

## Where does surface runoff go in landscapes?



<b>Problem</b>	Correct positioning of measures to retain surface runoff and soil erosion in landscapes depends largely on the knowledge of real world flow paths of surface runoff. Prior work has shown, that considerable differences between GIS based calculations for surface runoff and real world flow pathways exist. One main reason for this effect is tillage of the agricultural fields. To correctly control soil erosion it is of great importance to identify situations when tillage directions control the movement of surface runoff compared to situations when surface runoff is controlled by the field slopes.
<b>Aim</b>	<ul style="list-style-type: none"> <li>+ For an applied study in Lower Austria and Czech Republic you will identify pathways of surface runoff on arable land and control mechanism of tillage induced surface runoff.</li> <li>+ Results will be used to test and apply models for identification of surface runoff directions on arable land.</li> </ul>
<b>Background</b>	The master thesis will be carried out as a joint activity between CTU Prag and the Federal Agency for Water Management in Austria. Field work will be carried out in selected catchments of Lower Austria and Czech Republic. Data collection during field campaigns will be around 2-3 months. Working language (and thesis language) will be either English or German. Financial support will be 400 €/month for a period of 8 months. With given capability and interest further support will be given to publish/present results. Fieldwork for the master thesis preferably starts in <b>spring 2020</b> . This work will be embedded into the Europe-China cooperation project Shui ( <a href="https://www.shui-eu.org/">https://www.shui-eu.org/</a> ). For czech students please contact Doc.Ing.Dr. Tomas Dostal or Dr. David Zumr for additional information.
<b>Approach</b>	You will map surface runoff flow paths in arable field of different catchments in Austria and Czech Republic. Results of mapping will be transferred into GIS. GIS will then also be used to identify critical situations when tillage induced surface runoff changes into slope induced surface runoff and to test runoff models with tillage controlled flow paths.
<b>Required skills</b>	<ul style="list-style-type: none"> <li>+ Interest in soil erosion</li> <li>+ Enthusiasm and willingness to work within a strongly science oriented team</li> <li>+ Basic GIS skills (ArcMap)</li> <li>+ Basic knowledge of the script language Python or willingness to learn</li> </ul>

