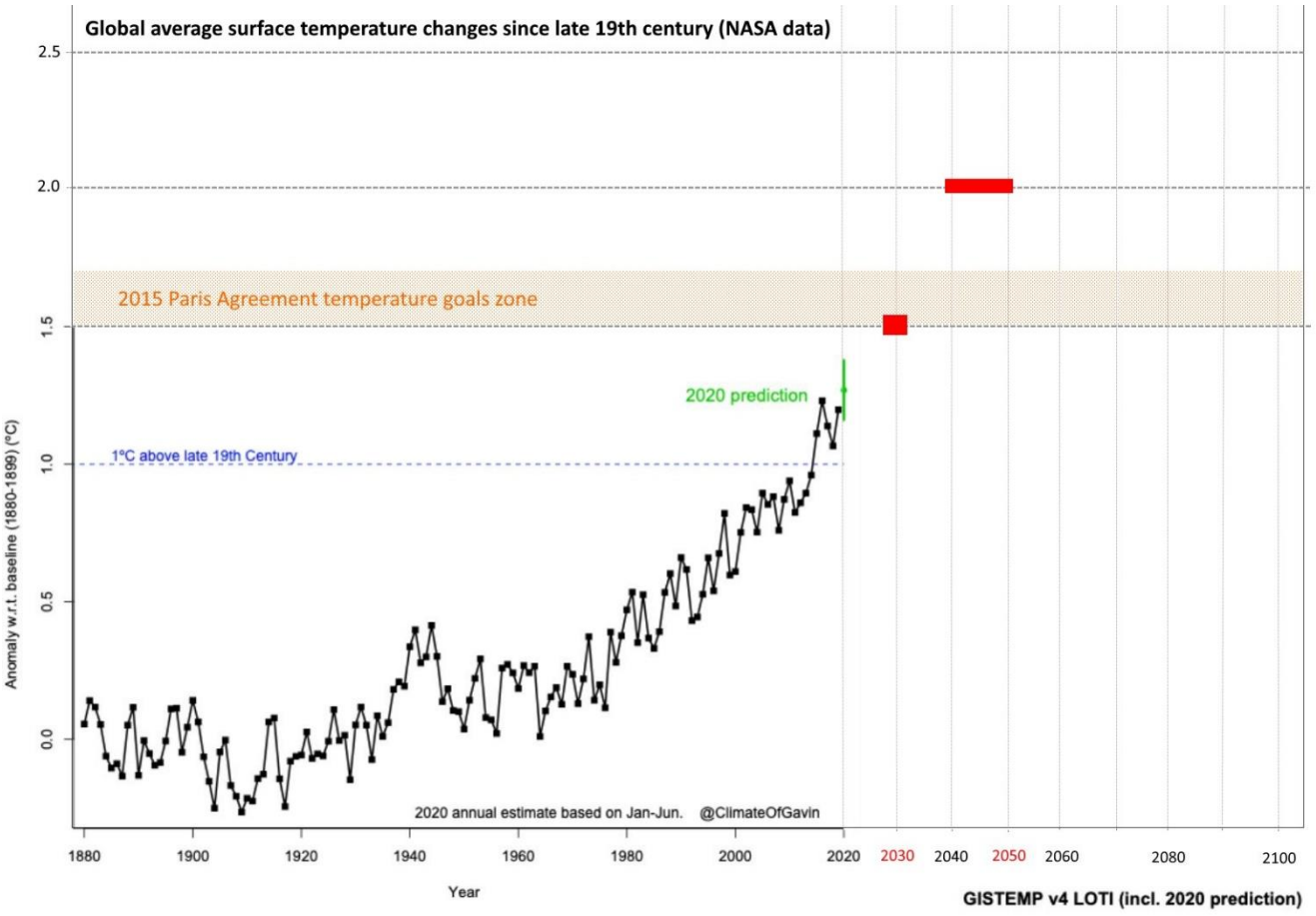
The climate context and timeline: a 2 page summary briefing for Councillors by Dr Henry Adams

1. **The Heathrow judgement**: In February this year the Court of Appeal ruled the Heathrow expansion illegal because, as Lord Justice Lindblom said: "The Paris agreement ought to have been taken into account by the secretary of state. The national planning statement was not produced as the law requires." As the Paris Agreement requires nations to cooperate in emissions reductions for the world as a whole not just within national territories, this judgement's inclusion of aviation emissions outside the UK implies that other emissions outside the UK that result from decisions or policies made within the UK by governments (both national and local) should also be taken into account. Thus the huge end-use emissions from the coal that WCM wish to extract (9 million tonnes CO2e per year) must be properly accounted for by CumbriaCC. EIA rules also require such Scope 3 end-use emissions to be properly considered.

