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Supplement of

Atmospheric wet and dry deposition of trace elements at 10 sites in Northern China

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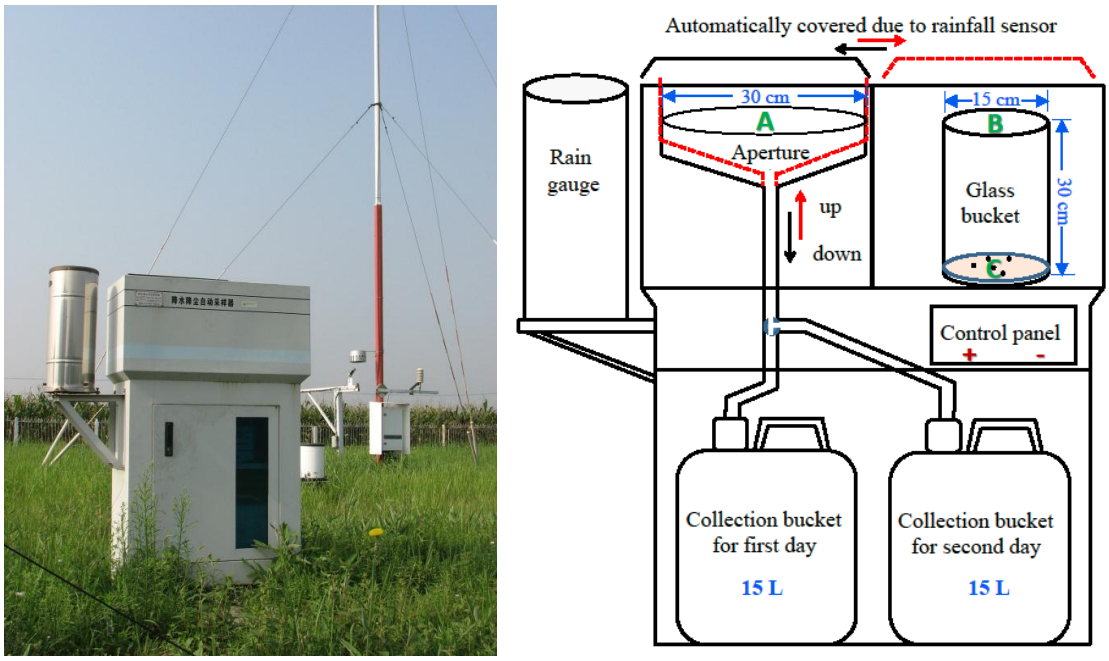

Figure S1. The automated wet and dry deposition sampler used in this study. The agricultural station of Yucheng in Shandong Province (left) and a schematic diagram of the sampler with the main apparatus (right): rainfall sampler (a), dry deposition bucket (b), and PUF filter for sampling dry deposited particles (c).

