

(As of May 2015)

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Academic Degree:

Dr. Eng., Kyoto University, January 2007.

“Distributed Modeling and Forecasting of Rainfall-Runoff Systems and Their Uncertainty Evaluation”

M.S., Kyoto University, March 2003.

“Evaluation of Reliability and Complexity of Rainfall Sediment Runoff Models”

B. Eng., Kyoto University, March 2001.

“Development of rainfall-sediment-runoff model in the upper Brantas River basin”

Professional Experiences:

Apr. 2015- Current: Associate Professor, Disaster Prevention Research Institute (DPRI), Kyoto University

July. 2013– Mar. 2015: Senior Researcher, International Center for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO, Public Works Research Institute.

Oct. 2009– Mar. 2015: Adjunct Associate Professor, National Graduate Institute for Policy Studies.

Oct. 2009– June 2013: Researcher, International Center for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO, Public Works Research Institute.

Apr. 2005 – Sep. 2009: Assistant Professor, Disaster Prevention Research Institute, Kyoto University.

Aug. 2007 – Aug. 2009: JSPS Postdoctoral Fellow for Research Abroad, Oregon State University.

Education

Apr. 2003 – Mar. 2005: Dr. Eng., Graduate School of Urban and Environmental Engineering, Kyoto University.

Apr. 2001 – Mar. 2003: M.S., Graduate School of Civil Engineering, Kyoto University.

Apr. 1999 – Mar. 2001: B.Eng., School of Global Engineering, Civil Engineering Course, Kyoto University.

Apr. 1994 – Mar. 1999: Dipl., Department of Urban Systems Design Engineering, Akashi College of Technology.

Membership of academic societies:

Japan Society of Civil Engineers (JSCE)
Japan Society of Hydrology and Water Resources (JSHWR)
Japan Society for Natural Disaster Science (JSNDS)
American Geophysical Union (AGU)
Asian Oceania Geosciences Society (AOGS)
International Water Resources Association (IWRA)

Awards received:

Best Paper Award, Japan Society for Civil Engineers, Takahiro Sayama, Yuya Tatebe, Susumu Fujioka, Tomoki Ushiyama, Atsuhiko Yorozuya and Shigenobu Tanaka, "An Emergency Response-type Rainfall-Runoff-Inundation Prediction for 2011 Thailand Flood", JSCE, Vol. 69, No. 1, pp. 14-29, 2013, 2014.6.13.

The 15th Infrastructure Technology Development Award (excellence prizes), Japan Institute of Country-ology and Engineering (JICE), "Rainfall-Runoff-Inundation (RRI) Model -A Technology for Rainfall-Runoff-Inundation Predictions of Large-Scale Floods in the World-", 2013.7.5.

2013 Young Scientists' Prize, Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (MEXT), Takahiro Sayama, "On Rainfall-Runoff-Inundation Simulation of Mega-flood events in the world", 2013.4.16.

Encouragement Paper Award, Journal of Hydraulic Engineering, Japan Society of Civil Engineers, "Development of Reservoir Control Optimization Simulator by Integrating a Distributed Rainfall-Runoff-Model and Dynamic Programming", March 2011.

Encouragement Paper Award, Japan Society of Hydrology and Water Resources, "Hydrograph separation based on spatiotemporal record of stream flow in a distributed rainfall-runoff model", 27 Aug 2008.

Best Poster Award (1st place), International Conference on Hydropedology, "The effect of soil depth distribution on the age, origin, and flowpath of water at the catchment scale", 31 July 2008.

Best Paper Award, Japan Society of Civil Engineers, (Yasuto Tachikawa, Kaoru Takara, Takahiro Sayama, Yutaka Ichikawa), "Development of a distributed rainfall-runoff prediction system and assessment of the flood control ability of dams", May 2007.

Encouragement Paper Award, Japan Society of Civil Engineers, "Uncertainty analysis of distributed rainfall-runoff prediction", May 2005.

Grant received (selected):

Grant-in-Aid for Scientific Research (B), JSPS, Principal Investigator

“Realtime Flood Inundation Mapping based on Disaster Information Sharing through Information and Communication Technology (ICT)”, Apr 2015- Mar 2019 (Estimated)

Grant-in-Aid for Scientific Research (C), JSPS, Principal Investigator

“Understanding and Prediction of Rainfall-Runoff-Inundation Processes for Large Scale Flooding in the World”, Apr 2012- Mar 2015

Grants-in-Aid for Young Scientists (B), JSPS, Principal Investigator

“Rainfall-Runoff-Inundation Simulation based on Nesting of a Global Hydrologic Model”, Apr 2010- Mar 2012

Postdoctoral Fellowship for Research Abroad, JSPS, Principal Investigator

“Development of a hydrologic and solute circulation simulator based on understanding of rainfall-runoff processes”, 20 Aug 2007 – 19 Aug 2009.

