

# A04 - Dissolved Organic Carbon in the Bukit Dua Belas National Park and Its Relationship with the Soil Toposequence

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## INTRODUCTION

- ❑ The Dissolved Organic Carbon (DOC) in the tropic is important:
  - ➔ Contribution to the **soil organic matter formation**
  - ➔ The DOC leaching will decrease **the soil fertility and contaminate the water bodies**
- ❑ DOC varies from soil to soil
  - ➔ The research about DOC and nutrient leaching in Sumatra is **limited**
    - The effect of position in transect
    - The relationship with soil properties
  - ➔ **Very limited and not fully understood**

## OBJECTIVE

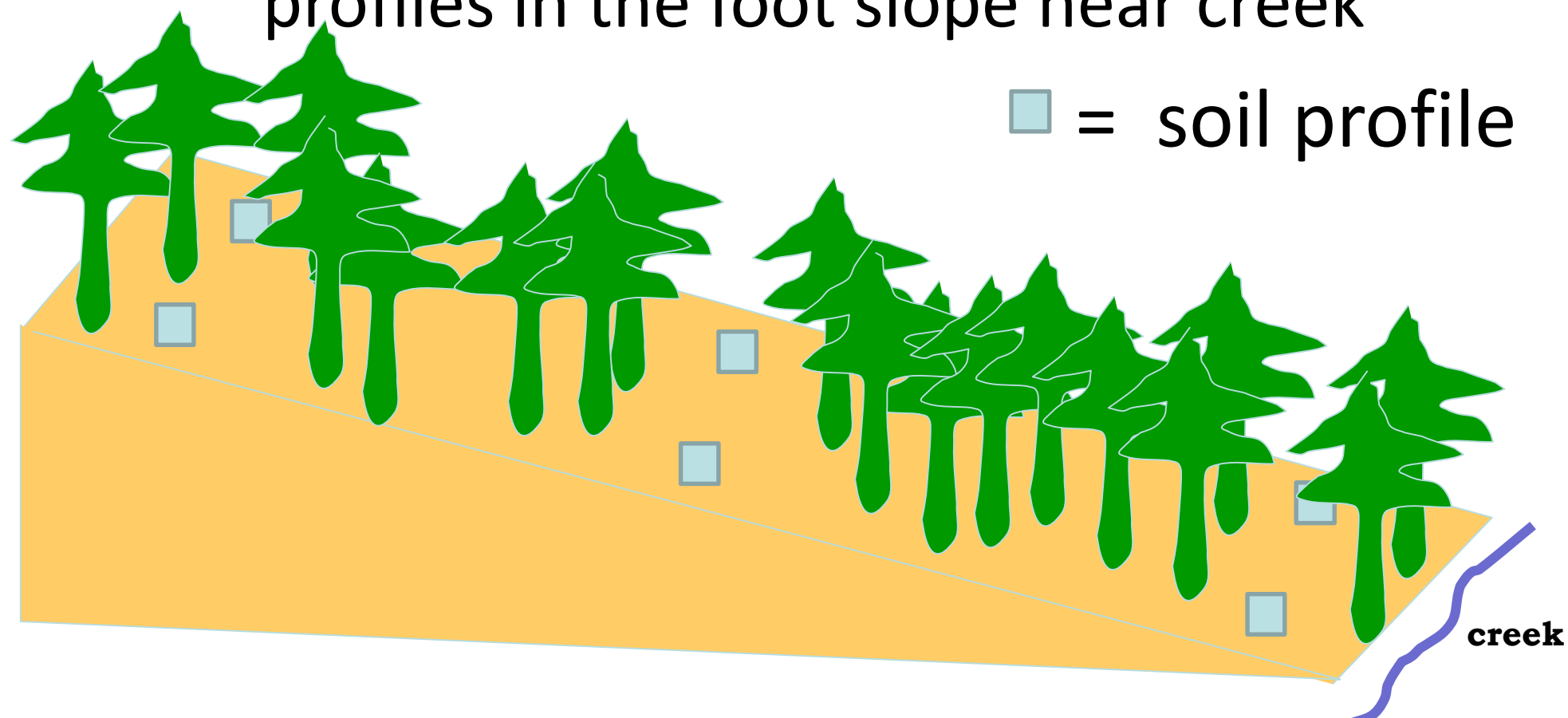
To evaluate the effect of soil position in transect on the dynamics and characteristics of DOC in Bukit Dua Belas National Park, Jambi

## METODOLOGY

Six soil profiles are made with different position in transect

- ➔ Two soil profiles in the top slope, two soil profiles in the middle slope and two soil profiles in the foot slope near creek