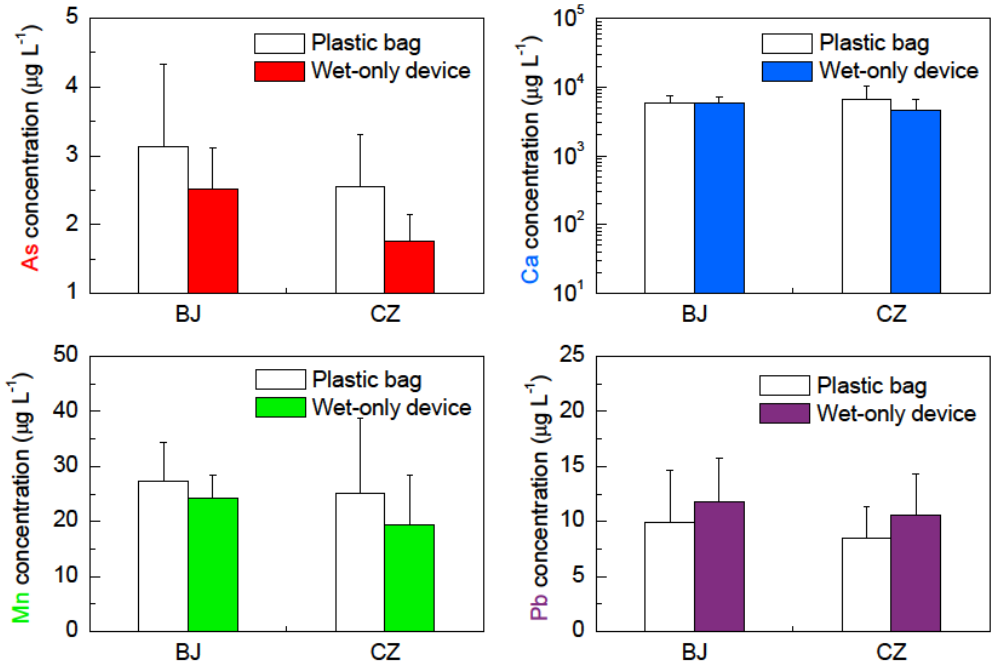

Figure S2. Rainfall metal concentrations concurrently collected by the plastic bag and the automatic sampler at the sites of BJ (n=5) and CZ (n=4). Figure was adopted from Pan (2010).

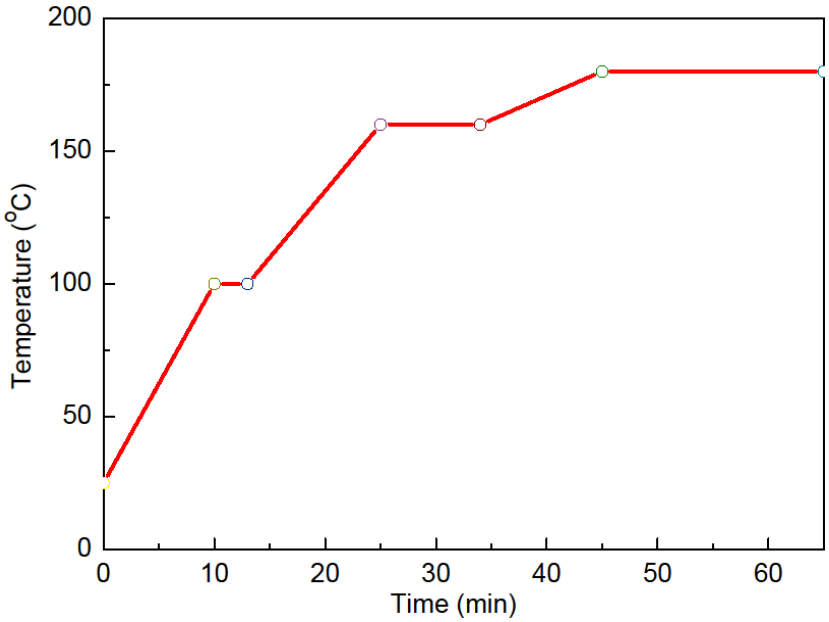

Figure S3. Temperature-controlled microwave digestion of a PUF filter with dry-deposited particles using 5 ml HNO_3, 2 ml H_2O_2 and 0.2 ml HF. Method was adopted from Pan et al. (2010).

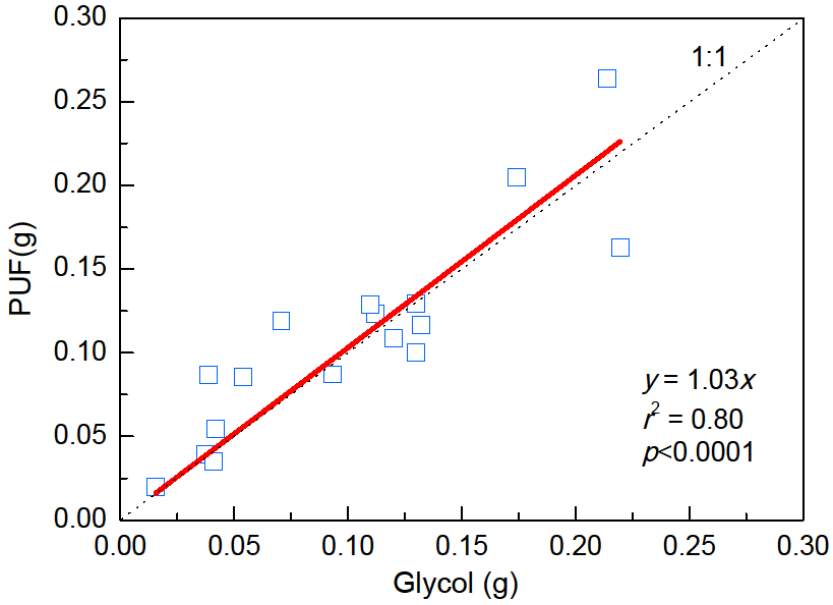

Figure S4. Comparison of atmospheric dry deposited mass collected by different surrogate surface on a monthly basis at the BJ and CZ sites. Figure was adopted from Pan et al. (2010).

