Creating a road erosion model using Landlab

Amanda Manaster
University of Washington
Scientific Computing Meetup
June 21, 2018

Outline

1. Background
2. Tackling the problem
3. Road erosion in Landlab
4. Road erosion and drones
5. Going forward

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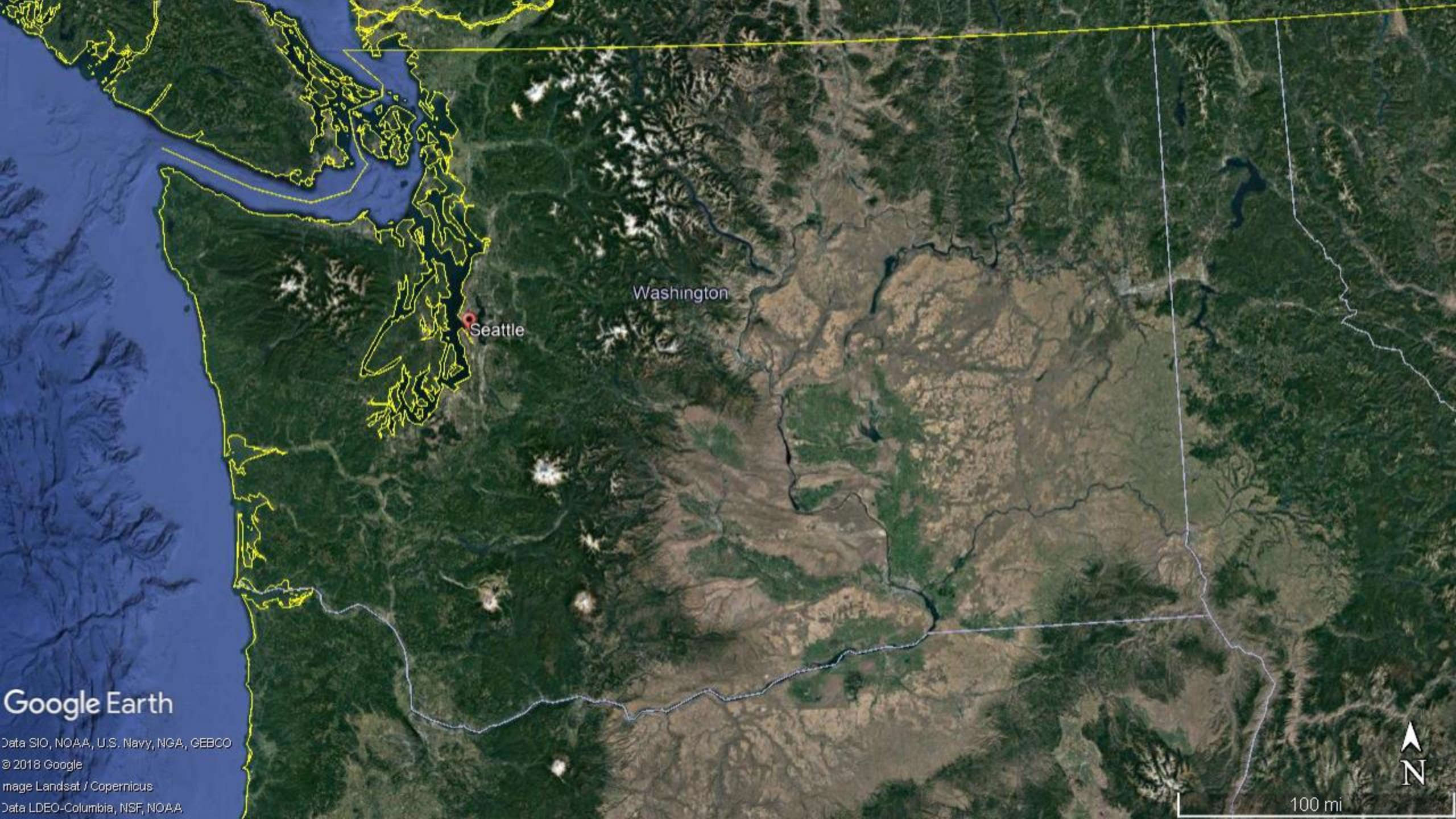
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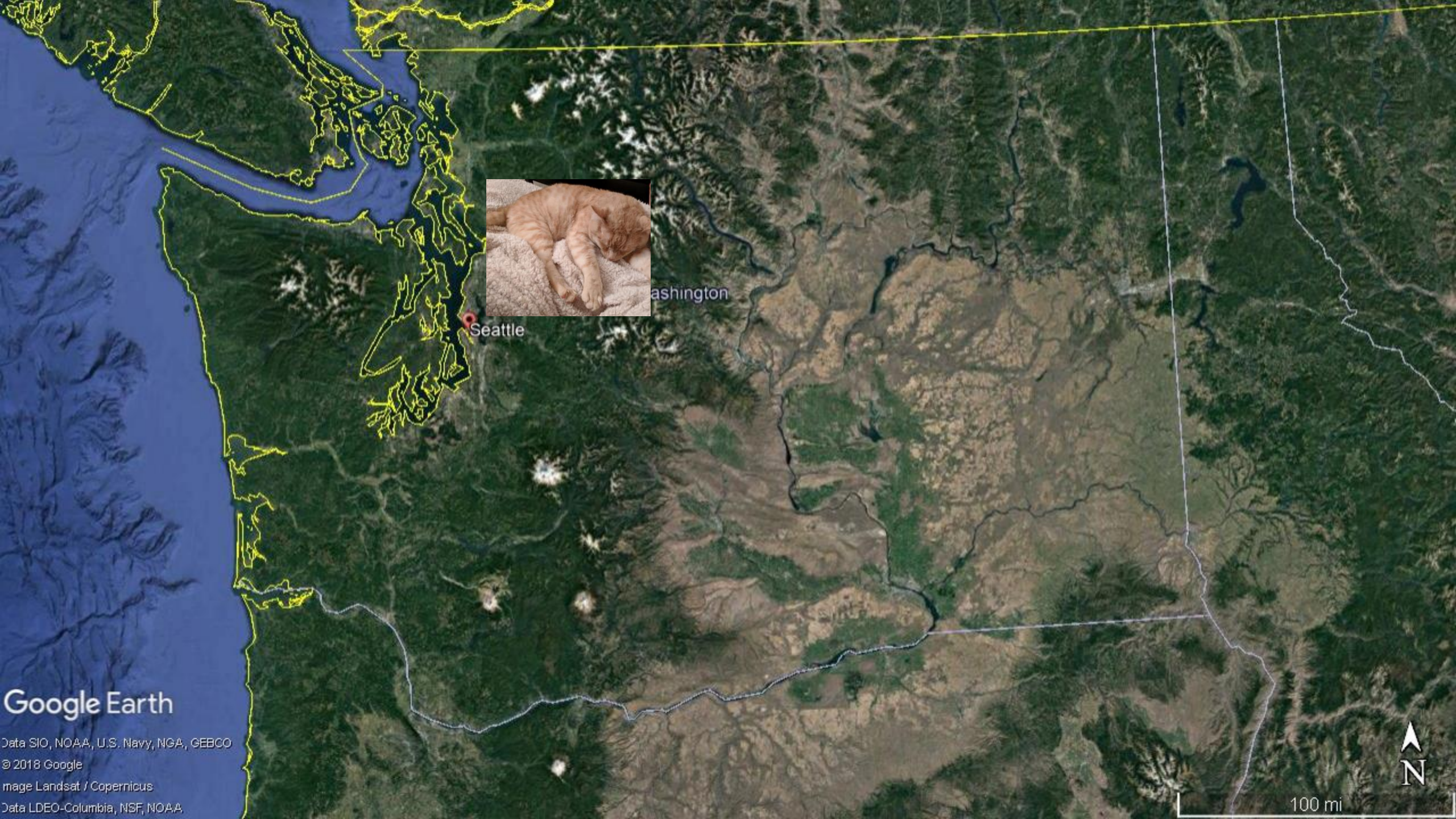
