

Fellowship for Doctoral Studies in the UK under UKIERI

‘Innovative methods for statistical downscaling over India’ at the Climatic Research Unit, University of East Anglia

A joint research programme between Indian and UK research institutions on ‘Science of Regional Climate Change, Variability and Impacts’ has been selected for a **Major Award** under the **UK-India Education and Research Initiative (UKIERI)**. The project is led by the Indian Institute of Tropical Meteorology (with Prof. B.N. Goswami as the Indian Convener) and the University of Reading (with Prof. Julia Slingo as the UK Convener). As part of this award, a Doctoral Scholarship for a PhD (DPhil) is offered at the Climatic Research Unit, University of East Anglia in the UK for an Indian scientist/student, starting from September 2008. The selected candidate will be offered confirmed admission in the form of a Scholarship covering all expenses including academic fees, international air fare and a monthly stipend to cover living expenses. The student will be monitored using the standard procedures operating at the University of East Anglia (UEA).

The focus of the PhD studentship at UEA will be on the development of innovative methods for statistical downscaling from global and regional models to higher spatial resolutions over India, addressing particularly the needs of applications users in sectors such as agriculture, hydrology and health. Depending on the interests of the student, the focus may be on seasonal forecasting and/or longer climate change timescales.

In the statistical downscaling approach, relationships between larger-scale climate variables (e.g., sea level pressure patterns) and local surface climate variables (e.g., daily temperature and precipitation), derived from observed data, are applied to climate model output, based on two assumptions: (1) that the larger-scale variables are better simulated by the models, and (2) that the relationships are unchanged in the future. It is important that the statistical relationships are physically sensible and robust. Thus one component of work will be exploration of the processes underlying the links between local surface climate and larger-scale circulation over India. The successful applicant will therefore require both good numerical skills and an understanding of synoptic climatology and the physical processes involved in, for example, precipitation generation - focusing on the monsoon and other processes of particular importance to the Indian context. The studentship will also provide an opportunity to explore the ability of the current generation of global and regional climate models to reproduce the observed circulation and other climate features over India.

The aim will be to develop robust and reliable statistical downscaling methods for impacts applications studies in India. As well as considering the needs of users, this will require exploration of the associated uncertainties. This could be based on a probabilistic framework, e.g., building on state-of-the-art work undertaken in the European ENSEMBLES and UK CRANIUM projects.

The UK principal supervisor will be Dr Clare Goodess (who co-ordinated the major STARDEX project on statistical downscaling). Professor Phil Jones of the Climatic Research Unit is also likely to be on the supervisory panel, together with an Indian supervisor from one of the UKIERI partners. While based at UEA, the student will be

well placed to benefit from the wider activities of the UKIERI major award project (e.g., a workshop on downscaling and applications use to be held at UEA). This major project is led by the University of Reading (where a UKIERI studentship on ‘Coupled ocean-atmosphere processes in the Indo-Pacific Warm Pool and monsoon variability and change’ has already been filled) and also involves the Met. Office Hadley Centre and European Centre for Medium-Range Forecasts. There will also be opportunity for the student to attend lectures on the Climate Change MSc run by the Climatic Research Unit.

Candidates should be able to fulfil the following criteria:

1. Eligibility Criteria

The applicant should:

- Be an Indian national with a valid Indian passport
- Be below 35 years of age as of 21 October 2007
- Hold a Master’s (postgraduate) degree from a reputed/recognized university/institution with a First or Upper Second Class award in a relevant subject/field (e.g., meteorology, atmospheric sciences, climatology, physics, oceanography, mathematics, statistics, engineering)

2. Evidence of ability to study in English required by UEA. This should be one of the following:

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| • <i>International English Language Test Score</i> | <i>IELTS</i> | 6.5 |
| • <i>Test of English as a Foreign Language</i> | <i>TOEFL</i> | 575 |
| <i>Paper-based version</i> | | |
| <i>Computer-based</i> | <i>TOEFL</i> | 230 |
| <i>Internet-based</i> | | 90 |
| • <i>Cambridge Certificate of Proficiency in English</i> | <i>CPE</i> | C |

UKIERI Doctoral Scholarship Form, Application for the Academic/Professional Reference Report and Scholarship Guidelines can be downloaded from <http://www.tropmet.res.in>

Duly filled in application forms with necessary documents such as copies of the certificates and transcripts of educational qualifications and *one page summary of the proposed research work planned to be undertaken for the PhD* and documents certifying type of disability and details, criminal conviction(s), if any, may be submitted at the following address:

Dr K Krishna Kumar

Joint coordinator, UKIERI Programme
 Indian Institute of Tropical Meteorology
 Dr Homi Bhabha Road, Pashan
 Pune-411008
 Maharashtra State, India

Email: Krishna@tropmet.res.in

Telephone: 91-20-25893600 (Ext: 354); Fax: 91-20-25893825

(Write on the envelope: **UKIERI Doctoral Fellowship Application**)

Candidates for the scholarship will be selected through a three-step process:

- a. Initial short-listing by Indian panel based on submitted applications and references
- b. Preliminary interview in India (likely to be either in Pune or Delhi) by an Indian panel to identify a final short list
- c. Interview of candidates on the final short list by UK and Indian panel (likely to involve the UK panellists via telephone link)

The selected candidate will be recommended to the Faculty of Science Admissions at UEA (and will also have to complete the standard UEA application forms to demonstrate that they fulfil the UEA entry requirements). They will also be expected to provide an undertaking that they will work for at least two years in one of the organisations/institutions engaged in atmospheric/ocean sciences in India after obtaining a PhD degree.

Relevant links

Climatic Research Unit : www.cru.uea.ac.uk

University of East Anglia : www.uea.ac.uk

Climate Change MSc: www.cru.uea.ac.uk/env/msc

CRANIUM : www.cru.uea.ac.uk/cru/projects/cranium

ENSEMBLES: www.cru.uea.ac.uk/projects/ensembles/ScenariosPortal

STARDEX : www.cru.uea.ac.uk/cru/projects/stardex

Further details and questions:

Relating to the PhD topic and the Climatic Research Unit/University of East Anglia –

Dr Clare Goodess
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University of East Anglia
Norwich, NR4 7TJ, UK
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Closing date for submission of applications: 15 JULY 2008