Sustainable Environments Research Group
School of Science and the Environment, University of Worcester
University of Worcester
j.lynch@worc.ac.uk

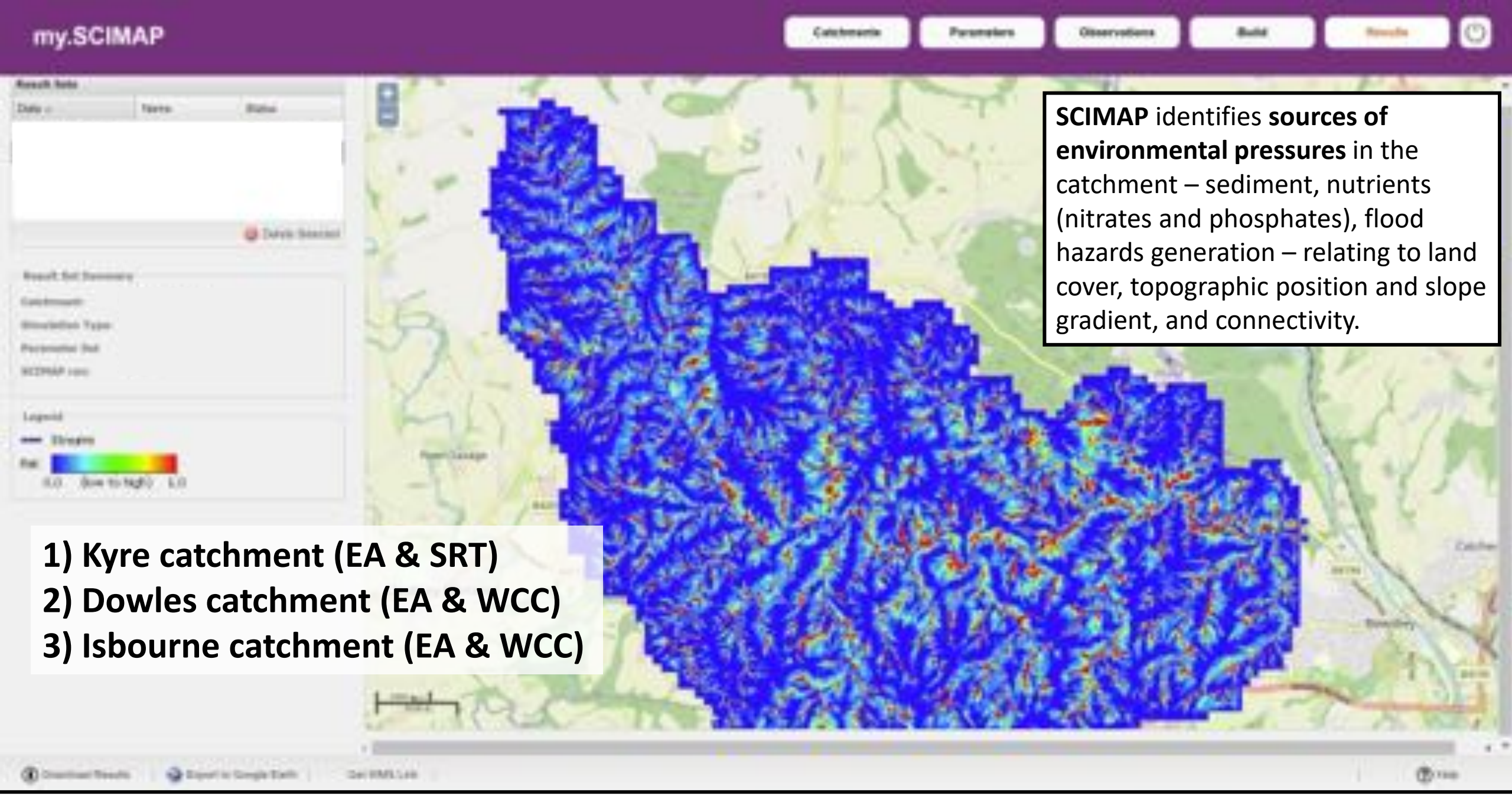
Strategic identification of **NFM** sites

Josie Lynch and Professor Ian Maddock

Natural Flood Management

Using SCALGO Live, SCIMAP and drone data for strategic identification of NFM sites.

Strategic identification of NFM sites…



Sensitive Catchment Integrated Modelling and Prediction (SCIMAP).

