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PERMAFROST DEEP ORGANIC MATTER: THE IPA YEDOMA ACTION GROUP

Strauss, J.¹, Fortier, D.², Froese, D.³, Grosse, G.¹, Kanevskiy, M.⁴, Kunitzky, V.⁵, Labor, S.¹, Schirrmeister, L.¹, Shmelev, D.⁶, Veremeeva, A.⁶



¹Periglacial Research, Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Germany

²Geography Department, Université de Montréal, Montréal, Canada

³Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, Canada

⁴Institute of Northern Engineering, University of Alaska Fairbanks, Fairbanks, USA

⁵Melnikov Permafrost Institute, Yakutsk, Russia

⁶Institute of Physicochemical and Biological Problems in Soil Science Russian Academy of Sciences, Pushchino, Russia

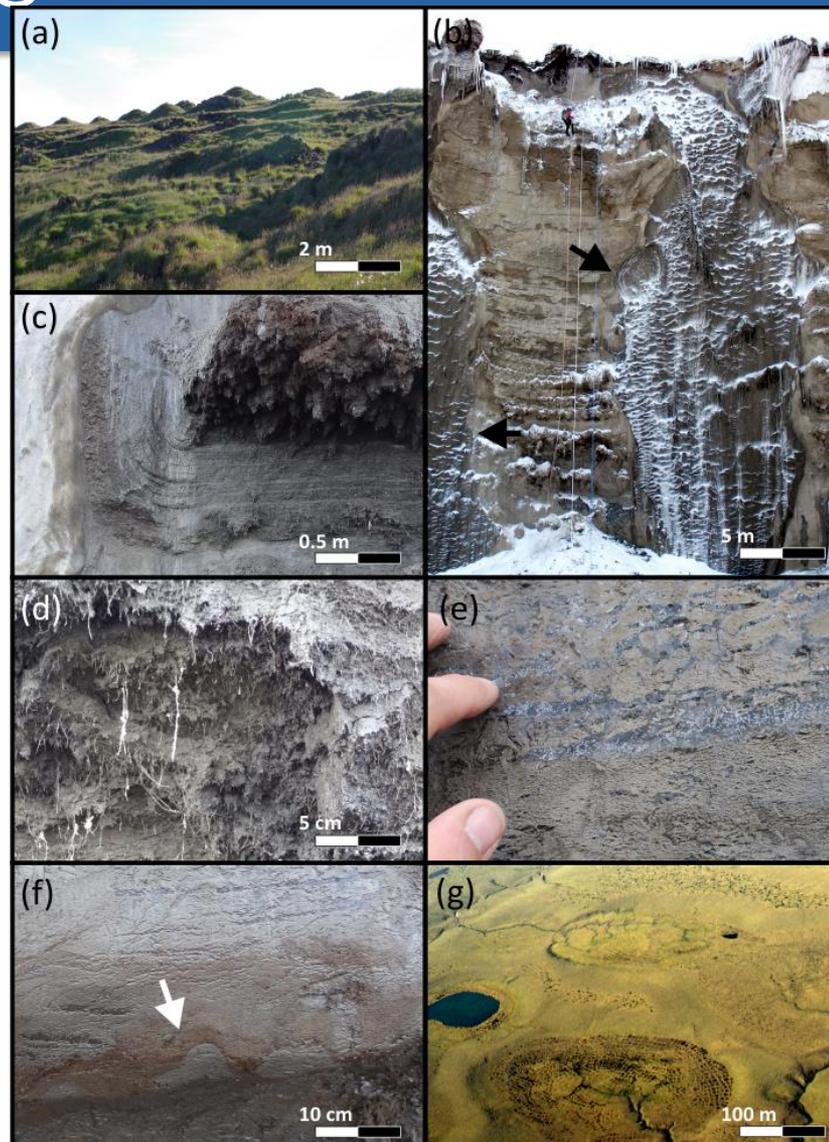


Why Yedoma Region?