■ = soil profile



Vegetation surrounding the soil profiles



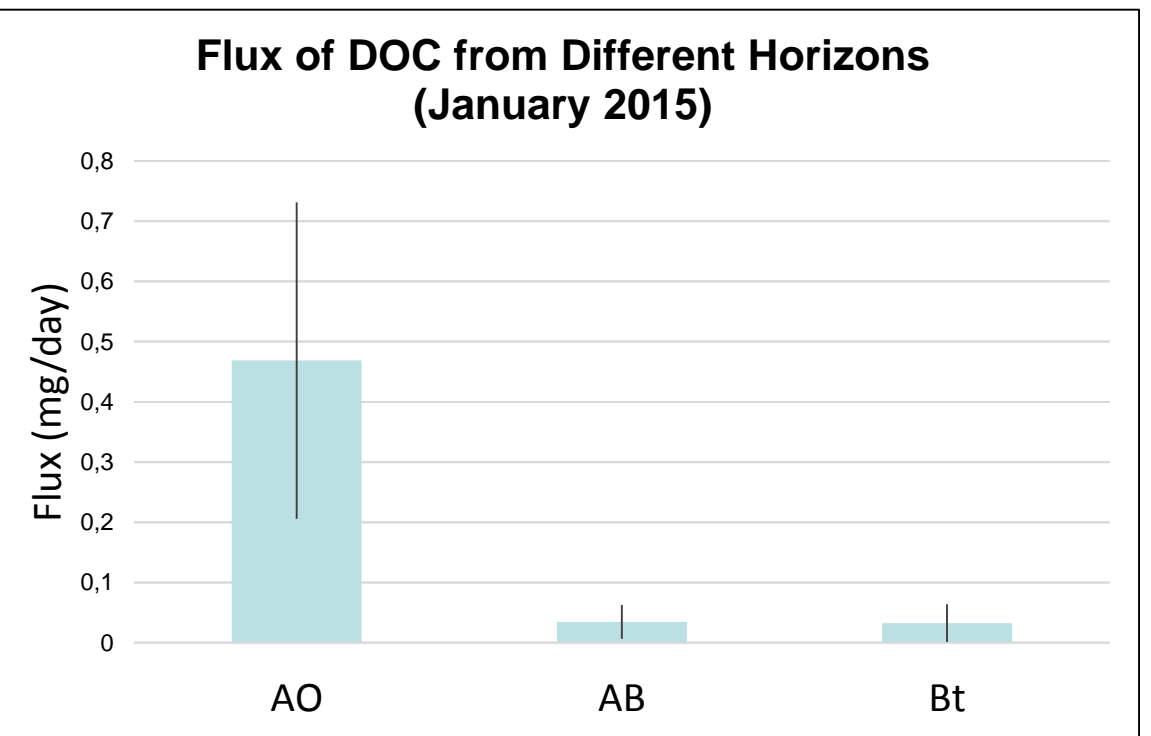
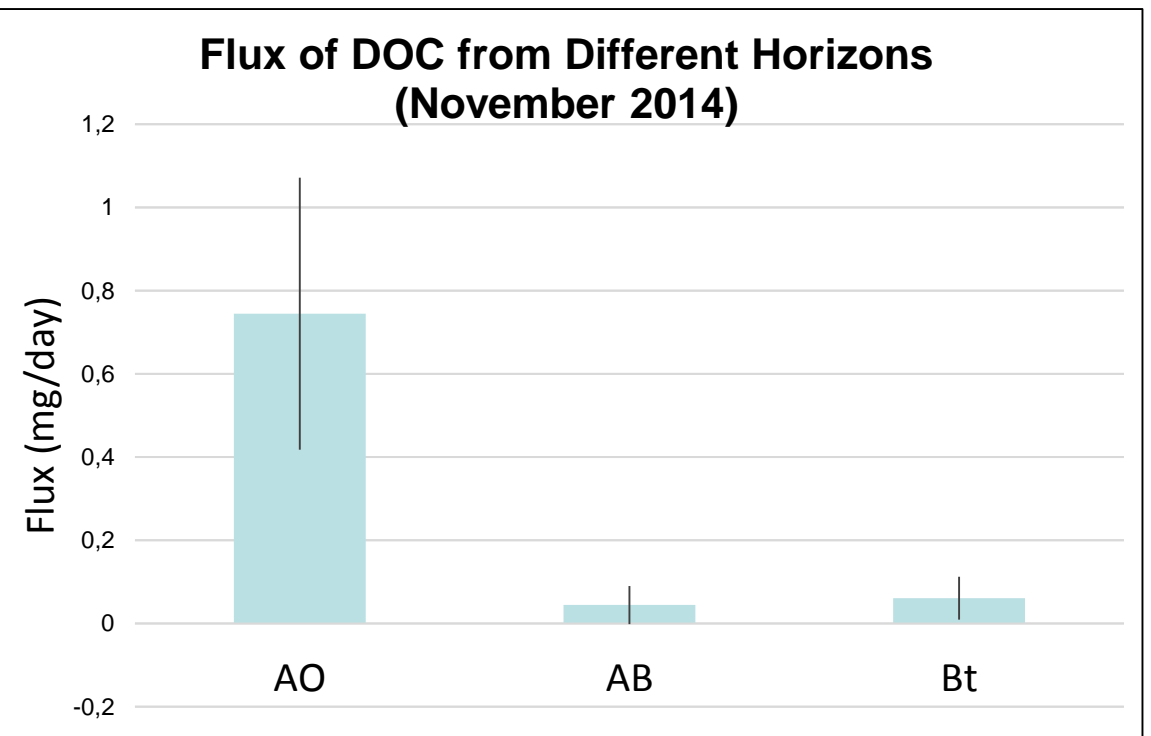
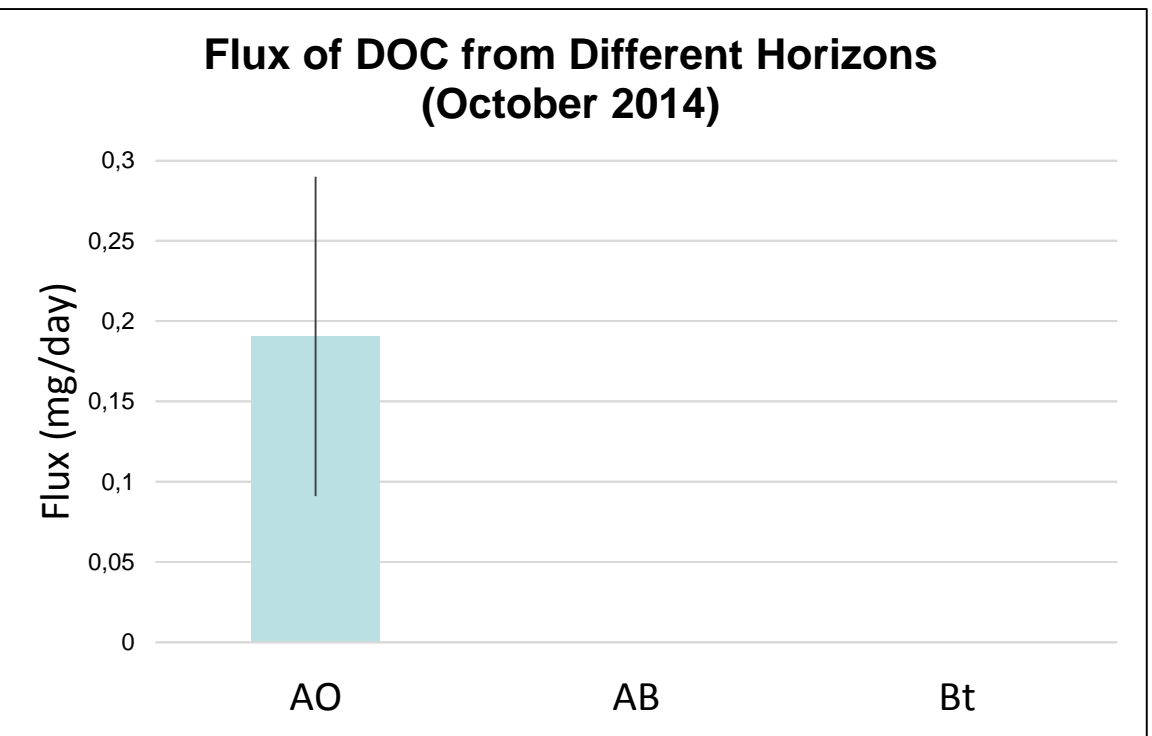
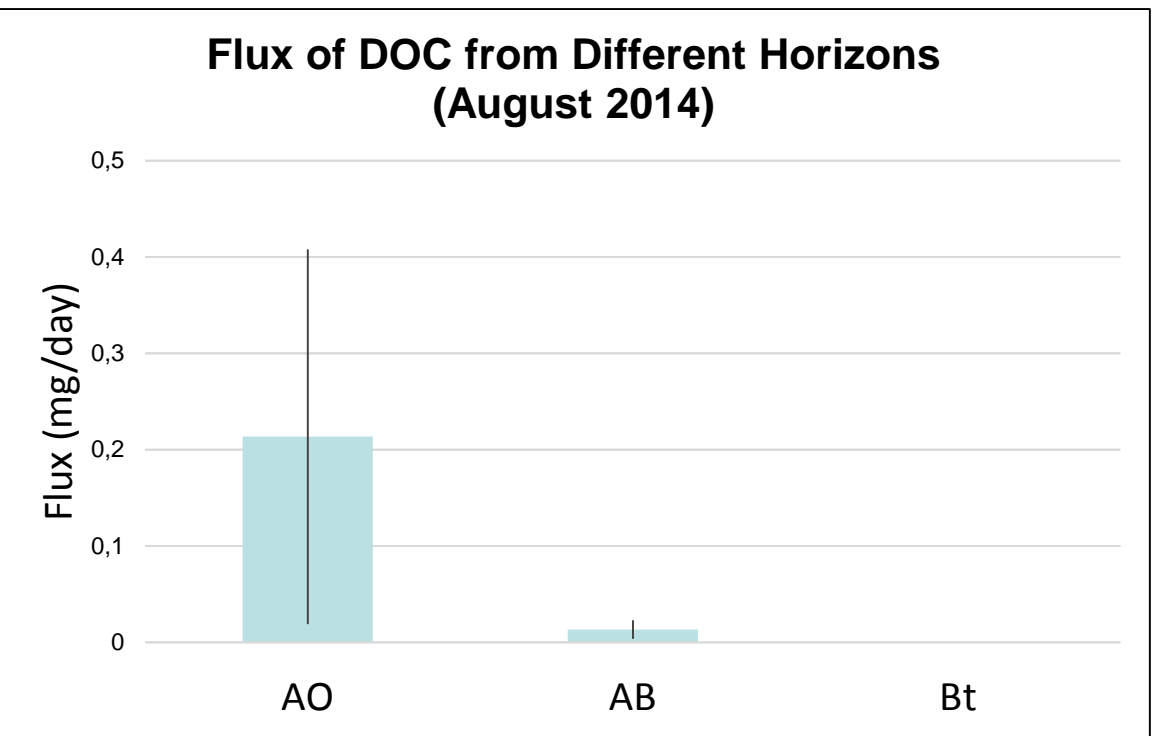
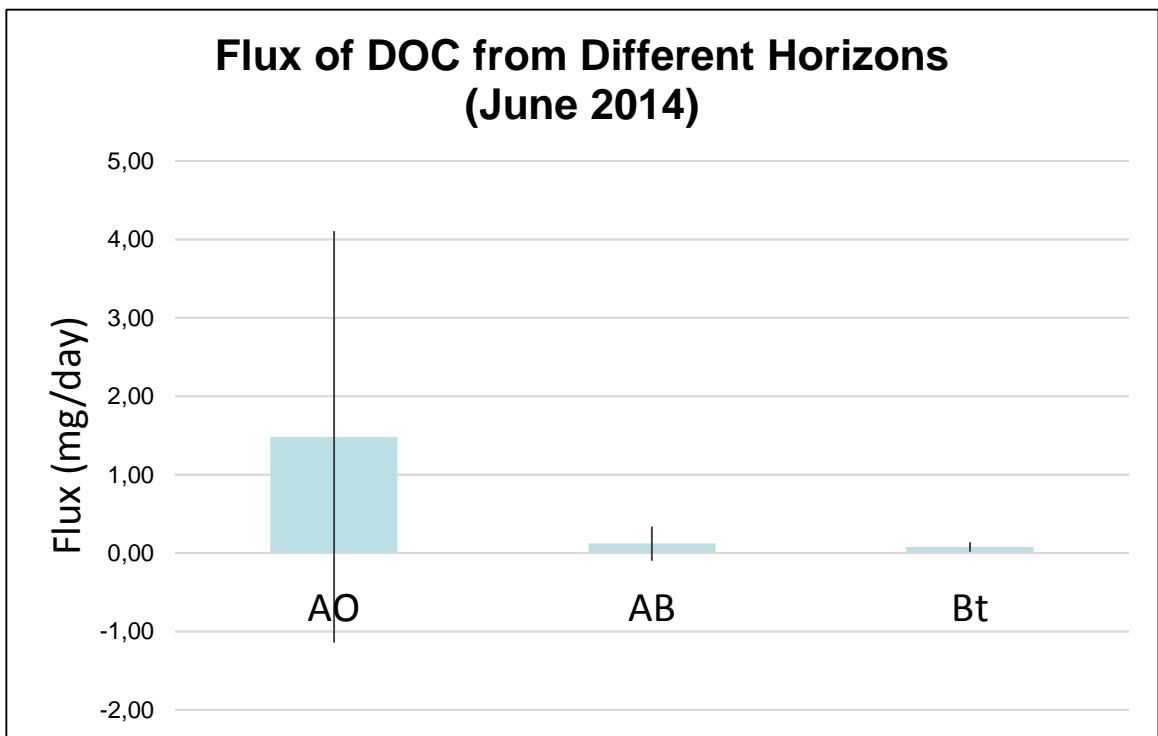
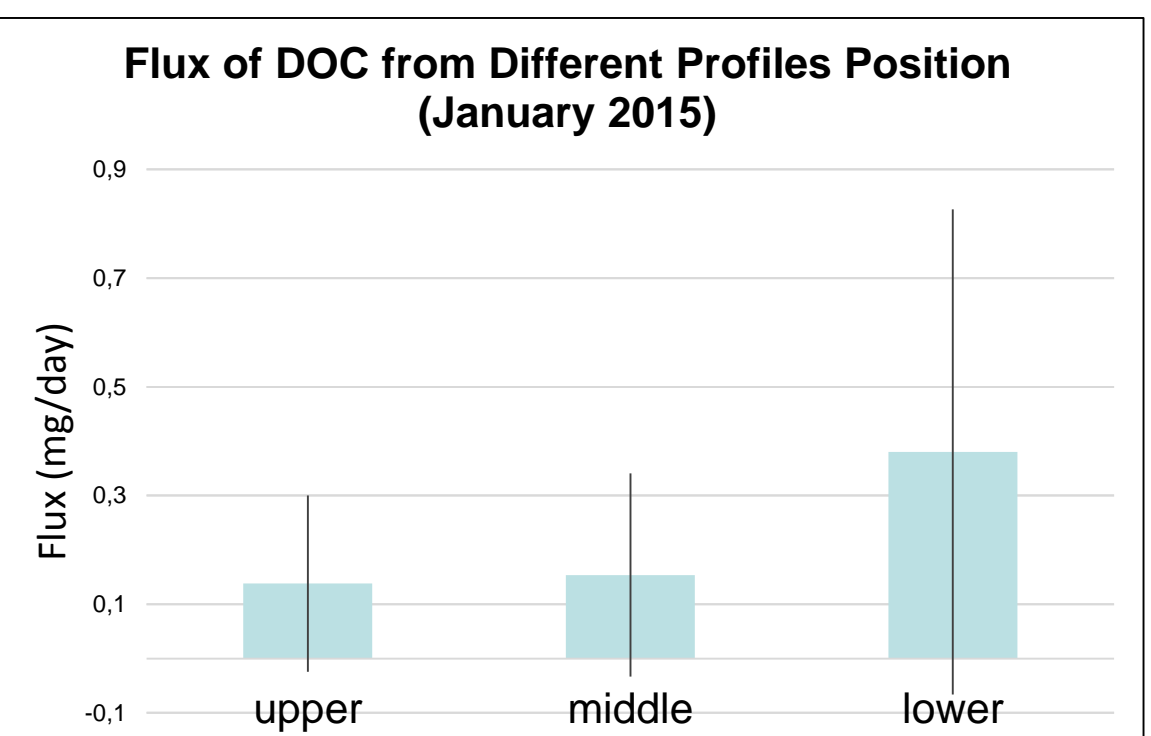