1.

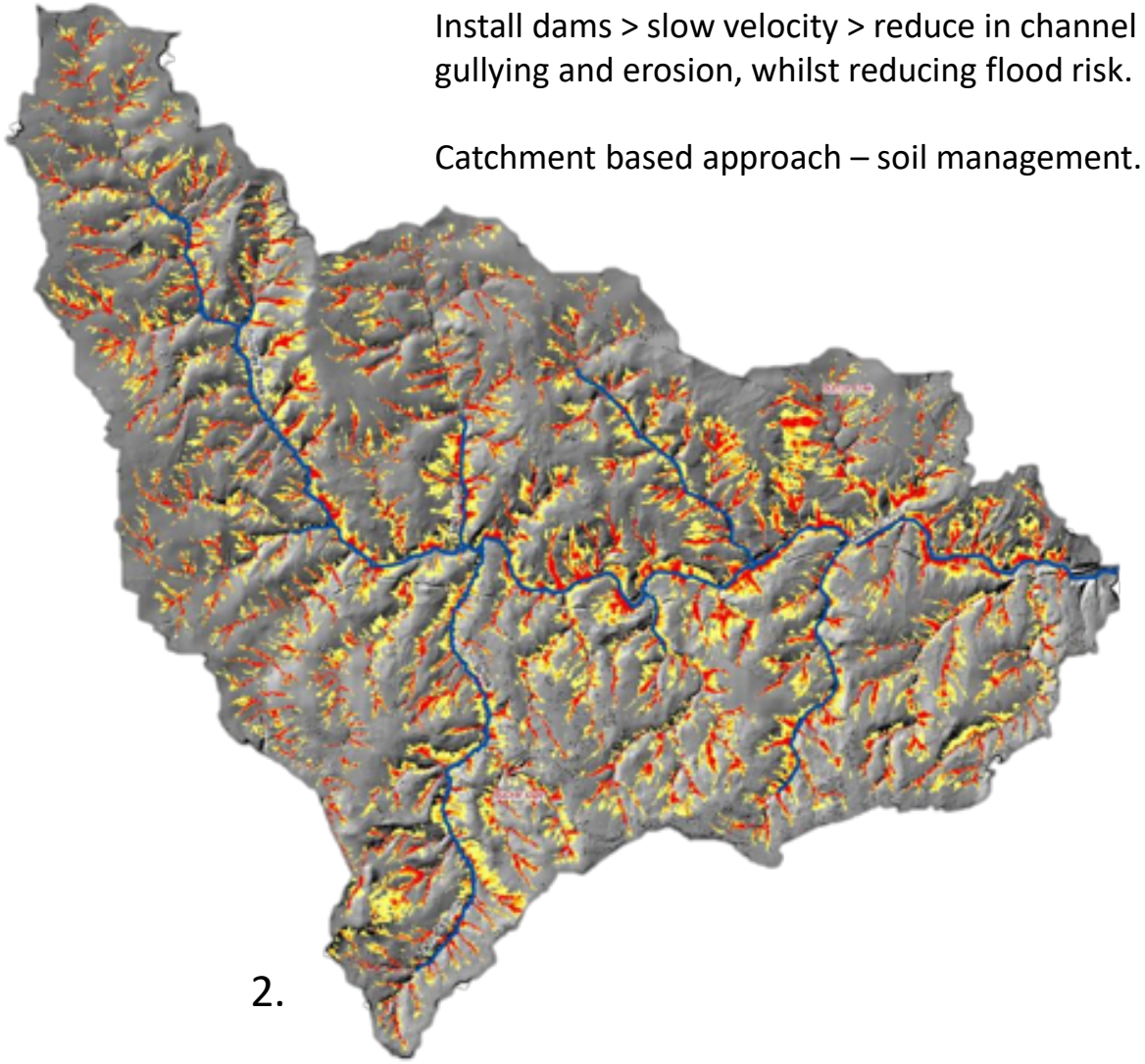
1. Hydrological connectivity
This is the surface hydrological connectivity with the river channel.

Identifying these areas could be useful to identify locations for e.g offline storage ponds.

2. Erosion risk potential
The relative erosion potential as a result of the water volume flowing over a point in the landscape and the local slope gradient to determine the potential speed of the water flow.

Install dams > slow velocity > reduce in channel gullying and erosion, whilst reducing flood risk.

Catchment based approach – soil management.



2.

