# Climate change accelerates subsidence threats to UK heritage and homes with new high-profile cases



Subsidence risks linked to climate change are increasingly threatening heritage sites and residential properties across the UK, with London’s characteristic shrinkable clay soil exposing many buildings to structural damage. A notable example is St John the Evangelist Church in Upper Norwood, London, a Grade II\* listed Gothic Revival building currently facing subsidence issues due to soil expansion and shrinkage, driven by climate factors. This case is part of a broader pattern of climate-induced subsidence, prompting investigations into adaptive conservation measures for vulnerable heritage sites.

St John the Evangelist Church has experienced significant structural problems, including cracking and movement of its fabric, raising concerns about its long-term stability. The Church of England has responded with a major restoration project, involving underpinning of the south wall to stabilise it at an estimated cost exceeding £700,000. The initiative benefits from substantial grant funding, reflecting a coordinated effort to safeguard the church against ongoing climate-related soil movement. Alongside the practical repairs, a physically-based model is being developed to analyse the causes of structural movement more precisely, providing stakeholders with data to inform future conservation strategies in the face of a changing climate.

These challenges are far from isolated. The risk to historic buildings caused by subsidence is rising sharply in conditions of prolonged dry weather and heat, which cause clay soils to shrink and then swell unpredictably. Insurance data reveals a 40% increase in subsidence claims in the UK between January and May during periods of exceptional drought, illustrating the growing financial and conservation burdens. The London Evening Standard reports that following record-breaking heatwaves, subsidence claims in the South East doubled from £183 million to £390 million, highlighting the escalating problem in areas with clay soils. London, in particular, is highly vulnerable: studies indicate that over 40% of its homes could be affected by subsidence by 2030, a significant rise from 20% in 1990, driven by climate extremes such as heatwaves, droughts, and subsequent soil shrinkage.

The broader impact on heritage sites is exemplified by London’s Highgate Cemetery, where climate change-induced extreme weather has led to the decay of historic graves and damage to trees, increasing risks to the site’s structural integrity. Similar threats extend nationwide—in Cambridgeshire, for example, historic churches face damage from soil contraction during droughts, while freezing temperatures, torrential rains, and heatwaves further exacerbate the vulnerability of aged buildings. Experts argue that these pressures call for increased funding and innovative conservation approaches, as traditional methods are often inadequate to counteract the unpredictable effects of extreme weather patterns.

The rising subsidence problem underscores the urgent need for adaptation in heritage conservation and residential construction, especially in regions underlain by shrinkable clay. Projects like the one at St John the Evangelist Church are pioneering efforts to develop data-driven responses, helping stakeholders balance preservation with resilience. As climate change continues to alter the environment, such targeted interventions and collaborative funding will be essential to protect both historic legacy and living communities from the widening impacts of ground movement due to subsidence.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.ice.org.uk/events/previous-events/climate-change-and-subsidence-risks-a-case-study-approach), [[3]](https://www.thenationalnews.com/world/uk-news/2023/08/17/climate-change-could-see-uk-heritage-sites-left-to-erode/), [[7]](https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html)
* Paragraph 2 – [[1]](https://www.ice.org.uk/events/previous-events/climate-change-and-subsidence-risks-a-case-study-approach), [[2]](https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/protecting-church-subsidence)
* Paragraph 3 – [[3]](https://www.thenationalnews.com/world/uk-news/2023/08/17/climate-change-could-see-uk-heritage-sites-left-to-erode/), [[5]](https://www.standard.co.uk/hp/front/subsidence-soars-after-heatwave-6986749.html), [[7]](https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html)
* Paragraph 4 – [[4]](https://www.bbc.com/news/uk-england-london-55251067), [[6]](https://www.independent.co.uk/news/uk/home-news/extreme-weather-warning-britain-s-heritage-buildings-feel-the-heat-and-cold-7575925.html), [[3]](https://www.thenationalnews.com/world/uk-news/2023/08/17/climate-change-could-see-uk-heritage-sites-left-to-erode/)
* Paragraph 5 – [[1]](https://www.ice.org.uk/events/previous-events/climate-change-and-subsidence-risks-a-case-study-approach), [[2]](https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/protecting-church-subsidence), [[3]](https://www.thenationalnews.com/world/uk-news/2023/08/17/climate-change-could-see-uk-heritage-sites-left-to-erode/), [[5]](https://www.standard.co.uk/hp/front/subsidence-soars-after-heatwave-6986749.html), [[7]](https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html)

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## Bibliography

1. <https://www.ice.org.uk/events/previous-events/climate-change-and-subsidence-risks-a-case-study-approach> - Please view link - unable to able to access data
2. <https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/protecting-church-subsidence> - The Church of England discusses the challenges faced by St John the Evangelist Church in Upper Norwood, London, due to subsidence. The church has experienced significant structural issues, including cracks in the fabric, raising concerns about its future stability. A major restoration project, costing over £700,000, has been initiated to underpin the south wall and address the damage. The project has been supported by substantial grant funding, highlighting the importance of coordinated efforts in preserving heritage sites threatened by climate-induced subsidence.
3. <https://www.thenationalnews.com/world/uk-news/2023/08/17/climate-change-could-see-uk-heritage-sites-left-to-erode/> - An article from The National highlights the increasing threat of climate change to UK heritage sites, particularly focusing on subsidence risks. Geologists note that old buildings are under threat from subsidence, especially during hot, dry weather, which causes soil to swell and then shrink. The piece also mentions that insurer Zurich reported a 40% rise in subsidence claims from January to May during a period of exceptionally dry weather in Britain, underscoring the urgency of addressing these challenges.
4. <https://www.bbc.com/news/uk-england-london-55251067> - BBC News reports on the impact of climate change on Highgate Cemetery in London. The cemetery, known for its historic graves, is facing increased decay and damage due to extreme weather conditions. Horticulturalists at the site attribute the deterioration to climate change, noting that extreme heat, flooding, and winds are making trees more susceptible to disease, leading to structural damage. This situation underscores the broader challenges faced by London's historic sites in adapting to changing climate patterns.
5. <https://www.standard.co.uk/hp/front/subsidence-soars-after-heatwave-6986749.html> - The London Evening Standard reports a significant rise in subsidence claims following a record-breaking heatwave. The article details how tens of thousands of homes were damaged after temperatures reached 100°F, causing clay soil to shrink and leading to structural issues in properties. The cost to the industry doubled from £183 million to £390 million, with the South East being the most affected region. The piece highlights the escalating risk of subsidence in areas with shrinkable clay, emphasizing the need for proactive measures.
6. <https://www.independent.co.uk/news/uk/home-news/extreme-weather-warning-britain-s-heritage-buildings-feel-the-heat-and-cold-7575925.html> - The Independent discusses the impact of extreme weather on Britain's heritage buildings, noting that freezing temperatures, drought, and torrential rain are increasingly damaging sites that are centuries old. The article provides examples, such as St John the Baptist Church in Woodhurst, Cambridgeshire, where drought-induced soil contraction led to structural damage. Experts highlight the challenges posed by climate change, including the need for increased funding and innovative solutions to preserve these historic sites.
7. <https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html> - The Evening Standard reports on a study indicating that more than 40% of homes in London are likely to be affected by subsidence by 2030 due to extreme weather. The report highlights London's vulnerability due to its clay soil, densely packed homes, and exposure to heat and drought. Projections suggest that the number of properties affected will rise from 20% in 1990 to 43% by 2030 and 57% by 2070, underscoring the urgent need for adaptation strategies in the capital.