

Interactive comment on “Atmospheric inorganic nitrogen input via dry, wet, and sea fog deposition to the subarctic Western North Pacific Ocean” by J. Jung et al.

Anonymous Referee #2

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General comments

The authors of this manuscript have as their goals (1) to describe the characteristics of sea fog, (2) to estimate and apportion the fluxes of N from atmosphere to sea from dry, wet, and fog deposition, (3) to assess the impact of these N fluxes on primary production in the open ocean. They give a well-written report on research conducted at sea in the northwestern Pacific Ocean. Research activities included standard methods for aerosol, rainwater, and sea fog sample collection and analyses. The authors provide a thorough data analyses with reasonable explanations for their observations. The biggest drawback of this research is the limited number of samples and relatively short

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sampling period, which limit the inferences that can be drawn from the data. This is offset by the opportunity to combine their data with similar data sets from other research cruises for a future meta-analysis.

Specific comments

On page 19101, line 6, did the authors mean sodium nitrate instead of ammonium nitrate? Per their discussion, nitrate is found in the coarse particle mode and is most likely associated with sodium, calcium, or magnesium rather than ammonium.

Technical comments

The location of the research cruise is described as "subarctic Western North Pacific", while references to research by Sasakawa et al (2005, e.g.) refer to "Northwestern North Pacific" as the location of a similar cruise, although the two cruises appear to be in similar quadrants of the Pacific Ocean. Please clarify for the reader if these are similar or different measurement domains.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 19089, 2012.

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