# CURRICULUM VITAE

## Sujan Koirala


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| **Nationality:** | Nepal |
| **Current Address:** | Institute of Engineering Innovation, Engineering Building 9-702, the University of Tokyo<br>2-11-16 Bunkyo-ku, Tokyo 113-8656, Japan |
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**Education:**

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| 2010 | The University of Tokyo, Tokyo, Japan<br>**Ph.D.** in Civil Engineering<br>*Supervisor:* Professor Taikan Oki<br>*Ph.D. Dissertation:* Explicit representation of groundwater process in a global-scale land surface model to improve hydrological predictions. |
| 2006 | Tribhuvan University, Institute of Engineering, Pulchowk Campus, Lalitpur, Nepal<br>**Master of Science** in Water Resources Engineering<br>*Supervisor:* Professor Narendra Man Shakya<br>*Thesis:* Application of distributed hydrologic model in Bagmati River Basin. |
| 2003 | Tribhuvan University, Institute of Engineering, Pulchowk Campus, Lalitpur, Nepal<br>**Bachelor's Degree** in Civil Engineering |

**Computer Skills:** Fortran 77, Fortran 90, Unix shell programming and system administration, Python, GIS, and MATLAB.

**Academic Achievements:**

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| 2011 | *Nepal Bidhya Bhusan 'Ka/A' academic award* from the Government of Nepal. |
| 2011 | *Nepal Bidhya Bhusan 'Kha/B' academic award* from the Government of Nepal. |
| 2009 | *The Chancellor Gold Medal* from Tribhuvan University, Nepal, for standing first in Master's level for all faculties offered within Nepal. |
| 2009 | *The Ram Prasad Manandhar Medal* from Tribhuvan University, Nepal, for standing first in Master's level for science and technology studies within Nepal. |
| 2007 | *The Japanese Government (MEXT) Scholarship* for Ph.D. study in the University of Tokyo, Japan. |
| 2006 | *The Water Resources Excellence Award* from Institute of Engineering, Nepal, for academic excellence in water resources engineering. |

**Professional Experience:**

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| 2011, Oct. - | *Title:* Researcher<br>*Organization:* The University of Tokyo, Tokyo, Japan<br>*Duty:* Post-doctoral research related to estimation of global freshwater storage including groundwater and glaciers, risk of extreme events under climate change. |
| 2010, Apr. - 2011, Sep. | *Title:* Researcher<br>*Organization:* Tokyo Institute of Technology, Tokyo, Japan<br>*Duty:* Post-doctoral research related to the land surface modeling of global hydrological cycle. |
| 2006, Apr. - 2007, Mar. | *Title:* Water Resources Engineer<br>*Organization:* Pioneer Consulting Engineers, Kathmandu, Nepal<br>*Duty:* Hydrological modeling of river basins for development and design of hydropower projects. |
| 2006, Feb. - 2006, Mar. | *Title:* Field Researcher<br>*Organization:* The University of Tokyo, Tokyo, Japan<br>*Duty:* Collection of field data of household water use in Kathmandu, Nepal. |

**Professional Affiliation:**

- Member of Nepal Engineering Council (2003- ).
- Member of the American Geophysical Union (2008- ).
- Associate member in European Union- Water and Global Change Model Intercomparison Project (2008-2011).
- Member of European Geosciences Union (2010- ).
- Member of Japan Geoscience Union (2011- ).