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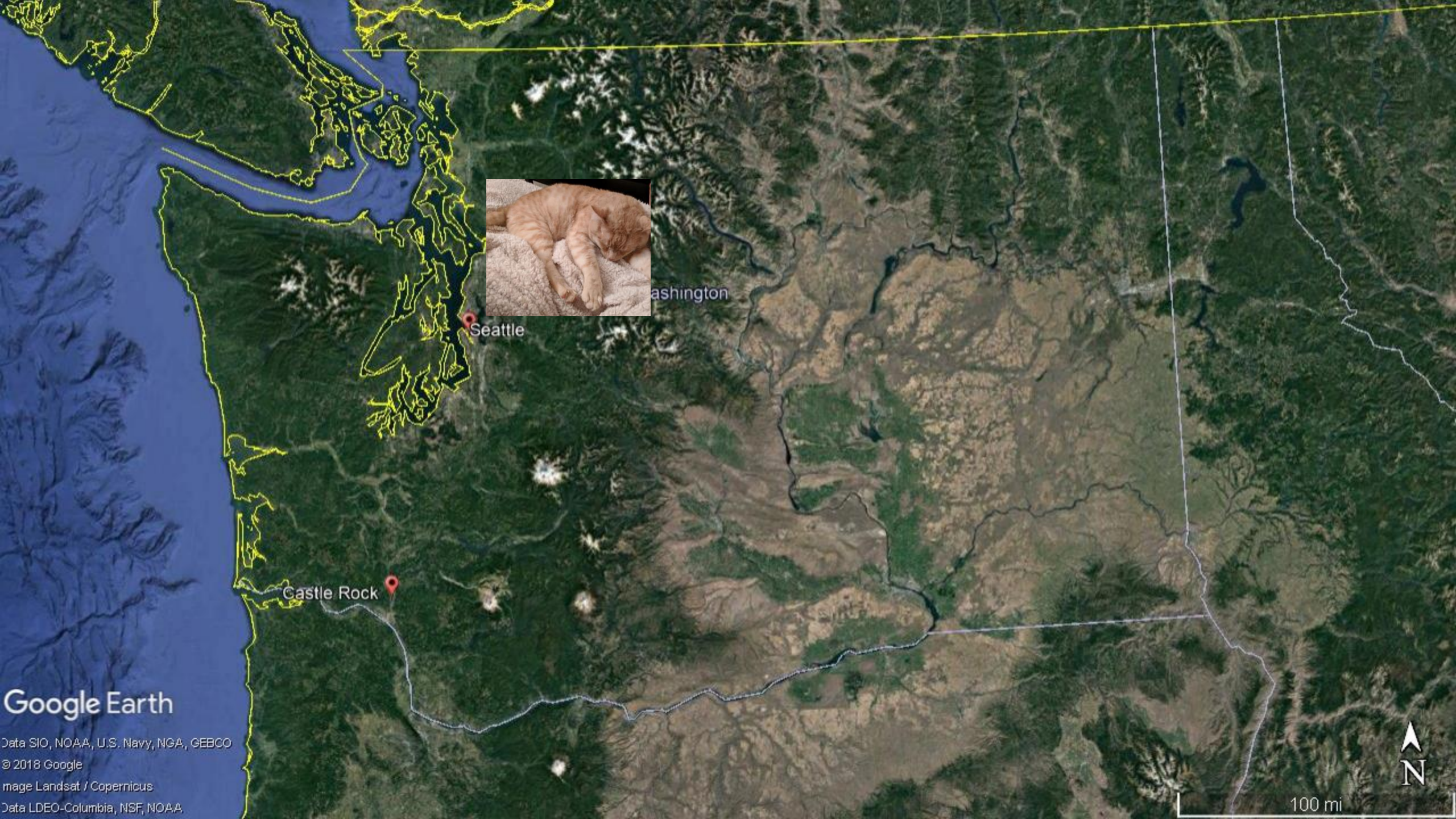
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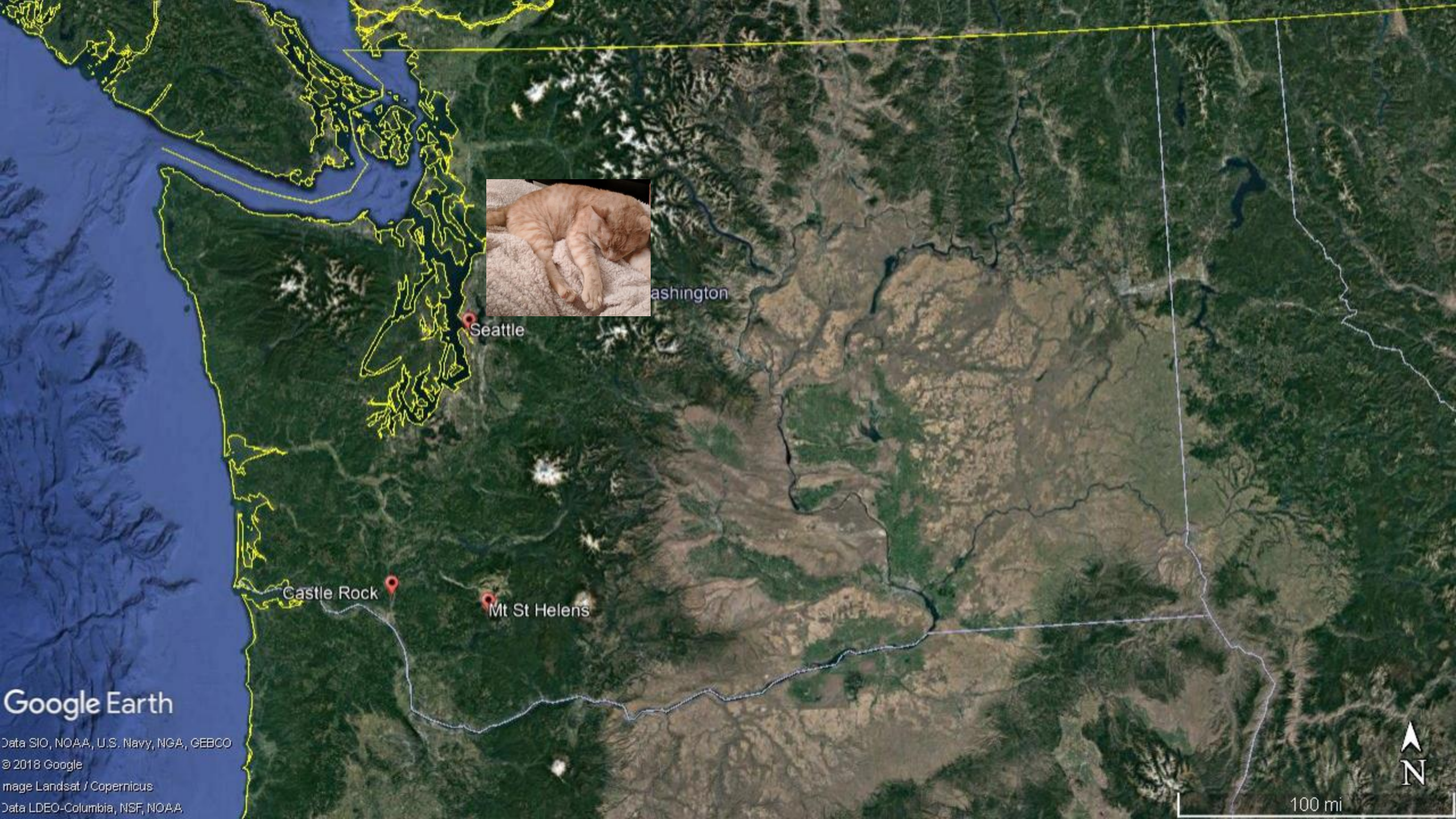
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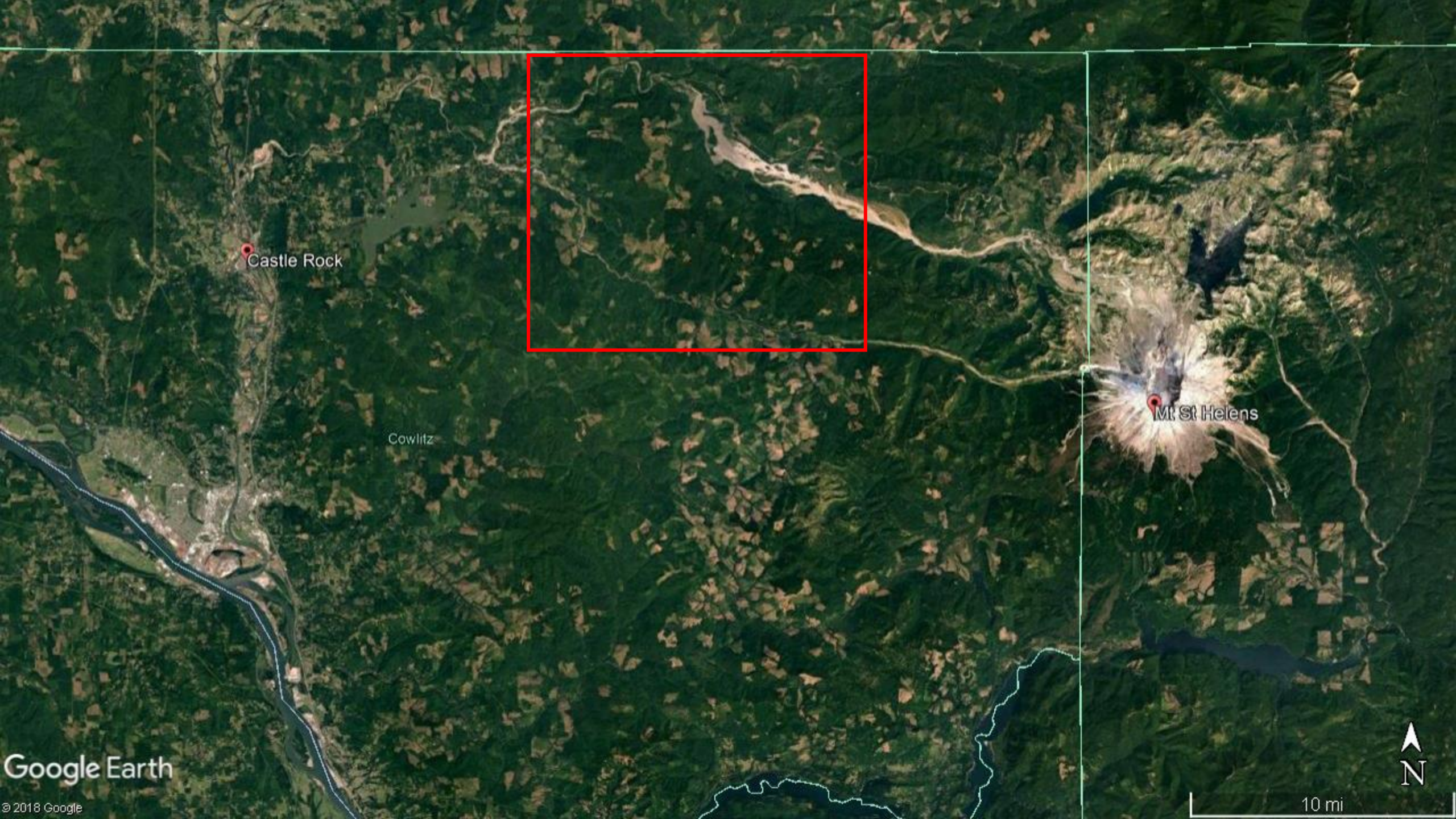
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Sediment generation by and transport from forest roads to nearby streams

