Effects of deposition on different landuse types in semi-desert ecosystems of the Altay Mountains

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Introduction and Objectives

With the application of huge chemical fertilizer, the exploit of energy mine and the high-speed development of industry, the nutrient from the atmosphere showed a constant increase, especially for N. This study aims at:

- The quantification of wet and dry N (NH_3 and NO_2) deposition in three different land use systems (farmland, grassland, forest or city) and its seasonal dynamics.
- The simulation of atmosphere nitrogen deposition in desert grassland to learn about the effect of different N gradient for the grassland productivity and diversity .

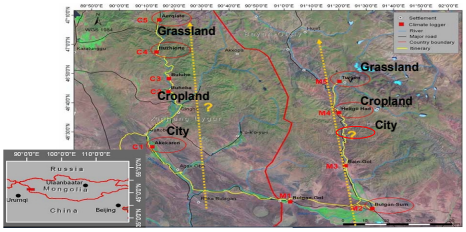

Figure 1. The experiment site of different land use styles in China and Mongalia .

Results

We determine and analyse the NO_3-N,NO_4-N NH_3,NO_2 from the dry-wet deposition and passive methods from June to October. We found cropland has the highest dry deposition and passive nitrogen. Grassland has the highest wet deposition nitrogen and the total N.

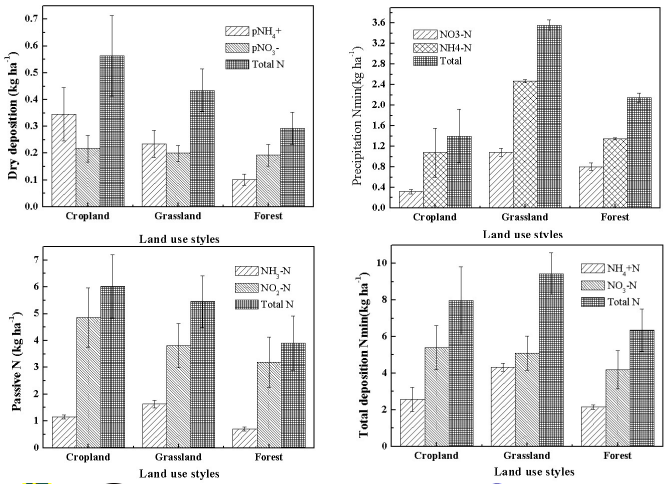

Table 1. The amount of deposition-N of different land use styles .

Deposition forms	Cropland	Grassland	Forest
Dry	0.5	0.43	0.29
Wet	1.4	3.6	2.1
Passive-N	6	5.4	3.9
Total N	8	9.4	6.3

The cropland and grassland showed the highest N deposition. The three land use types showed total deposition of 8 kg N ha^{-1}, 9.4k g N ha^{-1} and 6.3 kg N ha^{-1} for cropland, grassland and forest, respectively.

Materials and Methods

Equipment: Weather station; Rain gauge; Passive sampler; Low volume sampler

Methods: Small and middle flow instruments can be run 6 days every month, i.e. 3 days in the first half of a month, another 3 days in the following half month in order to represent the whole month. Passive collectors are collecting data 10 days every month to represent the whole month.

Figure 2. the nitrogen deposition collection equipments .

Conclusions

Different land use styles have significant difference of nitrogen deposition. The cropland and grassland had the high value. This particularly obvious in fertilizer, crop harvest or livestock up-down the mountain.