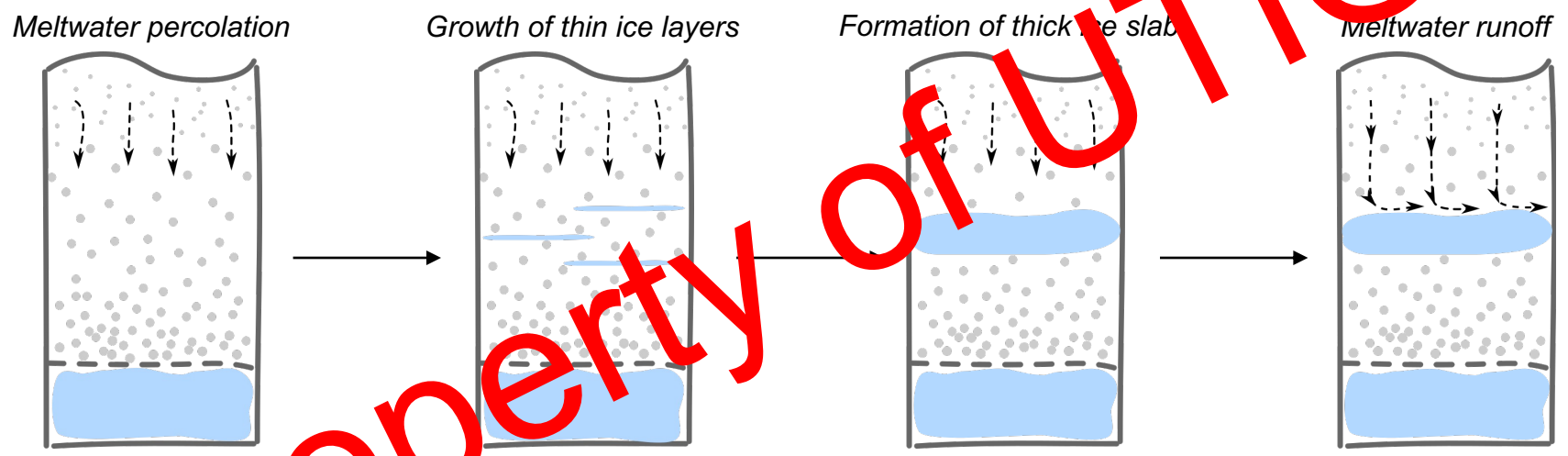
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Characterizing ice layers in firn is crucial for understanding the future runoff budget on Devon Ice Cap, as a result of increased climate warming.



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LETTER  
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## Rapid expansion of Greenland's low-permeability ice sheets

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Paper

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## Meltwater percolation, impermeable layer formation and runoff buffering on Devon Ice Cap, Canada