Detrimental effects on nearby rivers

Detrimental effects on nearby rivers

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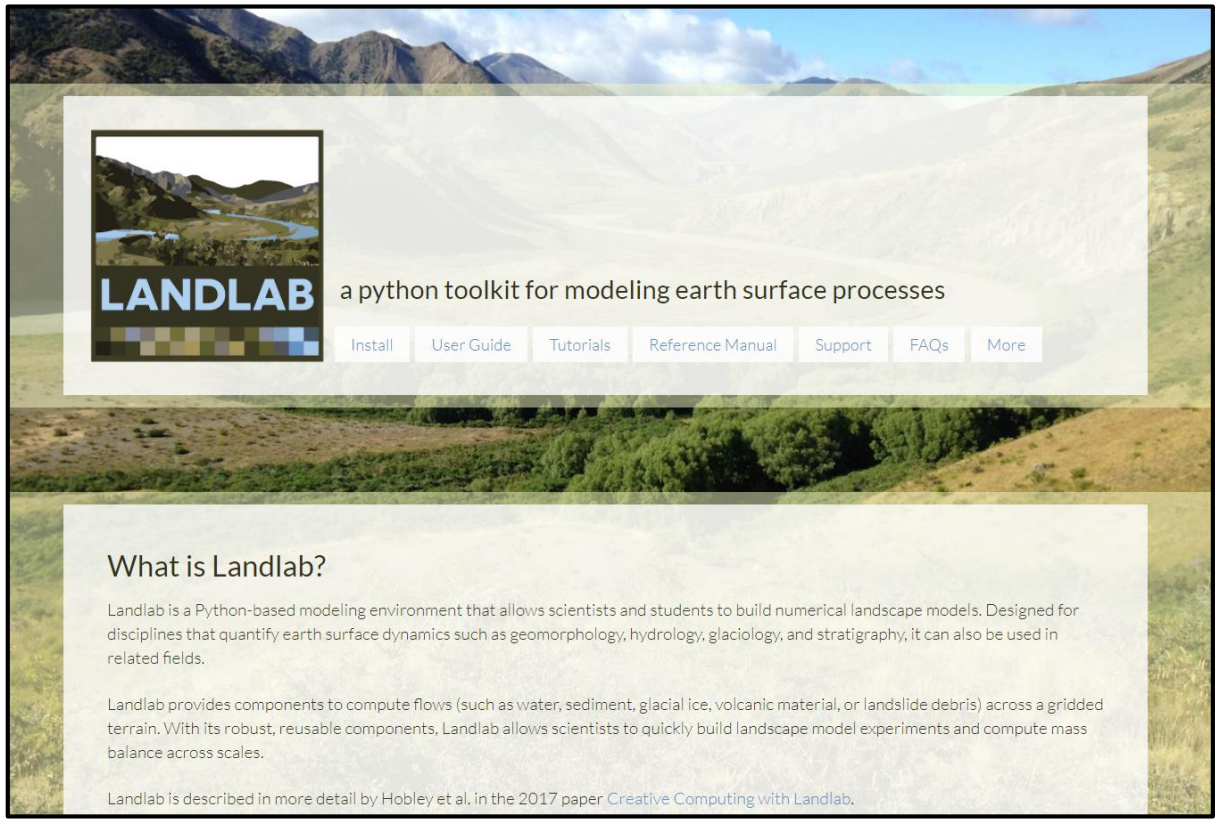
Landlab overview

