

What do 'I' need to do?



Climate change and the National Trust

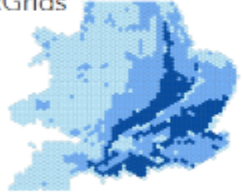
- What are we facing into?
- What is & could the impact look like?
- What can we do?
- When do we do it?
- Who is going to do it?
- How do we know it worked?
- How do we coordinate it?

Data and decisions?

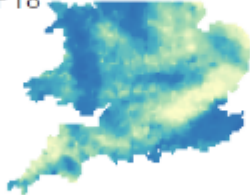
Phase 1 Hazard Map

Data

Geomorphology data obtained from BGS as hexagonal grid - GeoSure HexGrids



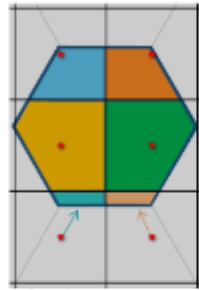
Climate data obtained from Met Office as raster grid dataset - HadUK & UKCP18



Combining dataset



Overlapping HexGrids and climate data as a grid

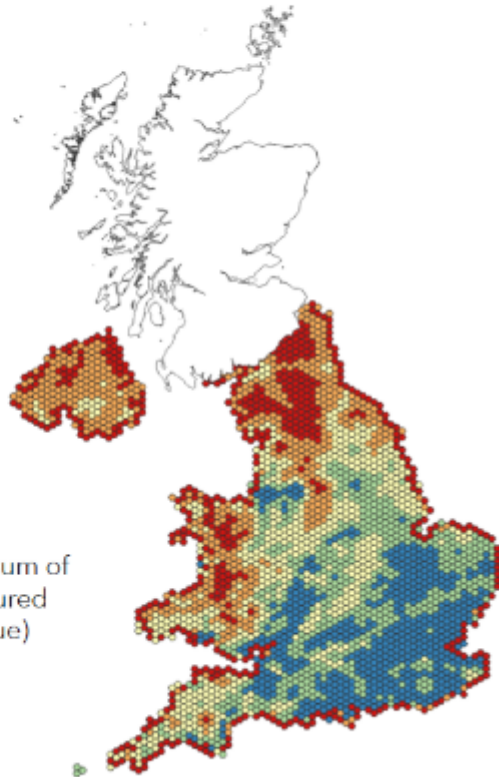


The hexagon value is the sum of the weighted values (coloured area * climate variable value)