**Peer-reviewed Publications:**

- **Koirala, S.**, P. J.-F. Yeh, Y. Hirabayashi, S. Kanae, and T. Oki, *Global-scale land surface hydrologic modeling with the representation of water table dynamics*, Journal of Geophysical Research (in review).
- Hirabayashi, Y., R. Mahendran, **S. Koirala**, L. Konoshima, D. Yamazaki, S. Watanabe, H. Kim and S. Kanae, *Global flood risk under climate change,* Nature Climate Change, 2013, advance online publication.
- van Huijgevoort M., P. Hazenberg, H. van Lanen, R. Teuling, D. Clark, S. Folwell, S. Gosling, N. Hanasaki, J. Heinke, **S. Koirala**, T. Stacke, F. Voss, J. Sheffield, R. Uijlenhoet, 2013: *Global multi-model analysis of drought in runoff for the second half of the 20$^{th}$ century*, Journal of Hydrometeorology, accepted.
- Hirabayashi Y., Y. Zhang, S. Watanabe, **S. Koirala** and S. Kanae, *Projection of glacier mass changes under a high-emission climate scenario using the global glacier model HYOGA2*, Hydrological Research Letters, 7(1), 6-11, 2013.
- **Koirala, S.**, H. Yamada, P. J.-F. Yeh, T. Oki, Y. Hirabayashi, and S. Kanae, *Global simulation of groundwater recharge, water table depth, and low flow using a land surface model with groundwater representation,* Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers, 56, 2012.
- Yamada, H., S. Yoshikawa, **S. Koirala**, and S. Kanae, *Spatial and temporal estimation of global water withdrawals from 1950 to 2000 based on statistical data*, Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers, 56, 2012.
- Gudmundsson, L., L. M. Tallaksen, K. Stahl, E. Dumont, D.B. Clark, S. Hageman, N. Bertrand, D. Gerten, N. Hanasaki, J. Heinke, F. Voss, **S. Koirala***, Comparing large-scale hydrological model simulations to observed runoff percentiles in Europe*, Journal of Hydrometeorology, 13, 604-620, 2012.
- Pokhrel, Y., N. Hanasaki, **S. Koirala**, J. Cho, P. J.-F. Yeh, H. Kim, S. Kanae, and T. Oki, *Incorporating anthropogenic water regulation modules into a land surface model*, Journal of Hydrometeorology, 13, 255-269, 2012.
- Ingjerd, H., **S. Koirala**, and Co-authors, *Multi-model estimate of the global water balance: Setup and first results*, Journal of Hydrometeorology, Vol. 12, 869–884, October, 2011.
- **Koirala, S.**, P. J.-F. Yeh, T. Oki, and S. Kanae, *Fully dynamic groundwater representation in the MATSIRO land surface model*, Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers, 54, 2010.
- Pokhrel, Y., N. Hanasaki, **S. Koirala**, S. Kanae, and T. Oki, *Extreme river discharge under present and future climate conditions using high-resolution climate model data*, Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers, 54, 2010.
- **Koirala, S.**, Y. Hirabayashi, P. J.-F. Yeh, S. Kanae, and T. Oki, *Uncertainties in global modeling of groundwater-induced increase in evapotranspiration*, (in preparation).
- **Koirala, S.**, P. J.-F. Yeh, T. Oki, and S. Kanae, *A parameter estimation scheme applicable to global-scale land surface modeling* (in preparation).

**Conference Presentations:**

- Oki, T., Y. Pokhrel, N. Hanasaki, **S. Koirala,** and S. Kanae, *Non-renewable water use on the globe and its implication to sea level change*, AGU Fall Meeting, 3-7 Dec. 2012, San Francisco, USA

(Invited).