About Content Legend

Legend

Flood Zone 2

WWNP Floodplain Woodland

WWNP Floodplain Reconnection

Flood Zone 3

Streams

Natural depressions

label

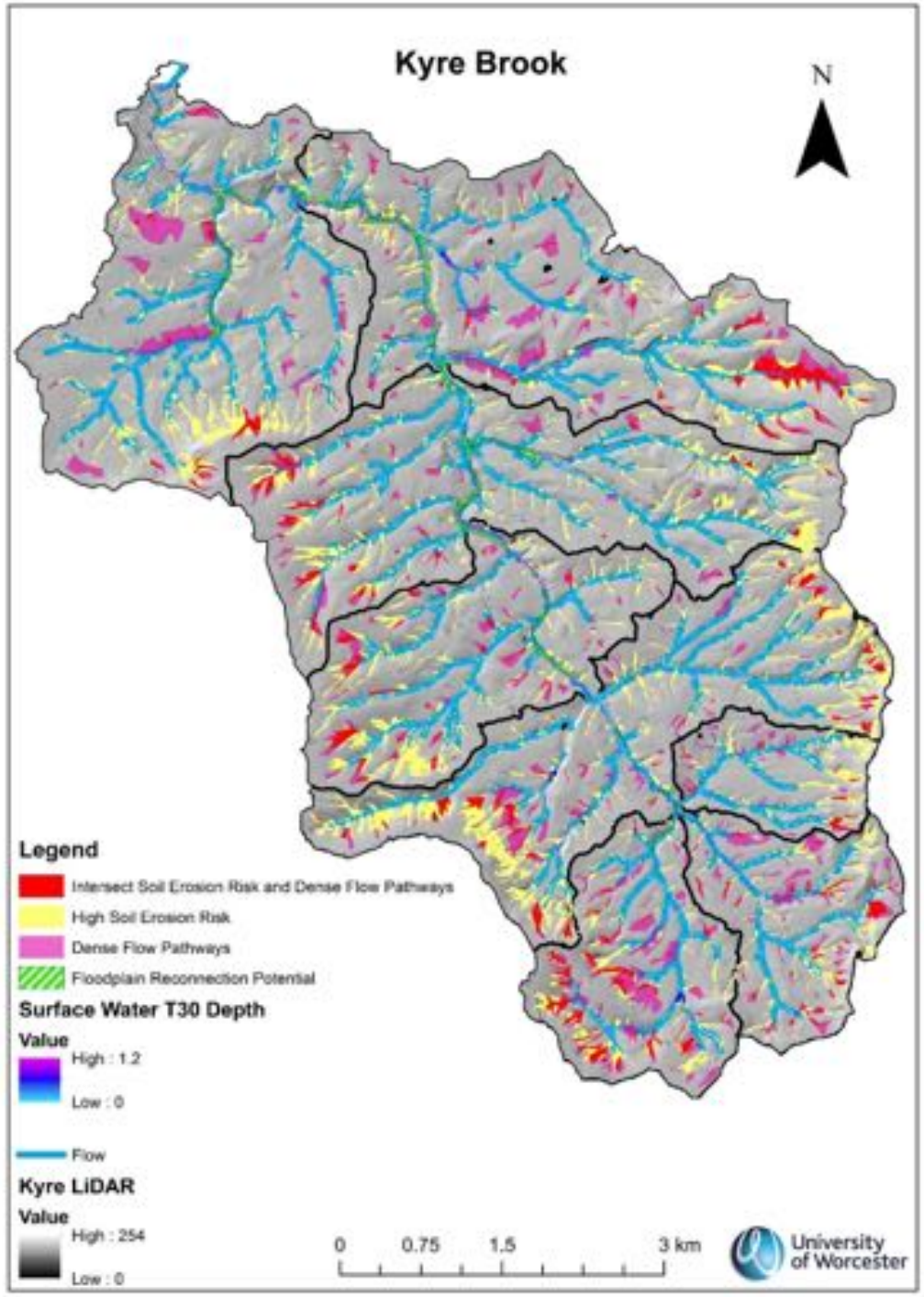
> 17,165

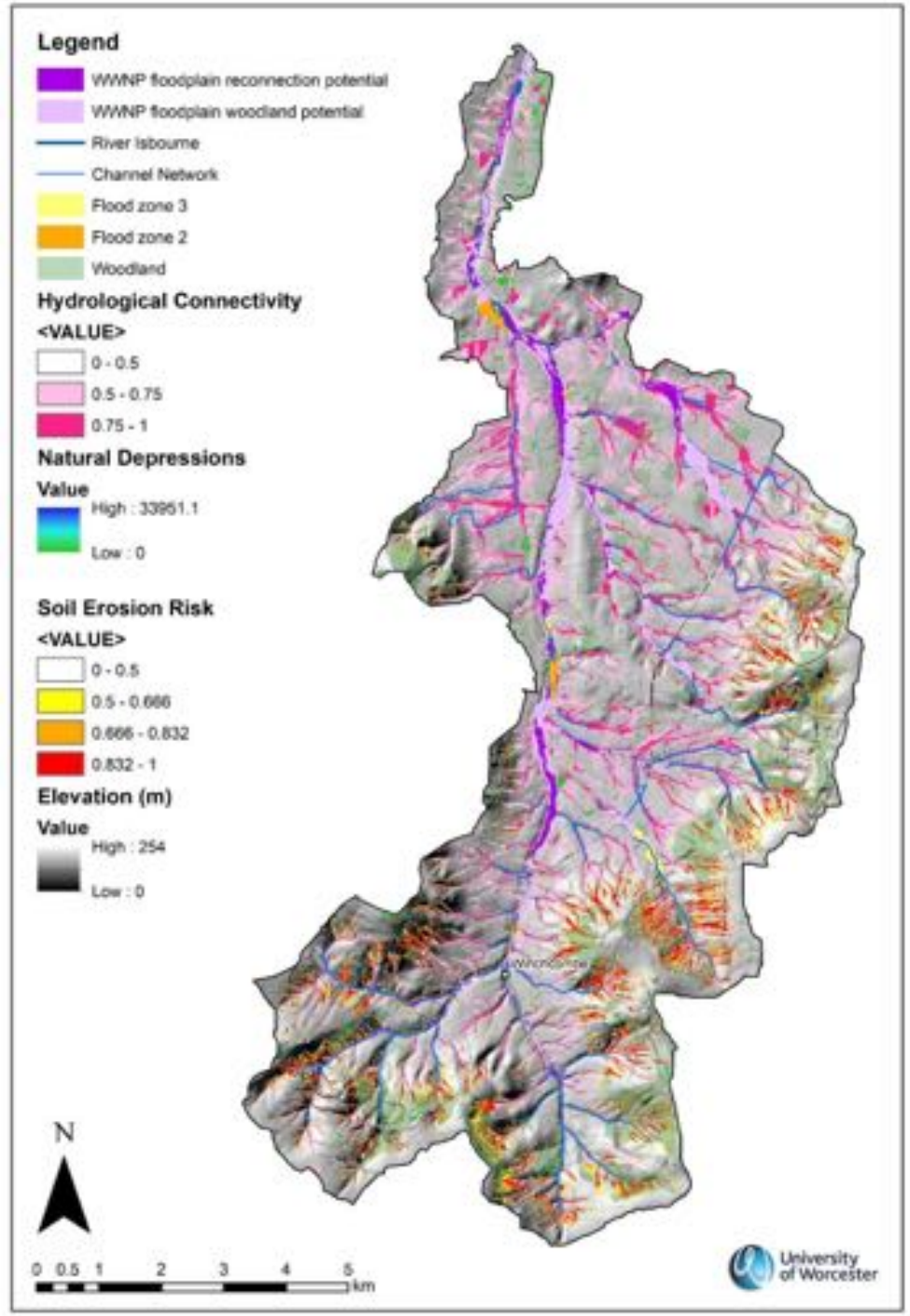
8,646

< 3,876

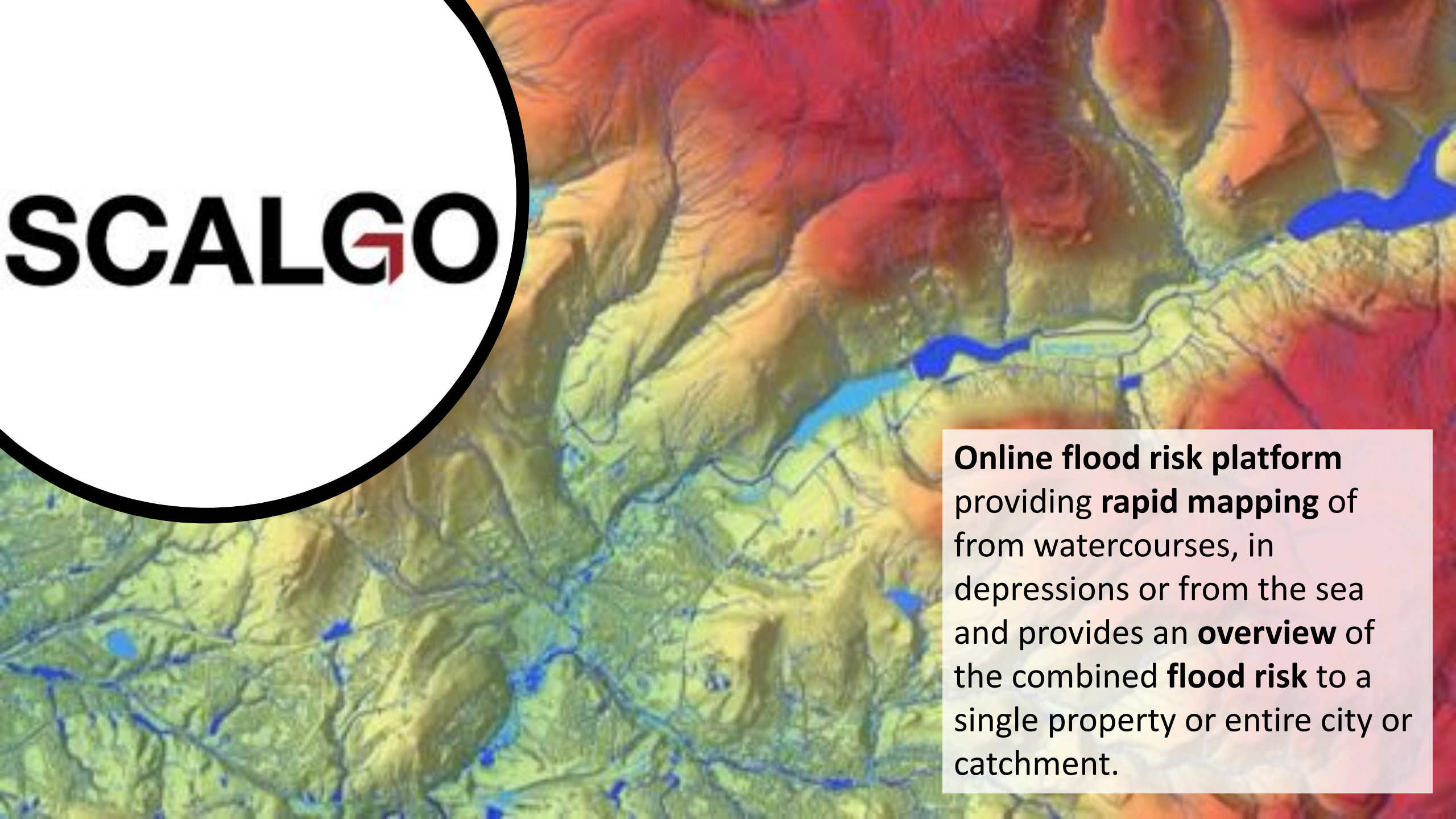
Woodland

Dowles Catchment Boundary


Kyre Brook
N
Legend
Intersect Soil Erosion Risk and Dense Flow Pathways
High Soil Erosion Risk
Dense Flow Pathways
Floodplain Reconnection Potential
Surface Water T30 Depth
Value
High : 1.2
Low : 0
Flow
Kyre LiDAR
Value
High : 254
Low : 0
0 0.75 1.5 3 km
University of Worcester


Legend
WWNP floodplain reconnection potential
WWNP floodplain woodland potential
River Isbourne
Channel Network
Flood zone 3
Flood zone 2
Woodland
Hydrological Connectivity
<VALUE>
0 - 0.5
0.5 - 0.75
0.75 - 1
Natural Depressions
Value
High : 33951.1
Low : 0
Soil Erosion Risk
<VALUE>
0 - 0.5
0.5 - 0.666
0.666 - 0.832
0.832 - 1
Elevation (m)
Value
High : 254
Low : 0
N
0 0.5 1 2 3 4 5 km
University of Worcester