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## JGR Earth Surface

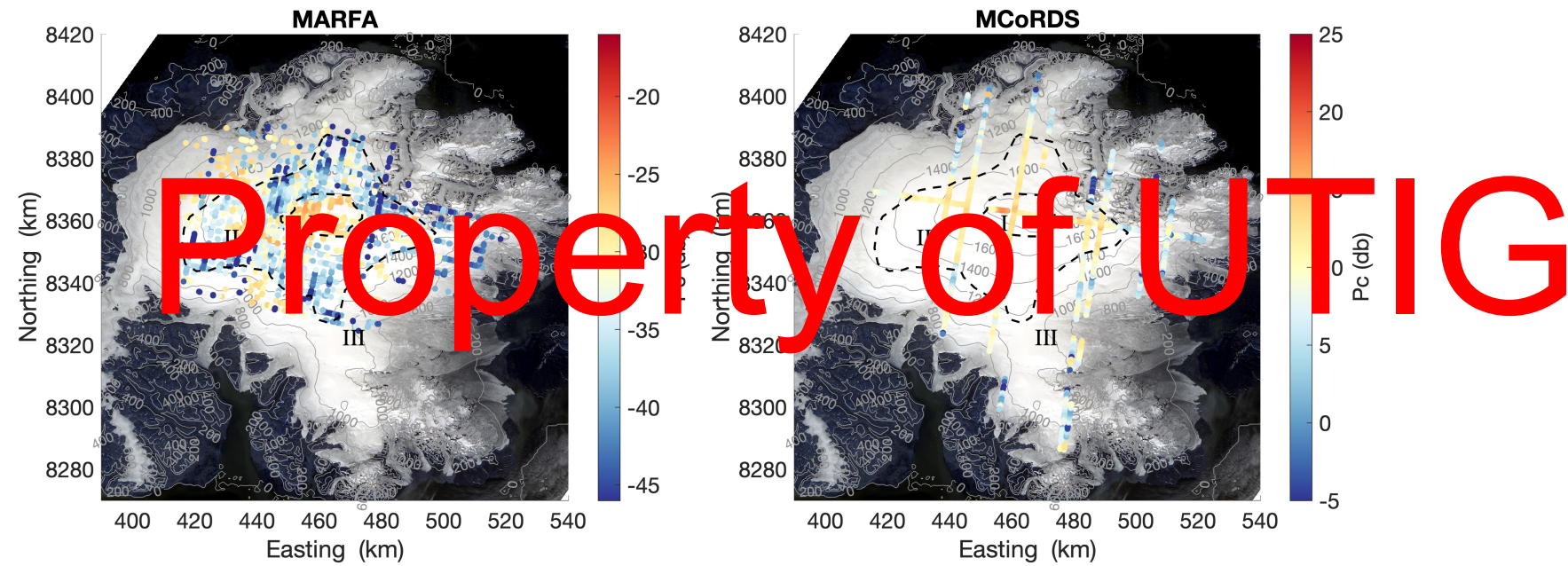
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## Changes in accumulation-area firn stratigraphy and meltwater flow during a period of climate warming: Devon Ice Cap, Nunavut, Canada

Gabrielle Gascon ✉, Martin Sharp, David Burgess, Peter Bezeau, Andrew B. G. Bush



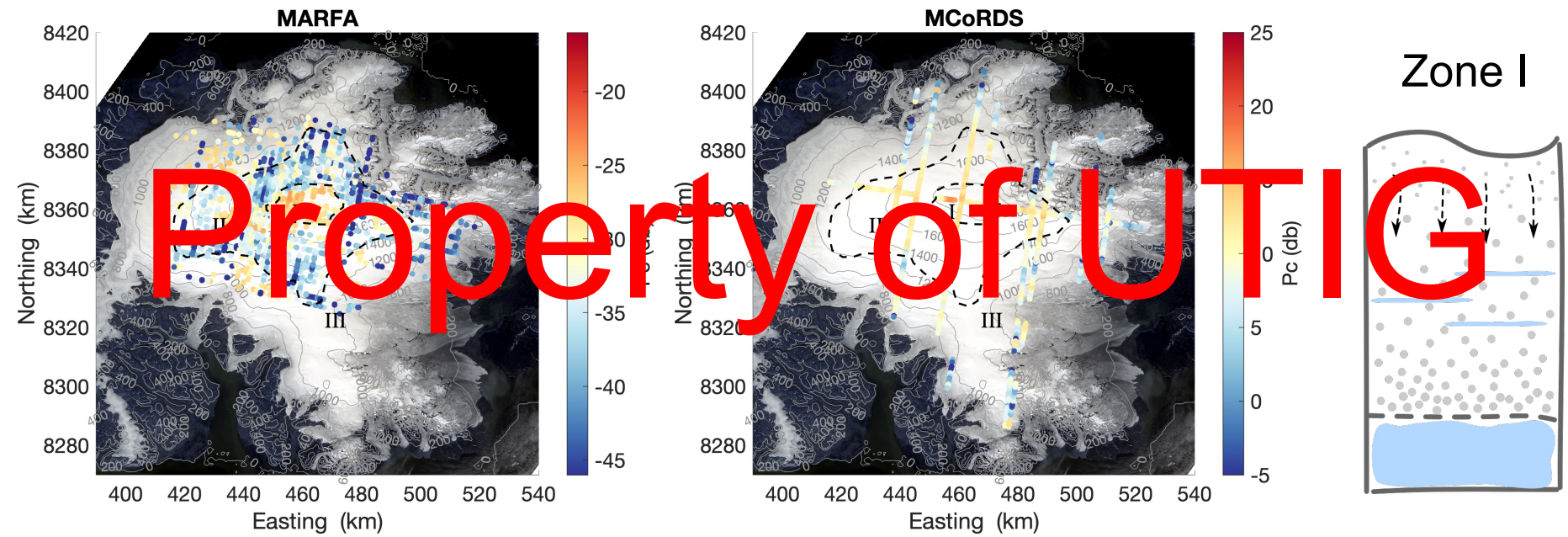
Dual-frequency airborne ice-penetrating radar (IPR) observes near-surface ice and firn layers to different vertical depths and spatial extents.



