Variation in anion concentrations and stable isotope ratios in wet deposition by sequence separated collection in Singapore

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It had historical intensive rainfall on November 19 2009 in Singapore and I had opportunity to collect wet deposition by separated every 5 mL sequentially using HORIBA RAINGOROUND at the roof top of National University of Singapore in Singapore from November 17 to 21 2009. Anion concentrations for these samples were measured on ion chromatography DIONEX DX120/AS50. The recently developed "Denitrifier Method (Casciotti et al.,(2002) Analytical Chemistry 74:4905~4912)" was used to determine nitrate N isotope. N and O stable isotope were measured on a stable isotope mass spectrometer (Delta XP Plus).

Some results were shown FIG.1 and FIG.3 and I discovered following phenomena.

#1 It could not detect any fluoride ion in intensive rainfall.

#2 Nitrogen Isotope Ratios delta 15N/14N for intensive rainfall was lower than before the intensive rainfall.

#3 The intensive rainfall of variation graphic pattern for anion concentrations and nitrogen and oxygen stable isotope ratios was very different from other rainfalls.

Historical wet deposition on November 19 2009 was occurred by very different mechanism. Fluoride ion in rainfall had a role of producing non intensive rainfall. Because intensive rainfall did not contain fluoride ion.





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