



## **Changes in storm hydrographs associated with long-term peatland vegetation change**

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River discharge from blanket peatlands tends to be dominated by flashy stormflows. However, it is not known whether changes in surface vegetation cover can have a measureable influence on the stormflow hydrographs from blanket peatlands. Many degraded peatlands are actively being revegetated as part of conservation efforts and it is of direct interest to land management bodies know whether this influences river flow hydrographs. Using long-term data since the 1950s for a catchment in northern England we show that peak flows are significantly higher, with narrower hydrograph shapes and shorter lag times shorter at the catchment scale when blanket peat vegetation cover is reduced. These results correspond well with plot-scale data on measured overland flow velocities across peat under different vegetation cover types including bare surfaces. Sphagnum-covered surfaces provide the most effective roughness to slow flow compared with sedges or shrubby vegetation cover while bare peat allows the fastest saturation-excess overland flow velocities to develop.