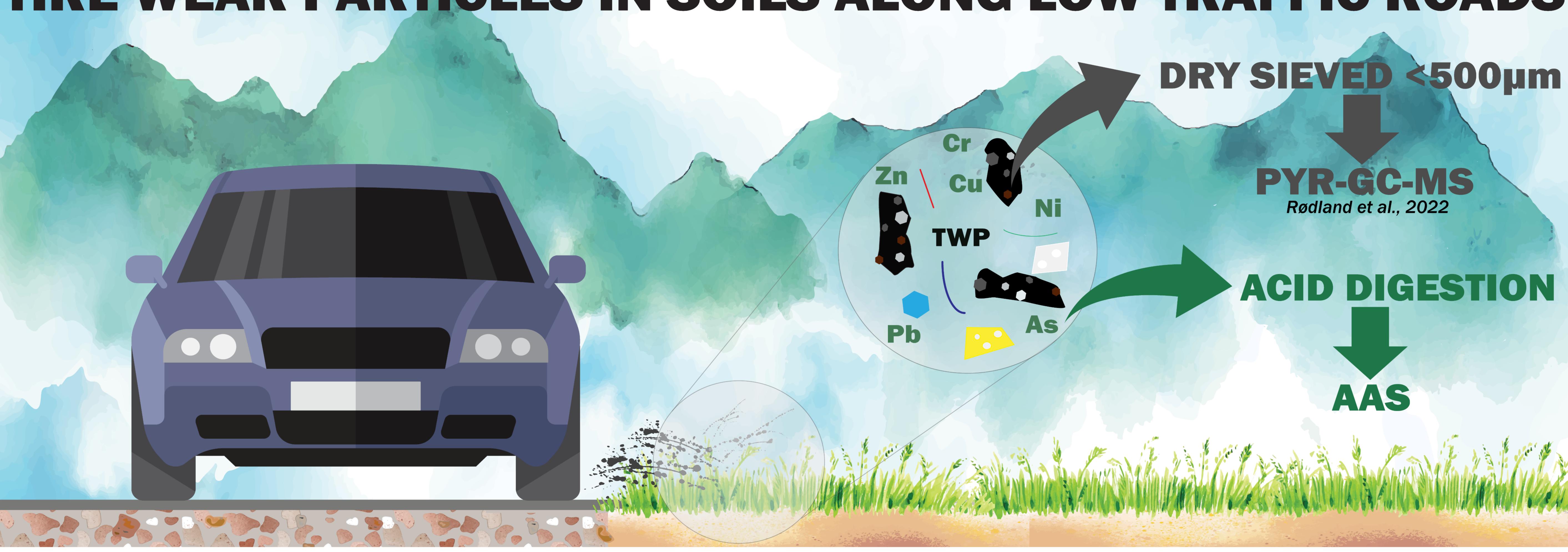


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TIRE WEAR PARTICLES IN SOILS ALONG LOW TRAFFIC ROADS



APPROACH

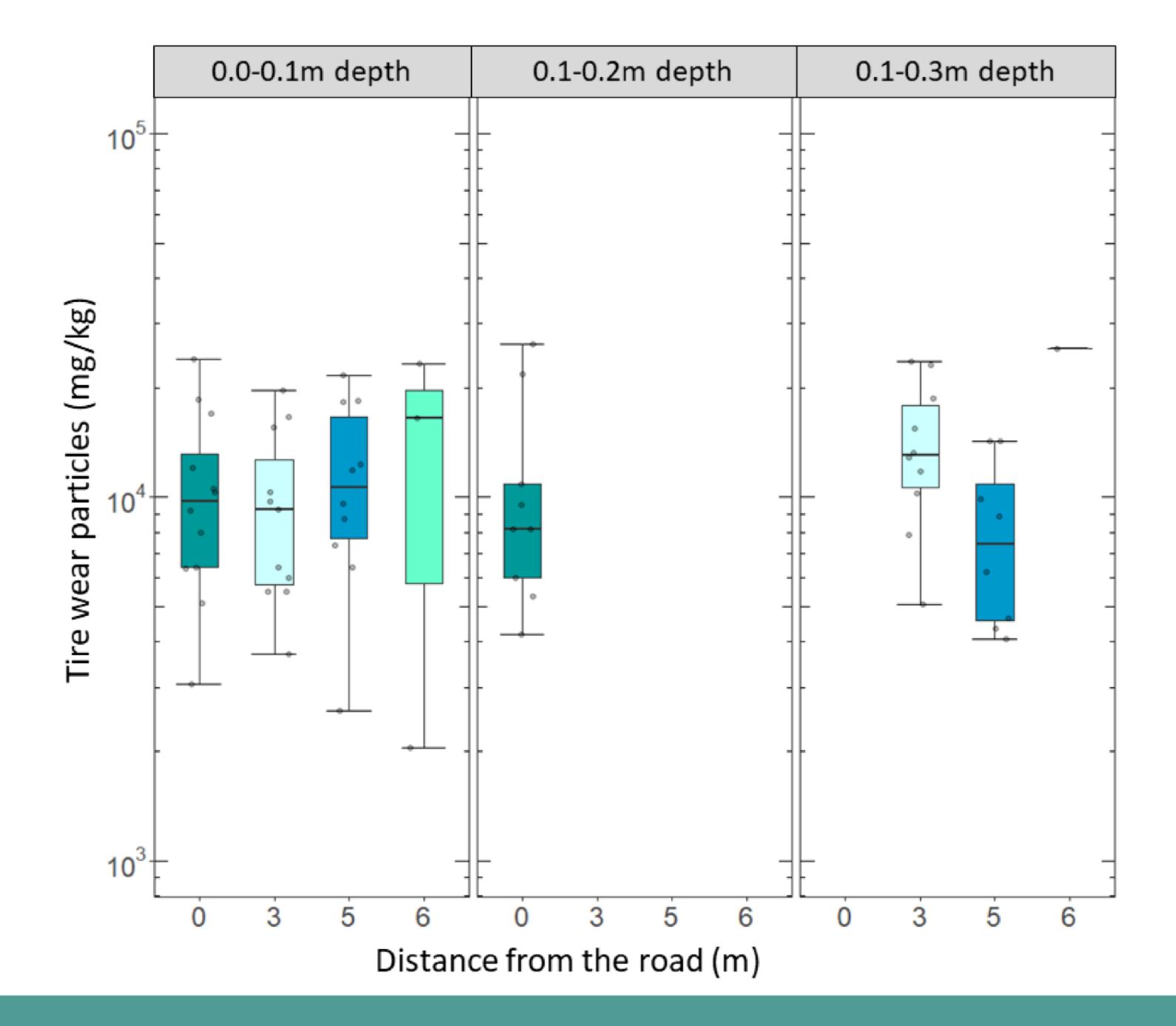
Road soil from 15 low traffic sites (650-14250v/d) in Norway were collected from 0m-6m distance and at 0-0.1m and 0.1-0.2m depth. Each sample is collected as a mix sample (n=5) from 100-200m using a shovel. The goal of the study was to investigate the relationship between tire wear particles (TWP), metals, traffic variables and soil variables using multivariate statistical tools.