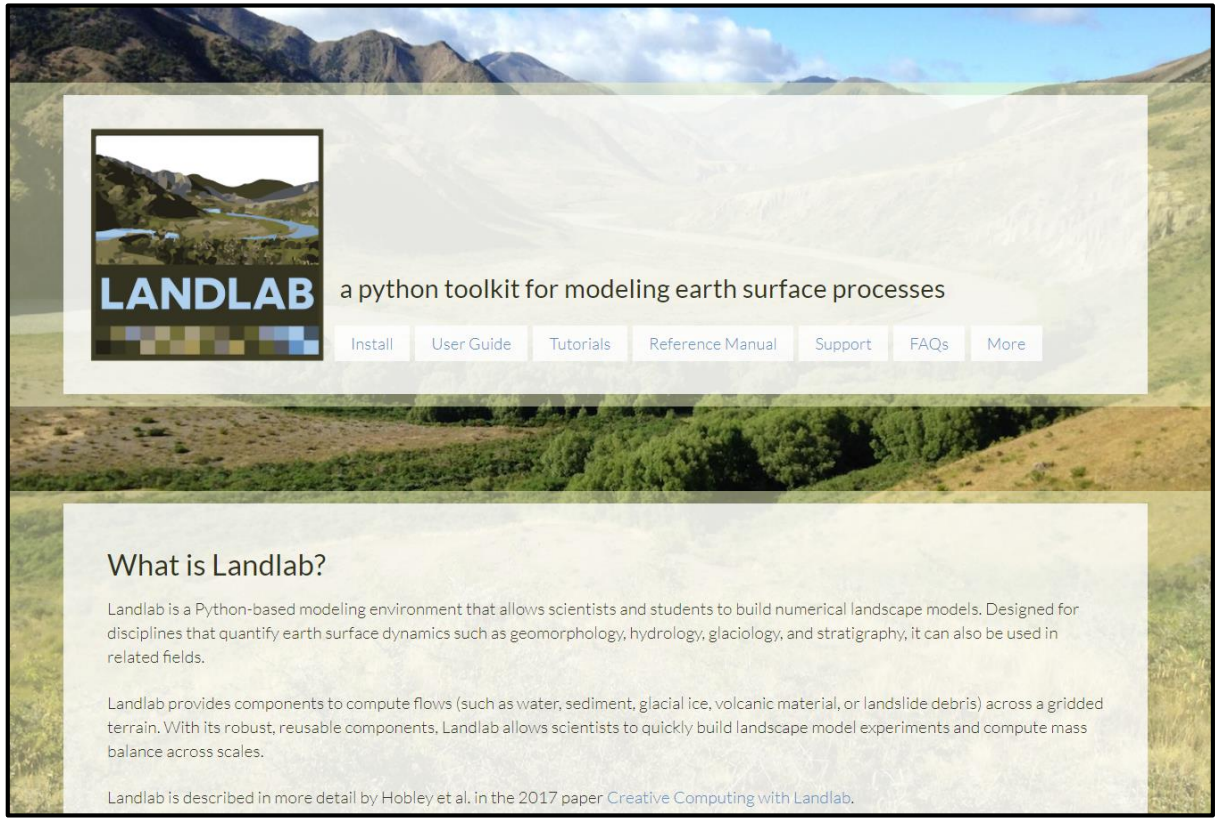
Landlab overview

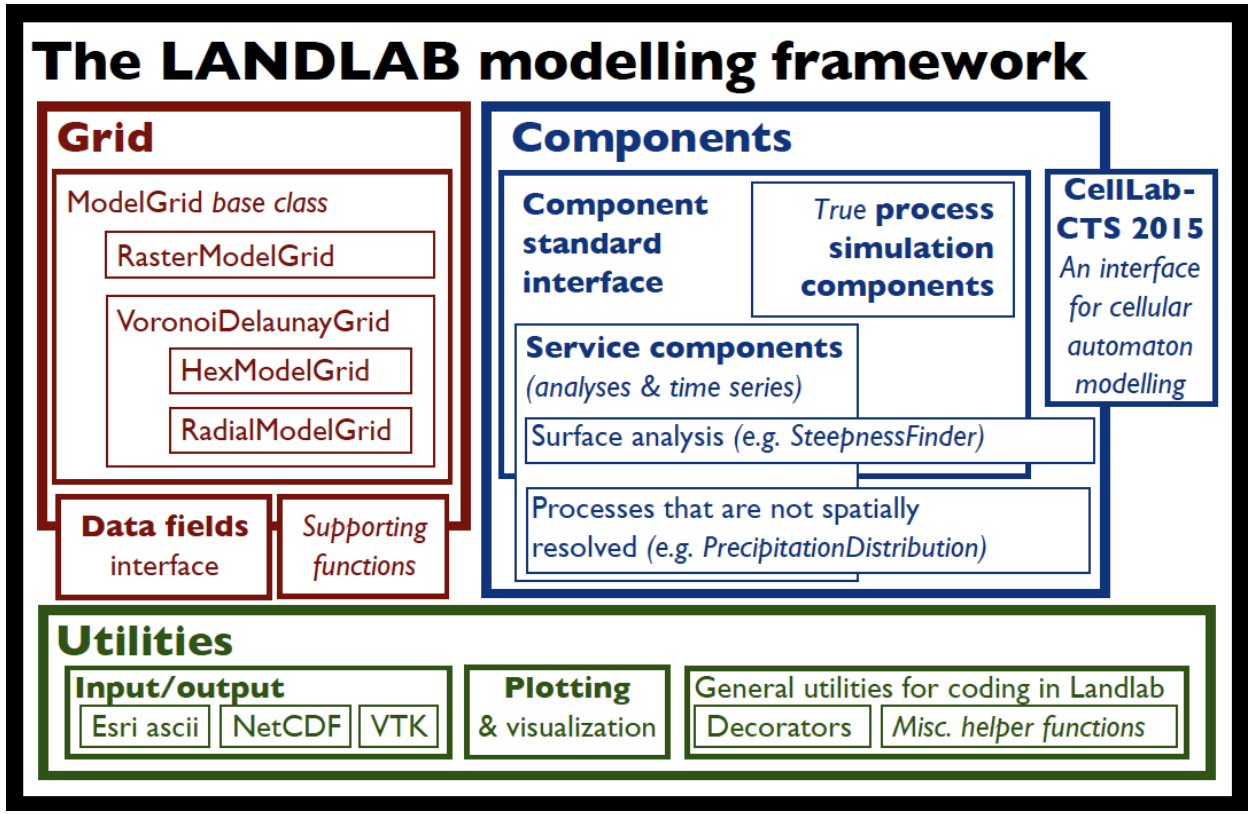
A Python-based earth surface process modeling toolkit



Landlab overview

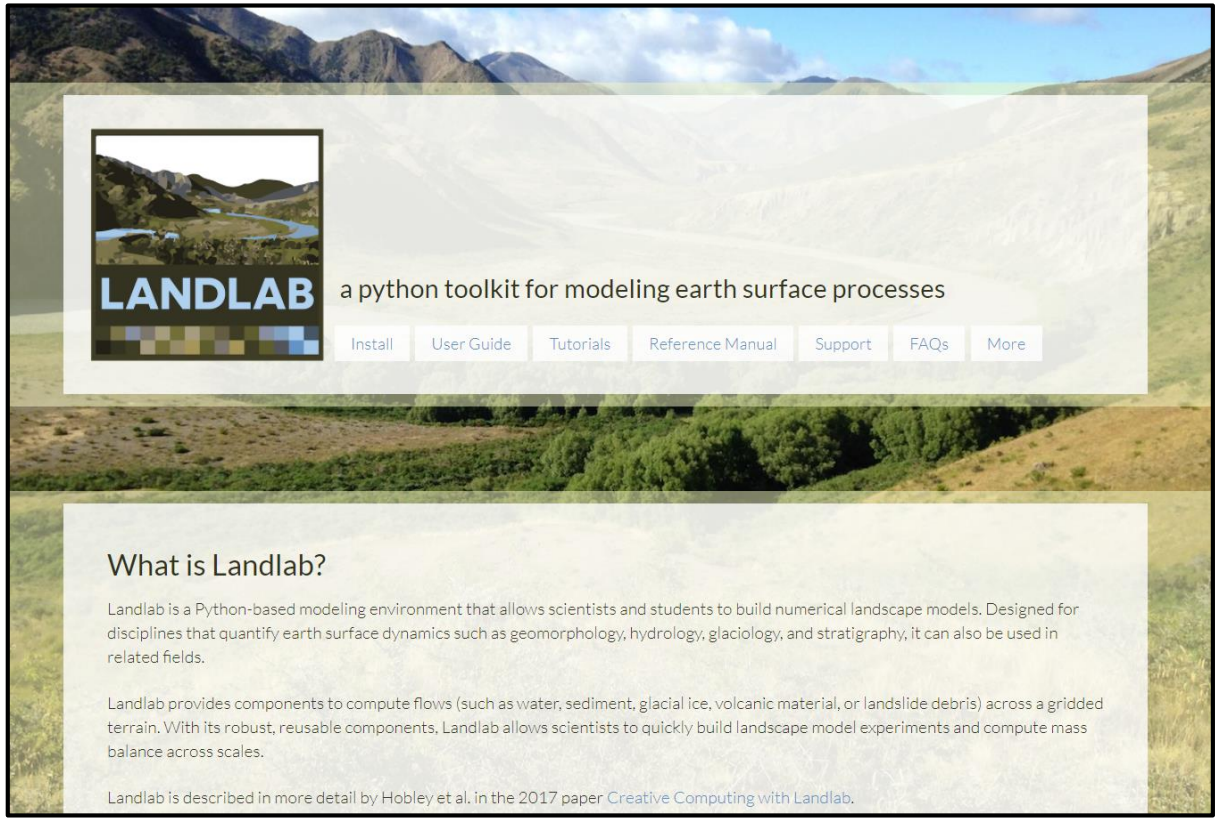
A Python-based earth surface process modeling toolkit