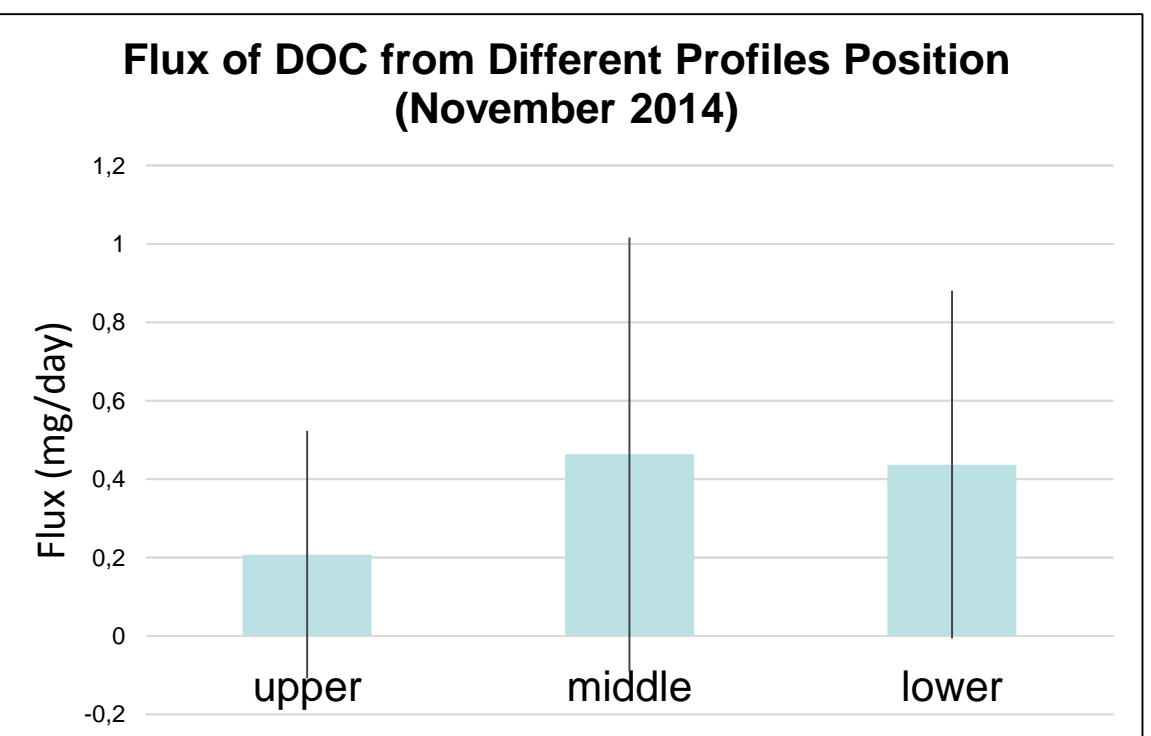
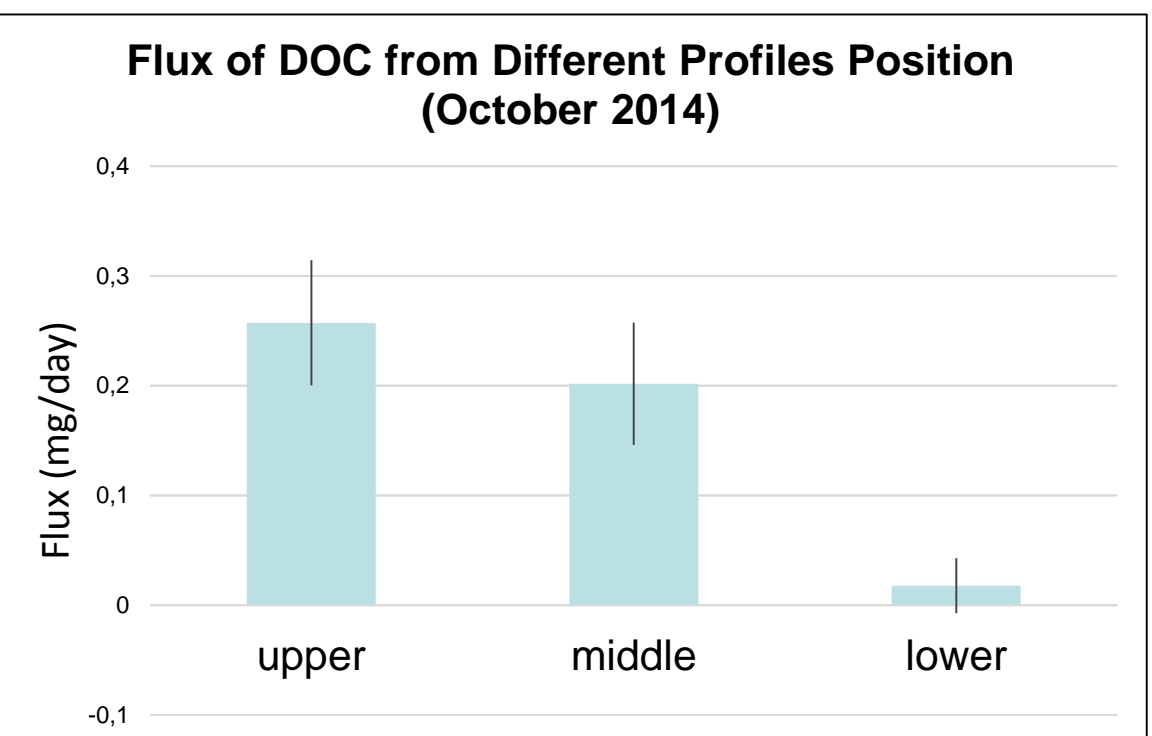
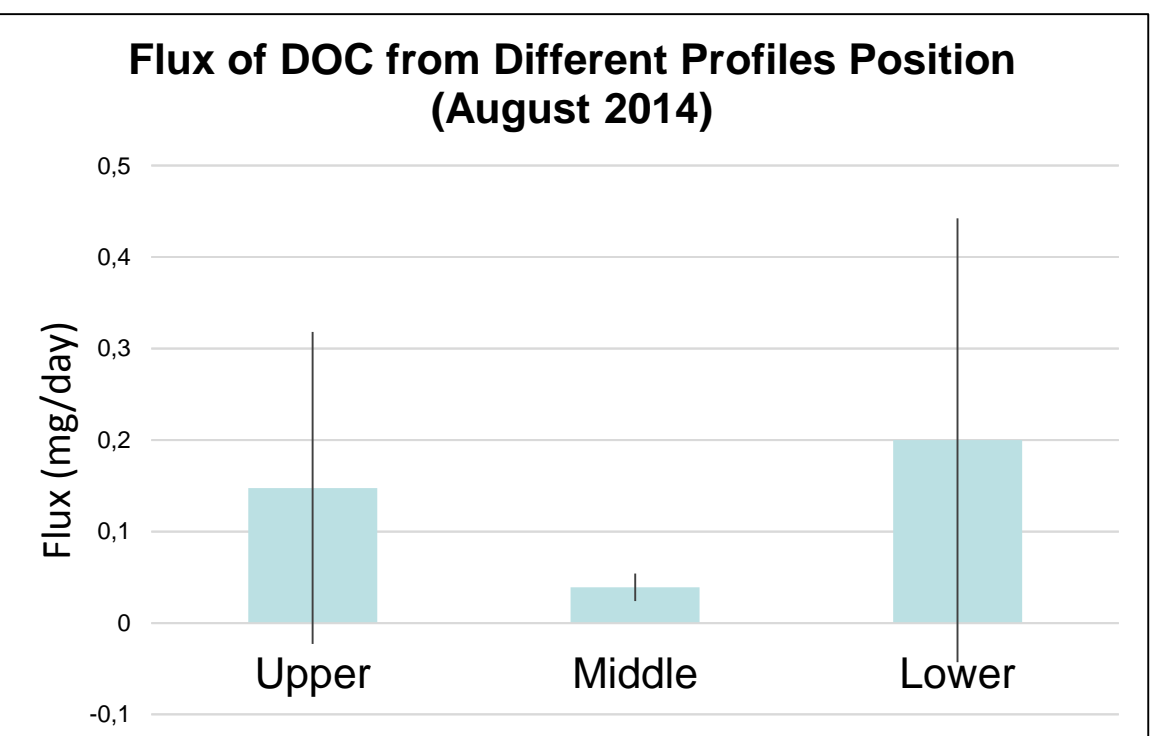
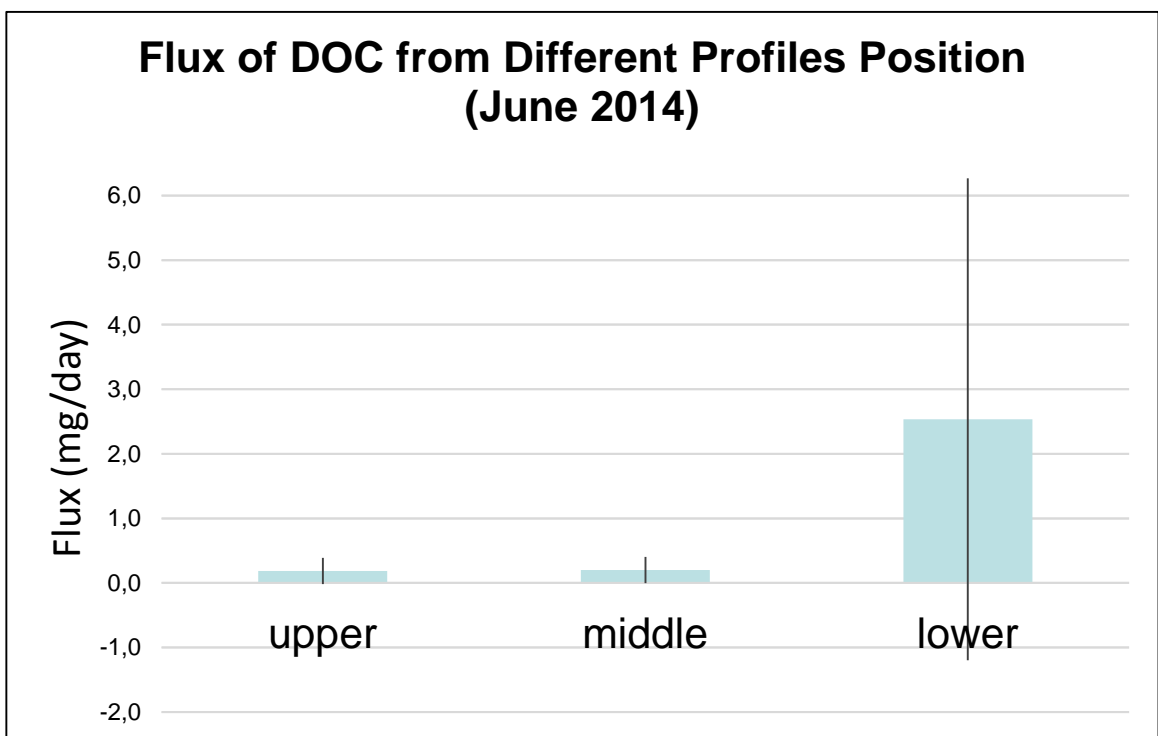
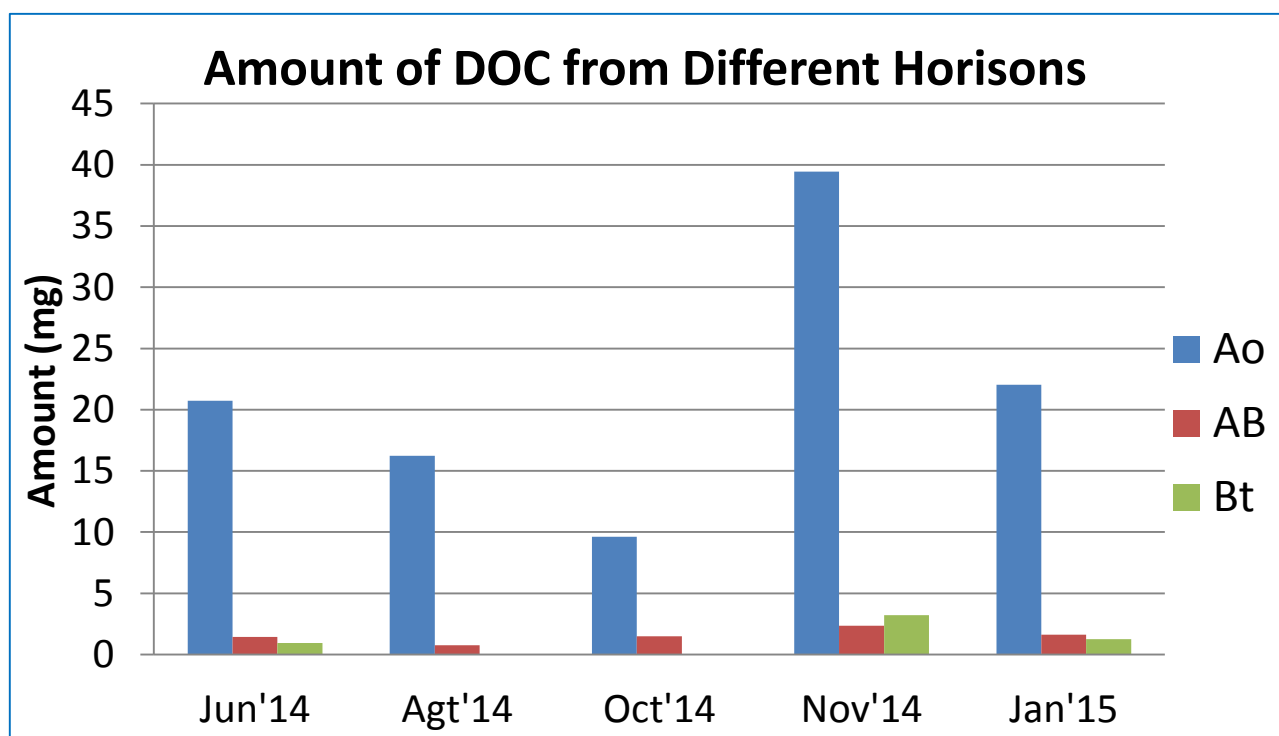
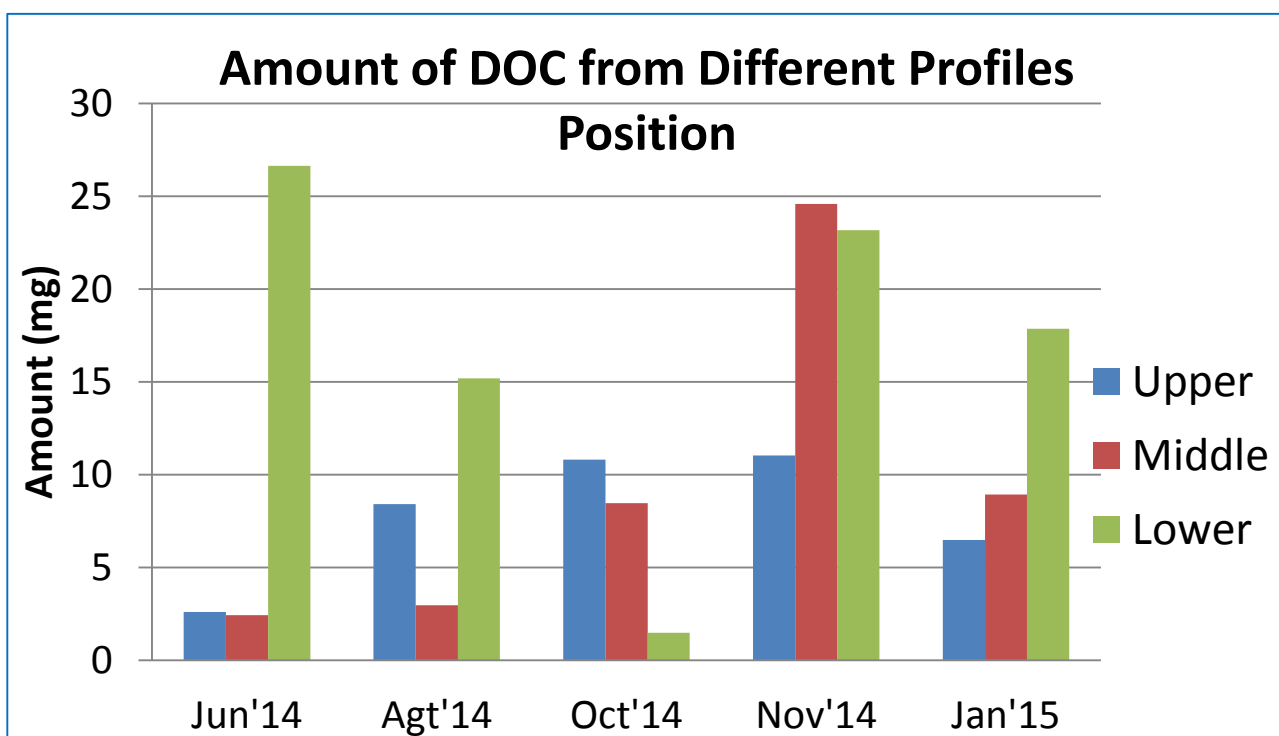
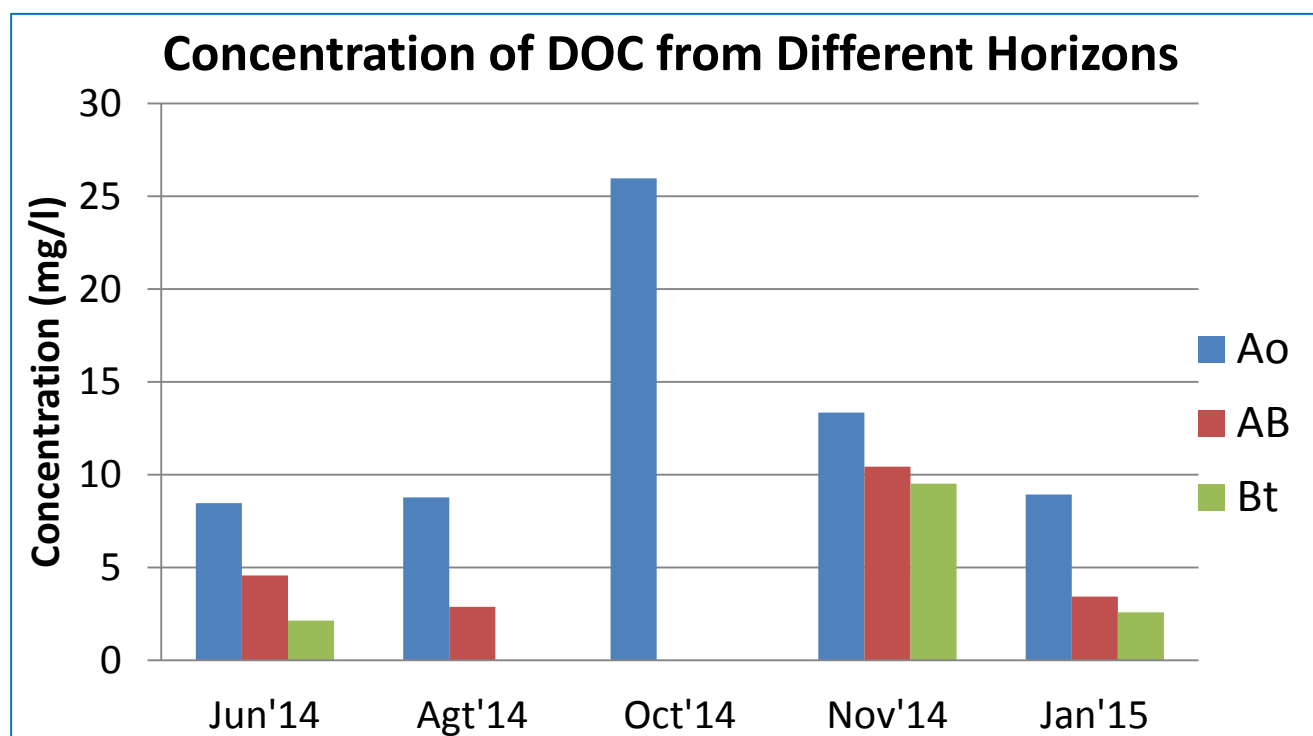