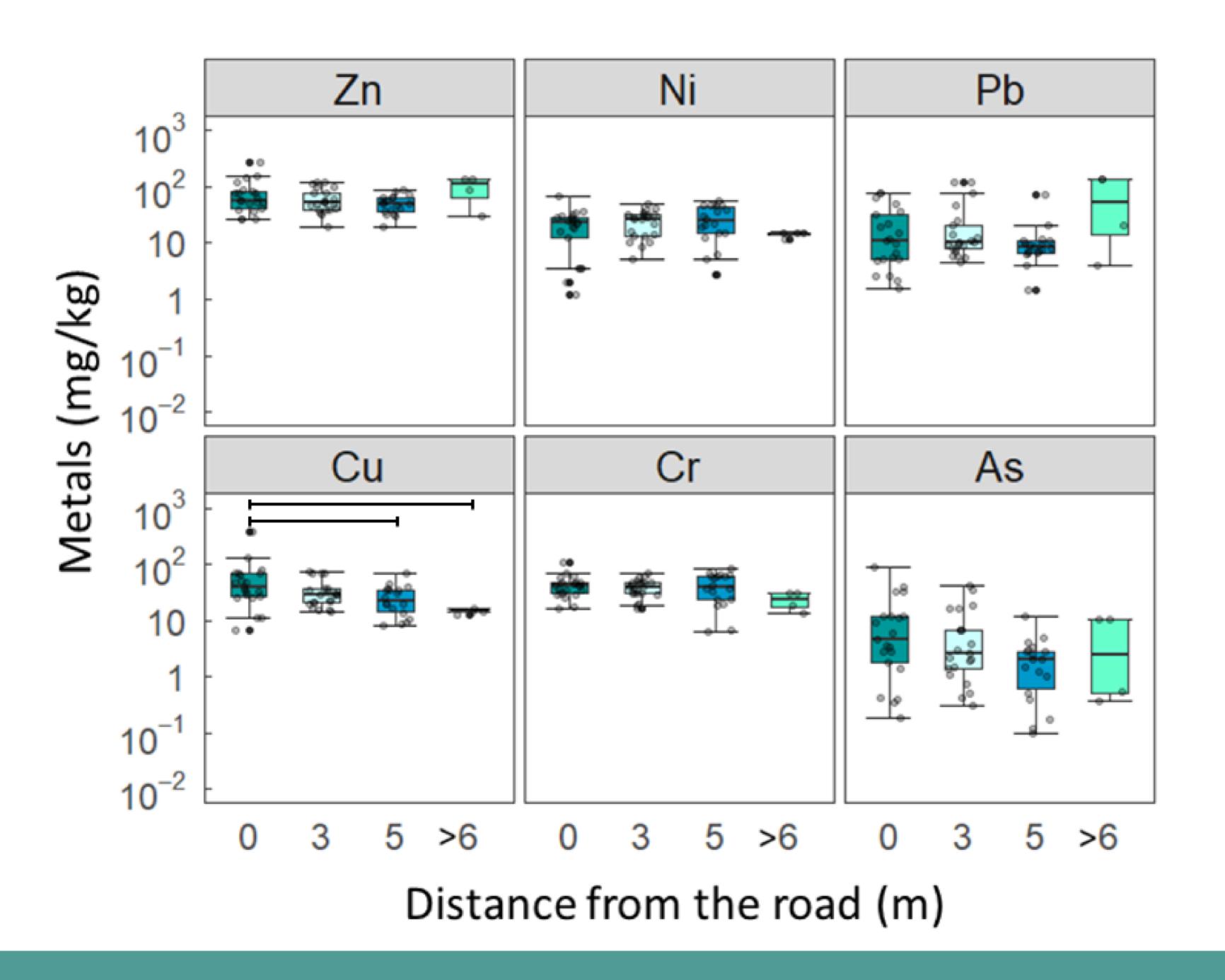
Hypothesis

- 1) Low levels of TWP and metals along low-traffic roads compared to high-traffic urban roads
- 2) TWP and metals in roadside soils are strongly correlated
- 3) TWP and metals are strongly correlated to traffic and soil variables

