Analysis of historical climate data for Ireland and its impact on Late Blight of potatoes

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The following MRes (Masters of Research) project is offered at the School of Biological, Earth and Environmental Sciences (BEES), University College Cork, Ireland in collaboration with Blightlink.

The *MÉRA* dataset has recently been released by Met Éireann. Produced using the ALADIN-HIRLAM numerical weather prediction system, it is a 35 year high resolution climate reanalysis for Ireland covering the time period 1981 to 2015. Climate information at this resolution has not previously been available for Ireland.

The first objective of this research project is to analyse the relative humidity data, which is of significance in plant health and physiology; occurrence of disease and hence agricultural economic yield. Comparison with historical meteorological data recorded at Irish weather stations will enable any bias in the *MÉRA* data set to be quantified. Other variables to be considered include temperature, total precipitation and the derived effective blight hours. The results will provide valuable historical information on potato late blight risk by location in Ireland. This project will build on the work of Bourke (1953); and Keane (1982) who published the average accumulated effective blight hours for the period 1957 to 1981 for Ireland. It will also supplement that of contemporary researchers Cucak *et al*. (2017) and Samala *et al.* (2017).

The secondary aim is a feasibility study of EU Copernicus satellite data to determine possible applications for farmers, which could be delivered via the BlightLink platform. BlightLink is an agricultural weather analytics platform currently under development. This work will make a significant contribution in fulfilling the need for knowledge transfer from stand alone data sets to decision support for farmers and citizens.

This data analysis project is largely desk-based and will suit graduates with a high degree of skill in data management and interpretation and statistical analysis. Applications are encouraged from geographers, data scientists, agricultural and biology graduates. Training in Tableau software will be provided.

For full details of the MRes Plant Biology programme, see
https://www.ucc.ie/en/bees/courses/postgrad/mresplant

For further details on this project, course fees and how to apply, email Dr Eoin Lettice,
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