2. **The temperature goals of The Paris Agreement are**:
"holding the increase in global average temperature **to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels**"
Keeping below 1.5C is especially important for people and wildlife living on islands and low-lying coastal areas, but also for all of us, and the increasingly bad impacts from 1.5C to 2C must be avoided: They include the loss of tropical coral reefs and increasing devastation from wildfires, flooding, droughts, crop losses and other harms. Yet the UK has yet to change its policies from a path heading well over 2 degrees C.

3. I have provided you a chart showing global temperature changes up to now – so that you can easily work out for yourself with a see-through ruler **what dates we are likely to hit 1.5 and 2C** if we continue extracting and burning fossil fuels as we are now, and to compare your results with what scientists predict. I most strongly urge you to do this, and then to draw a curve (in your mind's eye or on a print of this page) that keeps below 1.5 and 2C to see which decades we need to reduce our emissions the most:



4. Climate scientists now reckon that if global temperatures continue to rise on their current path **we are likely to cross +1.5 degrees C roundabout 2030 if not before**. And if we continue on our current high-emissions trajectory we could hit +2 degrees C roundabout 2040 (worst case), or between 2040 and 2050.

5. Points 3 and 4 show clearly that the UK's choice of a 2050 target for Net Zero is at least 20 years too late for the UK to be compliant with a +1.5 degrees path, **unless most of the 100% emissions reductions are carried out in the present decade**.

How fast does the world and the UK need to reduce emissions to have a fair chance of us limiting global temperature rise to +1.5C? 1. The world:

6. **The 2019 Emissions Gap Report** by the United Nations Environment Program (**UNEP**) gives the world an answer: "On the brink of 2020, we now need to reduce emissions by **7.6 per cent** every year from 2020 to 2030. If we do not, we will **miss a closing moment** in history to limit global warming to **1.5°C**. If we do nothing beyond our current, inadequate commitments to halt climate change, temperatures can be expected to rise **3.2°C** above pre-industrial levels, with devastating effect."

2. The UK:

7. Because this reduction rate of 7.6% per year applies to the world as a whole, and for reasons such as equity, the UK has to reduce at a faster rate, and Professor Kevin Anderson, Broderick and Stoddard in their recent paper has calculated that "The UK and Sweden propose annual mitigation rates of ~5% whereas this analysis suggests, respectively, **a minimum of 10% and 12% per annum**."

Implications with regards West Cumbria Mining's proposal

8. If West Cumbria Mining are allowed to proceed with coal extraction it will add 9 to 10 million tonnes of CO2e to global emissions per year, comprising 9 Mt from end-use in blast furnaces, the rest largely from methane release and other mine-associated emissions. **Adding such huge emissions is obviously totally incompatible with the UK reducing its emissions by 10% per year**. And to UK's credibility hosting COP26.

Also this addition to the coking coal market is not needed because major steel companies have committed to significant percentage reductions in emissions in Europe by 2030, and because most of such emissions are from coal use in blast furnaces this will be a factor reducing the need for coal. For example SSAB: 25% reduction by 2030 & "fossil-free by 2045", Thyssenkrupp and Arcelor Mittal: 30% by 2030 & carbon neutral by 2050, Liberty Group: "carbon neutral steel by 2030". [online collation of links to source references]

Furthermore, this rate of full production is expected to start at around the same time (2025, 2026) that several major steel-making companies aim to start commercial production of steel from iron ore using fossil-free methods (e.g. H_2-DRI + EAF), and to make shifts from blast furnaces to more use of Electric Arc Furnaces (EAFs) for recycling upcycled scrap steel instead of exporting it.
The timing for WCM to be adding lower cost coking coal to the European market could hardly be beneficial to the appearance of new fossil-free steel. An understatement.

