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| Last updated: | July 2025 |

**JOB DESCRIPTION**

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| Post title: | **Research Fellow in Hydrological Modelling and/or Data Assimilation** | | |
| Standard Occupation Code: (UKVI SOC CODE) | 2114 - Physical scientists | | |
| School/Department: | School of Geography and Environmental Science | | |
| Faculty: | FELS | | |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Justin Sheffield | | |
| Posts responsible for: | n/a | | |
| Post base: | Office-based | | |

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| Job purpose |
| To undertake research as part of the UKRI NERC funded “Understanding the spatio-temporal variability of soil moisture and its feedbacks across scales” project led by the School of Geography and Environmental Science. Specifically, to lead on developing high-resolution regional and global soil moisture datasets using hydrological modelling and data assimilation, including their validation, and analyzing these datasets to quantify and understand variability across scales and its implications for various applications. To collaborate with stakeholders, and disseminate the research through conferences and publications. |

| Key accountabilities/primary responsibilities | | % Time |
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|  | Develop and carry out research on soil moisture variability, feedbacks and applications. | 60 % |
|  | Disseminate findings by taking the lead in preparing manuscripts for publication in referred journals, presenting results at conferences and other events. | 10 % |
|  | Contribute to the writing of bids for future related research funding. | 5 % |
|  | Collaborate with project partners in other institutions. | 5 % |
|  | Carry out administrative tasks associated with specified research funding, for example completing risk assessments of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control. | 5 % |
|  | Carry out occasional undergraduate supervision, demonstrating or lecturing duties within own area of expertise, under the direct guidance of a member of departmental academic staff. | 5 % |
|  | To allocate 10 days a year (pro rata if part-time) to undertake training and continuing professional development (CPD), develop research identity and leadership skills in line with the Researcher Development Concordat. | 5% |
|  | Any other duties as allocated by the line manager following consultation with the post holder. | 5% |

| Internal and external relationships |
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| Direct responsibility to Professor Justin Sheffield.  Liaison with project staff working on other work packages.  May be required to work with colleagues in other areas of the University and other institutions. |

| Special Requirements |
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| To attend national and international conferences for the purpose of disseminating research results.  *Applications for Research Fellow positions will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon successful completion of the PhD. Prior to the qualification being awarded the title of* ***Senior Research Assistant*** *will be given.* |

**PERSON SPECIFICATION**

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | PhD or equivalent professional qualifications and experience in geography, mathematics, physics, engineering, or a related subject.  Detailed understanding of one or more of: hydrological modelling, satellite data assimilation, multivariate statistical methods and machine learning. | PhD in hydrology or equivalent.  Knowledge and experience of model and satellite products for mapping and understanding SM-dependent hazards (like floods, droughts, landslides, wildfires) and their application to sectors such as agriculture, water resource management, disaster risk mapping.  Experience of working with stakeholders or a desire to gain this experience.  Teaching at undergraduate level and contributing to teaching at postgraduate level  Demonstrate commitment to maintaining professional knowledge and awareness through continuing personal and professional development  Understanding of the Concordats relevant to research | Application, CV and Interview |
| Expected Behaviours | Able to apply and actively promote equality, diversity and inclusion principles to the responsibilities of the role.  Demonstrate the Southampton Behaviours (Personal Leadership, Developing Others, Working Together, Delivering Quality, Driving Sustainability) and work with colleagues to embed them as a way of working within the team. | Adherence to research integrity and open research principles, including open-source software. | Application, CV and Interview |
| Planning and organising | Able to organise own research activities to deadline and quality standards.  Proven organisational ability. | Experience of methods of engaging with stakeholders | Application, CV and Interview |
| Problem solving and initiative | Able to develop understanding of complex problems and apply in-depth knowledge to address them  Able to develop original techniques/methods |  | Application, CV and Interview |
| Management and teamwork | Able to contribute to School management and administrative processes  Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development |  | Application, CV and Interview |
| Communicating and influencing | Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience  Able to present research results at group meetings and conferences  Able to write up research results for publication in peer-viewed journals  Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes | The ability to write clearly and concisely with a track record of authoring papers, including as first author and present findings to academic and non-academic audiences | Application, CV and Interview |
| Other skills and behaviours | Understanding of relevant Health & Safety issues  Positive attitude to colleagues and students |  | Application, CV and Interview |
| Special requirements | Able to attend national and international conferences to present research results |  | Application, CV and Interview |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| Yes | If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| No | If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work |  |  |  |
| Extremes of temperature (eg: fridge/ furnace) |  |  |  |
| ## Potential for exposure to body fluids |  |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) |  |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: |  |  |  |
| Frequent hand washing |  |  |  |
| Ionising radiation |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling |  |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) |  |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) |  |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) |  |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling |  |  |  |
| Repetitive crouching/kneeling/stooping |  |  |  |
| Repetitive pulling/pushing |  |  |  |
| Repetitive lifting |  |  |  |
| Standing for prolonged periods |  |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) |  |  |  |
| Fine motor grips (eg: pipetting) |  |  |  |
| Gross motor grips |  |  |  |
| Repetitive reaching below shoulder height |  |  |  |
| Repetitive reaching at shoulder height |  |  |  |
| Repetitive reaching above shoulder height |  |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public |  |  |  |
| Lone working |  |  |  |
| ## Shift work/night work/on call duties |  |  |  |