This region is unique because of its high amount of:

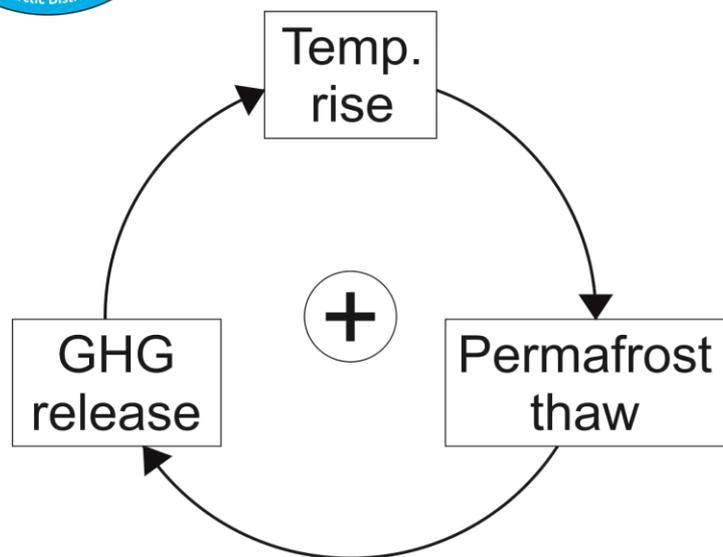
- (1) ground ice and
- (2) organic matter

which was **deeply** (up to 50 m) incorporated into permafrost during the late Quaternary



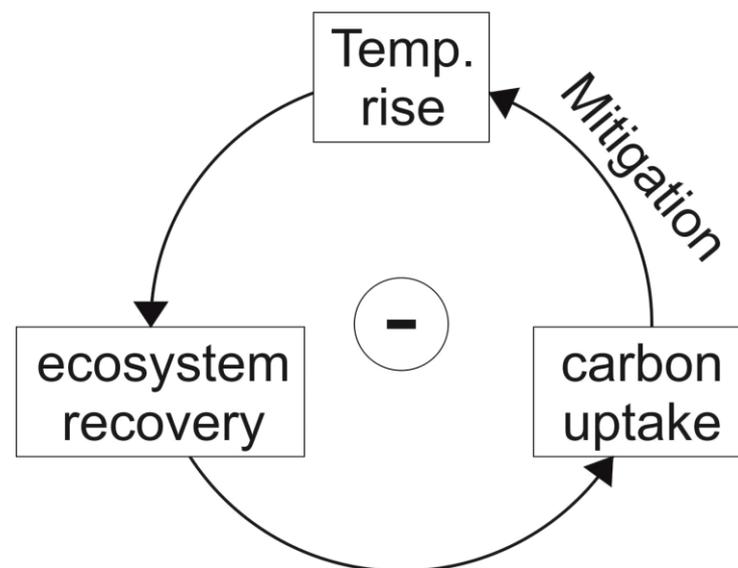


Why does this matter?



Positive Feedback, e.g.:

- Deep thermokarst development → liberation of fossil carbon by enhanced microbial activity



negative Feedback, e.g.

- Enhanced vegetation development → favourable temperatures and liberation of fresh nutrients



Yedomia – a sleeping giant?