The steel industry's research body the Materials Processing Institute have produced a report showing that the timeline for decarbonisation of the steel industry will be faster than that predicted by WCM: www.bit.ly/MPItoSLACCreWCM

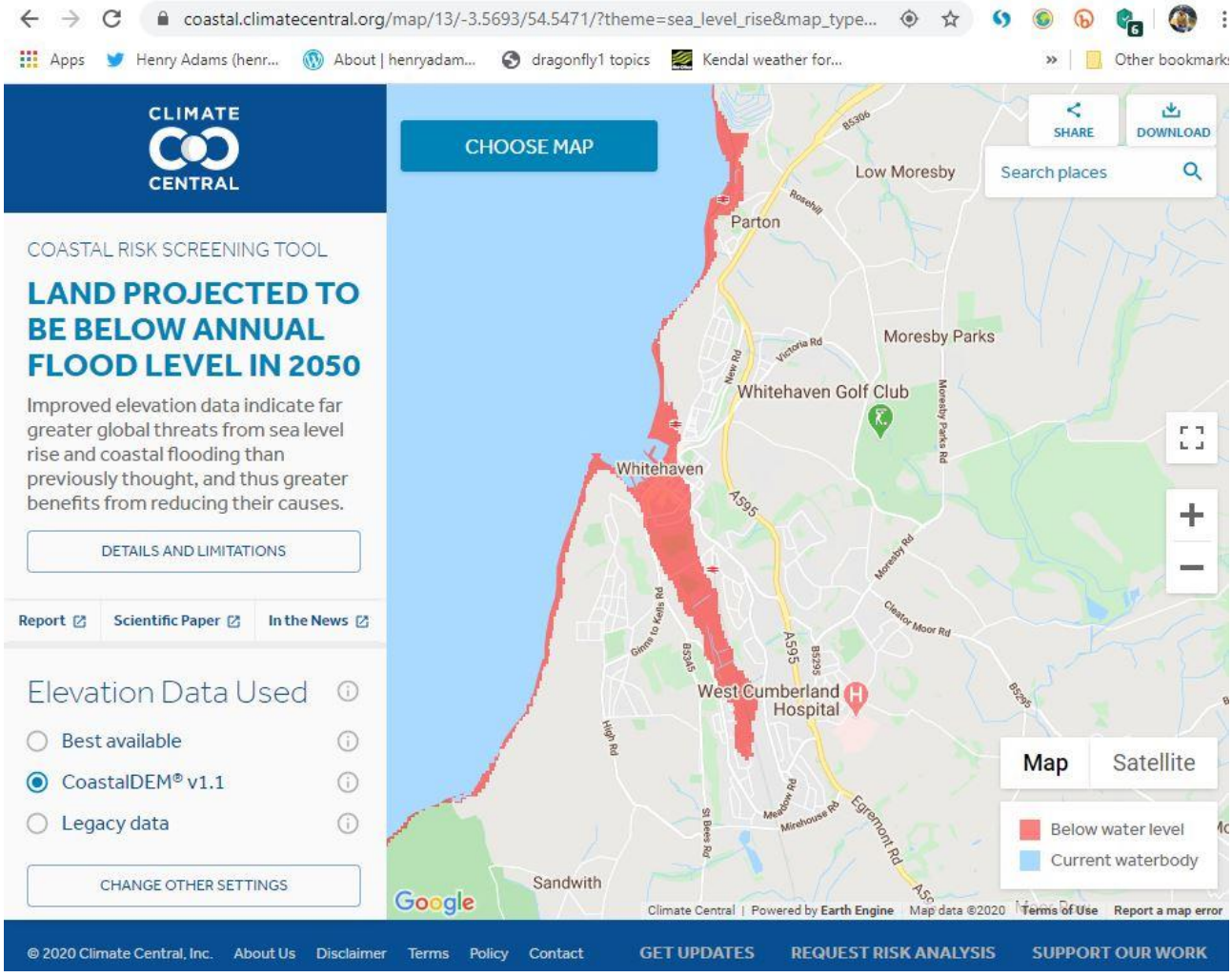
Climate impacts on Cumbria of continued high emissions

