



Earth Observation (EO) for Bare Soil

It is possible to use satellite EO for detecting large areas of bare soil using optical datasets. Smaller areas of bare soil (e.g. poaching) would need very high resolution imagery. Timing is important for agricultural applications as young crops will provide similar signals to fields without any crops.
This document highlights three examples and indicates their ease of adoption.

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Operational Product: Scottish Bare Peat Viewer



Uses Sentinel-2 Analysis Ready Data (ARD) to classify large areas of bare peat across Scotland in 2018. The product designed to be used at a regional level for highlighting larger areas of bare peat.



Method used is operational and well understood. However smaller patches of bare peat will be missed and there will be some misclassifications in some areas.



Would need effort to establish in house product. Storage and processing costs medium but high if Wales wide ARD has to be generated for this purpose only, and not generically provided.

Complexity

- Possible; needs research
- Clear method but complex
- Clear method and straightforward

Resource

- High
- Medium
- Low

Applied Tool: PeatPal app



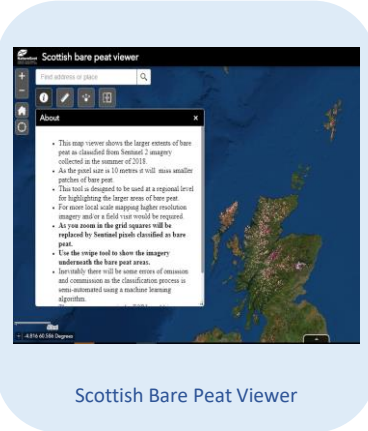
Uses aerial photography to detect bare peat pixels by identifying suitable image indices and thresholds. Current example carried out over Peak District in England. Additional proof-of concept work is looking at applying method with Sentinel-2 data to look at larger scales and frequencies.



Method used is promising but suitable thresholds vary between sites so proof-of-concept might need adapting for other areas. Further research is required to see if app can be scaled to larger areas and whether the method works with other imagery e.g. Sentinel-2.



Can apply PeatPal app with aerial photography to other areas at low cost. Would need effort to demonstrate use at larger scales.



Operational Service: Bare Soil Erosion Risk Detection



Uses Sentinel-2 ARD and LIDAR data to identify bare fields and steep slopes which are vulnerable to erosion. The risk layer is used to work with farmers to devise strategies to reduce soil erosion through preventative and enforcement measures. England Only.



Method used is operational and well understood.



Would need effort to establish in house system but once in place can be maintained by a small team. Storage and processing costs medium but high if Wales wide ARD and LIDAR has to be generated for this purpose only, and not generically provided.



Policy Areas

Peatland extent and condition / Soils / Compliance / CAP / Operations / Future agricultural scheme monitoring and compliance / Compliance through near time change detection of land cover information / EO inclusion in Future Regulations Agricultural Act

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