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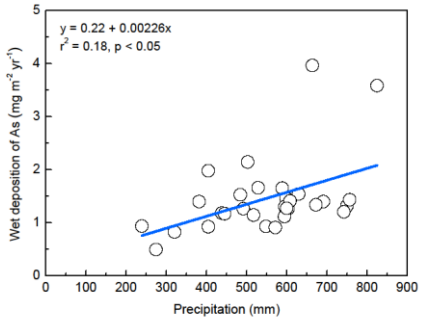
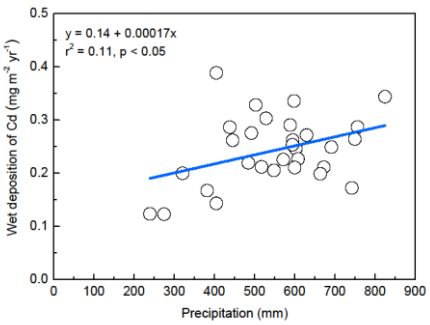
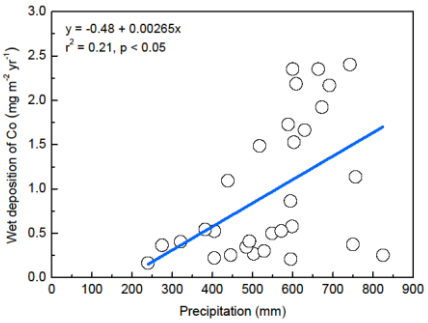
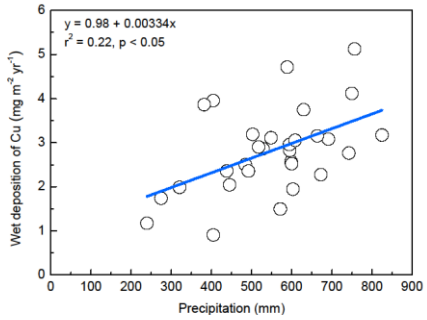

y = 0.22 + 0.00226x
r² = 0.18, p < 0.05
Wet deposition of As (mg m⁻² yr⁻¹)
Precipitation (mm)

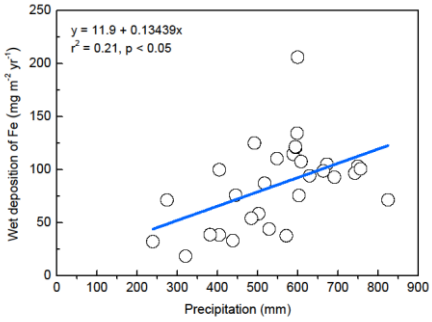

y = 0.14 + 0.00017x
r² = 0.11, p < 0.05
Wet deposition of Cd (mg m⁻² yr⁻¹)
Precipitation (mm)

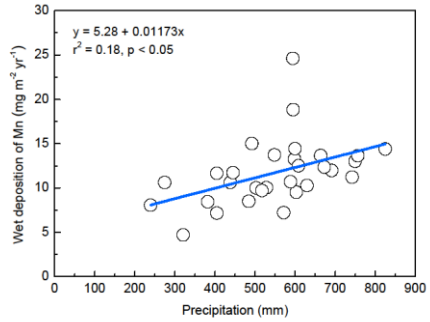
23


y = -0.48 + 0.00265x
r² = 0.21, p < 0.05
Wet deposition of Co (mg m⁻² yr⁻¹)
Precipitation (mm)

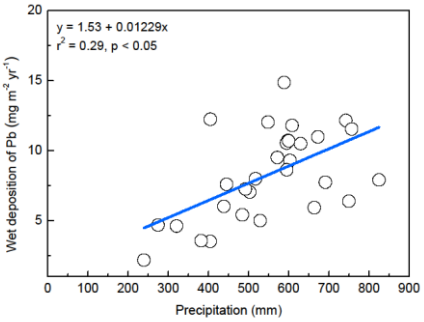

y = 0.98 + 0.00334x
r² = 0.22, p < 0.05
Wet deposition of Cu (mg m⁻² yr⁻¹)
Precipitation (mm)

