

***The Geological Society of London:  
East Anglian Regional Group***

***Evening Lecture***

***How Geology Affects The Composition And Usability Of  
Chalk Groundwater In East Anglia***

*with*

***Dr John Heathcote***  
*(JH Consult Ltd)*



The composition of Chalk groundwater in much of England is rather boring – it is all much the same, and the main usability issue is often nitrate. East Anglia is different: the water may be nitrate-free, it varies from completely ‘soft’ to extremely ‘hard’, dissolved iron can be an issue, and some of it is brackish, in places where this cannot be due to saline intrusion. Why the difference?

The East Anglian Chalk is extensively covered with Palaeogene and Pleistocene deposits, and it is these that influence groundwater composition. The interaction is not simple, because the ever-present Chalk controls what is chemically possible. Some discussion of carbonate chemistry is therefore required to understand how it all works.

Modern groundwater beneath Chalk outcrop has a composition similar to that elsewhere in England. Beneath the London Clay in Essex, groundwater in contact with the Thanet Formation is very soft and has a fluoride concentration that may reach toxic levels. The Crag Sea filled the Chalk with seawater around 2 million years ago, and the body of evidence shows that it is still present at depth. Lastly, the non-marine Pleistocene has a major effect. Water beneath the Lowestoft Till can be very hard, while water beneath the sandy deposits of Norfolk is softer than typical. Away from Chalk outcrop, iron is a more likely issue than nitrate. But all is not yet clear!

**Date:** **Thursday, 7 May 2026**  
**Lecture starts at 7.00 pm**

**Venue:** **Julian Study Centre, Lecture Theatre 0.01**  
**University of East Anglia, Norwich, Norfolk, NR4 7TJ**  
what3words: ///lately.rarely.strike

**Refreshments from 6.30 pm in the Julian Study Centre Foyer**

**Microsoft Teams link:** <https://teams.microsoft.com/meet/31215908739776?p=KWR6Nqn96vvXyHMsvt>  
Meeting ID: 312 159 087 397 76 Passcode: QC9Vg2qK

*Email: earggs@gmail.com*