Giant © Andrea Hopf und Markus Seirer



Introduction

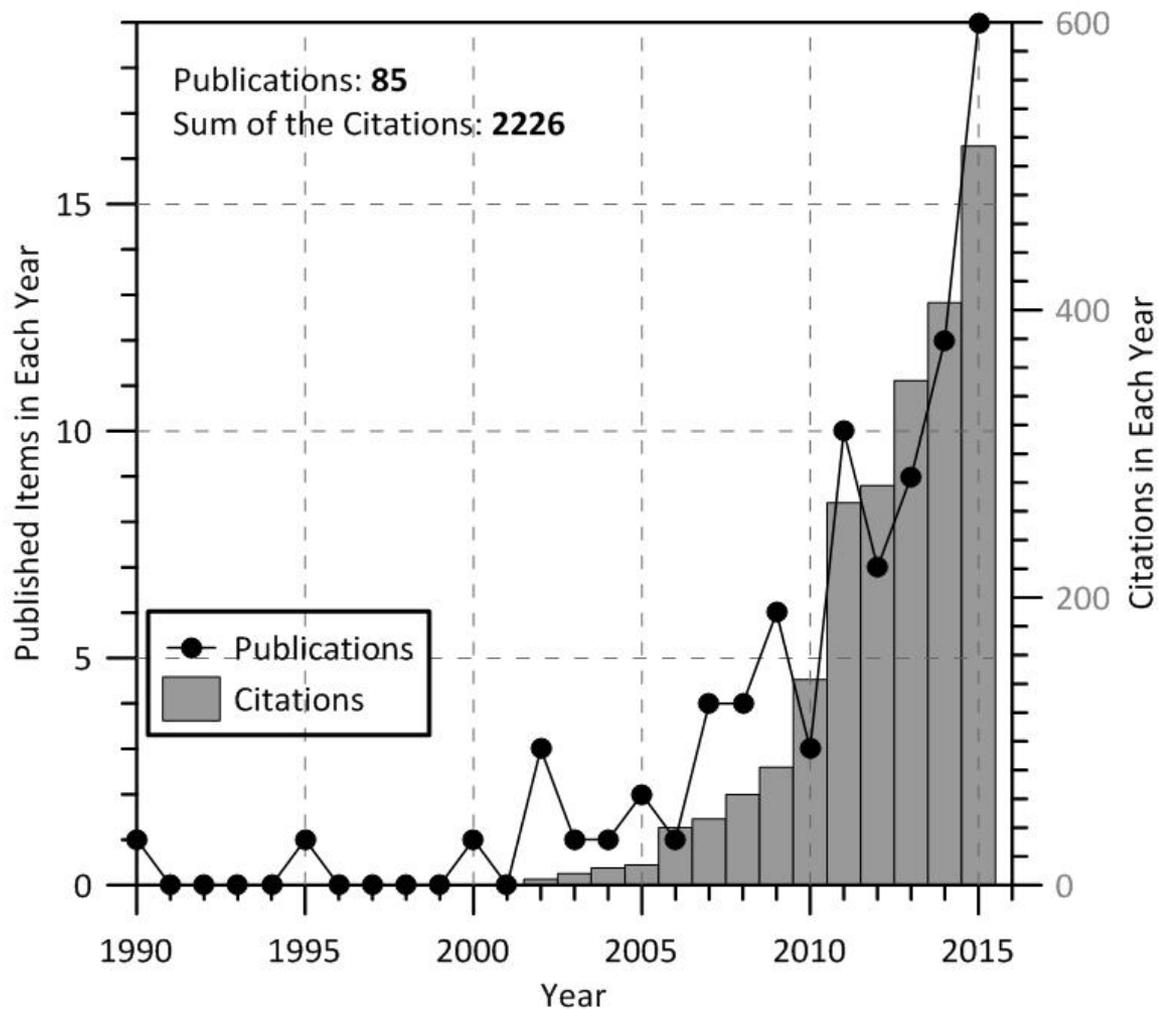
Material and Methods

Results and Discussion

Conclusions