Grant-in-Aid for Young Scientists (B), JSPS, Principal Investigator

“Dam reservoir operation based on real-time distributed rainfall-runoff prediction and its uncertainty analysis”

River Environment Fund, Foundation of River & Watershed Environment Management, Principal Investigator

“Prior-outflow operation for flood management based on distributed rainfall-runoff prediction”

Startup research grant for young scientist, Kyoto University, Principal Investigator

“Field observation and modeling of rainfall-sediment-runoff mechanism in volcanic regions”

Keynote Addresses (Selected):

1. Takahiro Sayama, Yusuke Yamazaki, Yuya Tatebe, Akira Hasegawa and Yoichi Iwami, Assessment of climate change impact on large scale flooding - a case study in the Chao Phraya River Basin via new modeling technology, THA2015 International Conference on "Climate Change and Water & Environment Management in Monsoon Asia", 28-30 January 2015, Bangkok, Thailand, 2015.1.28, (Oral, Invited).
2. Takahiro Sayama: A New Challenge in Flood Runoff and Inundation Forecasting for Early Warning System, Regional Seminar on Challenges and Responses to Extreme Climatic Events, IWA and TWRA, November 25-26, AIT, Thailand, (Oral, Invited).
3. Takahiro Sayama: Rainfall-Runoff-Inundation (RRI) Model, Flood Model Showcase, The World Bank, 2014.9.24, (Oral, Invited).
4. Takahiro Sayama : Understanding of Large-Scale Rainfall-Runoff-Inundation Process, The 4th International Seminar on Typhoon and Flood Defense Strategies, 2013 Korea Water Resources Association (KWRA), Honam University, Gwangju, Korea, 2013.5.23, (Oral, Invited).
5. Takahiro Sayama: Introduction of Rainfall-Runoff-Inundation Predictions Using Satellite Based Information, Workshop on using Space Application and Flood Analysis Systems to reduce water

- related disaster risks in South-East Asia, ESCAP, Bangkok, Feb. 22, 2012, (Oral, Invited).
6. Takahiro Sayama : Flood Risk Management: Practice in Various Countries, Flood Hazard Mapping, Lectures at short course on Climate Change in Integrated Water Management, UNESCO-IHE, Sep. 9, 2010 (Oral, Invited).
 7. Takahiro Sayama, Jeffrey McDonnell: From flat ground to steep mountainous subsurface : Use of stable isotope data for watershed model development and testing, B22-A02, Session of The World Is Not Flat: Isotopic Tools for Understanding Mountainous Terrain, AGU Fall Meeting, San Francisco, USA, December 15-19, 2008, 2008.12.16. (INVITED, Oral)

Journal Papers (Selected):

(For complete publication list : <http://flood.dpri.kyoto-u.ac.jp/sayama/index.php?Work>)

1. Rodrigo Fernandez and Takahiro Sayama: Hydrological recurrence as a measure for a large river basin classification and process understanding, *Hydrology and Earth System Science*, pp. 1919-1942, 2015, doi:10.5194/hess-19-1919-2015.
2. Takahiro Sayama, Ken'ichirou Kosugi, Yoichi Iwami, Development of a distributed rainfall-runoff model simulating for mountainous groundwater, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 71, No. 4, I_331 -I_336, 2015 (in Japanese).
3. Takahiro Sayama, Yuya Tatebe and Shigenobu Tanaka, An emergency response-type rainfall-runoff-inundation simulation for 2011 Thailand floods, *Journal of Flood Risk Management*, 2015 (in print).
4. Shun Kudo, Takahiro Sayama, Akira Hasegawa and Yoichi Iwami, Assessment of climate change impact on flood discharge and inundation in the Solo river basin, Indonesia, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 71, No. 4, I_321-I_326, 2015 (in Japanese).
5. Tomoki Ushiyama, Takahiro Sayama, Yuya Tatebe, Susumu Fujioka, Kazuhiko Fukami: Numerical simulation of 2010 Pakistan Flood in the Kabul River basin by using lagged ensemble rainfall forecasting. *Journal of Hydrometeorology*, 15, 193-211, 2014.
6. Takahiro Sayama, Susumu Fujioka, Tomoki Koshida, Yuji Miura, Yoichi Iwami, Kazuhiko Fukami, Error characteristic of X-band MP radar rainfall and its spatio-temporal representation in rainfall field generation, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 70, No. 4, I_517-I_522, 2014 (in Japanese).
7. Tomoki Ushiyama, Takahiro Sayama, Yoichi Iwami, and Takemasa Miyoshi, Ensemble prediction of rainfall and streamflow in Typhoon 201112 and 201115, *Journal of River Engineering, JSCE*, Vol. 20, pp. 455-460, 2014 (in Japanese).

