Degradation of mercury (Hg) signals on *incipient weathering* refines use of Hg as a volcanic paleoproxy

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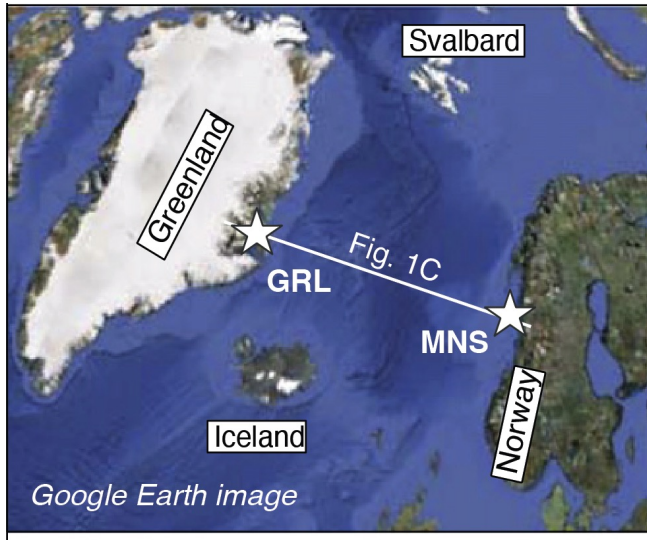
Introduction

Mercury signals have been used as an indicator of LIPs.

Hg/TOC can be misleading for extremely weathered samples (Charbonnier et al., 2020)

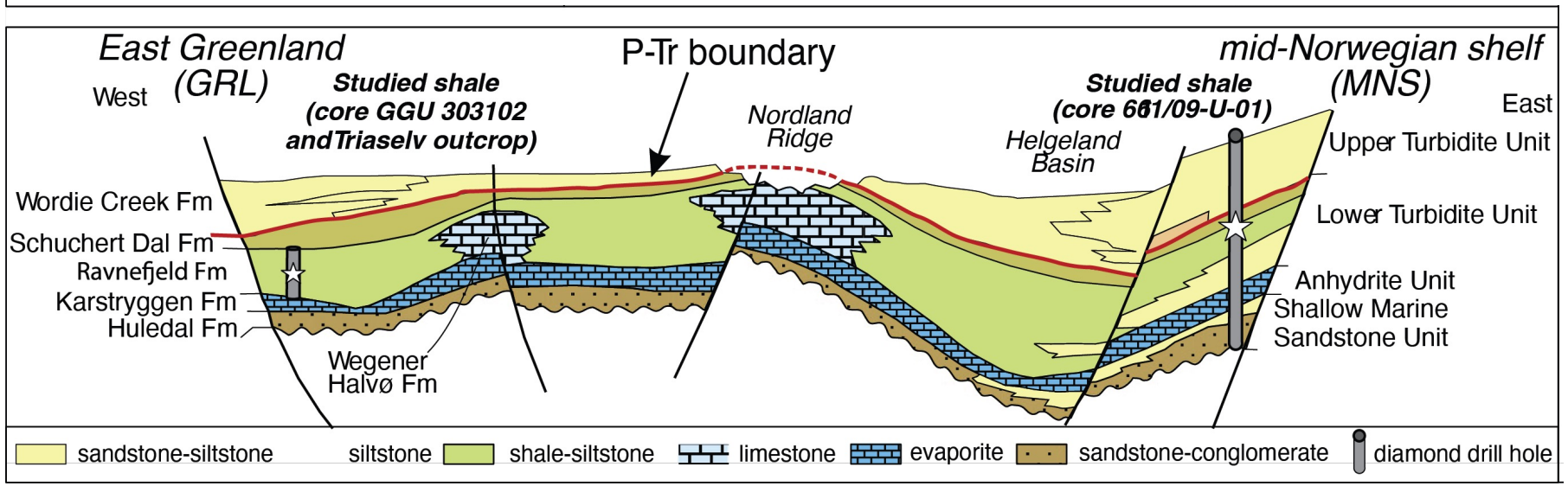
What if sediment is *incipiently* weathered?

