

Validation of field-level weather forecasts using satellite observations

Company: Weather Logistics Ltd

Location: Ingenuity Centre, Triumph Road, Nottingham, NG7 2TU

Code: 18/54

Company Description:

Weather Logistics manages its own software to deliver more detailed weather insights at a local scale and up to 15 weeks in advance. Its system architecture is designed for agricultural clients, who need to make decisions at the field-level. The company's goal is to tackle shortfalls in fresh produce supply by better matching crop yields with supermarket orders, which would also stand to benefit the environment, reduce farm inputs and help maintain better relationships between growers, producers and grocery buyers.

Food waste is of a particular concern in the horticultural industry, with up to 30% of fresh produce wasted pre-sale. This is mostly a result of uncertainty in the long-term weather conditions that result in a mismatch between with pre-arranged contracts from buyers. Weather Logistics is in discussions with the UK's main supplier of fresh salads to European grocery stores overseeing £0.5bn of fresh (perishable) produce.

The company delivers strong technical leadership and expertise in data analysis with established stakeholder connections. Recent consultancy has included software development and validation for Ag-Space's international digital agricultural platform and a collaborative flood risk assessment for Standard & Poor's. The CTO has prior experience supporting both MSc and graduate interns and is currently working on a contracted European Space Agency (ESA) project.

Project Description:

Our client is one of the UK's largest growers based on the East of England, who need more accurate long-term weather data to reduce their food waste in the field. Seasonal temperature variability currently has a large impact both maturity rate and size of its lettuce crop, currently with no access to reliable long-term weather data.

While day specific insights are not possible, local trends and patterns in the daily conditions based on micro-climate knowledge and numerical weather data can highlight the likely range of daily conditions and extremes. By refining the reliability and confidence range in these long-term weather insights grower co-operatives can then determine the potential scenarios and take early action in the field to mitigate their losses.

The successful candidate will conduct a detailed validation of our 1 - 3 month gridded temperature forecasts. The outcome, presented in a scientific report, will assess the spatial

inconsistencies and confidence range in our forecasts at the field-level by direct comparisons with high resolution surface temperature retrievals. Their work will form part of a wider technical feasibility study, running in parallel with data science support from STFC Hartree. There is an opportunity to continue their role for our professional forecast services to solve future 'lettuce crises' that result from periods of volatile seasonal weather.

The candidate will develop the code and procedures to automate the acquisition of satellite data, generation of validation outputs (statistics or charts) and will detail any scientific / analytical method(s) used to compare and contrast daily temperature conditions at farm fields. They will prepare a set of recommendations for internal review highlighting any further requirements to improve our forecasts for field-level advisories.

Applicant Specification:

The ideal candidate will be passionate about tackling global challenges using their skills and experience in Earth Observation science.

Minimum Requirements:

- Python or similar (open-source) programming experience
- PhD / MSc background in an Earth Observation science and / or GIS related subject
- Scientific communication skills for technical and non-technical audiences

Preferred Additional Requirements:

The ideal candidate would also possess:

- Strong technical leadership
- Excellent team-working skills
- Excellent project management skills

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date on or before 7th January 2019, with a completion (at latest by 28 Feb, 2019). Salary is £1,500 per calendar month.

Closing Date for Applications: 7th December, 2018

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.