Assigning climate variable value to HexGrids

Output

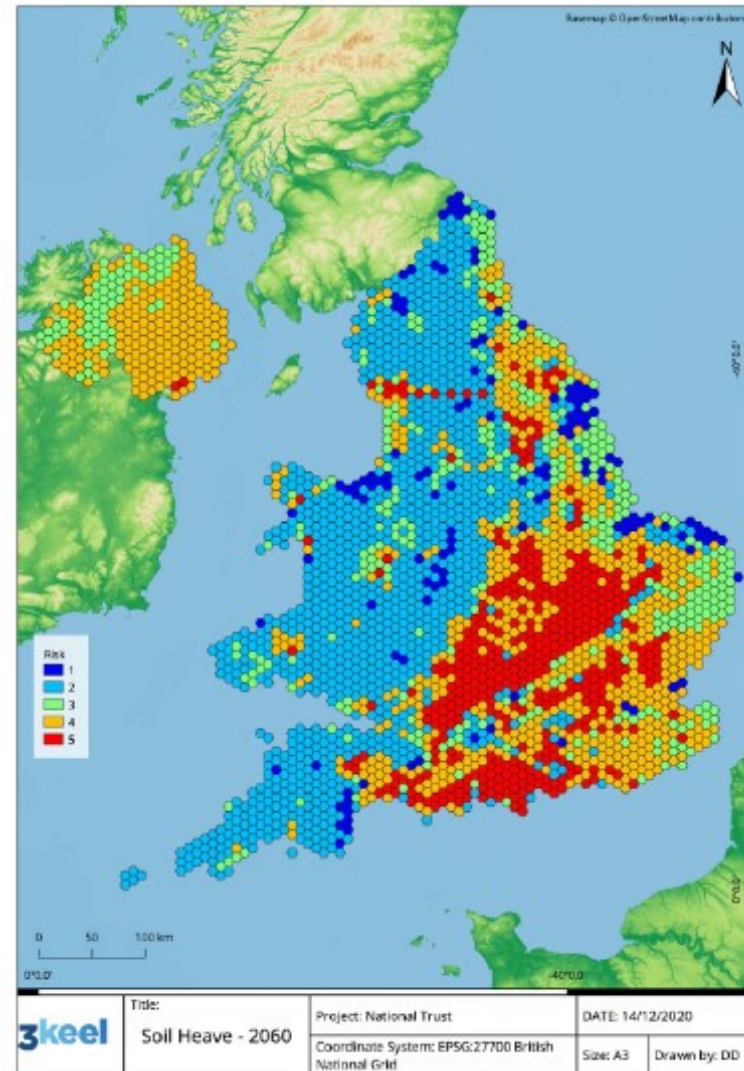
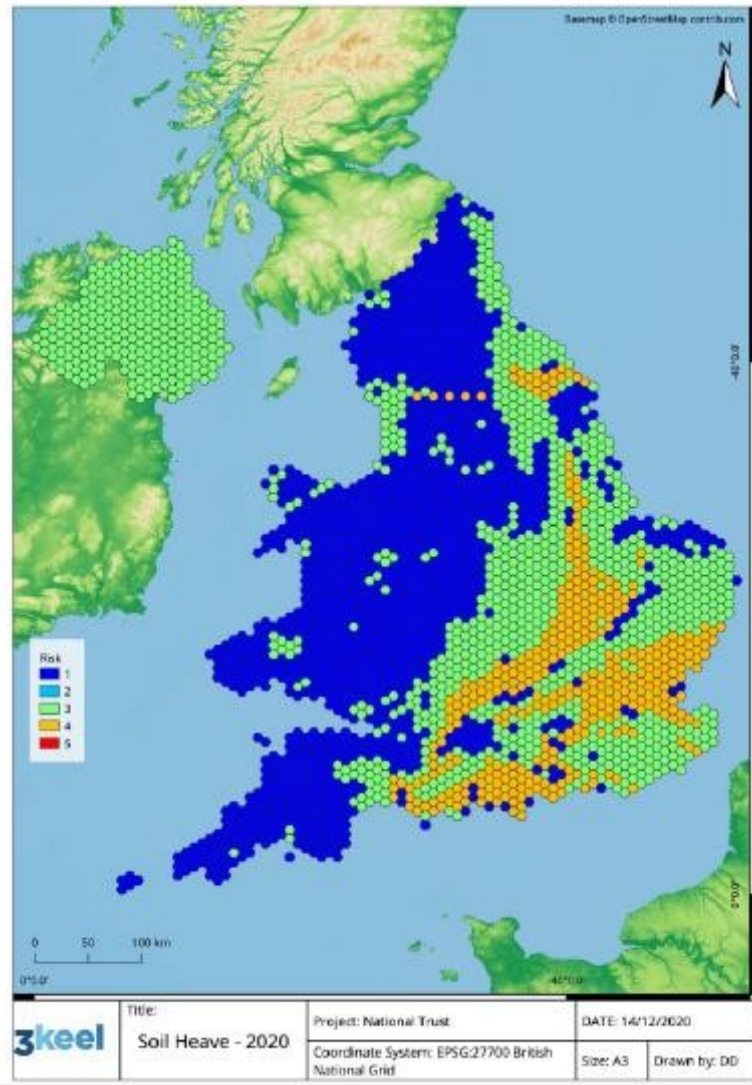
Each property has then been assigned to a grid hexagon, giving it a risk score for each hazard



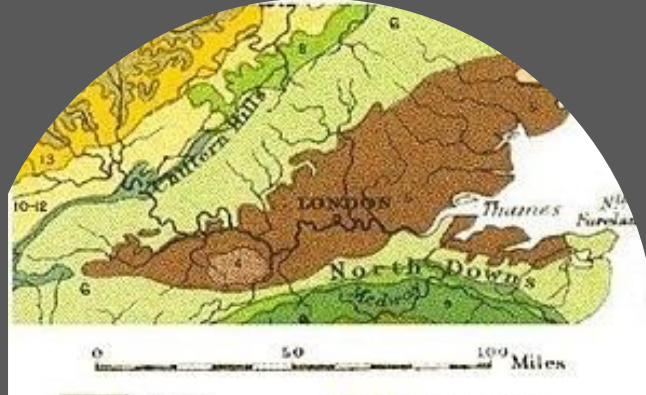
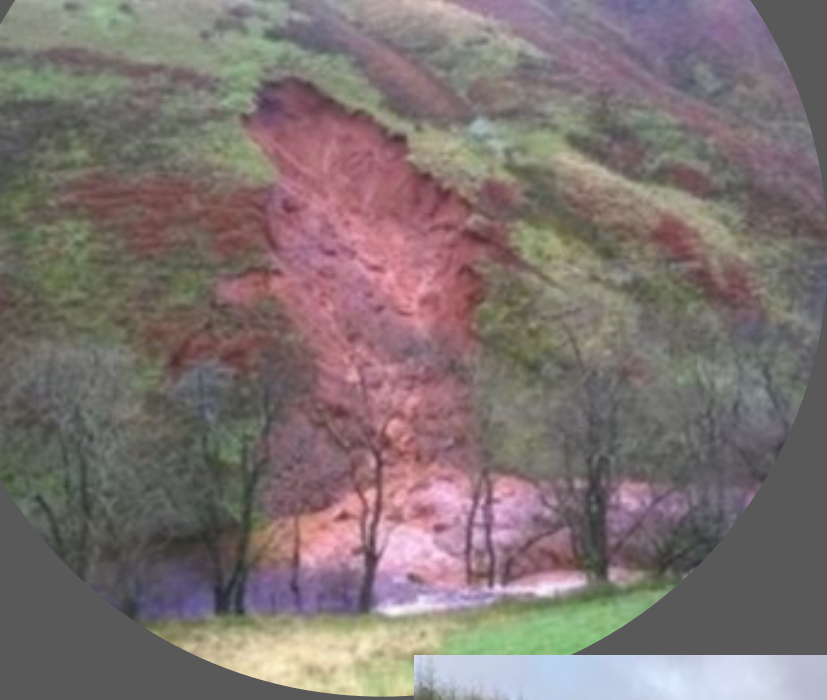
Phase 2 Hazard Map

