

Master of Science (MSc) in Life Sciences

Master Thesis	
Arbeits-Titel Working Title	Riparian soils as water filters and greenhouse gas emitters
Vertiefung Specialisation	MSc_V4: Umwelt und natürliche Ressourcen
Code	MSc_Vx_M
ECTS Credits	30 oder 40
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Beschrieb Abstract	<p>The project cluster RECORD of the ETH domain investigates the hydrology and biogeochemical processes in a channelized and a 2002 restored section of river Thur. Within this framework we are interested in the potential of riparian soils to remove nitrate from infiltrating and percolating water and to emit greenhouse gases.</p> <p>In this context we offer the following opportunities for M.Sc. studies, all of which combine field and laboratory work. The field work takes place at the restored section of river Thur near Niederneunforn (Kt. TG), laboratory work at WSL, Birmensdorf, and at ZHAW.</p> <p>Topic A: Emission of N₂O and CH₄ as depending on soil moisture and redox potential. This involves periodic gas sampling as well as download from and maintenance of redox potential and soil moisture sensor networks. Gases will be analysed with GC.</p> <p>Topic B: Control of the denitrification potential: C and N limitations, abundance of denitrifiers. Soils are sampled periodically followed by quantification of the denitrifier enzyme activity in the laboratory. Limitations are assessed by manipulating substrate availability in the field.</p> <p>Topic C: Quantification of organic matter input with litter and sediments as depending on season and flooding. Leaf litter is collected by site-dependent means, root turnover estimated from ingrowth cores and sediment input quantified using sedimentation traps.</p> <p>Topic D: Degradability of litter and soil organic matter. Leaf litter and soils are sampled once and incubated in the laboratory to quantify carbon mineralisation as well as the leaching of organic carbon and nitrogen species.</p> <p>Combinations of individual topics are possible which is ideal for group work.</p>
Bemerkungen Comments	<p>Das Thema der Master Thesis kann sich bis zum Studienbeginn noch dem aktuellen Stand der Forschung anpassen.</p> <p>Mehr Infos unter</p> <p>http://www.wsl.ch/forschung/forschungsprojekte/record_rhizosphere/index_EN</p>