

Dr Joy Sanyal

Education

PhD from Department of Geography, Durham University, UK. (2014)

Thesis Title: Flood prediction and mitigation in data-sparse environments.

Supervisors: Dr Patrice Carbonneau, Professor Alexander L Densmore

Master of Social Sciences (By Research) in Geography from National University of Singapore (2005).

Coursework Grade: 4.75 out of 5

Thesis Title: Application of GIS and remote sensing in flood management: a case study of West Bengal, India.

Supervisor: Professor Xi Xi Lu

M. A. in Geography from Jawaharlal Nehru University, New Delhi, India (2002) with **1st Class**

B.Sc. (Honours) in Geography from Presidency College, University of Calcutta, (2000) with **1st Class**. Minors: Mathematics and Economics.

Publications

Sanyal, J. (2017) Uncertainty in levee heights and its effect on the spatial pattern of flood hazard in a floodplain. *Hydrological Sciences Journal*, DOI: 10.1080/02626667.2017.1334887 (Taylor and Francis) Impact Factor: 2.18

Sanyal, J. (2017) Predicting possible effects of dams on downstream river bed changes of a Himalayan river with morphodynamic modelling. *Quaternary International*, DOI: 10.1016/j.quaint.2017.03.063 (Elsevier) Impact Factor: 2.07

Sanyal, J. and Roychowdhury, K. (2016) Tracking the relationship between changing skyline and population growth of an Indian megacity using earth observation technology. *Geocarto International*, DOI: 10.1080/10106049.2016.1213890 (Taylor and Francis) Impact Factor: 1.38

Sanyal J, Carbonneau P, Densmore A L. (2014) Low-cost inundation modelling at the reach scale with sparse data in the Damodar river basin, India, *Hydrological Sciences Journal*,59(12), 2086-2102 Impact Factor: 2.18

Sanyal J, Densmore A L, Carbonneau P. (2014) 2D finite element inundation modelling in anabranching channels with sparse data: examination of uncertainties, *Water Resources Management*.28(8), 2351-2366. Impact Factor: 2.43

Sanyal J, Densmore A L, Carbonneau P. (2014) Analysing the effect of land use/cover changes at sub-catchment levels on the downstream flood peak: a semi-distributed modelling approach with sparse data. *Catena*, 118, 28-40. (Elsevier) Impact Factor: 2.61

Sanyal J, Carbonneau P, Densmore A L. (2013) Hydraulic routing of extreme floods in a large ungauged river and the estimation of associated uncertainties: A case study of the Damodar River, India. *Natural Hazards*, 66(2), 1153-1177. Impact Factor: 1.74

Sanyal J and Lu X X. (2009) Ideal location for flood shelter: A geographic information system approach, *Journal of Flood Risk Management*, 2(4), 262-271. Impact Factor: 1.12

Sanyal J and Lu X X. (2006) GIS-based flood hazard mapping at different administrative scales: A case study in Gangetic West Bengal, India, *Singapore Journal of Tropical Geography*, 27, 207-220. Impact Factor: 0.64

Sanyal J and Lu X X. (2005) Remote sensing and GIS-based flood vulnerability assessment of human settlements: a case study of Gangetic West Bengal, India, *Hydrological Processes*, 19 (18), 3699-3717. Impact Factor: 2.43 Impact Factor: 2.77

Sanyal J and Lu X X. (2004) Application of remote sensing in flood management with special reference to monsoon Asia: A review, *Natural Hazards*. 33, 283-301. Impact Factor: 1.74

Selected Conference Participations

"Exploring impacts of dam construction on downstream channel morphology of a large Himalayan river with morphodynamic modelling" **9th Conference on International Perspective on Water Resources and Environment (Jointly Organized by Wuhan University and American Society of Civil Engineers)**, Wuhan, 04-06 January, 2017.

" Modelling the effect of land-use/cover changes at sub-catchments on downstream flood peaks at the catchment outlet" **International Geographical Union (IGU) Conference**, Moscow, 17 to 21 August, 2015

"Estimation of uncertainties of a 2D finite element model for predicting inundation in anabranching channels" **Asia Oceania Geosciences Society (AOGS) Meet**, Sapporo, 28 July- 01 August, 2014.

"Hydraulic routing of extreme floods in a large ungauged river and the estimation of associated uncertainties: A case study of the Damodar River, India", **Asia Oceania Geosciences Society (AOGS) – American Geophysical Union (AGU) Joint Assembly**, Singapore, 13-17 August, 2012.

