YES, WE CAN!
Challenges in development of geotechnical failure mechanisms with the help of numerical modeling

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Landslide Haunsberg nearby Salzburg

Left: Allocation of the landslide

Right: Geological cross section
Numerical model

<table>
<thead>
<tr>
<th>Load Case</th>
<th>model in rest</th>
<th>pf=200 kPa</th>
<th>pf=300 kPa</th>
<th>pf=600 kPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial State</td>
<td>1.86</td>
<td>1.81</td>
<td>1.65</td>
<td>1.37</td>
</tr>
<tr>
<td>Construction State</td>
<td>1.68</td>
<td>1.68</td>
<td>1.61</td>
<td>1.36</td>
</tr>
<tr>
<td>Support Stage</td>
<td>1.87</td>
<td>1.84</td>
<td>1.65</td>
<td>1.37</td>
</tr>
</tbody>
</table>

Top: Numerical model with slope cut
Bottom: Load cases & activating load “Pf”
Shear strain and displacements

Top: Initial state: model in rest
Bottom: With activating load „Pf“
Local slope failure during construction stage

Left: Numerical model  
Right: Slope failure due to seepage flow
Uplifted Road L 112 nearby Rauris

Left: Frontal view on mass movement
Right: Uplifted road L 112
Sliding slope: deformation and soil profile

Land Salzburg (2014 / 2010)
Course of the Rauriser Ache now and then

Left: Topographic map 2014

Right: Franciszäischer Kataster, approx. 1830
Time variation curves: groundwater, rainfall, runoff

Left: KB 1/13  
Enzinger (2014)

Right: KB 2/13  
Enzinger (2014)
Multi-aquifer formation

Left: Groundwater levels

Right: Groundwater temperature

Enzinger (2014)
Numerical model: first try

Left: First try

Right: Wrong result
Numerical model: second try – Yes!

Left: Second try
Right: Feasible result & detail