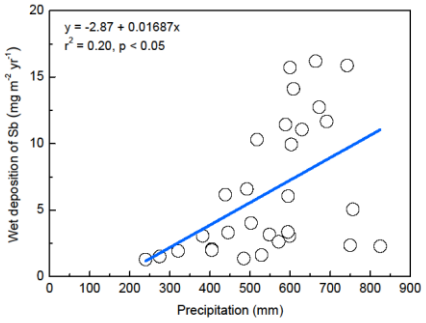
24


y = 11.9 + 0.13439x
r² = 0.21, p < 0.05
Wet deposition of Fe (mg m⁻² yr⁻¹)
Precipitation (mm)

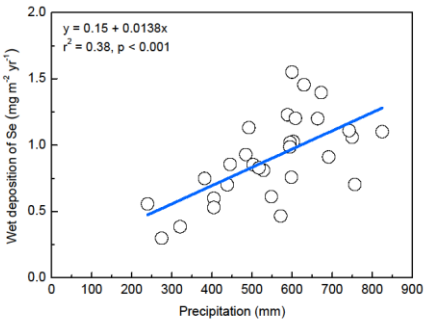

y = 5.28 + 0.01173x
r² = 0.18, p < 0.05
Wet deposition of Mn (mg m⁻² yr⁻¹)
Precipitation (mm)

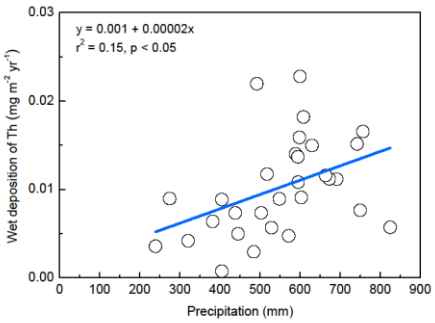
25

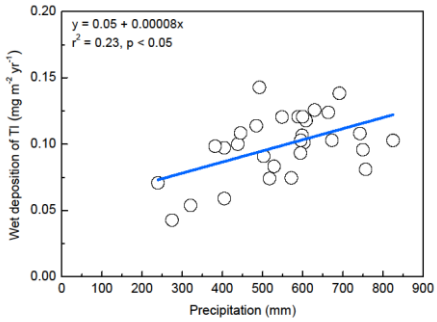

y = 1.53 + 0.01229x
r² = 0.29, p < 0.05
Wet deposition of Pb (mg m⁻² yr⁻¹)
Precipitation (mm)

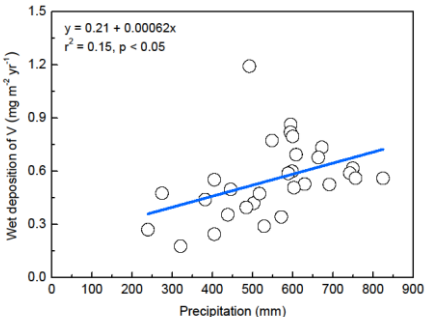

y = -2.87 + 0.01687x
r² = 0.20, p < 0.05
Wet deposition of Sb (mg m⁻² yr⁻¹)
Precipitation (mm)

26

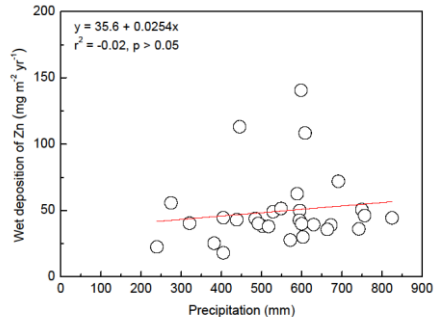

y = 0.15 + 0.0138x
r² = 0.38, p < 0.001
Wet deposition of Se (mg m⁻² yr⁻¹)
Precipitation (mm)

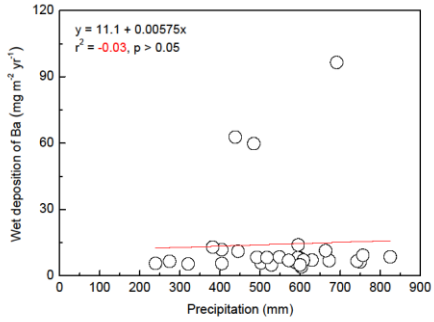

y = 0.001 + 0.00002x
r² = 0.15, p < 0.05
Wet deposition of Th (mg m⁻² yr⁻¹)
Precipitation (mm)


y = 0.05 + 0.00008x
r² = 0.23, p < 0.05
Wet deposition of Tl (mg m⁻² yr⁻¹)
Precipitation (mm)