8. Takahiro Sayama, Yuya Tatebe, Susumu Fujioka, Tomoki Ushiyama, Shigenobu Tanaka, Analysis on Spatio-temporal Sources of Large-scale Flooding, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 69, No. 4, I_463-I_468, 2013 (in Japanese).
9. Takahiro Sayama, Yuya Tatebe, Susumu Fujioka, Tomoki Ushiyama, Atsuhiko Yorozuya, Shigenobu Tanaka, An emergency response-type rainfall-runoff-inundation prediction for 2011 Thailand flood, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 69, No. 1, 14-29, 2013 (in Japanese).
10. Tomoki Ushiyama, Takahiro Sayama, Susumu Fujioka, Yuya Tatebe, Kazuhiko Fukami, Takemasa Miyoshi, Ensemble prediction of rainfall and streamflow in typhoon 201112 and 201115 by ensemble kalman filter, *Journal of River Engineering, JSCE*, Vol. 19, pp. 319-324, 2013 (in Japanese).
11. Anurak Sriariyawat, Kwanchai Pakoksung, Takahiro Sayama, Shigenobu Tanaka, and Sucharit Koontanakulvong, Approach to estimate the flood damage in Sukhothai Province using flood simulation, *Journal of Disaster Research*, Vol. 8, No. 3, pp. 406-414, 2013.
12. Yuya Tatebe, Takahiro Sayama, Tomoki Ushiyama, Susumu Fujioka, Shigenobu Tanaka, Analysis of long-term rainfall-runoff-inundation in the Chao Phraya river basin, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 69 No. 4, I_457-I_462, 2013 (in Japanese).
13. Susumu Fujioka, Takahiro Sayama, Yuuji Miura, Tomoki Koshida, Kazuhiko Fukami, Stochastic rainfall field generation representing uncertainty in radar rainfall estimates, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 69 No. 4, I_319-I_324, 2013 (in Japanese).
14. Tesfaye H. Tarekegn, Takahiro Sayama: Correction of SRTM DEM artefacts by Fourier transform for flood inundation modeling, *Journal of Japan Society of Civil Engineers, Ser B1 (Hydraulic Engineering)*, Vol. 69, No. 4, I_193-I_198, 2013.
15. Ichiro Fujita, Takahiro Ito, Takahiro Sayama: Inundation Analysis of 2009 Chikusa river flood and Comparison of Evacuation Criteria, *Journal of Flood Risk Management*, DOI: 10.1111/jfr3.12020, 2013.
16. Takahiro Sayama, Susumu Fujioka, Tomoki Ushiyama, Yuya Tatebe, Kazuhiko Fukami, Rainfall-Runoff-Inundation Analysis of Pakistan Flood 2010 for the Entire Indus River Basin, *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, Vol. 68, No. 4, I_493-I_498, 2012 (in Japanese).
17. Takahiro Sayama, Go Ozawa, Takahiro Kawakami, Seishi Nabesaka, and Kazuhiko Fukami, Rainfall-Runoff-Inundation Analysis of Pakistan Flood 2010 at the Kabul River Basin,

