Is it possible to cry a river?

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Credit: Peter Griffin/public domain

With Tottenham's dreams of Premier League glory shattered before their very eyes by a 2-2 draw at Stamford Bridge, University of Leicester students research whether it is possible to really cry a river.

Musicians Arthur Hamilton, Justin Timberlake and unsympathetic

people across the world have encouraged others to 'cry me a river', a put-down phrase to make light of people's problems.

University of Leicester Natural Sciences students Leah Ashley and Robbie Roe have examined the plausibility of people around the world crying enough tears to create a river, based on the flow rate of the world's shortest river – the Roe River in Montana, United States, which is 61m in length.

The river was chosen as the basis for the calculations as it was assumed to have a low volume while maintaining the title of 'river' and having a characteristic flow rate; while other rivers may be slower-moving, the volume of water also impacts the flow rate.

It was decided that in order to cry a river the best way to model it would be to use the amount of water that flows through it in a day. The Roe River is known to discharge between 156-193 million gallons per day.

Taking the lower volume limit as the most achievable target this equates to 709,190,040 litres per day – and with the average volume of a human tear being around 6.2 micro litres, this would be far more than the world's population could cry, even if everyone on Earth was feeling particularly crestfallen.

However, while copious blubbering may not be able to create a river, it could fill an Olympic size swimming pool, the students suggest.

Taking into consideration that a pool of 50m x 25m x2m would be equivalent to 2,500,000L, and using the population of the Earth and multiplying this by the volume of a tear, the students found that an Olympic swimming pool could be filled if everyone cried 55 tears – an amount possibly produced by Justin Timberlake on a daily basis when reflecting on his origins as a member of NSYNC…

The students presented their findings in a paper for the Journal of Interdisciplinary Science Topics, a peer-reviewed student journal run by the University's Centre for Interdisciplinary Science. Students from the University of Leicester (UK) and McMaster University (Canada) have contributed to this year's journal. The student-run journal is designed to give students practical experience of writing, editing, publishing and reviewing scientific papers.

Dr Cheryl Hurkett from the University of Leicester's Centre for Interdisciplinary Science said: "An important part of being a professional scientist (as well as many other professions) is the ability to make connections between the vast quantity of information students have at their command, and being able to utilise the knowledge and techniques they have previously mastered in a new or novel context. The Interdisciplinary Research Journal module models this process, and gives students an opportunity to practise this way of thinking. The intention of this module is to allow students to experience what it's like to be at the cutting edge of scientific research.

"The course is engaging to students and the publishing process provides them with an invaluable insight into academic publishing. It also helps students feel more confident when submitting future papers. I find it a very rewarding module to teach and I am always pleased to see my students engaging so enthusiastically with the subject. I encourage them to be as creative as possible with their subject choices as long as they can back it up with hard scientific facts, theories and calculations!"

More information: Is it Possible to Cry a River? physics.le.ac.uk/jist/index.ph … IST/article/view/186

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