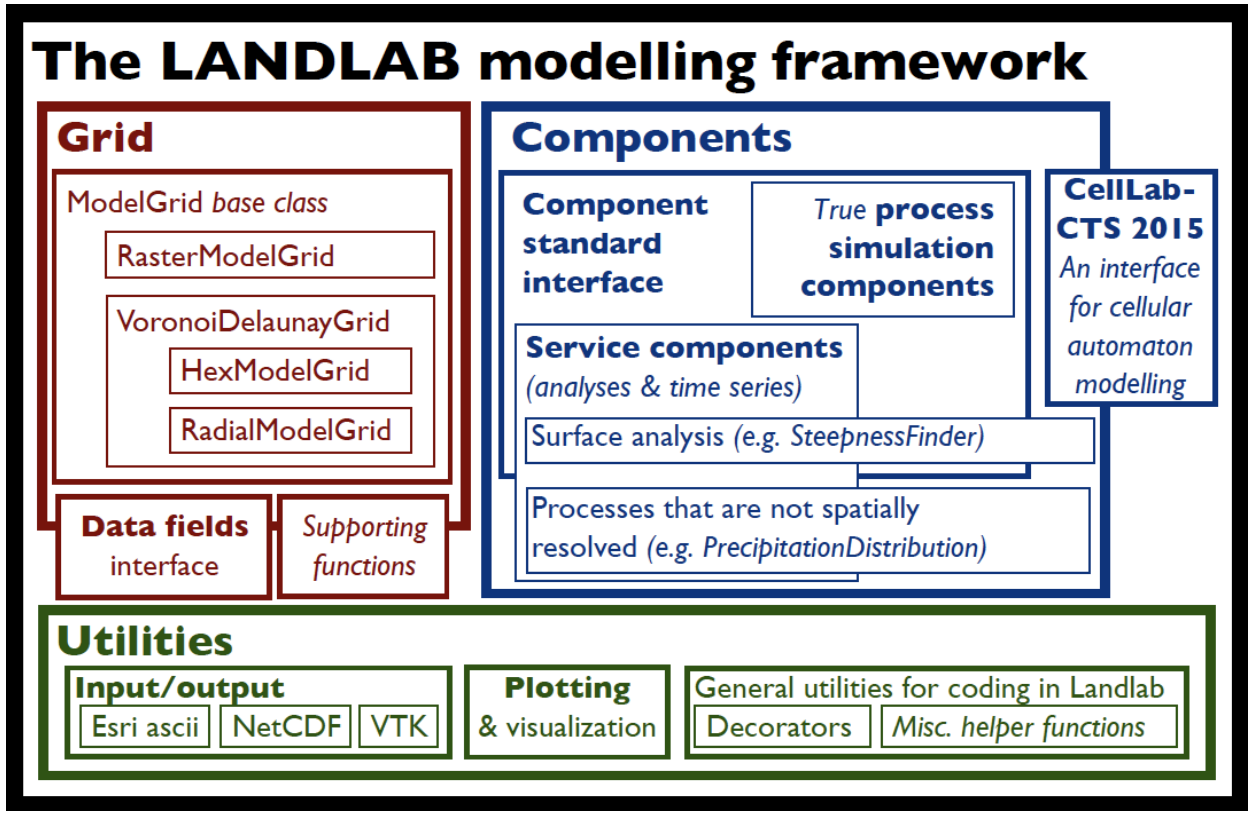




Landlab overview

A Python-based earth surface process modeling toolkit





Find more information about Landlab @ **landlab.github.io**

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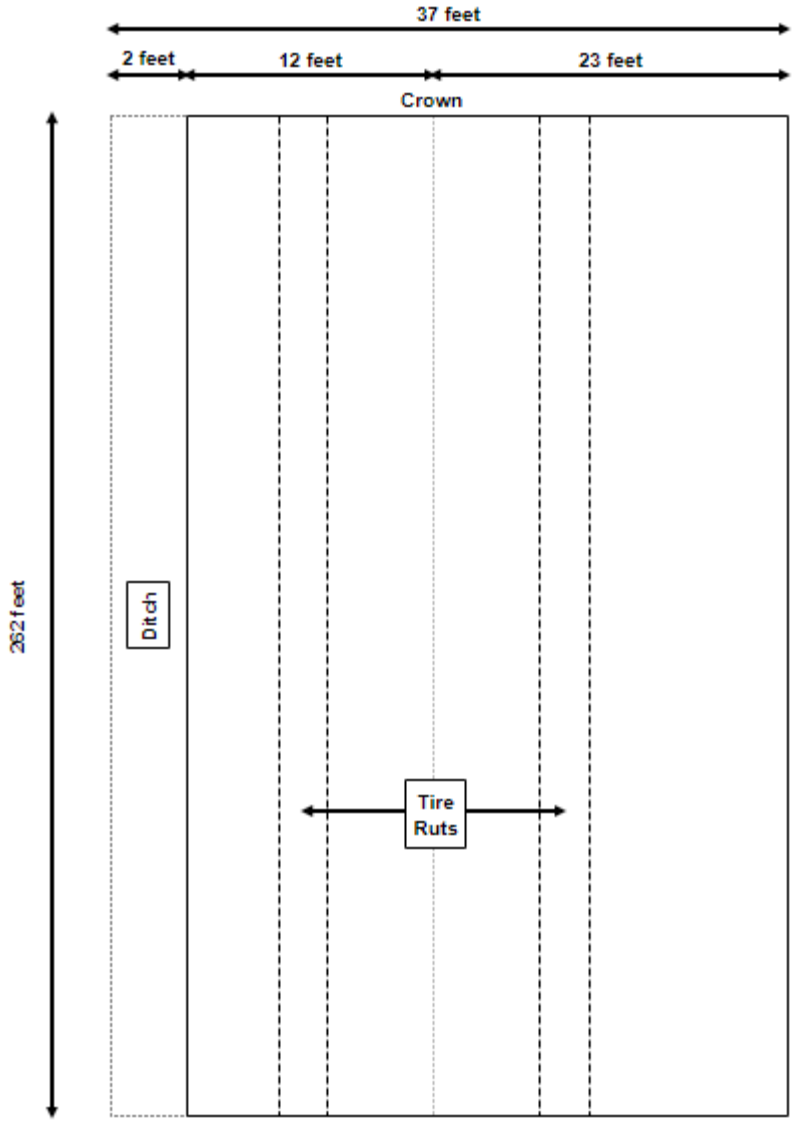
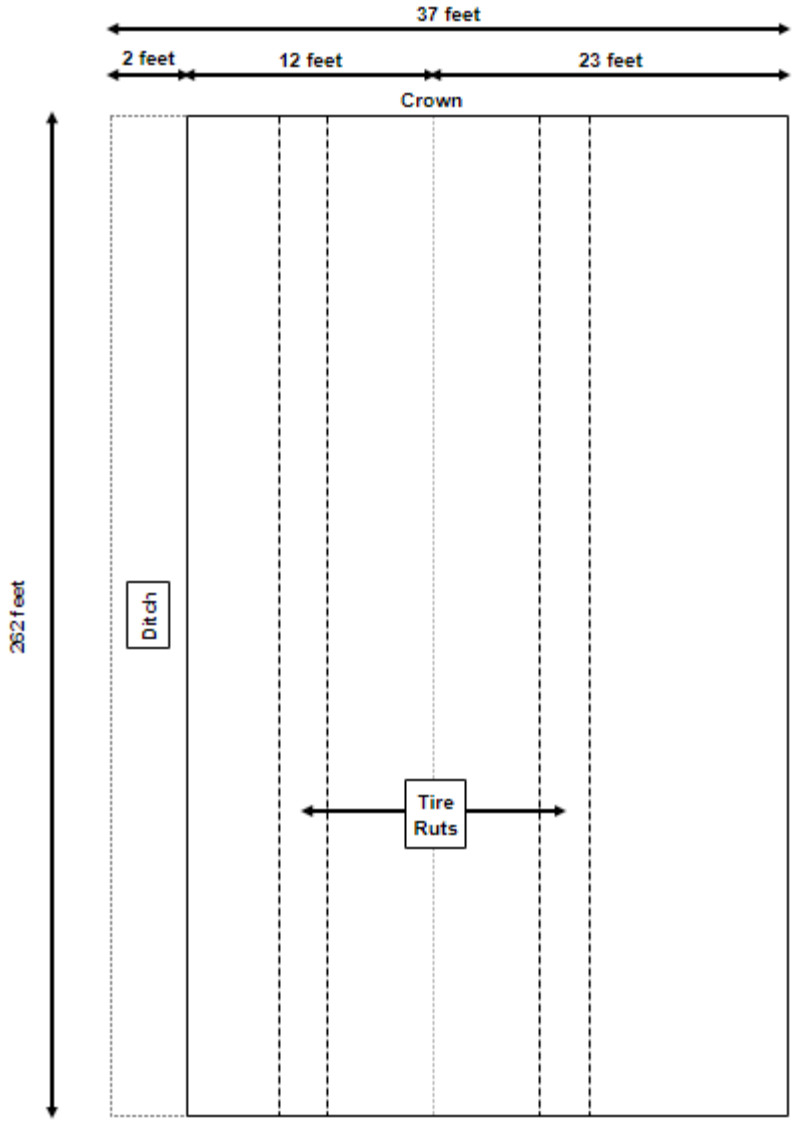
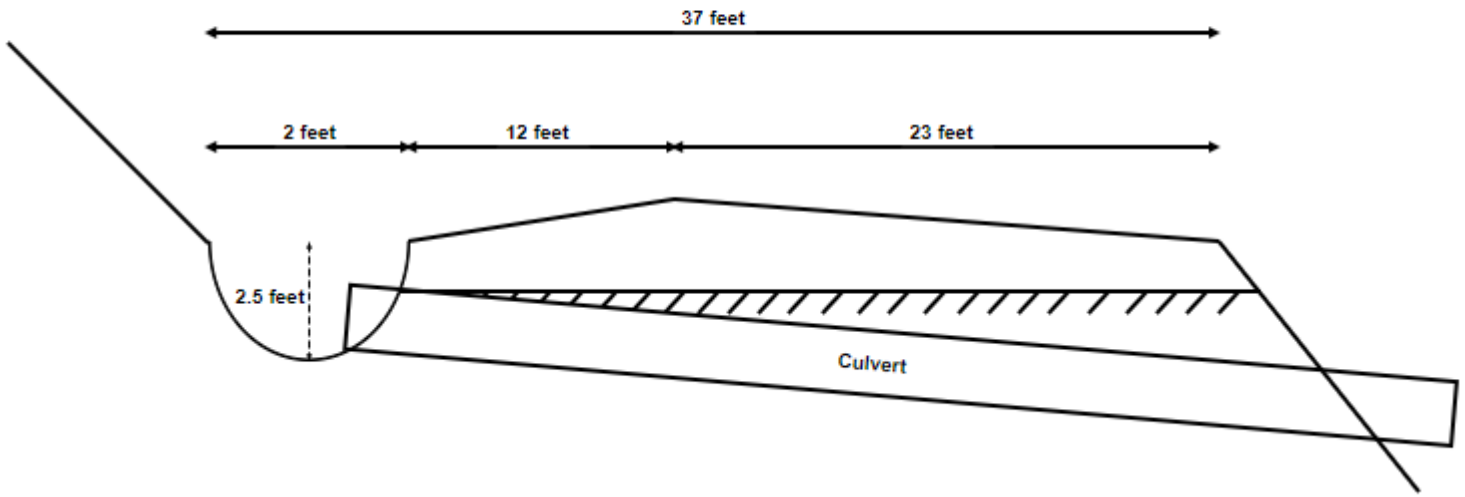
Map-View of Road Segment