Pc is the coherent/specular component of the total surface power, derived by applying Radar Statistical Reconnaissance (RSR) to both IPR datasets (*Grima et al., 2014*).

	MARFA	MCoRDS
Center frequency (MHz)	60	195
Bandwidth (MHz)	15	30
Vertical resolution in ice (m)	8.5	4.3

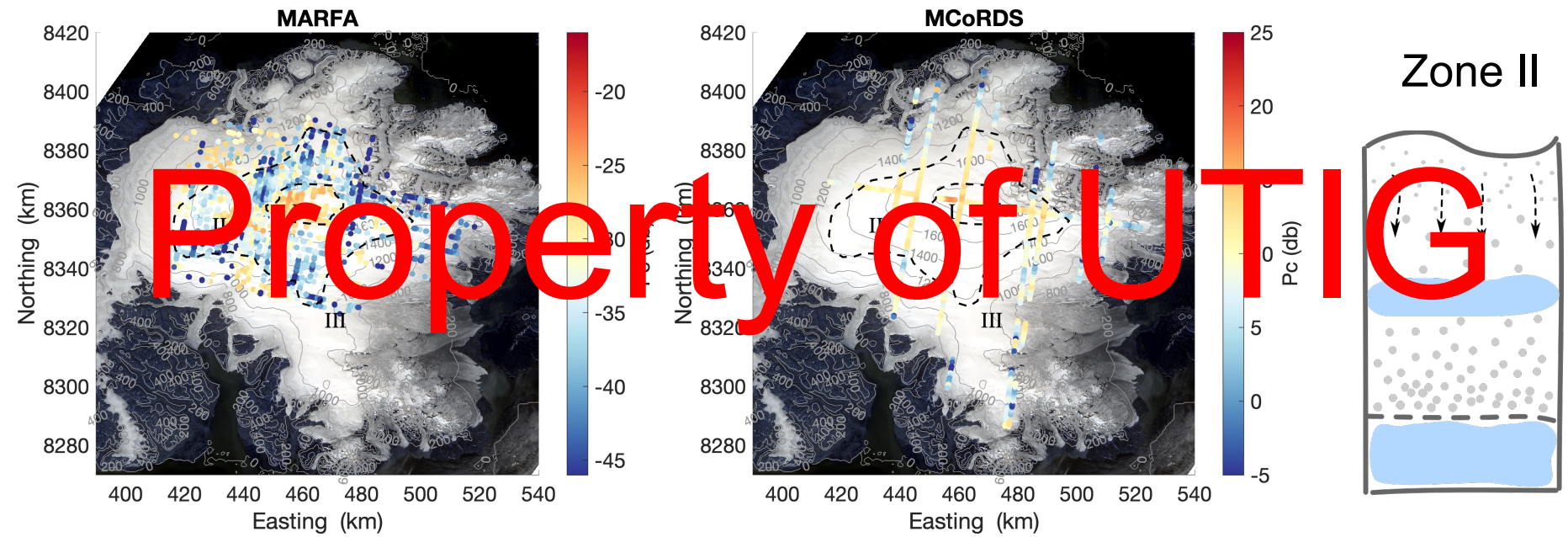
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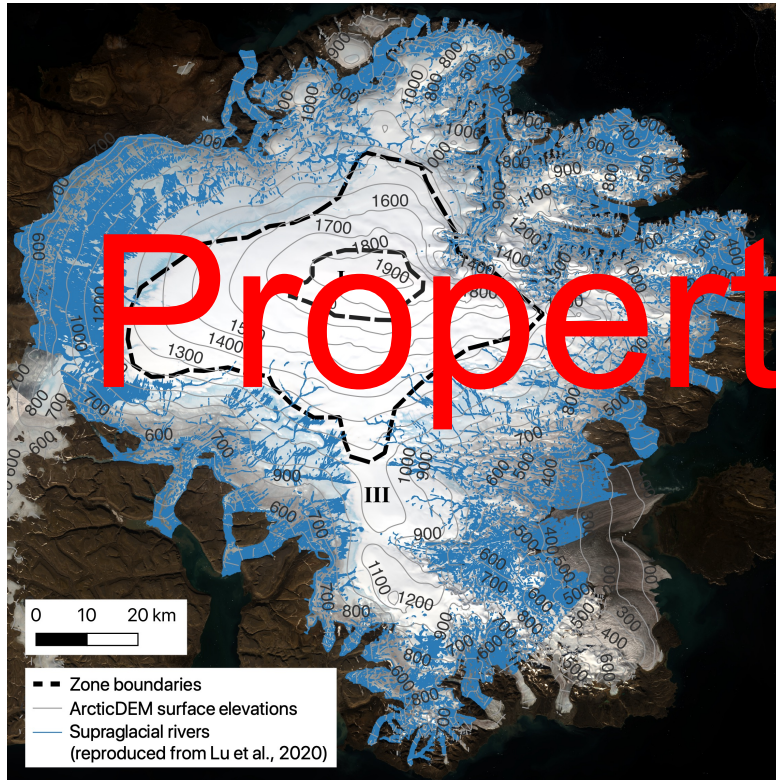


