

## Project Details

### Bath - University of Bath – Engineering

#### **Understanding charged particle effects on atmospheric processes**

This NERC Independent Research Fellowship focuses on how atmospheric electricity is influenced by space weather processes and how this may couple into clouds.

<http://www.bath.ac.uk/profiles/nerc-independent-research-fellow-keri-nicolls/>

#### **Science and innovation with thunderstorms (SAINT)**

SAINT is a coordinated program of research that includes satellite and ground observations, modelling and lab experiments – mostly from a geophysical perspective, but with strong interfaces to plasma technology and relevant industries. SAINT is composed of 10 academic institutions and 9 industrial partners.

#### **Lightning detection for protection**

This project aims to identify the radio wave propagation conditions that are relevant for the detection and location of lightning discharges with networks of sensors on various spatial scales for applications in the protection of sensitive infrastructures.

#### **Radio remote sensing of the upper atmosphere and boundary layer humidity**

This project aims to develop novel signal processing strategies for radio remote sensing with various applications, including interferometric measurements of the lower ionosphere and an assessment of the boundary layer humidity.

### Bristol – BIRAL – R&D

#### **Lightning detection for airport safety**

This project uses data from a unique single-site electrostatic lightning detector recently developed by private industry to warn of local thunderstorm activity at airports.

<http://www.biral.com/product/btd-300-thunderstorm-detector/>

#### **Atmospheric Electricity Network: coupling with the Earth System, climate and biological systems (COST Action CA15211)**

This EU funded network will bring together atmospheric electricity researchers across Europe and from neighbouring countries to investigate a number of cross disciplinary subjects related to atmospheric electricity.

[http://www.cost.eu/COST\\_Actions/ca/CA15211](http://www.cost.eu/COST_Actions/ca/CA15211)

## **Oxford - University of Oxford - Physics**

### **Charging mechanisms in a Venus analogue atmosphere**

We have a chamber for precision electrical measurements at high pressure and temperature to understand processes that may lead to lightning in the Venus atmosphere. Current experiments are focusing on fractoemission.

<https://www2.physics.ox.ac.uk/contacts/people/aplin>

### **Snowdon cosmic ray and meteorological station**

A solar powered cosmic ray and weather station is running at Snowdon Summit for a combination of outreach and research into the effects of ionisation in the atmosphere. Cosmic rays, long and short wave solar radiation are routinely measured at the moment. We are keen to improve the meteorological measurements and bring in PG/lightning detection in the near future.

<https://www2.physics.ox.ac.uk/contacts/people/aplin>

### **Small radioactivity detector**

STFC Impact Accelerator Account.

<https://www2.physics.ox.ac.uk/contacts/people/aplin>

## **Reading - University of Reading – Meteorology**

### **GLOCAEM (GLObal Coordination of Atmospheric Electricity Measurements)**

This project aims to create a near real time online database of atmospheric electric field measurements available to the international atmospheric electricity community.

<http://www.met.rdg.ac.uk/~jq902220/>

### **VOLCLAB (VOLcanic balloon borne LABoratory)**

This project will design a multisensor disposable balloon package for detection and measurement of volcanic plumes, including the development of an ash charge sensor.

<http://www.met.reading.ac.uk/~swshargi/>

### **Electrical Pre-Conditioning of Convective Clouds**

This project will investigate the electrical conditions present in convective clouds before they produce the first lightning flash in an attempt to improve lightning forecasts.

<http://www.met.reading.ac.uk/userpages/student/th863480.php>

### **Cloud electrification in the evolution of convective storms**

This PhD project will look at the microphysical conditions that cause a storm to become electrified and the electrical characteristics of storms, with a particular focus on improving current parameterizations of lightning within the UM.

<http://www.met.rdg.ac.uk/userpages/student/yg016633.php>