Review of "Moisture effects on carbon and nitrogen emission from burning of wildland biomass"

The manuscript reports on the effects of fuel moisture on emissions of C and N species as a function of various biomass and soil types common to typical alpine forests. Emission factors of organic carbon and ammonia were shown to be dramatically increased as fuel moisture increased. These findings should improve fire emission inventories that are crucial to understanding the role of fire on global climate change, visibility, and N fertilization in forest ecosystems.

The paper is well written but with at least one significant shortcoming. Burn average data were collected using filter-pack systems, and some species were collected using semicontinuous monitoring techniques. For those species collected by both systems it would be helpful to directly intercompare the data with an eye toward establishing at least relative uncertainty and accuracy. It would also be helpful to have a general discussion of the uncertainty associated with the various measurement techniques and some estimate of the uncertainty associated with emission estimates, both as a function of measurement uncertainty but also as a function of fuel type and moisture content. This discussion is critical if it is anticipated that emission modelers are expected to use these data for establishing better smoke emission estimates.

With some discussion of uncertainty and accuracy of the various measurement techniques the manuscript should be accepted for publication.