**JOB DESCRIPTION**

Vacancy Ref: A3042

<table>
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<tr>
<th>Job Title:</th>
<th>Senior Research Associate in Space Weather</th>
<th>Present Grade:</th>
<th>7</th>
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<tr>
<td>Department/College:</td>
<td>Physics Department</td>
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<td>Directly responsible to:</td>
<td>Dr. Adrian Grocott</td>
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<td>Supervisory responsibility for:</td>
<td>Some supervision of masters / postgraduate students</td>
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**Other contacts**

Internal:
Academic staff and PDRAs in the Space and Planetary Physics Group

External:
SWIMMR-T consortium members: Dr. Sean Elvidge, Prof. Paul Cannon (Birmingham), Dr. Gareth Chisham, Dr. Mervyn Freeman (BAS), Prof. Hugh Lewis (Southampton).

**Major Duties:**

1. Use observations by the Super Dual Auroral Radar Network (SuperDARN) to understand, assess and compare a range of electric field models, including the Time-Variable Ionospheric Electric field (TIVIE) model developed at Lancaster University.

2. Produce ionospheric electric field maps using SuperDARN and the TIVIE model, for a predefined set of test scenarios (events, solar wind conditions etc.) for provision to collaborators at Birmingham for the purposes of incorporating the electric fields into their Advanced Ensemble electron density Assimilation System (AENeAS) to improve atmospheric Joule heating estimates.

3. Develop Python code to enable the TIVIE model to be incorporated into AENeAS. Climatologies will be developed from historical data to enable the use of the TIVIE model in the absence of near-real time SuperDARN data.

4. Participate in meetings of the Space Weather Instrumentation, Measurement, Modelling and Risk: Thermosphere (SWIMMR-T) consortium and other national and international science meetings; prepare and present talks, posters and reports to disseminate the scientific results of the project.

5. Prepare papers for publication of project outputs in high-impact, peer-reviewed scientific journals.