

36. SCIMAP

FAIRWAY partner: Fiona Nicholson (ADAS, UK)



Brief description

SCIMAP - Diffuse Pollution Risk Mapping. SCIMAP is a tool to help decision-makers, including governments, non-governmental organisations, land owners etc. to work out where to prioritise activities that protect the water environment, and so make our water clean again. SCIMAP is an approach to the generation of risk maps for diffuse pollution within catchments. SCIMAP aims to determine where within a catchment is the most probable source of diffuse pollution and is based on a probabilistic/relative approach.

Contaminants covered (e.g. nitrate, pesticides etc.)	Sediment, nutrients and FIOs (E.coli)
Intended end users (e.g. farmer, water quality manager, policy maker)	Policy makers, water quality managers
Level of expertise and/or training required	Knowledge of GIS is required. Training is required to run the model and export data to various GIS platforms.
Geographical resolution (e.g. field, catchment, national)	Catchment scale model
Temporal resolution (e.g. daily, annual, long-term).	Long term
Real-time component (e.g. live weather data, soil moisture data feeds etc.)	None
Number and type of mitigation measures included	Not explicitly modelled
Platform (e.g. paper-based tool, phone app, bespoke software).	Desktop software and web based version (MyScimap). The SCIMAP website is: https://www.scimap.org.uk/
Frequency of updates	Ongoing
Cost/availability	Free. To download the SCIMAP Desktop software a form needs to be completed to subscribe. You will then get an email with the link to the software. https://us5.list-manage.com/subscribe?u=1b53f9d9f9b9df1de52de10ad&id=484d31ed89 MyScimap can be accessed by registering here: https://my.scimap.org.uk/app/auth.php
Number of users or number of copies distributed/downloaded/purchased	Not known
Links to demo material and other relevant information (e.g. user guides).	Comprehensive information available on the project website http://www.scimap.org.uk/ Training video available here: http://www.scimap.org.uk/category/training/ A collection of the asked questions and documentation can be found here: https://github.com/simreaney/SCIMAP/wiki Video guides and tutorials on YouTube: https://www.youtube.com/playlist?list=PLCbxVRxhFOZSpIkXHtVbhyX6mjWKCd8d5
Additional comments	SCIMAP has been used in the River Eden Demonstration Test Catchment (EdenDTC) project. http://www.edendtc.org.uk/tag/scimap/ Durham Wildlife Trust has used SCIMAP to identify areas with high fine sediment pollution risk within the River Wear catchment. https://catchmentresearch.wordpress.com/2016/08/12/myscimap-modelling-and-mapping-tool-to-mitigate-diffuse-pollution-in-catchments/