- Pokhrel, Y., **S. Koirala,** N. Hanasaki, P. J.-F. Yeh, S. Kanae, and T. Oki*, Estimating global groundwater withdrawal and depletion using an integrated hydrological model, GRACE, and in situ observations*, AGU Fall Meeting, 3-7 Dec. 2012, San Francisco, USA (Invited).
- **Koirala, S.**, Y. Hirabayashi, P. J.-F. Yeh, S. Kanae, and T. Oki, *Uncertainties In Global Modeling Of Groundwater-induced Increase in Evapotranspiration*, AGU Fall Meeting, 3-7 Dec. 2012, San Francisco, USA.
- **Koirala, S.** and Y. Hirabayashi, *Effect of Soil Texture Classification on Global Hydrology*, Proceedings of Annual Conference, Japan Society of Hydrology and Water Resources, Sep. 2012, Hiroshima, Japan.
- Yeh, P. J.-F., T. Oki, **S. Koirala**, and S. Kanae, *Estimation of terrestrial water storage from global hydrological modeling, GRACE and land-atmosphere water balance analysis*, World Climate Research Programme- Open Science Conference, October, 2011.
- Pokhrel, Y., **S. Koirala** & co-authors, *Simulating the effects of irrigation pumping on global groundwater depletion*, World Climate Research Programme- Open Science Conference, October, 2011.
- **Koirala, S.**, P. J.-F. Yeh, T. Oki, and S. Kanae, *Climate-soil-vegetation control on groundwater-supplied evapotranspiration in the global modeling context,* World Climate Research Programme-Open Science Conference, October, 2011.
- **Koirala, S.**, H. Yamada, P. J.-F. Yeh, T. Oki, and S. Kanae, *Global-scale modeling of groundwater recharge and water table depth using a land surface model with groundwater representation*, Japan Geoscience Union Meeting, 2011.
- Yeh, P. J.-F., M. Yuan, H. Kim, **S. Koirala**, Y. Pokhrel and T. Oki, *Characterization of long-term atmospheric and terrestrial hydrological cycle change using multiple data sources*, AGU Fall Meeting, 13-17 Dec. 2010, San Francisco, USA.
- Pokhrel Y., N. Hanasaki, **S. Koirala**, S. Kanae and T. Oki, *Assessing the influence of human activities on global water resources using an advanced land surface model*, AGU Fall Meeting, 13-17 Dec. 2010, San Francisco, USA.
- **Koirala, S.**, P. J.-F. Yeh, T. Oki, and S. Kanae, *Evaluating influence of groundwater-supplied moisture flux in global land surface hydrologic simulations*, AGU Fall Meeting, 13-17 Dec. 2010, San Francisco, USA.
- **Koirala, S.**, P. J.-F. Yeh, T. Oki, and S. Kanae, *Parameter estimation of a groundwater representation applicable in a global-scale land surface model*, Proceedings of Annual Conference, Japan Society of Hydrology and Water Resources, Sep. 2010, Tokyo, Japan.
- Kim, H., T. Oki, J. Cho, **S. Koirala**, S. Kanae, and P. J.-F. Yeh, *Estimation of uncertainty in ensemble land surface simulations*, 2nd International Conference on Hydrology delivers Earth System Science to Society, June 2010, Tokyo, Japan.
- Pokhrel, Y., N. Hanasaki, **S. Koirala**, S. Kanae & T. Oki, *Incorporating anthropogenic water flow assessment modules into a Land Surface Model*, 2nd International Conference on Hydrology delivers Earth System Science to Society, June 2010, Tokyo, Japan.
- **Koirala, S.**, P. J.-F. Yeh, S. Kanae, T. Oki, *Analysis of groundwater-supplied evapotranspiration in global-modeling context*, 2nd International Conference on Hydrology delivers Earth System Science to Society, June 2010, Tokyo, Japan.
- **Koirala, S.**, P. J.-F. Yeh, S. Kanae, and T. Oki, *Explicit representation of groundwater process in a global-scale land surface model to improve the prediction of water resources*, European Geosciences Union General Assembly, May 2010, Vienna, Austria.

- **Koirala, S.**, P. J.-F. Yeh, S. Kanae, and T. Oki, *Estimation of groundwater-supplied evapotranspiration in the global modeling context*, International Workshop on Global Change Projection: Modeling and Impact Assessment, Feb. 2010, Tsukuba, Japan.
- **Koirala, S.**, P. J.-F. Yeh, T. Oki, and S. Kanae, *The parameterization of saturated-unsaturated zone interaction in the estimation of land surface hydrological fluxes*, Proceedings of Annual Conference, Japan Society of Hydrology and Water Resources, Aug. 2009, Kanazawa, Japan.
- **Koirala, S.**, P. J.-F. Yeh, H. Kim, S. Kanae, and T. Oki, *Global hydrological simulation using MATSIRO-TRIP land surface model with groundwater representation*, AGU Fall Meeting, 15-19 Dec. 2008, San Francisco, USA.
- Yeh, P. J.-F., H. Kim, **S. Koirala**, and T. Oki, *Global evaluation of remote sensing GRACE water storages using the combined land-atmosphere water balance computation*, 4$^{th}$ Conference of Asia Pacific Association of Hydrology and Water Resources (APHW), Nov. 2008, Beijing, China.
- **Koirala, S.**, and N. M. Shakya, *Impact of urbanization in Bagmati River basin*, 2005, Proceedings of Annual Conference for Purely Ungauged Basin, 2005, Kathmandu, Nepal.