

Interactive comment on “Wet deposition of atmospheric inorganic nitrogen at five remote stations on the Tibetan Plateau” by Y. W. Liu et al.

Anonymous Referee #1

Received and published: 28 July 2015

The authors present atmospheric nitrogen deposition based on a one-year field observation in a typical alpine ecosystem - Tibetan Plateau, China, which is an important topic and falls within the scope of the journal. While I appreciate the nature of the data set and agree that the regional data is necessary and valuable, the authors maybe neglect its reliability. Meteorological conditions are not only complex but also highly variable. Therefore, with only one-year data, it is difficult to get a factual picture of nitrogen deposition at a location. And there is lack of comparability at the five sites for the different experiment years. As it stands the current manuscript is not suitable for publication. Thus I suggest the MS need to be revised and then be reviewed.

Specific comments:

C5287

Title: “Wet deposition of atmospheric inorganic nitrogen at five remote stations on the Tibetan Plateau”. The MS research only focuses on the western (and central) Tibetan Plateau. Thus, it is better to be more specific.

Abstract: The part is not focused well enough. It should state the characteristics of wet deposition including its flux and seasonal variation, its regional differences including the typical factor and the important suggestions for regional development and the protection of alpine ecosystem. However, it only focused on wet deposition flux and the comparison with previous study in other regions in Tibetan Plateau.

Results: It is better to introduce in this part the characteristics of wet inorganic nitrogen deposition just as the “3.2 wet deposition of atmospheric inorganic N section”. Thus, this part may include three sections: 1) flux; 2) seasonal variation; 3) sources. In addition, more information is needed for the discussion of nitrogen deposition at each site, such as the wind direction, air temperature, and local human activities, and so on.

Discussion: the authors concluded that the inorganic N wet deposition for the entire Tibetan Plateau in previous studies (either through atmospheric chemistry transport model simulations or interpolations based on limited observations) was highly overestimated, whereas they estimated N wet deposition in Tibetan Plateau by combining their field observations with previous studies. In addition, the inorganic N wet deposition on the Tibetan Plateau has increased during recent decades according ice core records. Accordingly, uncertainty analysis should be strengthened.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 17491, 2015.

C5288