

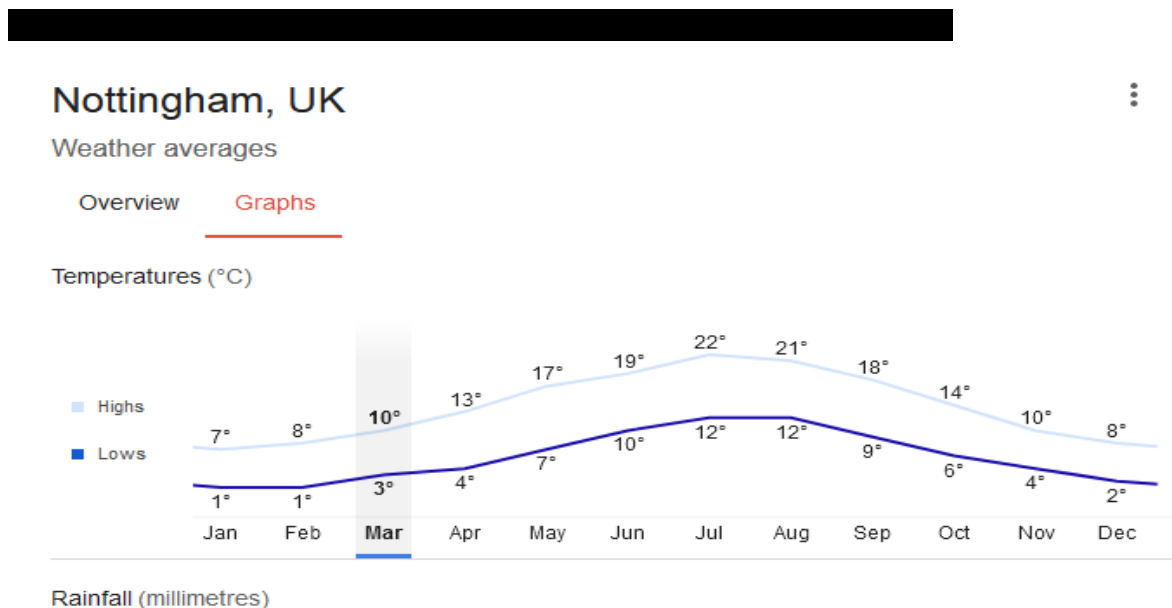
## James Radley (Flood risks due to Frozen Ground: New Information Recently Found)

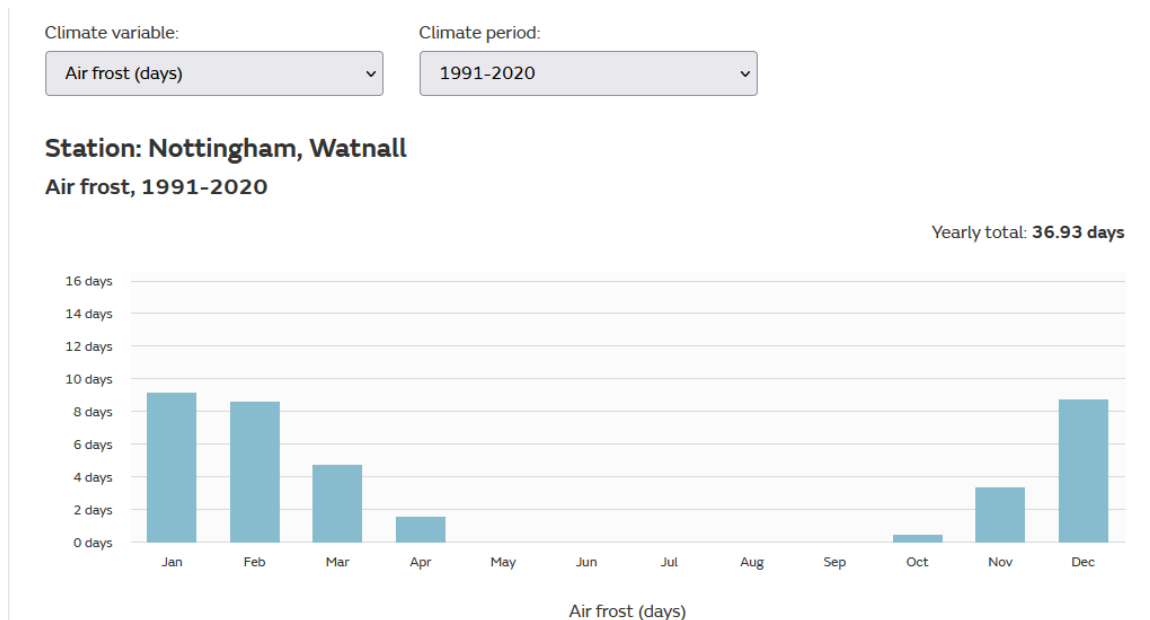
### Writing as a concerned resident of North Clifton and Chair of North Clifton Parish Meeting.

I had hoped that a representative from our local action group, who was taking part in the open hearings on the 6<sup>th</sup> of November 2025, could present these concerns on my behalf. However, due to time constraints and the complexity of the issues involved, it has not been possible to do so. Therefore, as requested and agreed to on the day, we are submitting this statement in writing to ensure that our objections are formally recorded for the Planning Inspectorate's consideration.

We are having difficulty being confident the EA know what the effects of this massive solar farm might be in this particular area, for instance we recently came across a scientific paper which demonstrates localized cooling (by up to 2.5 degrees C) on large scale solar farms. The graphs below; demonstrates this would push average lows in this area to below 0c in December, January and February. Cooling which many are concerned could push this land into semi-permafrost during the winter, causing a complete change in water dynamics which could have detrimental effect flood resilience in certain areas.

For instance, on the 10 hectare field by the wind turbine, because of the tall trees on the southern side, in the winter particularly, it doesn't get many hours of sunshine in certain areas. If the ground does get cooler and freezes, our community is concerned that any rain that might fall, rather than being soaked into the ground normally, may actually run over the frozen ground and channel much faster and further down the slope there and into the village.





The drop in temperature of 2.3 °C could push the entire water catchment area into frozen ground for 3 months of the year and during the time when there is the greatest danger of floods.

Could this cooling effect cause more rain to fall on this area? Could ground freezing and therefore drainage problems be a factor?

### What to do when the ground is frozen and then it rains?

We all know that rain can be a real problem for causing flooding in certain areas, but if you couple rain, with a ground that is frozen, the flooding problem becomes even worse. Keep in mind it is not overly common for heavy rain to fall in the winter time but it does occasionally happen and with the way weather trends are going it may happen more and more frequently. We want you to be prepared in the event it does occur!

The first thing we should clarify is when we say frozen ground we do not mean the ground itself is frozen, we actually are referring to the moisture in the ground that freezes. The moisture in the ground is only able to freeze to a certain level, this level is known as the frost line. When the ground is frozen the rain is not able to be absorbed into the ground as it normally would in the spring or summer time. As a result the rain tries to go elsewhere and if you are not careful or prepared the rain could try and get into your home.



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