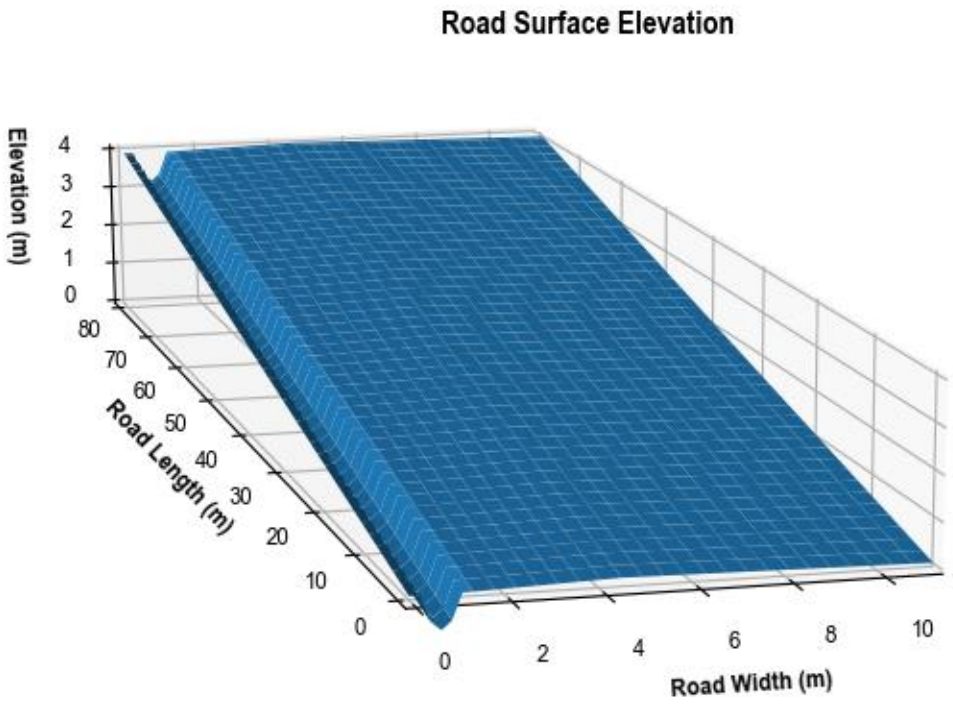
Map-View of Road Segment

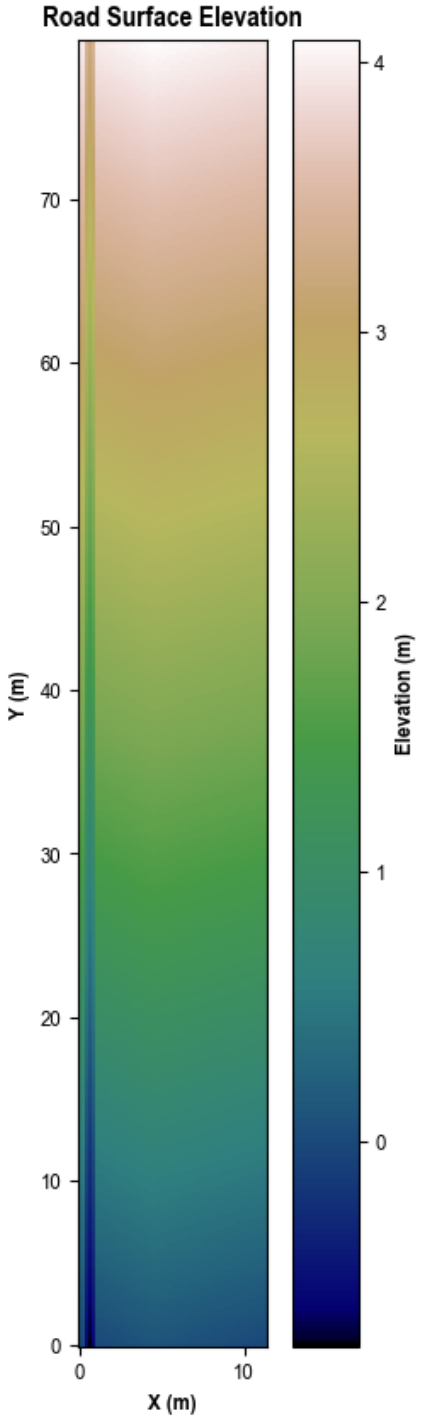


Cross-Section of Road Segment



Start with a grid





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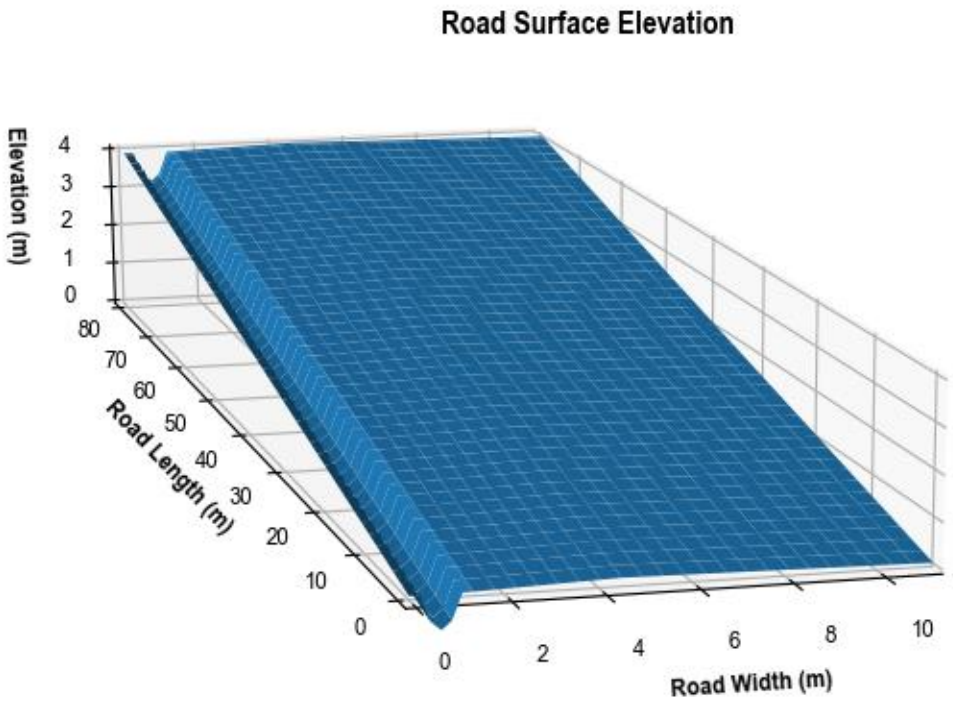
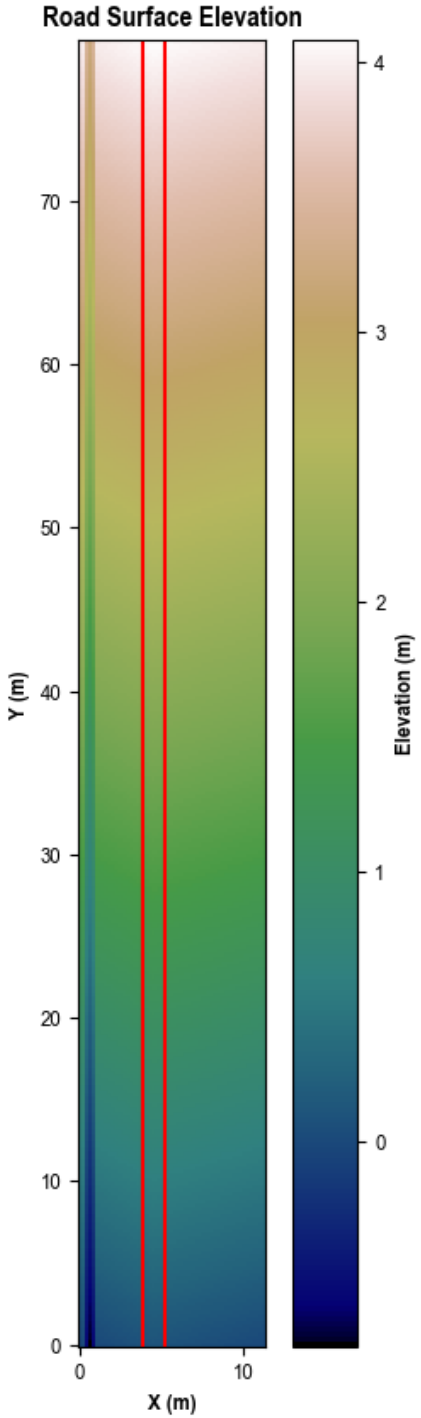
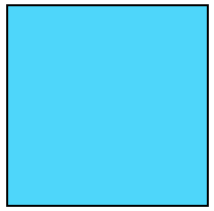