Grouping	Metric	Hazard Indicator	CURRENT CLIMATE DATA				FUTURE CLIMATE DATA			
			England	Wales	N. Ireland	Scotland	England	Wales	N. Ireland	Scotland
METEOROLOGICAL <small>Far out standard climatological baseline (e.g. 1981 to 2010 or 1981 to 2000)</small>	Variour	Set of basic metrics (avg temp / rainfall, sunshine etc)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Temperature	No of Days T > 25°C	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Temperature	No of Days T > 30°C	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Humidity	No of Days H < 40%	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Humidity	No of Days H > 60%	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Wind Speed	No of Days Wind Speed > 27 m/s	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Snow depth	No of Days Settlement snow depth > 0.24m	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Rainfall	(Heavy rainfall) No of days > 7.6 mm/hr recorded	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Rainfall	(Violent rainfall) No of days > 50 mm/hr recorded	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (HadOBS)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)	Met Office (UKCP18)
	Weather Warnings	No of yellow / amber / red warnings issued and what for (wind/rain/snow etc)	Met Office	Met Office	Met Office	Met Office	N/A	N/A	N/A	N/A
NATURAL HAZARD <small>Existing data from authoritative sources</small>	Slope failure	Landslide risk	BGS	BGS	BGS	BGS	tb-c	tb-c	tb-c	tb-c
	rail	clay shrink heave	BGS	BGS	BGS	BGS	BGS	BGS	BGS	BGS
	Flood	Fluvial flood risk	EA	EA	tb-c	SEPA	tb-c	tb-c	tb-c	SEPA
	Flood	Current and Future Fluvial / Surface water	tb-c	tb-c	tb-c	SEPA	tb-c	tb-c	tb-c	tb-c
	Flood	Coastal	tb-c	tb-c	tb-c	SEPA	tb-c	tb-c	tb-c	tb-c
	Flood	Groundwater	BGS	BGS	BGS	BGS	tb-c	tb-c	tb-c	tb-c
	Erosion	Coastal	tb-c	tb-c	tb-c	SEPA / Dynamic Coast	tb-c	tb-c	tb-c	tb-c
	Erosion	River Scour	BGS(?)	BGS(?)	BGS(?)	BGS(?)	tb-c	tb-c	tb-c	tb-c
	Erosion	rail tress and degradation	Railways47	Railways47	Railways47	Railways47	Railways47	Railways47	Railways47	Railways47
	Heat	Urban heat island Effect	UCL7	UCL7	UCL7	UCL7	UCL7	UCL7	UCL7	UCL7
	rail	Soil Moisture	CEH	CEH	CEH	CEH	CEH	CEH	CEH	CEH
	rainfall	Drought	CEH	CEH	CEH	CEH	CEH	CEH	CEH	CEH
	rainfall	dissolving rocks	BGS	BGS	BGS	BGS	BGS	BGS	BGS	BGS
	Port and dredging	internal / external ranges	?	?	?	?	?	?	?	?
	Flood	Number of flood warnings issued (in part x number of years)	EA	EA	tb-c	SEPA	n/a	n/a	n/a	n/a

Example: Difference mapping soil shrink heave



Cascading effects



NT land. Landslide into the Taff River. Cardiff's drinking water

NT Earth Observations wants and needs?

- Probabilistic models need observed changes to tune or confirm exposure pathway
- Data need for thresholds trigger points for adaptation pathway implementation
- Nature based solutions e.g., Carbon mapping and tracking, methane flux changes from improving peat beds, catchment scale flood response?
- Proxy measure monitoring e.g. pest and disease (canopy cover?)