SCALGO



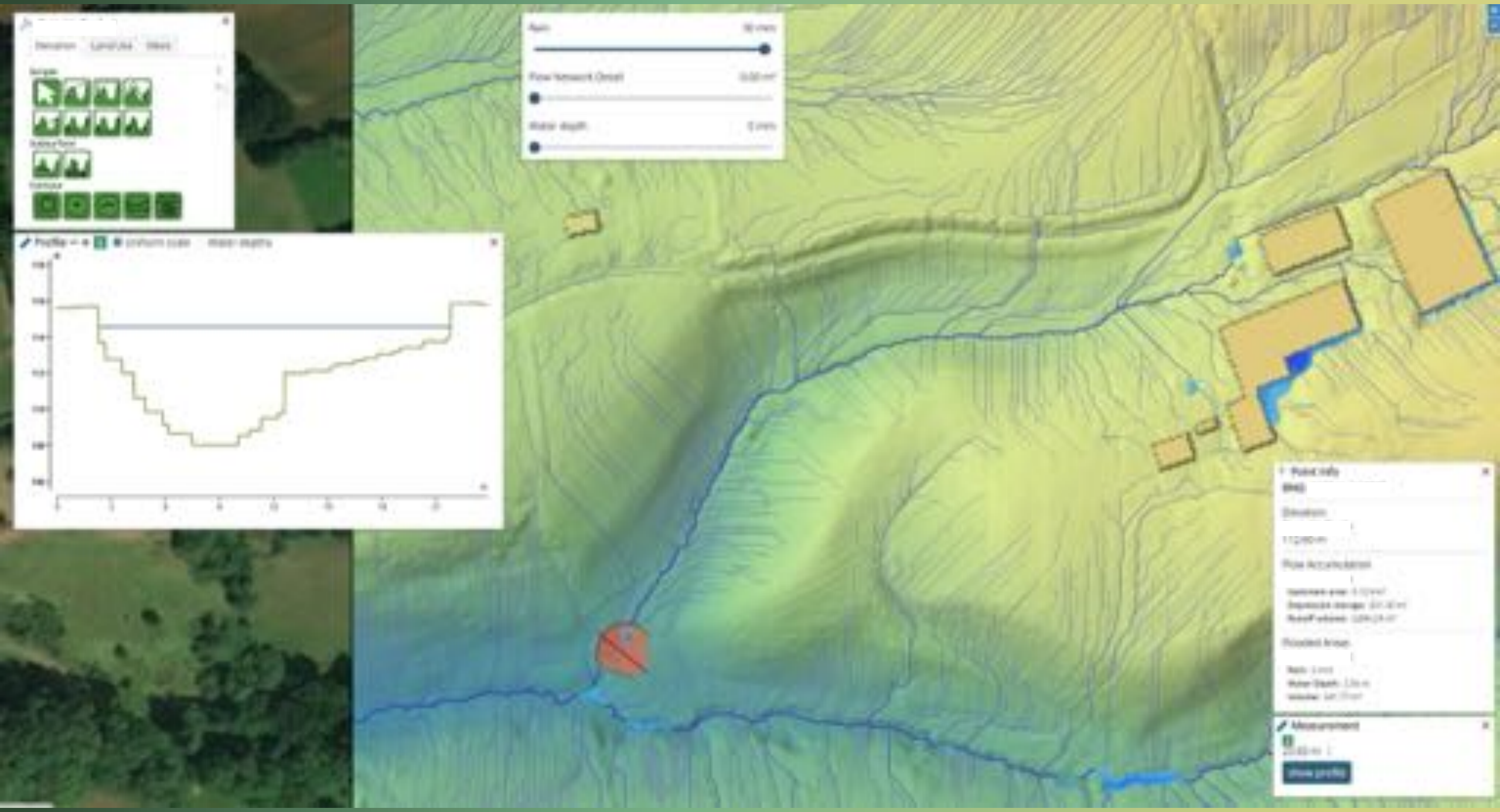
Online flood risk platform providing **rapid mapping** of from watercourses, in depressions or from the sea and provides an **overview** of the combined **flood risk** to a single property or entire city or catchment.