- Hydrological Sciences Journal, Hydrological Sciences Journal, 57(2), DOI: 10.1111/jfr3.12147, pp. 298-312, 2012.
18. Takahiro Sayama, Jeff McDonnell, Amod Dhakal, Kate Sullivan, How much water can a watershed store?, Hydrological Processes, Hydrological Processes, 25, pp. 3899-3908, DOI: 10.1002/hyp.8288, 2011.
 19. Takahiro Sayama, Yasuto Tachikawa, Hiroki Kanno, and Kaoru Takara, Development of reservoir control optimization simulator by integrating a distributed-rainfall-runoff-model and dynamic programming, Journal of Hydroscience and Hydraulic Engineering, Vol. 29, No.1, pp. 33-45, 2011.5.
 20. Takahiro Sayama, Nay Myo Lin, Kazuhiko Fukami, Shigenobu Tanaka, Kuniyoshi Takeuchi, Storm surge inundation of cyclone Nargis with a Rainfall-Runoff Model, Journal of Hydraulic Engineering, JSCE, Vol. 55, S529-534, 2011 (in Japanese).
 21. Takahiro Sayama, Yasuto Tachikawa, Hiroki Kanno, Kaoru Takara, Development of Reservoir Control Optimization Simulator by Integrating a Distributed-Rainfall-Runoff-Model and Dynamic Programming, Journal of Hydraulic Engineering, JSCE, pp. 547 – 552, 2010 (in Japanese).
 22. APIP, Takahiro SAYAMA, Yasuto TACHIKAWA, and Kaoru TAKARA: Spatial Lumping of a Distributed Rainfall-Sediment-Runoff Model and its Effective Lumping, Hydrological Processes, Vol. 26, Issue 6, pp. 855-871, DOI: 10.1002/hyp.8300, 2012.
 23. Giha LEE, Yasuto TACHIKAWA, Takahiro SAYAMA, and Kaoru TAKARA: Catchment Responses to Plausible Parameters and Input Data under Equifinality in Distributed Rainfall Runoff Modeling, Hydrological Processes, Vol. 26, Issue 6, pp. 893-906, DOI: 10.1002/hyp.8303, 2012.
 24. APIP, Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA, and Yousuke YAMASHIKI, Assessing Sources of Parametric Uncertainty and Uncertainty Propagation in Sediment Runoff Simulations, Journal of Flood Risk Management, Vol. 3, Issue 4, DOI: 10.1111/j.1753-318X.2010.01077.x, 2010.
 25. McDonnell, J. J., K. McGuire, P. Aggarwal, K. Beven, D. Biondi, G. Destoundi, S. Dunn, A. James, J. Kirchner, P. Kraft, S. Lyon, P. Malosezewski, B. Newman, L. Pfister, A. Rinaldo, A. Phode, T. Sayama, J. Seibert, K. Solomon, C. Soulsby, M. Stewart, D. Tetzlaff, C. Tobin, P. Troch, M. Weiler, A. Western, A. Worman, S. Wrede., How old is the water? Open questions in catchment transit time conceptualization, modelling and analysis. Hydrological Processes, Vol. 24, Issue 12, pp. 1745 - 1754, 2010.
 26. Takahiro SAYAMA and Jeffrey J. McDonnell, A new time-space accounting scheme to predict

- stream water residence time and hydrograph source components at the watershed scale, *Water Resour. Res.*, 45, W07401, doi:10.1029/2008WR007549, 2009.
27. APIP, Takahiro Sayama, Yasuto Tachikawa, Kaoru Takara: A Distributed-Lumped model for flood and sediment yield predictions at the catchment scale. *Hydrological Science (HS), Advances in Geosciences*, 2010.
 28. Gen Nagatani, Yasufmi Takata, Kazuya Ozawa, Kaoru Takara, Takahiro Sayama: A Distributed Rainfall and Sediment Runoff Model Considering Slope Failure Processes During a Large-Scale Flood Event, *Journal of River Engineering, JSCE*, 15, 2009 (in Japanese).
 29. Sunmin Kim, Yasuto Tachikawa, Takahiro Sayama and Kaoru Takara: Ensemble flood forecasting with stochastic radar image extrapolation and a distributed hydrologic model, *Hydrological Processes*, vol. 23, issue 4, pp. 597 - 611, doi: 10.1002/hyp.7188, 2009.
 30. Giha LEE, Yasuto TACHIKAWA • Takahiro SAYAMA, Kaoru TAKARA, Effect of spatial variability of rainfall on catchment responses in mesoscale mountainous area, *Journal of Hydraulic Engineering, JSCE*, vol. 53, pp. 7 - 12, 2009.
 31. Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA: Data Assimilation of a Distributed Rainfall-Runoff Prediction System by Kalman Filter with Bias Correction, *Journal of Civil Engineering, JSCE*, 2008 (in Japanese).
 32. Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA, Amika MASUDA, Takuya SUZUKI: Evaluating the Impact of Climate Change on Flood Disasters and Dam Reservoir Operation in the Yodo River Basin, *Journal of Japan Society of Hydrology and Water Resources*, 2008 (in Japanese).
 33. Le Minh NHAT, Yasuto TACHIKAWA, Takahiro SAYAMA and Kaoru TAKARA : Development of regional rainfall intensity-duration-frequency curves based on scaling properties, *Journal of Hydraulic Engineering, JSCE*, vol. 52, pp. 85 - 90, 2008.
 34. Giha LEE, Yasuto TACHIKAWA, Takahiro SAYAMA and Kaoru TAKARA : Internal response of catchment to plausible parameter sets under equifinality, *Annual Journal of Hydraulic Engineering, JSCE*, vol. 52, pp. 79 - 84, 2008.
 35. APIP, Takahiro SAYAMA, Yasuto TACHIKAWA and Kaoru TAKARA : Lumping of a physically-based distributed model for sediment runoff prediction in a catchment scale, *Annual Journal of Hydraulic Engineering, JSCE*, vol. 52, pp. 43 - 48, 2008.
 36. Takahiro SAYAMA, Keiko TATSUMI, Yasuto TACHIKAWA, Kaoru TAKARA: Hydrograph separation based on spatiotemporal record of stream flow in a distributed rainfall-runoff model, *Journal of Japan Society of Hydrology and Water Resources*, 2007 (in Japanese).

37. Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA: Model building unit for rainfall-runoff simulation, *Journal of Civil Engineering, JSCE*, 2007 (in Japanese).
38. Yasuto TACHIKAWA, Takahiro SAYAMA, Kaoru TAKARA, Hideki MATSUURA, Tomoya YAMAZAKI, Akihiko YAMAJI, and Yuri MICHIHIRO: Development of a Real-Time Runoff Forecasting System with a Physically-based Distributed Hydrologic Model and its Application to the Yodo River Basin, *Journal of Natural Disaster Science*, vol. 26, no. 2, pp. 189-201, 2007 (in Japanese).
39. Le Minh NHAT, Yasuto TACHIKAWA, Takahiro SAYAMA, and Kaoru TAKARA: A simple scaling characteristics of rainfall in time and space to derive intensity duration frequency relationships, *Annual Journal of Hydraulic Engineering, JSCE*, vol. 51, 2007.
40. Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA, and Yutaka ICHIKAWA: Distributed rainfall-runoff analysis in a flow regulated basin having multiple multi-purpose dams, *IAHS Publication*, no. 303, 2006.
41. Takahiro SAYAMA, Hiroki KANNO, Yasuto TACHIKAWA, Kaoru TAKARA : Assessment of flood safety levels in the Yodo River basin with a rainfall-runoff prediction system incorporating dam operation models, *Journal of Hydroscience and Hydraulic Engineering*, 50, pp. 601-606, 2006 (in Japanese).
42. Yasuto TACHIKAWA, Roshan SHRESTHA and Takahiro SAYAMA: Flood disaster and flood runoff modeling in Japan, *Predictions in Ungauged Basins, IAHS PUB Publication*, 301, pp. 78-86, 2006.
43. Kenichiro KOBAYASHI, Yasuto TACHIKAWA, Takahiro SAYAMA, and Kaoru TAKARA, Analisis of the Yuragawa-river flood by typhoon No. 23 in October 2004 using distributed rainfall-runoff model, *Annual Journal of Hydraulic Engineering, JSCE*, vol. 50, pp. 313-318, 2006.
44. Sunmin KIM, Yasuto TACHIKAWA, Takahiro SAYAMA, and Kaoru TAKARA: Ensemble rainfall-runoff prediction with radar image extrapolation and its error structure, *Annual Journal of Hydraulic Engineering, JSCE*, vol. 50, pp. 43-48, 2006.
45. Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA, and Yutaka ICHIKAWA: Development of a distributed rainfall-runoff prediction system and assessment of the flood control ability of dams, *Journal of Civil Engineering, JSCE*, No. 803 / II-73, pp. 13-27, 2005 (in Japanese).
46. Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA: Gauge-radar rainfall adjustment with incorporating estimation uncertainty by using Cokriging-type Sequential Gaussian Simulation, *Journal of Civil Engineering, JSCE* , No. 803 / II-73, pp. 1-11, 2005 (in Japanese).

47. Takahiro SAYAMA, Yasuto TACHIKAWA, Kaoru TAKARA: Uncertainty evaluation of rainfall-runoff models and its application to model selection, *Journal of Civil Engineering, JSCE*, No. 782 / II-71, pp. 1-13, 2005 (in Japanese).
48. Satoru OISHI, Takahiro SAYAMA, Hajime NAKAGAWA, Yoshifumi SATOFUKA, Yasunori MUTO, Dian SISINGGIH, and Kengo SUNADA: Development of estimation method for impact energy of raindrop considering raindrop size distribution and the relationship between the impact energy and local sediment yield, *Annual Journal of Hydraulic Engineering, JSCE*, vol. 49, pp. 1087-1092, 2005.
49. Takahiro SAYAMA, Kaoru TAKARA, and Yasuto TACHIKAWA: Reliability Evaluation of Rainfall-Sediment-Runoff Models, *Erosion Prediction in Ungauged Basins, IAHS Publication*, no 279, pp. 131-141, 2003.
50. Takahiro SAYAMA, Kaoru TAKARA: A distributed sheet erosion process model for sediment runoff prediction, No. 726 / II-62, pp. 1-9, 2003 (in Japanese).