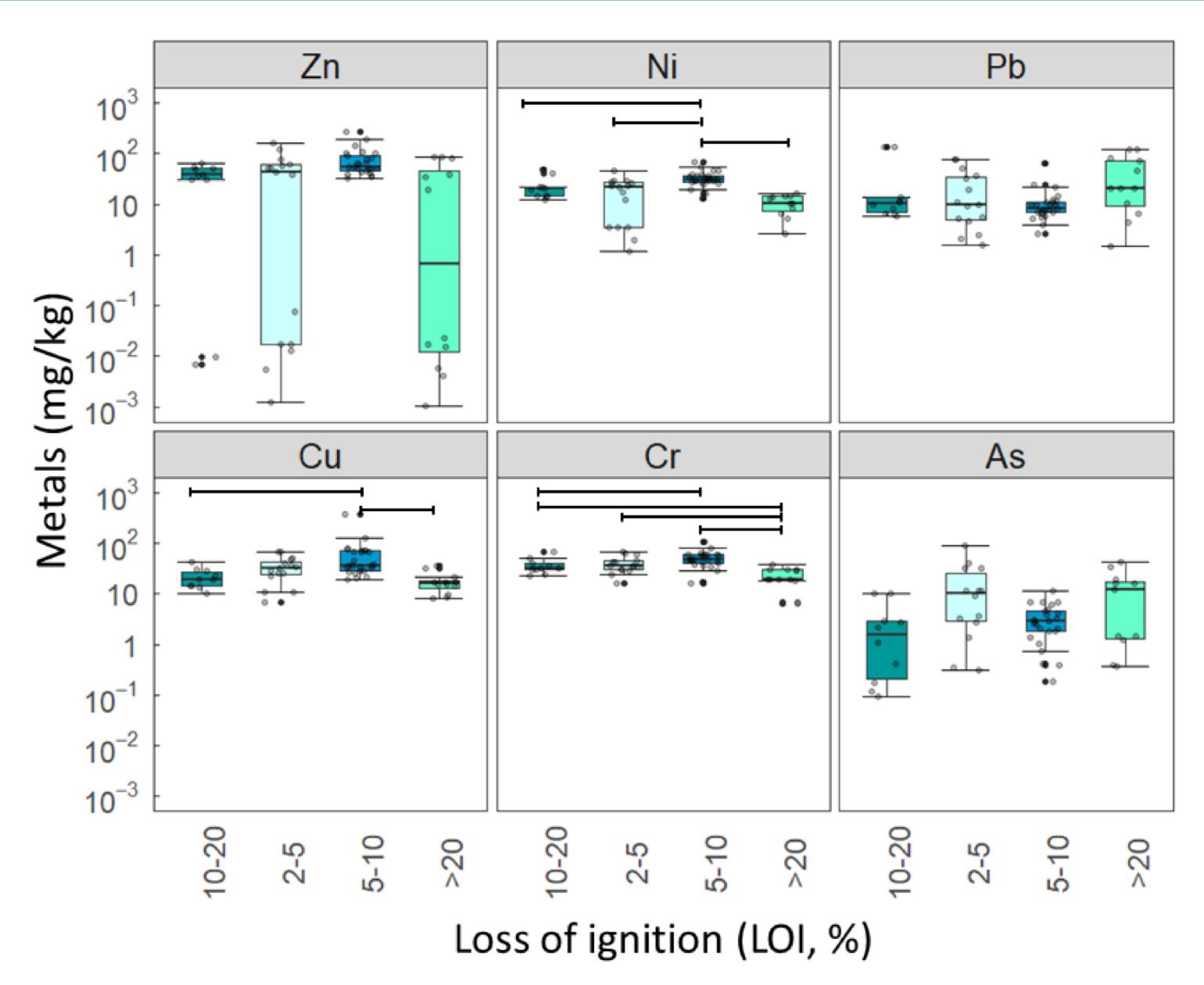
RESULTS

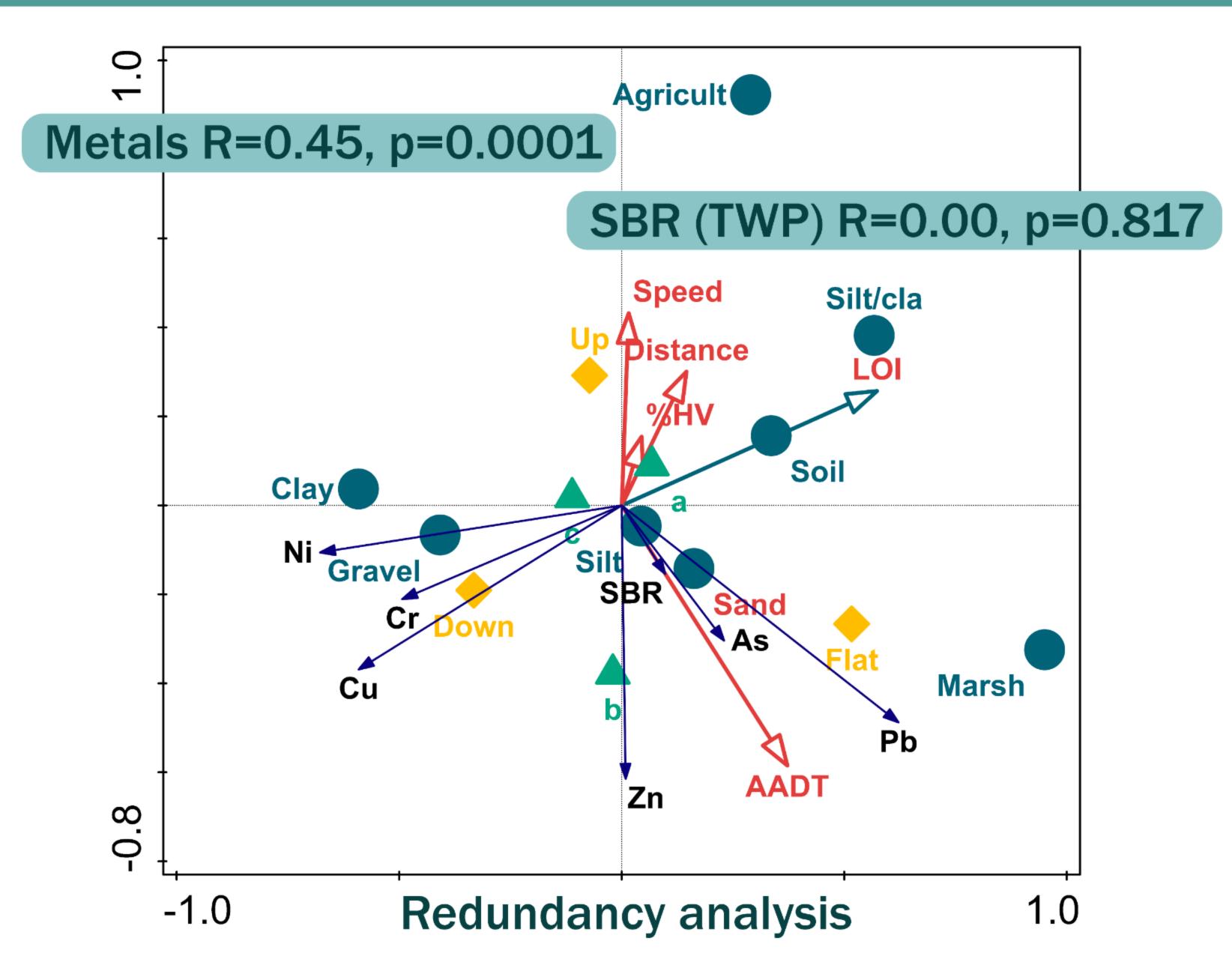
High levels of TWP (2000-26400 mg/kg) and metals in soils along low traffic density No variation in depth or distance observed for TWPs or metals





Traffic density (11%) and organic matter (10%) explains most variation of metals No relationship between TWP, traffic variables or soil variables observed





CONCLUSIONS

Roadside soils can retain and accumulate

significant relationship found for different

TWPs and metals at high levels, but no

TWP levels up to 5x previously reported

Elevated levels of zinc (Zn) found

no significant relationship with TWP.

levels from medium to high traffic roads.

types of soil.

Elevated levels of arsene (As), nickel (Ni), lead (Pb) and chromium (Cr) due to high natural background level of the area.

FUTURE PERSPECTIVES

Sampling should be done with soil corers to allow for more discrete depth analysis.

Future soil studies should focus more on removal of organic matter before analysis with PYR-GC-MS.

More attention on low traffic roads and the relationship between traffic variables are needed to understand mitigation effects.

All posters from NIVA





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