"Low-cost, open access flood inundation modelling with sparse data: A case study of the lower Damodar Basin, India", **European Geosciences Union (EGU) General Assembly**, Vienna, 22-27 April, 2012.

"Remote Sensing and GIS based flood management strategy in Ajay River Basin, India", Centennial Conference of **The Association of American Geographers** , 14-19 March, Philadelphia, PA, USA, 2004.

"Application of GIS in flood hazard mapping: A case study of Gangetic West Bengal, India", **Map Asia**, 2003, 13–15 October, Kuala Lumpur, Malaysia.

Work Experience

Assistant Professor of Geography, Presidency University, Kolkata, India (February, 2014 to Present)

Lecturer of Geography at Taki Government College, West Bengal, India. (2007-09)

Grade 7 Postdoctoral Position at Department of Geography & Earth Sciences, Aberystwyth University, UK (2013)--*Not Availed*

CV

Academic Tutor (Year 1 Physical Geography) and **Module Demonstrator** (Year 2 GIS & Remote Sensing, Year 3 Environmental Remote Sensing) at Deptt. of Geography, Durham University (2009 – 2013)

GIS-Data Acquisition Associate as part of **GoogleEarth** Team in Google India, Hyderabad. (2006).

Deputy Technical Manager in Riddhi Geoinformation Systems Pvt. Ltd., Kolkata, India. (2005-2006).

GIS Analyst in Geographical Information Services Pte. Ltd, Singapore.(2004-2005)

Software Knowledge

ENVI and ERDAS (including LPS) for digital image processing

ArcGIS 10.1

Programming Language: MATLAB.

Hydrological Modelling: HEC-HMS, SWAT

Inundation Modelling: Delft3D, LISFLOOD-FP, TELEMAC2D, HEC-RAS

Research Grant

1. **Imagery Grant** from *DigitalGlobe Foundation* comprising GeoEye-1 stereo satellite images for studying the vertical growth of Kolkata, India in last 50 years and its implications in urban planning (2014-16).

2. **PI** of the project titled: Modelling the impact of constructing cascade dams on the evolution of the downstream channel morphology and the risk of dam-break disasters in the Teesta River.

Funded By

Department of Science and Technology, Government of India, Young Scientist Start-Up Research Grant (2014-17),

Grant Value: INR 21,50,000. (Approx. US\$ 33000)

3. **Collaborator** in a National University of Singapore (NUS) funded research project. (2002-05)

Project Title: Application of GIS and Remote Sensing in Flood Management: A case study of West Bengal, India.

PI: Professor Xi Xi Lu, NUS; Grant Value: Singapore \$ 13800.

Awards Received

Reduced Registration Fee through open competition for attending Asia Oceania Geosciences Society (AOGS) Meet, Sapporo, 28 July- 01, August, 2014

Durham University Doctoral Fellowship, (2009-2012) Value: £13,500 per year as stipend with a full tuition fee (Value £12,600 in 2011-12) waiver plus £1000 per year as research grant.

President's Graduate Fellowship (2009) for pursuing PhD at National University of Singapore---*Not Availed*

CV

National University of Singapore Research Scholarship (2003-2004) Value: Singapore \$ 18000 per annum with a full tuition fee waiver.

Two Department of Geography, Durham University Conference Travel Grant (January & May, 2012) for attending European Geosciences Union (EGU) General Assembly, Vienna, April, 2012 and the Asia Oceania Geosciences Society (AOGS) – American Geophysical Union (AGU) Joint Assembly, Singapore, August, 2012. Total value £900

Ustinov College, Durham University Conference Travel Award for attending the European Geosciences Union (EGU) General Assembly, Vienna, April, 2012. £100

Services:

Member of the **International Advisory Board** of ISI Journal **Singapore Journal of Tropical Geography** (Wiley)

Referee for International Journals

Scientific Reports (Nature)-2017

Land Degradation & Development (2016)

Quaternary International (2016)

Catena(2016, 2017)

Progress in Physical Geography (2015)

Ecological Indicators (2015)

Singapore Journal of Tropical Geography (2006 and 2009, 2014, 2015, 2017)

Hydrological Sciences Journal (2014)

Natural Hazards and Earth System Sciences (2012)

Stochastic Environmental Research and Risk Assessment (2012)

Journal of Flood Risk Management (2013)

*Acted as a **reviewer** for a grant proposal submitted to **The Netherlands Organisation for Scientific Research (NWO)**, October, 2013.*