Yedoma in scientific papers



Introduction

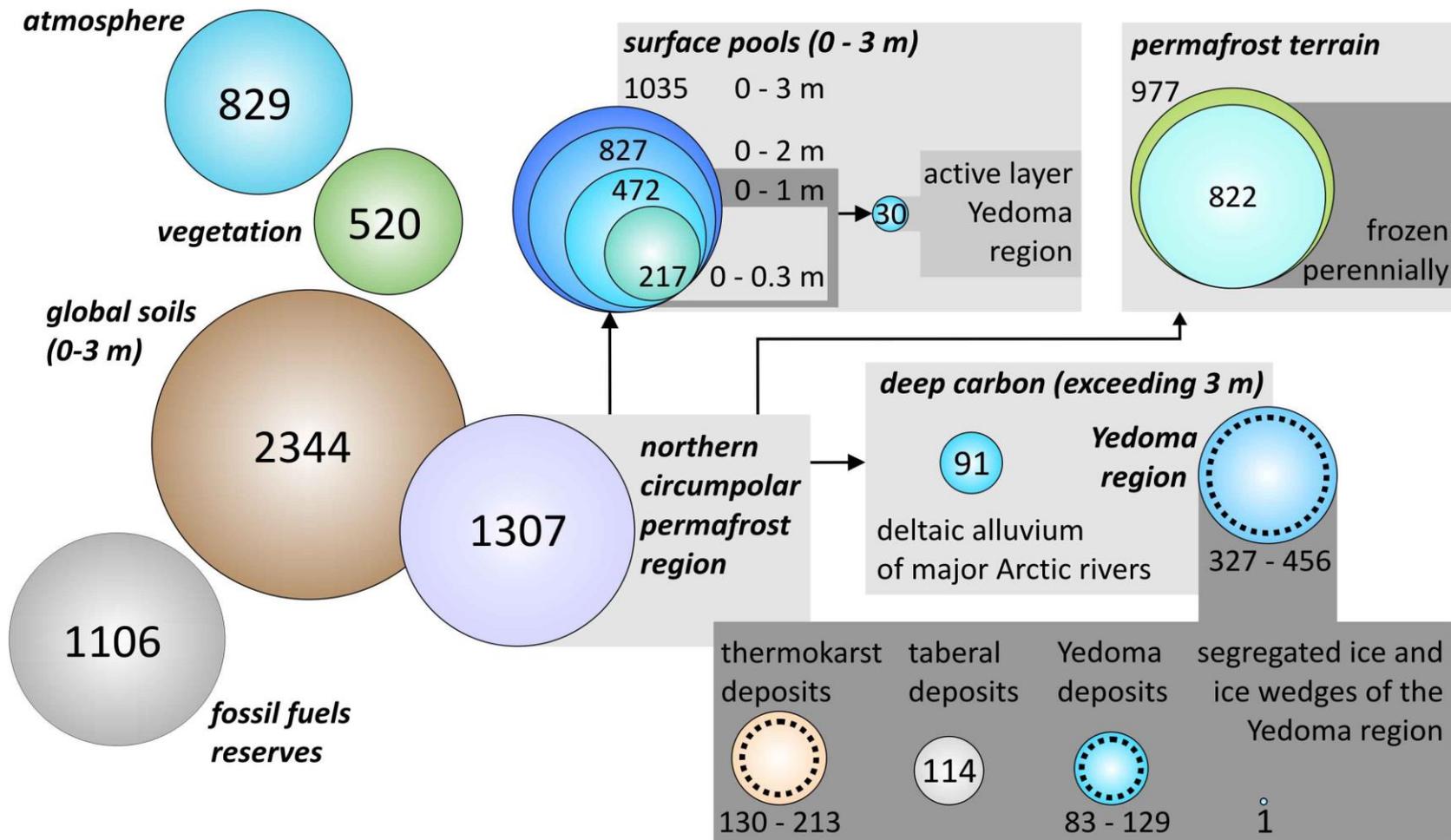
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Yedoma synthesis paper