Geological setting



Organic-rich shale from
the Upper Permian Ravnefjeld Formation

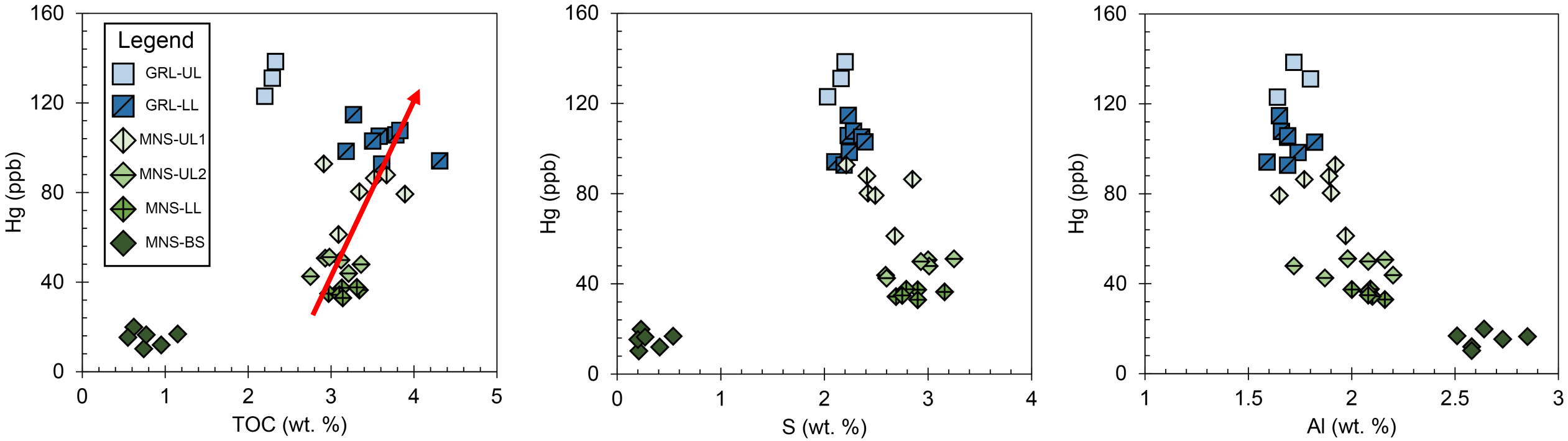
GRL – East Greenland (drill core & outcrop)
MNS – Mid Norwegian shelf (drill core)



from Bugge et al. (2002), as modified by Georgiev et al. (2011)

Identifying the host of Hg

Park et al., in revision, *Chemical Geology*



- Positive correlation with TOC – main host of Hg

→ **Organic matter**

- Sulfide and clay

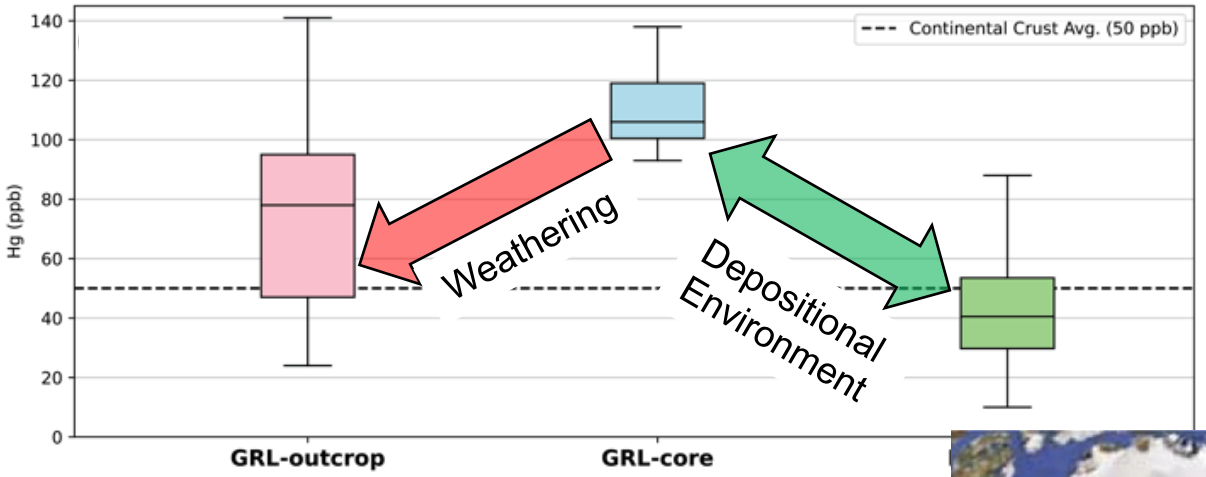
→ **ruled out** by negative correlations with S and Al

Reason for Hg change

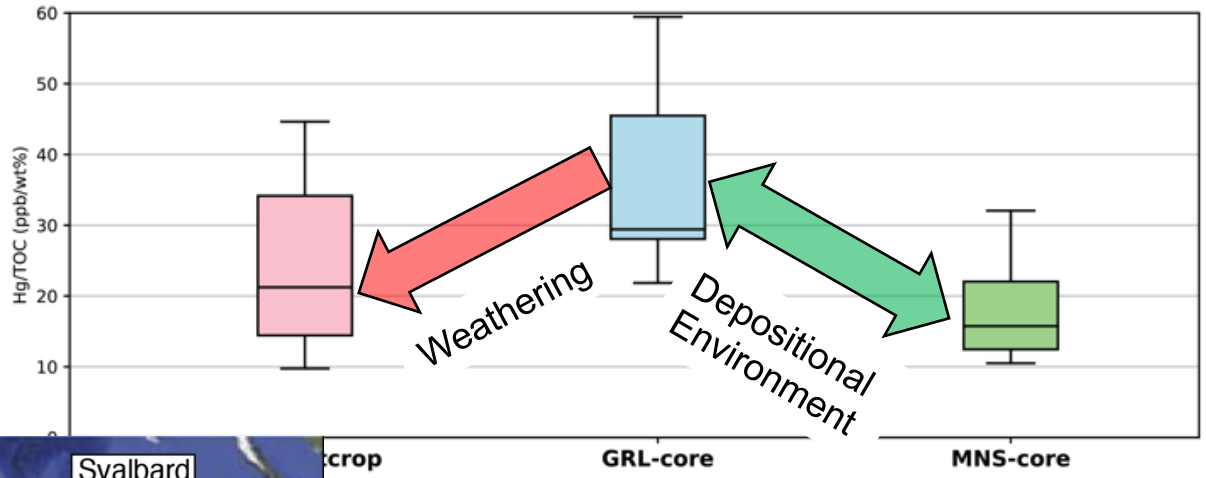
Park et al., in revision, *Chemical Geology*

