

Shunji Kotsuki, Ph. D. (小槻 峻司)

Professor

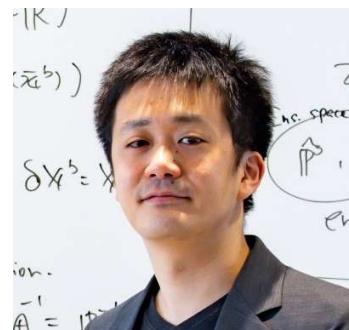
Institute for Advanced Academic Research (IAAR), Chiba University

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Last update: June 27, 2025

Professional Experience (Main Affiliations)

2022-07-Present Professor

Institute for Advanced Academic Research (IAAR), Chiba University, Japan, Chiba University (concurrent; Faculty of Informatics since 2024/04, Center for Environmental Remote Sensing (CEReS) since 2022/06), Research Institute of Disaster Medicine (RIDM) since 2023/05, and Department of Information Engineering, Faculty of Engineering; since 2020/01)

2019/11-2022/06 Associate Professor

Center for Environmental Remote Sensing (CEReS), Chiba University, Japan, Chiba University

2017/10-2019/10 Research Scientist

Data Assimilation Research Team, RIKEN Center for Computational Science (RCCS), Kobe, Japan (concurrent; RIKEN interdisciplinary Theoretical and Mathematical Sciences Program 2018/04-2019/10, Cluster for Pioneering Research 2019/04-2019/10),

2014/01-2017/10 Postdoctoral Researcher

Data Assimilation Research Team, RIKEN Advanced Institute for Computational Science (AICS), Kobe, Japan

2013/12-2013/12 Postdoctoral Researcher

Japan Society for the Promotion of Science, Japan

2012/04-2013/11 Research Fellow

Japan Society for the Promotion of Science, Japan

Professional Experience (Concurrent Affiliations)

2025/04-Present Research Advisor

Railway Technical Research Institute, Kokubunji, Japan

2024/04-Present Research Advisor

TOYOTA Konpon Research Institute, Nagoya, Japan

2019/11-Present Visiting Scientist

Data Assimilation Research Team, RIKEN Center for Computational Science (R-CCS), Kobe, Japan

2023/09-2025/03 Visiting Scientist

Prediction Science Laboratory, RIKEN Cluster for Pioneering Research (CPR), Kobe, Japan

2019/10-2023/03 Researcher

PRESTO, Japan Science and Technology Agency, Kobe, Japan

2018/05-2019/10 Affiliate Associate Professor

Graduate School of Science, Kyoto University, Japan

2017/10-2019/10 Excellent Young Researcher

Initiative for Excellent Young Researchers, Ministry of Education, Culture, Sports, Science and Technology, Japan

2017/04-2019/10 Part-time Lecturer

Graduate School of Science, Kyoto University, Japan

2011/04-2012/03 Research Assistant

Disaster Prevention Research Institute, Kyoto University, Japan

Education

2013/11 Ph. D. Engineering (Urban Management Engineering)

Graduate School of Engineering, Kyoto University, Japan

2011/03 M. S. Engineering (Urban Management Engineering)

Graduate School of Engineering, Kyoto University, Japan

2009/03 B. S. Engineering (Civil Engineering)

Faculty of Engineering, Kyoto University, Japan

Awards to Research Achievements

2022/04 Young Scientist Award

Ministry of Education, Culture, Sports, Science, and Technology, Japan
"Environmental Prediction Studies using Satellite Big Data and Supercomputers"

2021/11 Chiba University Award for Distinguished Researcher

"Environmental and Disaster Predictions Through Numerical Simulation and Data Assimilation with High Performance Computers"

2019/03 RIKEN Ohbu Award

RIKEN Incentive Research Award, Japan
"Advancing Ensemble Data Assimilation-based Global Weather Forecast System"

2017/10	Leading Initiative for Excellent Young Researchers (LEADER) Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan "Advancing Real-Time Weather and Hydrological Predictions with Data Assimilation and Artificial Intelligence"
2013/09	Thesis Award for Young Scientists Japan Society of Hydrology and Water Resources
2013/02	HUME Prize (Top three master dissertation of the department) Department of Urban Management, Graduate School of Engineering, Kyoto University, Japan

Awards to Presentations

2021/09	Outstanding Presentation Award JSHWR-JAHS Joint Symposium in 2021
2021/06	Outstanding Discussion Award 65th Conference of Japan Society of Civil Engineers, Japan
2020/11	Outstanding Presentation Award 5th Global Prominent Symposium of Chiba University, Japan
2020/06	Outstanding Discussion Award 64th Conference of Japan Society of Civil Engineers, Japan
2013/08	Outstanding Presentation Award 6th Conference of the Asia Pacific Association of Hydrology and Water Resources
2013/05	Best Presentation Award Remote Sensing Society of Japan
2013/02	Best Presentation Award Annual Conference, Disaster Prevention Research Institute, Kyoto University, Japan

National Certifications

2015	Certified and Accredited Meteorologists of Japan (ID: 9466)
2009	First-class National Government Employee with specialty in Engineering National Personnel Authority, the Government of Japan

Other Certifications

2014	The International Precipitation Working Group (IPWG) Training Course
2014	International Summer School on HPC Challenges in Computational Sciences
2009	Hydro Asia Program

Affiliations

Japan Geoscience Union

Japan Society of Civil Engineers

Japan Society of Hydrology and Water Resources

Meteorological Society of Japan

The Remote Sensing Society of Japan

Brief Narrative Summary

Dr. Shunji Kotsuki is a Professor of Institute for Advanced Academic Research (IAAR), Chiba University, and leading environmental prediction science. He received his B.S. (2009), M.S. (2011) and Ph. D. (2013) degrees in civil engineering from Kyoto University. He experienced his professional career as Post-doctoral Researcher (2014-2017), and Research Scientist (2017-2019) at RIKEN Center for Computational Science (R-CCS). He started leading his research laboratory at CEReS, Chiba University since November, 2019. He became to be a Professor of IAAR of Chiba U. since July 2022.