Introduction

Material and Methods

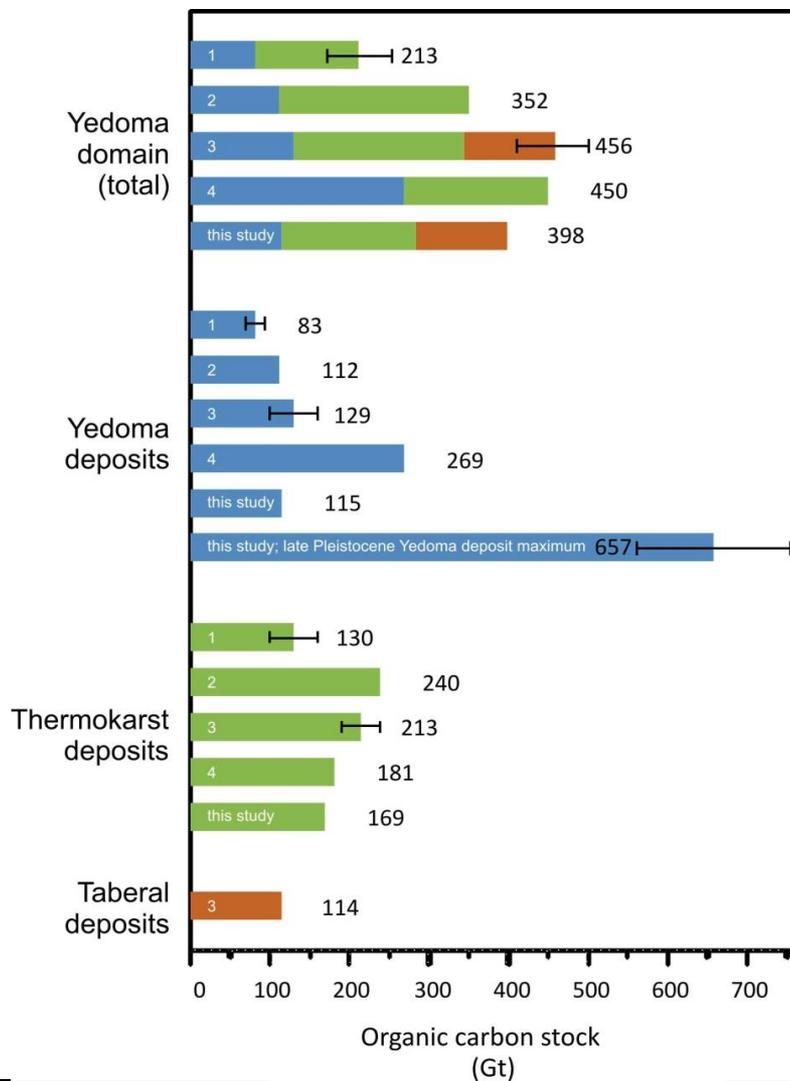
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Strauss et al., submitted



Yedoma synthesis paper





Yedoma uncertainty map

Uncertainty classes:

- **confirmed by field data**
- **confirmed by explicit classification in map**
- **confirmed by context of lithology and field data**
- **likely** (intersects explicit classification of QG2500k map)
- **likely** (lithologic and stratigraphic context)
- **uncertain** (stratigraphic context)



