Transport of Dissolved Organic Phosphorus (DOP) from soil to surface water on different land uses

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1. Introduction

Introduction

European Environment Agency (2012)
Research questions

• What is the contribution of DOP in the P load to surface water?

• What is the effect of land use on this contribution?

• What are the major pathways of DOP to reach the surface waters?
Study Area

1. Introduction
2. Methods
3. Results
4. Conclusion
Analytical Measurements

Water Sample

filter < 0.45 µm

Ion Chromatograph
oPO4

Colorimetric
+Colloidal

ICP-OES
+Organic P

Method
ICP
CM
IC

Organic P

P_i

Colloidal P

Van Moorleghem et al., 2011
Study Area

- Suction Cup
- Sampler
- River

Area: 230 ha
Arable Land

1. Introduction
2. Methods
3. Results
4. Conclusion
1. Introduction

2. Methods

3. Results

Arable Land

4. Conclusion
Grassland

- Suction Cup
- Sampler
- Piezometer
- River

Area: 34 ha
Grassland

Baseflow TP

- River
- Suction cups
- Piezometers
- Sources

P concentration (mg/l)

Month of 2011
1. Introduction

2. Methods

3. Results

4. Conclusion

Forest

Area: 266 ha
Forest

1. Introduction
2. Methods
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4. Conclusion
Forest

3. Results

Baseflow TP

P concentration (mg/l)

Month of 2011

1. Introduction
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Forest

**Results**

Baseflow TP

- River
- Suction cups
- Piezometers

P concentration (mg/l)

Month of 2012
Conclusion

• **Arable land (223.9 gP.ha\(^{-1}\).y\(^{-1}\))**
  - Erosion during high rainfall
  - High concentrations of TDP (> 0.5 mg/l)
  - 10 % DOP

• **Grassland (70.5 gP.ha\(^{-1}\).y\(^{-1}\))**
  - Higher concentrations of TDP in peakflow

• **Forest (1.3 gP.ha\(^{-1}\).y\(^{-1}\))**
  - Higher P concentrations in baseflow in summer
  - Produced in river and temperature related
Conclusion

Thank You!