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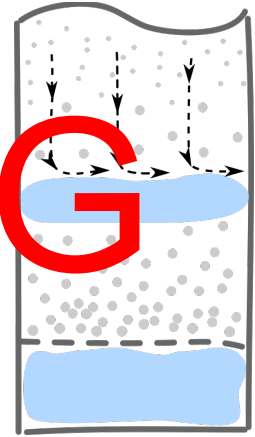


Surface meltwater runoff over ice slabs in Zone II may contribute to the total meltwater supply routed through supraglacial rivers.

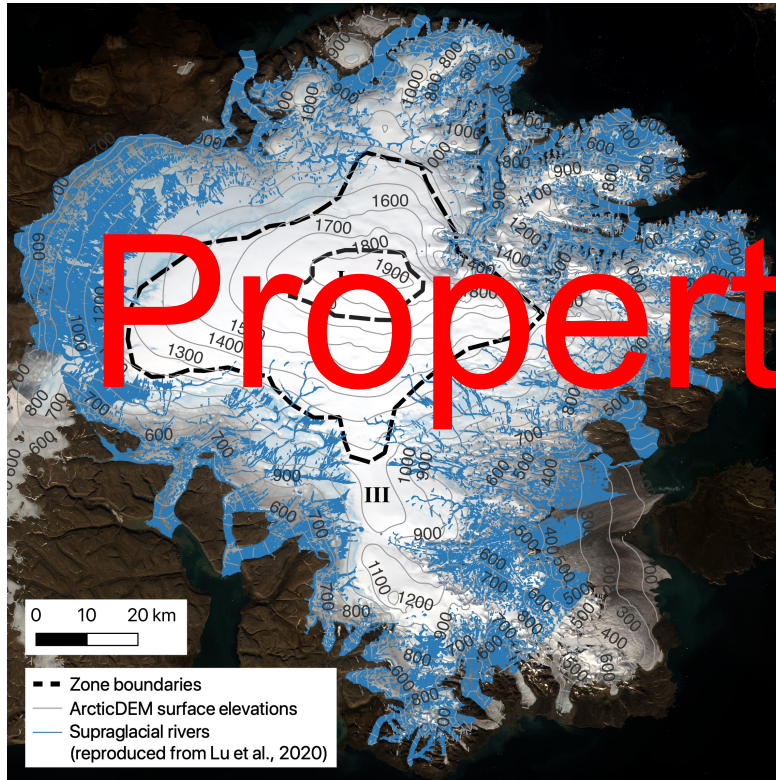


- Ice slabs are ~4.2 to 5.6 m thick in Zone II.

- Ice slabs are pervasive.
- Zone boundaries are in good agreement with optical imagery and mapped supraglacial rivers.



Surface meltwater runoff over ice slabs in Zone II may contribute to the total meltwater supply routed through supraglacial rivers.



Thank you