Process



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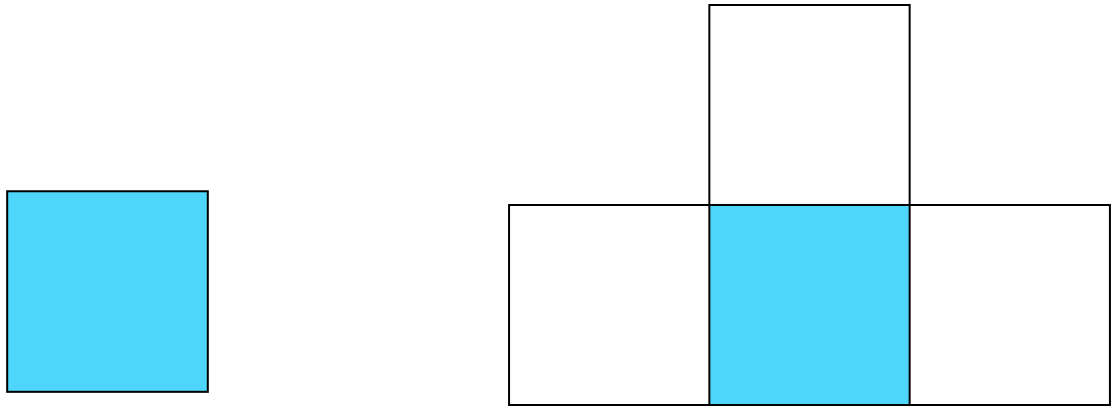

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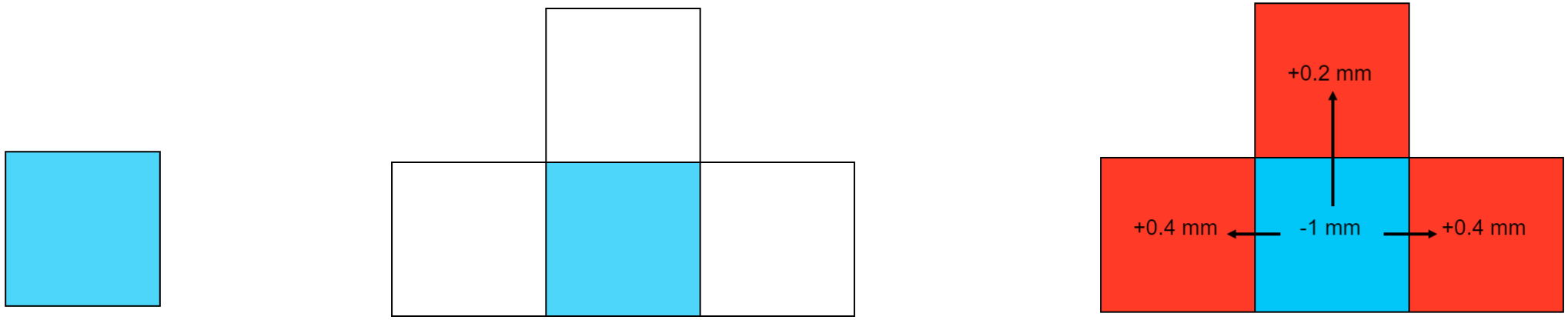
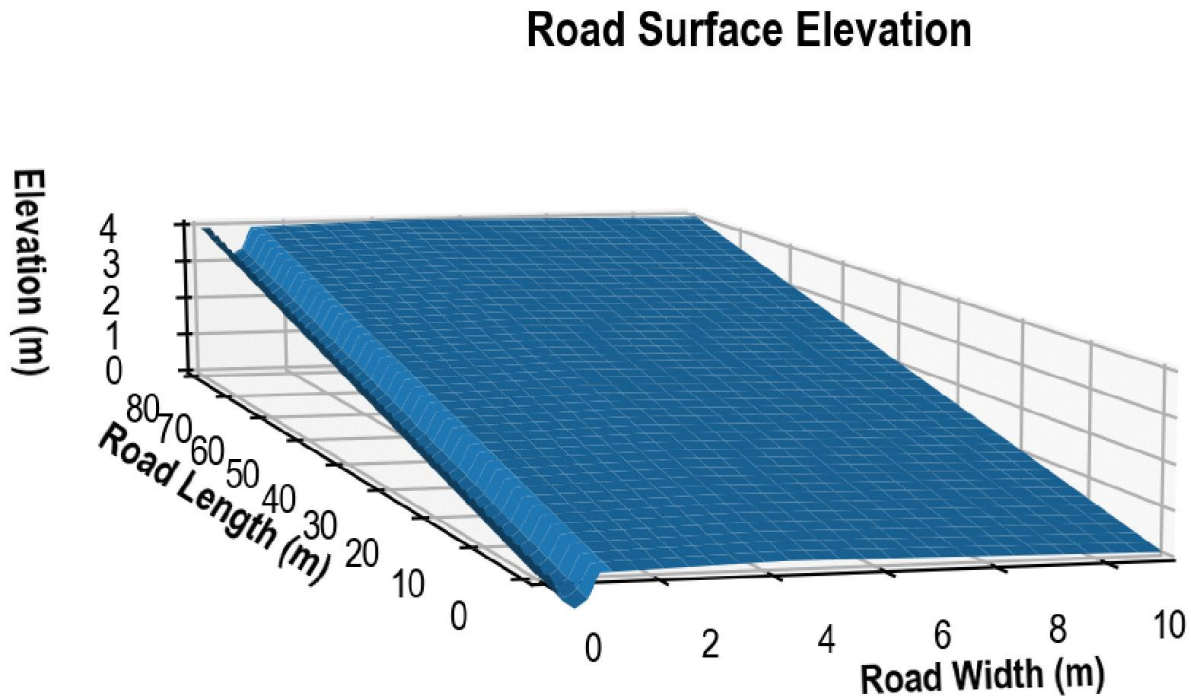
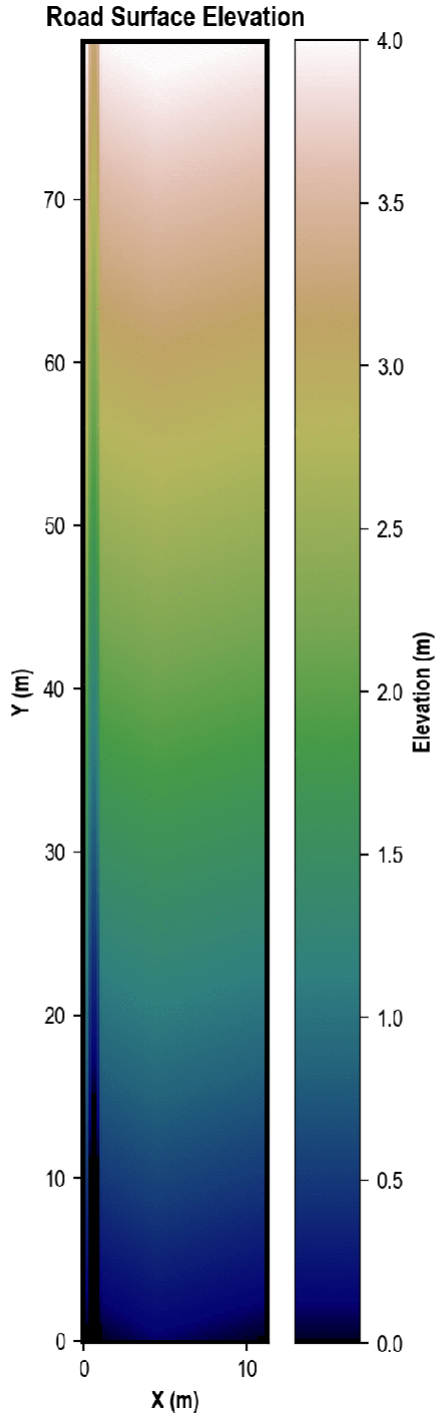