Principal component analysis reveals that (1) depositional conditions differ between GRL and MNS
(2) Hg concentrations decrease during *incipient* weathering

Hg concentrations



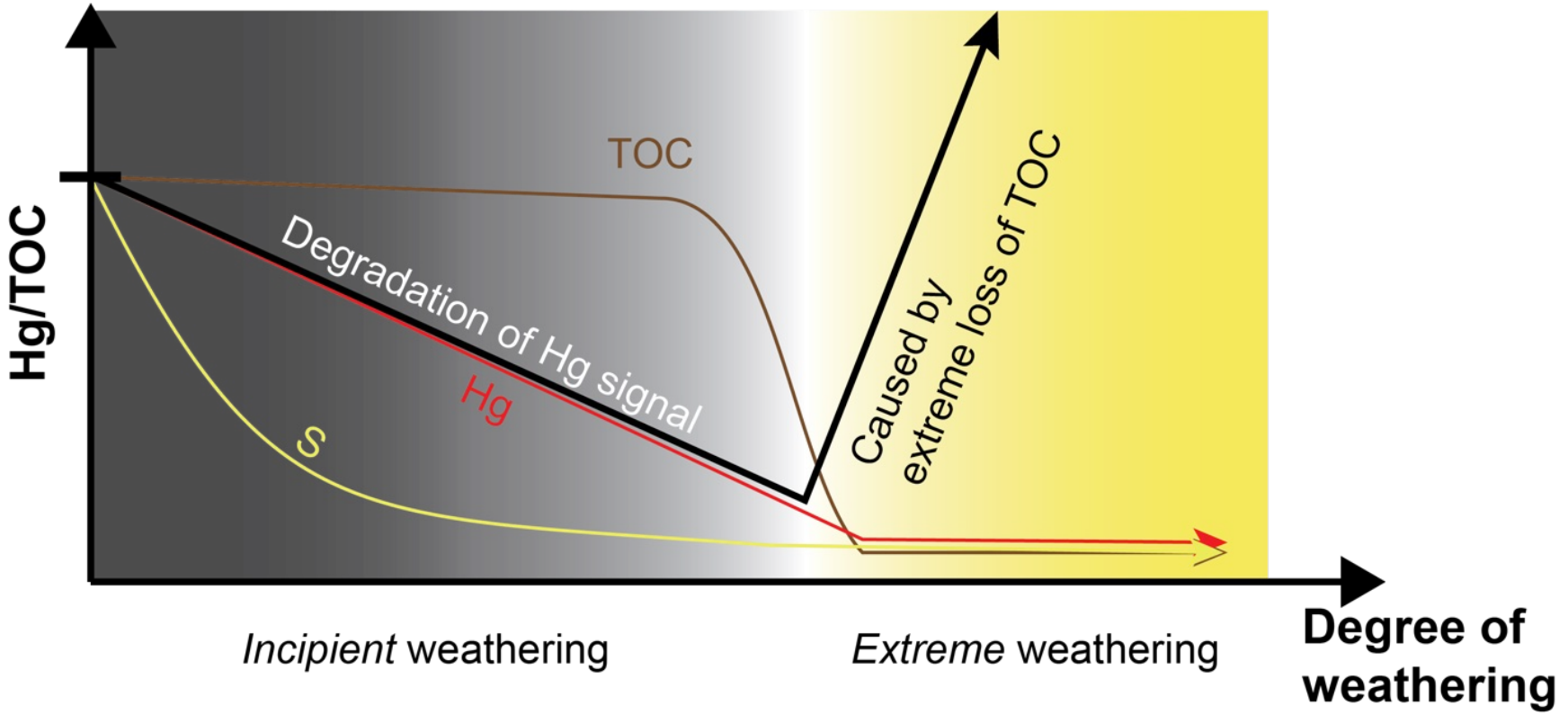
Hg/TOC ratios



Conclusions

Thank you so much for your attention! Any questions?

Contact me at – Juni.Park@colostate.edu



Identification of weathering is essential prior to interpretations of paleoenvironmental conditions based on the Hg geochemistry of outcrop samples.

Park et al., in revision, *Chemical Geology*