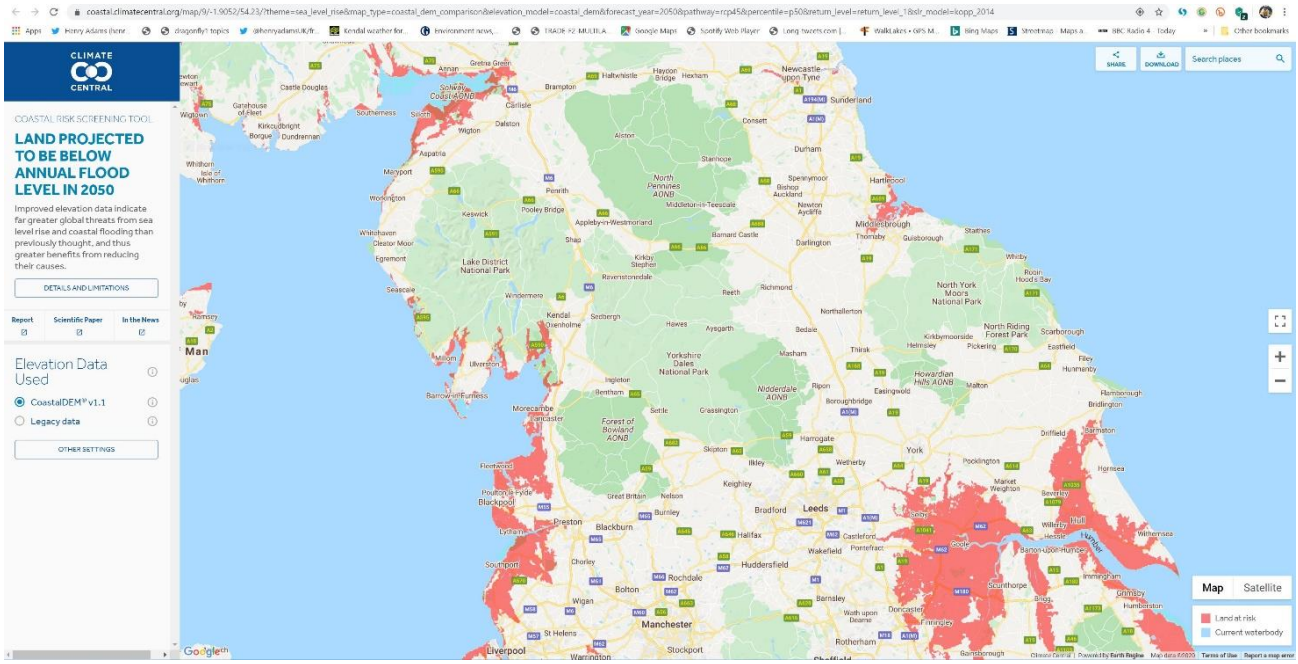
The maps on the following pages show land along the coast of Cumbria and elsewhere projected to be below annual flood level from sea level rise in 2050.

The full version of this summary is online here: http://www.dragonfly1.plus.com/TheClimateContext&Timeline-for-Cllrs-FullVersion.pdf

It provides explanations and source reference links for the above information.

The maps on the following pages show land along the coast of Cumbria and elsewhere projected to be below annual flood level from sea level rise in 2050. Source: Climate Central.





About This Map

Overview

Areas shaded red reflect places that are lower than the selected local sea-level and/or coastal flood projection according to the selected elevation dataset. Red areas must also meet hydrologic connectivity criteria. This refined "bathtub approach" makes mapping numerous scenarios fast and efficient and reproduces potential future sea-level threats well. However, when coastal floods are added, the bathtub approach becomes less accurate the higher the flood. Maps take neither engineered coastal defenses nor long-term dynamic changes into account. Due to the error always present in wide-area elevation datasets, as well as the other limitations described here, this map should be regarded as a screening tool to identify places that may require deeper investigation of risk.

Currently selected settings

Setting	Value
Elevation dataset	CoastalDEM® v1.1
Projection type	annual flood level
Year	2050
Pollution scenario	moderate cuts
Luck	medium
Sea-level-projection source	Mid-range (Kopp et al. 2014; highly cited)

Headline definitions

"**Tideline**" is used to denote the long-term average of the highest daily local tide level or, technically, the mean higher high water (MHHW) line. Tideline projections are based on measured historic local sea surface heights plus local sea-level-rise projections plus local tidal range assessments.

"**Annual flood level**" is used to denote the water level at the shoreline that local coastal floods exceed on average once per year. In other words, ten floods are statistically expected to exceed this level over ten years, although some years might have two or more incidents, and other years none.

"**Moderate flood level**" is used to denote the water level at the shoreline that local coastal floods have a ten percent chance of exceeding each year.

Sea level projections

Sea level projections are documented via the "Other settings" interface (at bottom of the navigation bar on the left side of the map)