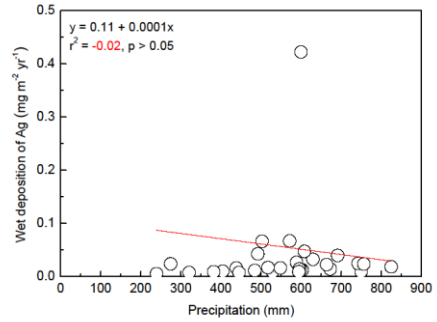

y = 0.21 + 0.00062x
r² = 0.15, p < 0.05
Wet deposition of V (mg m⁻² yr⁻¹)
Precipitation (mm)

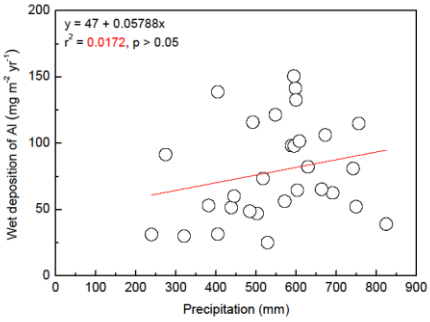
27


y = 35.6 + 0.0254x
r² = -0.02, p > 0.05
Wet deposition of Zn (mg m⁻² yr⁻¹)
Precipitation (mm)

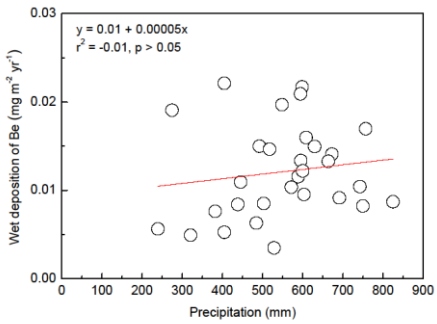

y = 11.1 + 0.00575x
r² = -0.03, p > 0.05
Wet deposition of Ba (mg m⁻² yr⁻¹)
Precipitation (mm)

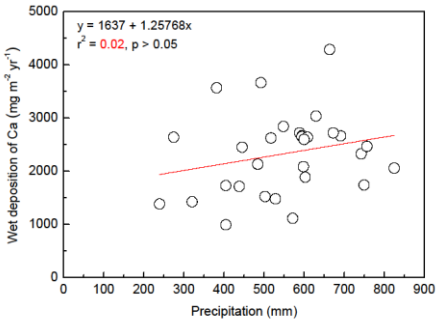
28


y = 0.11 + 0.0001x
r² = -0.02, p > 0.05
Wet deposition of Ag (mg m⁻² yr⁻¹)
Precipitation (mm)

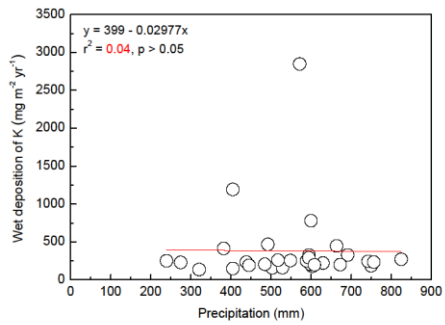

y = 47 + 0.05788x
r² = 0.0172, p > 0.05
Wet deposition of Al (mg m⁻² yr⁻¹)
Precipitation (mm)

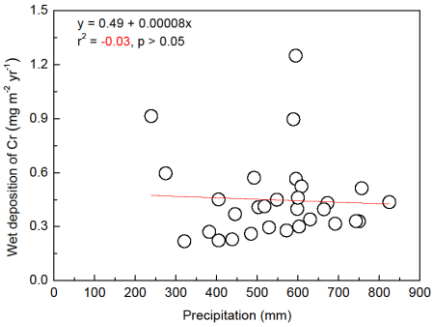
29


y = 0.01 + 0.00005x
r² = -0.01, p > 0.05
Wet deposition of Be (mg m⁻² yr⁻¹)
Precipitation (mm)


y = 1637 + 1.25768x
r² = 0.02, p > 0.05
Wet deposition of Ca (mg m⁻² yr⁻¹)
Precipitation (mm)