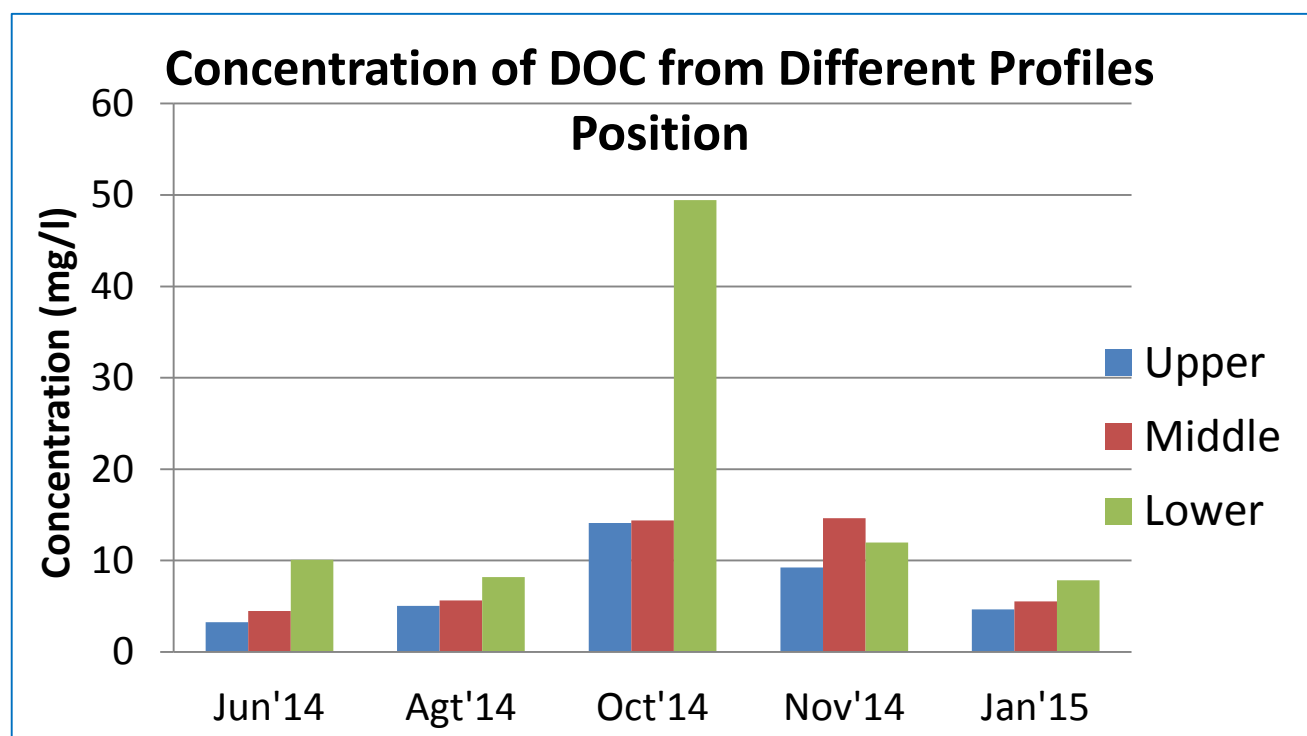
Lysimeter installed on the soil profile



### Analysis :

DOC and soil solution were collected (200 cm<sup>2</sup> tray & bottle collector) and analyzed every two months for a year. Flux of DOC were calculated

## RESULT AND DISCUSSION



The collected water sampling was limited and only from Ao horizon of upper and middle pits during peak of dry season (October 2014).

The concentration and amount of DOC from the lower pits are highest except the DOC amount from October 2014 sampling due to no rainfall (dry season).

The concentration and amount of DOC from Ao horizon is higher than AB horizon, and much higher than Bt horizon.

The variability of DOC flux is very high which is indicated by its standard deviation except October sampling (dry season).

The correlation coefficient of DOC flux, concentration, amount and soil organic-C were 0.77, 0.73, 0.78 respectively.

The correlation coefficient of DOC flux, concentration, amount and soil total-N were 0.80, 0.77, 0.80 respectively.

## CONCLUSION

The lower the position of the soil profile the higher the concentration, amount, and flux of DOC except during dry season (October)

Upper horizon of soil profile has higher concentration, amount, and flux of DOC except during dry season (October)

The correlation with soil organic-C is high although concentration, amount, and flux of DOC during rainy season are erratic except during dry season

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