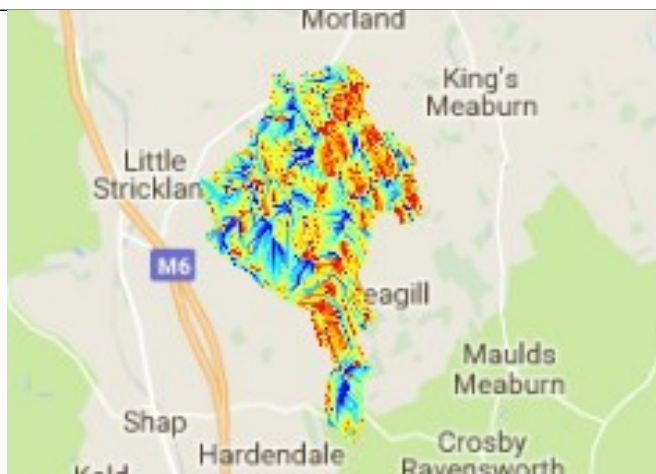
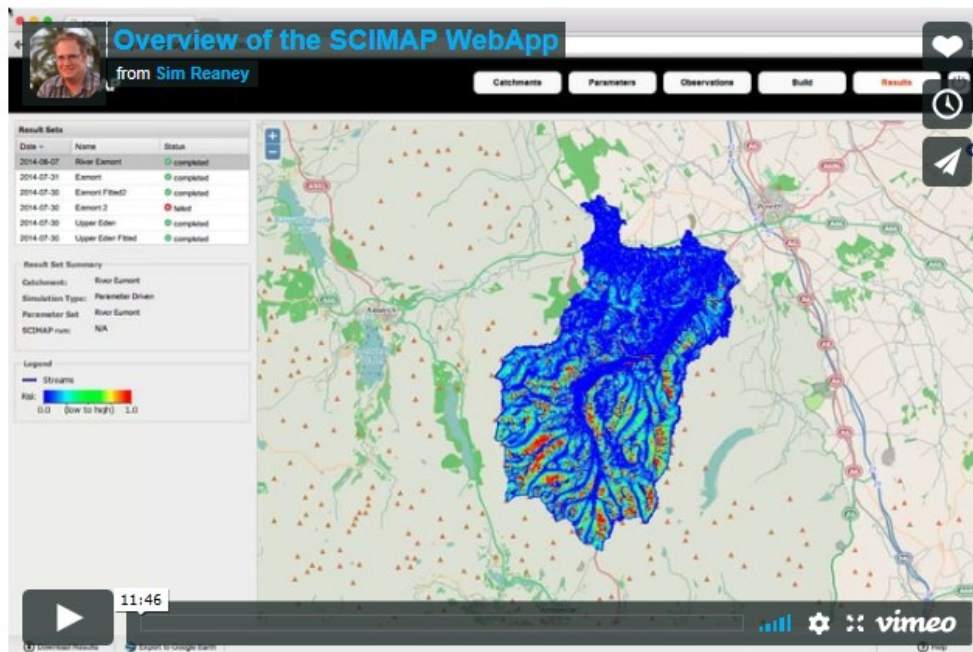
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Input data required to run the DST	See publications. The web based version simplifies the process of developing SCIMAP risk maps by using the datasets stored on website, removing the need to install and used desktop GIS packages and allows simple export of the results to either GIS or GoogleEarth.	
Outputs (including links to water quality and economic or financial aspects)	Maps of areas at risk of generating diffuse pollution.	
Age/provenance of supporting data used to develop the DST	See publications	
Country-specific calibration or data requirements (including restrictions on use)	See publications	
Details of validation and testing	See publications	
Date developed/released (or planned release date)	Original model developed in 2009	
Author/developer names and affiliations	Originally jointly developed between Durham and Lancaster Universities. SCIMAP is supported by the U.K.'s Natural Environment Research Council, the Eden Rivers Trust, the Department of the Environment, Food and Rural Affairs and the Environment Agency.	
Member state(s) where developed	UK	
Member State(s) where currently used	UK (has also been used in Indonesia).	
Key publication references (including url)	Perks, M.T., Warburton J., Bracken, L.J., Reaney, S.M., Emery, S.B. & Hirst S. 2017. Use of spatially distributed time-integrated sediment sampling networks and distributed fine sediment modelling to inform catchment management. Journal of Environmental Management 202, Part 1, 249-478. https://www.sciencedirect.com/science/article/pii/S0301479717300609 Porter K. D.H., Reaney S. M., Quilliam R. S., Burgess C. and Oliver D. M. 2017: Predicting diffuse microbial pollution risk across catchments: The performance of SCIMAP and recommendations for future development; Science of The Total Environment 609, 456-465. https://www.sciencedirect.com/science/article/pii/S0048969717318909 Milledge D. G., Lane S. N., Heathwaite A. L. and Reaney S. M. 2012: A Monte Carlo approach to the inverse problem of diffuse pollution risk in agricultural catchments; Science of the Total Environment 433, 434–449. http://dx.doi.org/10.1016/j.scitotenv.2012.06.047 Reaney S. M., Lane S. N., Heathwaite A. L. and Dugdale L. J. 2011: Risk-based modelling of diffuse land use impacts from rural landscapes upon salmonid fry abundance; Ecological Modelling 222, 1016-1029 https://www.sciencedirect.com/science/article/pii/S0304380010004175?via%3Dihub	

SCIMAP

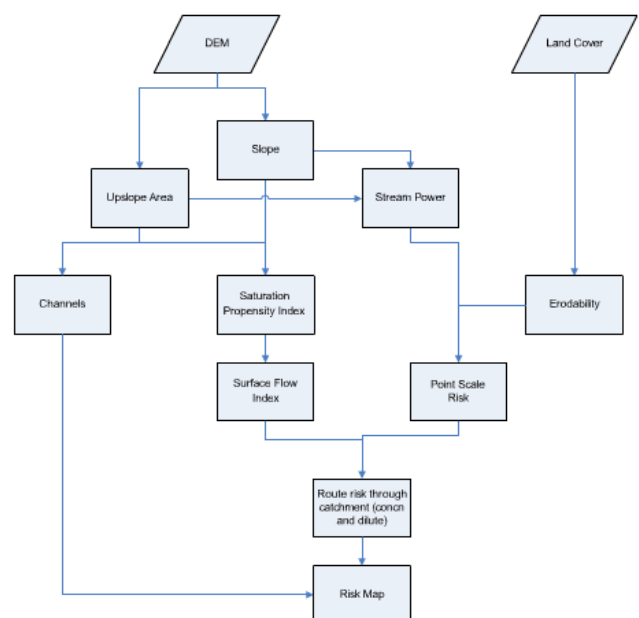
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Any other useful information (e.g. screenshots of DST input/outputs)



Map showing relative risks of sediment pollution generation in a catchment



Information flows within the model