30


y = 399 - 0.02977x
r² = 0.04, p > 0.05
Wet deposition of K (mg m⁻² yr⁻¹)
Precipitation (mm)


y = 0.49 + 0.00008x
r² = -0.03, p > 0.05
Wet deposition of Cr (mg m⁻² yr⁻¹)
Precipitation (mm)

31

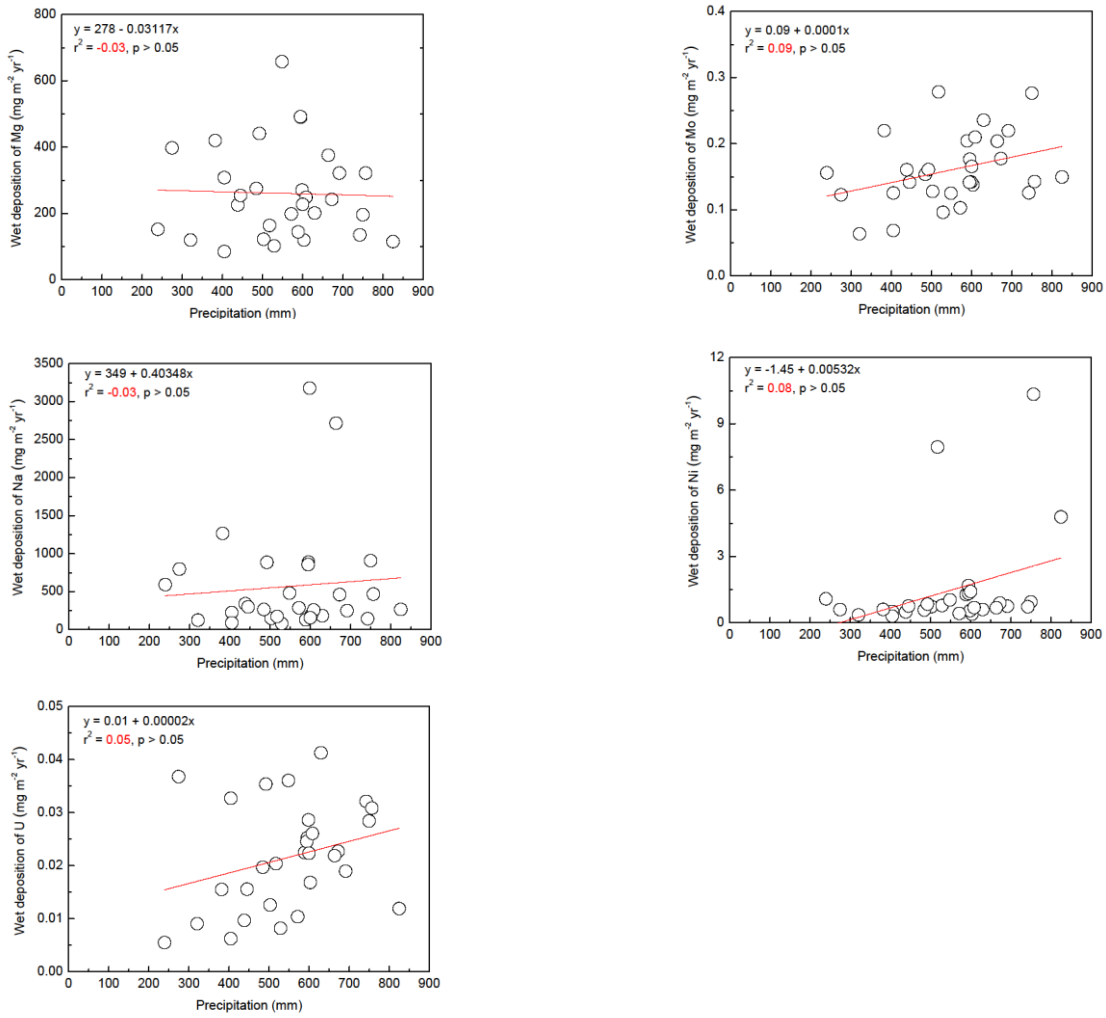


Figure S5. Annual wet deposition fluxes of trace elements vs. precipitation in Northern China.

References

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Pan, Y. P., Wang, Y. S., Yang, Y. J., Wu, D., Xin, J. Y., and Fan, W. Y.: Determination of trace metals in atmospheric dry deposition with a heavy matrix of PUF by inductively coupled plasma mass spectroscopy after microwave digestion, Environ. Sci., 31, 553-559 (in Chinese), 2010.