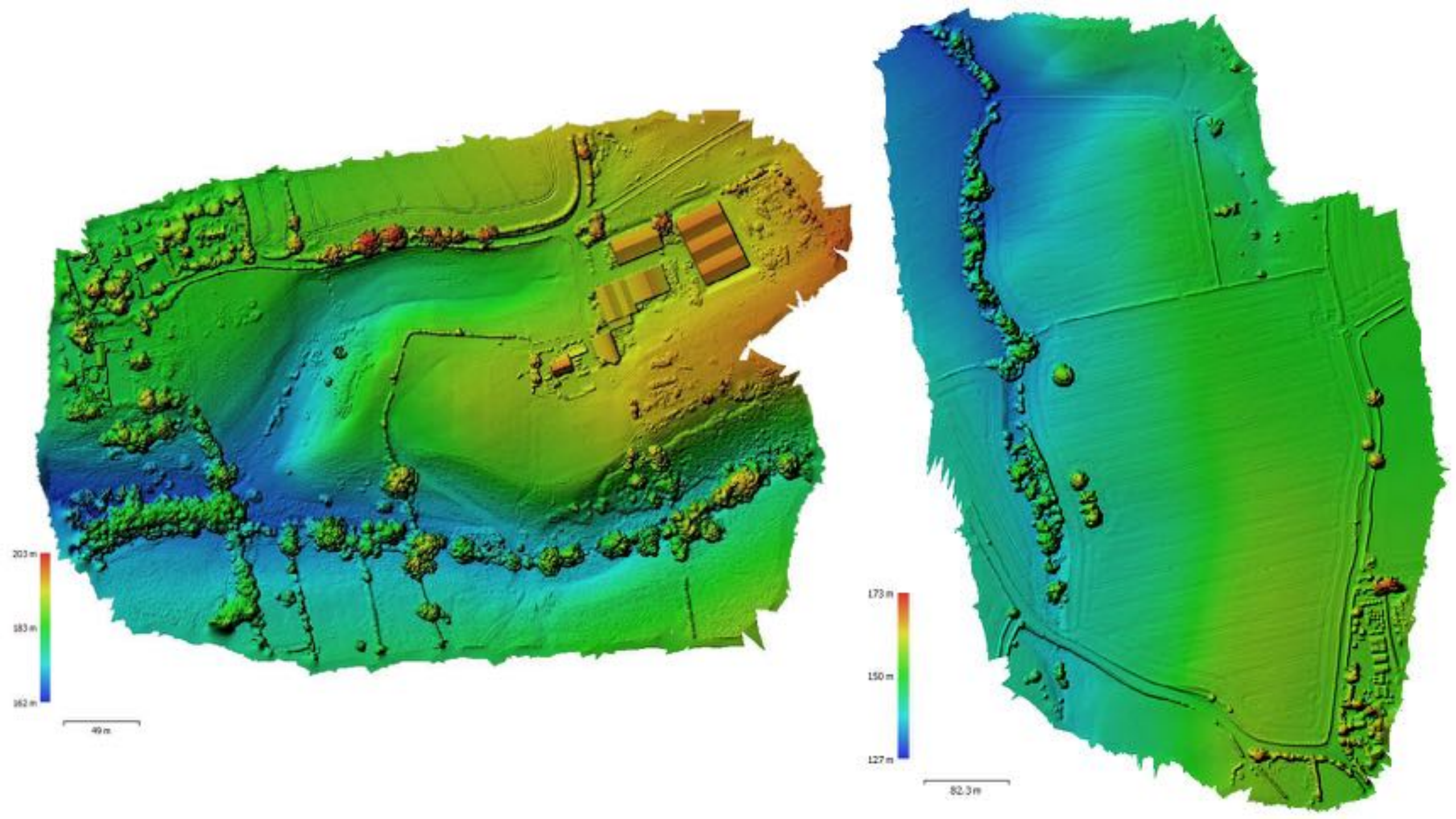
Flow Network Detail
9.02 ha

Figure 6. Validation of SCALGO Live using the National LiDAR Programme DTM 1m data (SCALGO Live 2022).

Figure 7. Oblique UAV aerial photography taken during a UW drone survey highlighting the surface erosion towards the low lying area in the bottom right of the photograph.