Running the model





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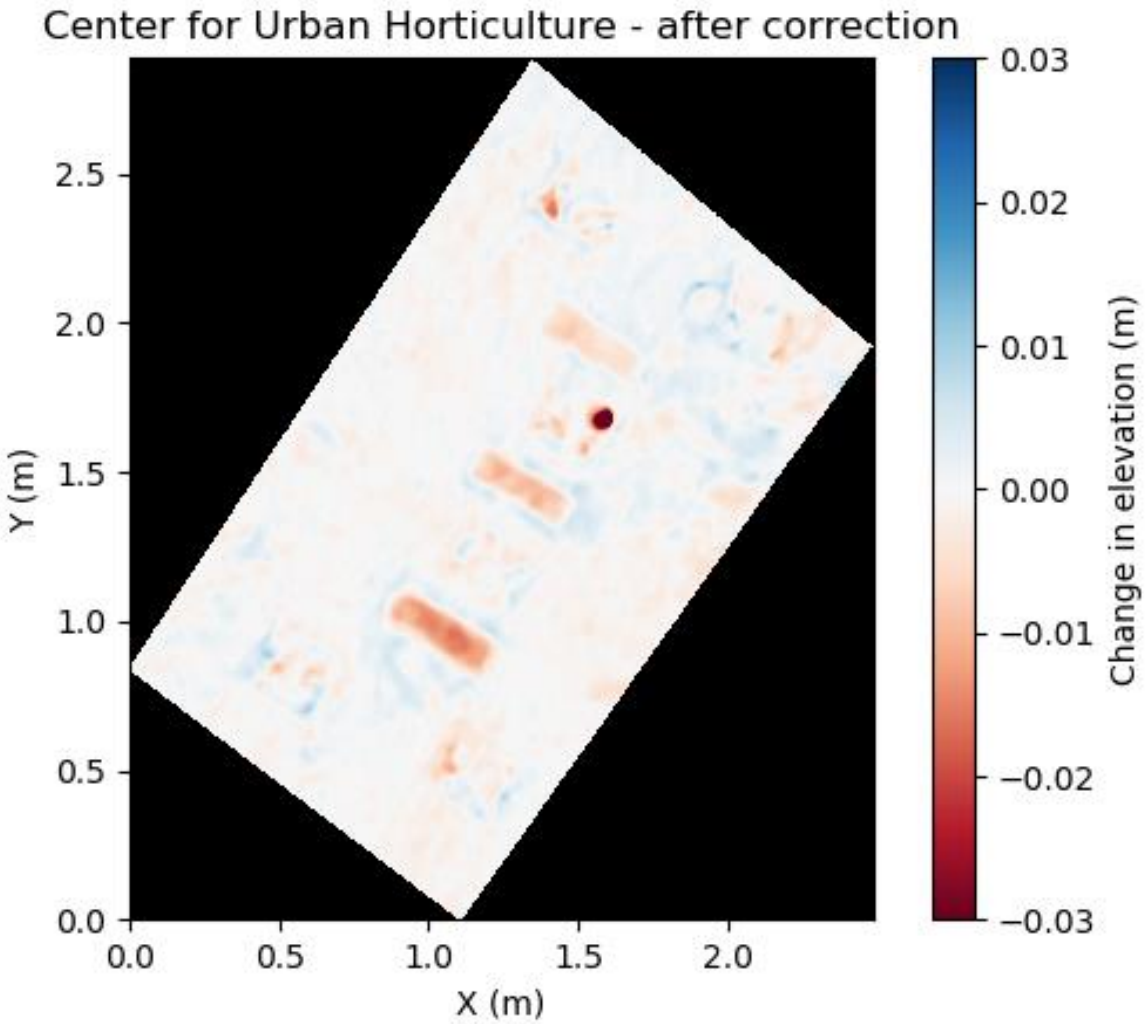
Using drones (a.k.a. unmanned aerial vehicles) for change detection

Undisturbed

Disturbed

Change in elevation



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Going forward

Rainfall detachment component

Going forward

Rainfall detachment component

Sediment transport component

Going forward

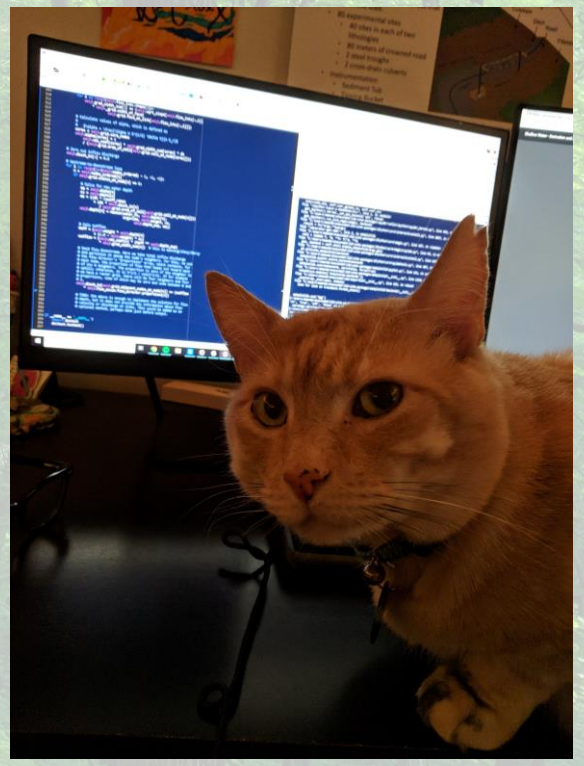
Rainfall detachment component
Sediment transport component
Effects of different treatments

Going forward

Rainfall detachment component
Sediment transport component
Effects of different treatments
Carry out full-scale survey

Going forward

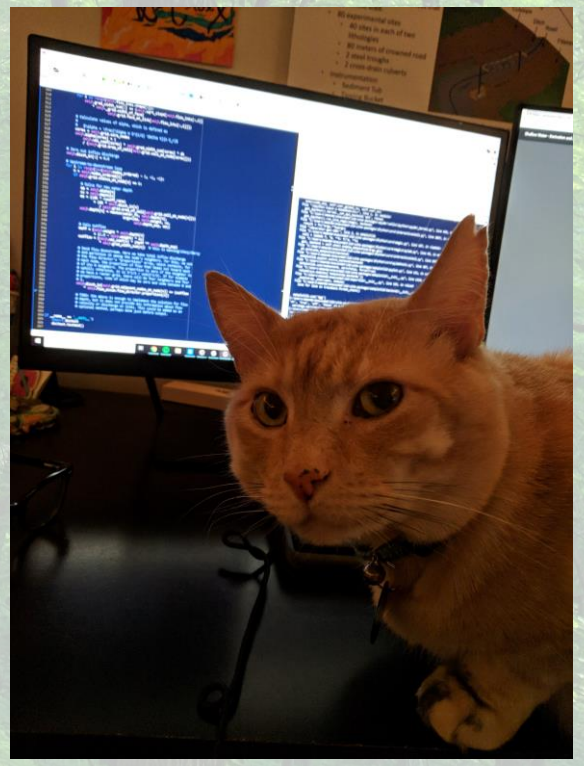
Rainfall detachment component
Sediment transport component
Effects of different treatments
Carry out full-scale survey



#CatsWhoCode

Going forward

Rainfall detachment component
Sediment transport component
Effects of different treatments
Carry out full-scale survey



Contact:
Amanda Manaster
amanaste@uw.edu

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