Yedomia picture database

<http://apgc.awi.de/>

doi:10.1594/PANGAEA.861395

Introduction

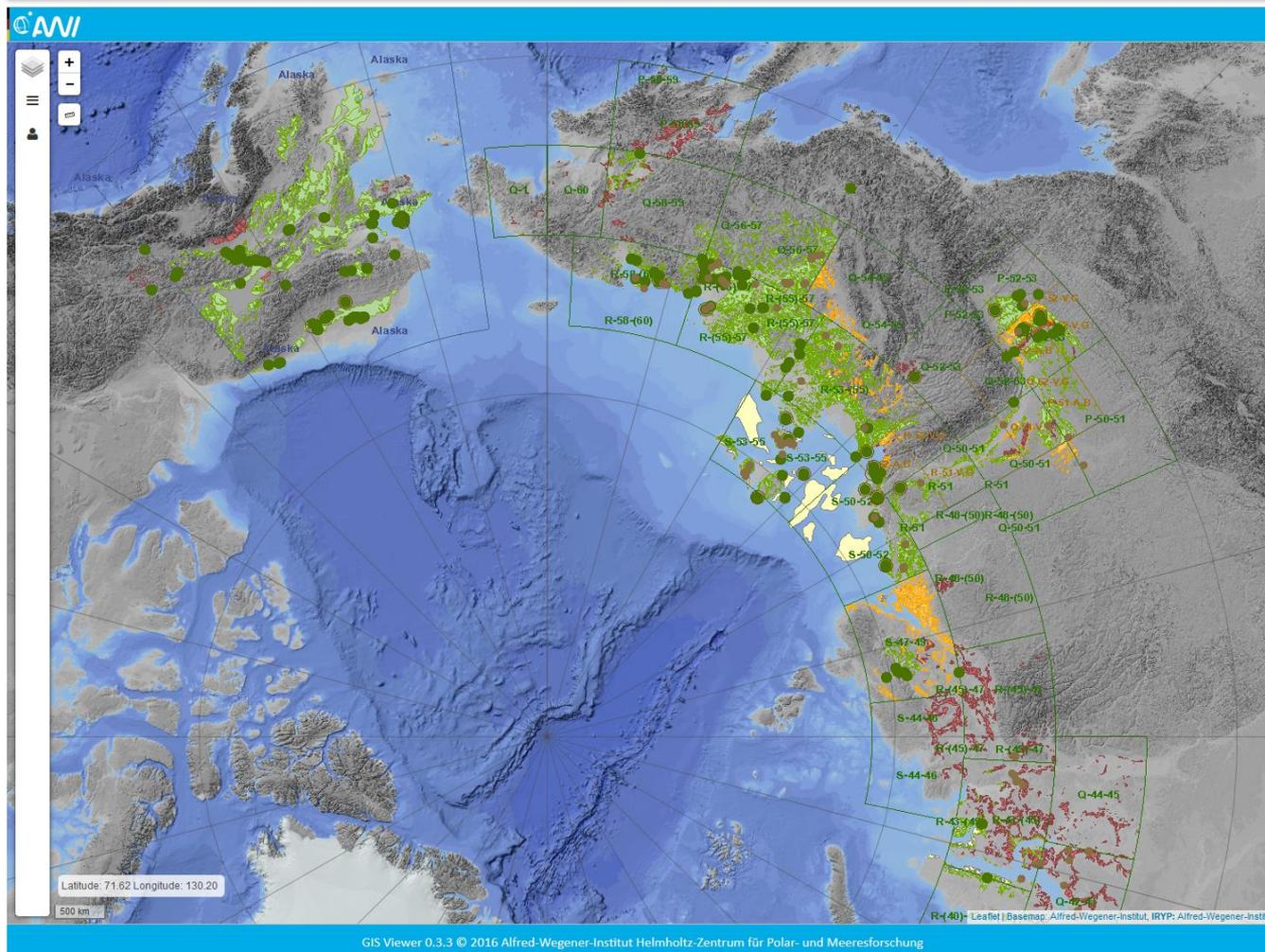
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Yedoma webGIS



<http://apgc.awi.de/>

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Deliverables

- **Preliminary versions** of the map, picture database, and database published already
- **Yedomia synthesis paper** submitted
- **Yedomia map** paper in preparation
- **Yedomia database** paper in preparation
- **Wikipedia articles** in different languages in preparation



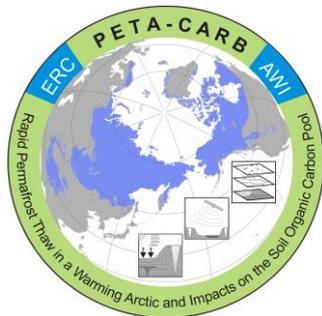
Yedoma synthesis paper

- Yedoma domain contains >25% of the frozen carbon of the permafrost area, while covering only 7% of this region (**398 gigatons**)
- Greenhouse gas loss from Yedoma is orders of magnitudes lower than current human-caused emissions, **but** could be **persistent** and **increasing** in the future.



Thank you

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