Legend
Flooded Areas
Flow Accumulation

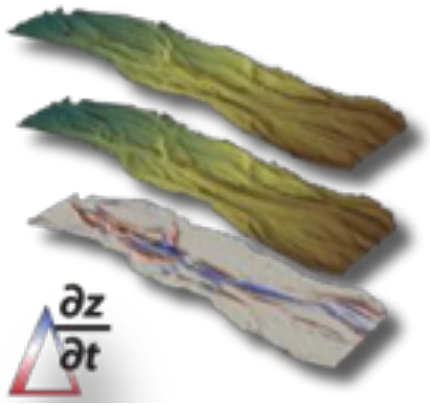



203 m
183 m
162 m
49 m
173 m
150 m
127 m
82.3 m

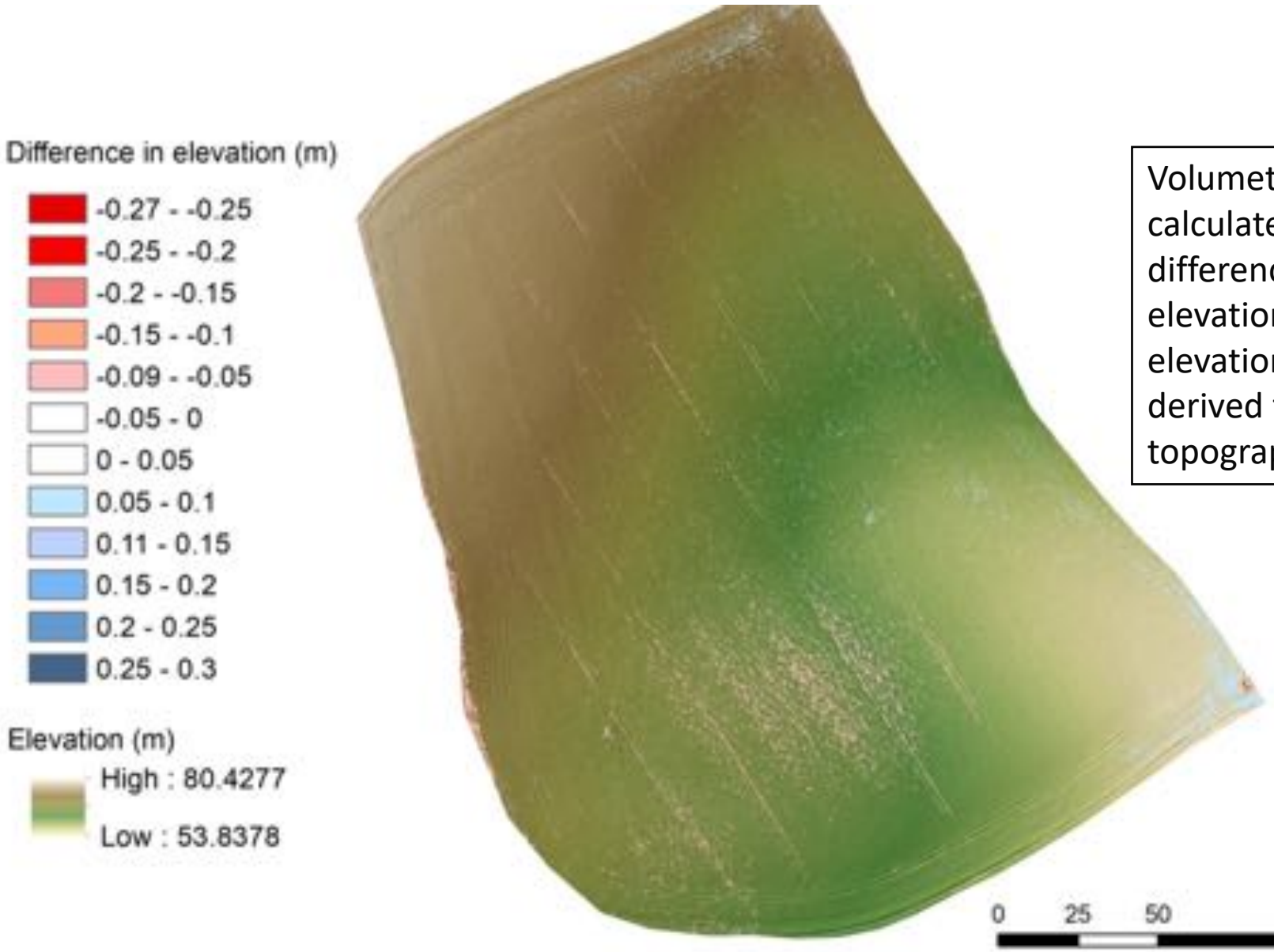
Geomorphic Change Detection (GCD)

Developed primarily for topographic change detection in rivers

Works for raster-based change detection of any two surfaces



Wheaton (2008)



Volumetric change is calculated from the difference in surface elevations from digital elevation models (DEMs) derived from repeat topographic surveys.

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