Dr. Kotsuki is a leading scientist on data assimilation and numerical weather prediction with over 10 years of research experience in development of the global atmospheric data assimilation system (a.k.a. NICAM-LETKF). His research interests are in data assimilation mathematics, model parameter estimation, observation diagnosis including impact estimates, satellite data analysis, hydrological modeling, and atmospheric and hydrological disaster predictions. His techniques for ensemble data assimilation have been incorporated in the RIKEN's global atmospheric data assimilation system, and improved its weather forecasts significantly. The NICAM-LETKF is running operationally as NEXRA since 2017 on the JAXA's supercomputing system.

He has been recognized by several prestigious awards such as the Thesis Award for Young Scientists from Japan Society of Hydrology and Water Resources Engineering (2013), RIKEN Ohbu Research Incentive Award (2019), Chiba University Award for Distinguished Researcher (2020), and Young Scientist Award of MEXT (2022). In 2017, Dr. Kotsuki was selected as an Excellent Young Researcher by Ministry of Education, Culture, Sports, Science and Technology, Japan. He is also a visiting scientist of R-CCS, and exploring data-driven approaches for the environmental prediction science.

He is currently the project manager for Goal 8 of Japan's Moonshot Program, where he leads an interdisciplinary research team. This team includes experts in meteorology, disaster mathematics, information science, computer vision, ethics, and legal studies, all working together to achieve a weather-controlled society.

Research Funds and Projects

Funded Projects as the lead PI

2025/04–2030/03 Grants-in-Aid for Scientific Research Foundation (A), JSPS, Japan

Transforming Weather Prediction with Deep Learning and Quantum Computing
(35,100K JPY)

2025/04–2028/03 JAXA 4th Research Announcement (RA4), JAXA, Japan

Development of Data-driven Global Satellite Mapping of Precipitation through Data Assimilation and Deep Learning (about 28,000K JPY)

2023/12–2027/03 MOONSHOT Research & Development Program (Core), JST, Japan

Artificial generation of upstream maritime heavy rains to govern intense-rain-induced disasters over land (about 1,200,000K JPY)

2023/06–2025/03 Collaborative Research, RTRI (Railway Technical Research Institute), Japan

Development of Evaluation Methods for the Spatial Representativeness of Ground Weather Observations (4,000K JPY)

2023/04–2023/12 FOREST (Fusion Oriented Research for Disruptive Science and Technology), JST, Japan

Foreseeing Unprecedented Flood Disasters through Integration of Simulation Science and Folklore (65,000K JPY)

2022/06–2025/03 Grant-in-Aid for Challenging Research (Exploratory), JSPS, Japan

Exploring Cost-effective Observation Placements Using The Data-driven Sparse Sensor Placement (6,500 K JPY)

2022/06–2024/03 Grants-in-Aid for Transformative Research Areas Foundation (A) (Publicly Offered Research), JSPS, Japan

Investigating Flood Risk Impacts on Local Community Developments through Numerical Simulations and Area Studies (10,400K JPY)

2022/04–2028/03 Advanced Academic Research Support Program (top leader), Chiba University, Japan

Exploring Frontiers in Global Environment and Disaster Predictions Through Integration of Big Satellite Observations and Data Science (about 80,000K JPY)

2022/04–2025/03 JAXA Third Research Announcement (RA3), JAXA, Japan

Advancing GSMAp Precipitation by Land Data Assimilation and Data Science (about 13,000K JPY)

2022/04–2023/11 MOONSHOT Research & Development Program (feasibility), JST, Japan

Quantifying Weather Controllability and Mitigatable Flood Damage Based on Ensemble Weather Forecast (about 80,000K JPY)

2021/04–2025/03 Grants-in-Aid for Scientific Research Foundation (A), JSPS, Japan

Exploring Real-time Rainfall and Flood Predictions in Fugaku Era with the State-of-the-art Data Science (41,860K JPY)

2019/10–2023/03 PRESTO (Preliminary Research for Embryonic Science and Technology), JST, Japan

Advancing Data Assimilation and Prediction Methods to Maximize "The Value of Observations" (82,160K JPY)

2018/04-2020/03 Grants-in-Aid for Scientific Research Foundation (B), JSPS, Japan
Land-Atmosphere-Coupled Data Assimilation: Improving Atmospheric and Hydrological Predictions by Hydrological Big Data Assimilation (17,420K JPY)

2017/10-2019/03 Leading Initiative for Excellent Young Researchers, MEXT, Japan
Advancing Real-Time Weather and Hydrological Predictions with Data Assimilation and Artificial Intelligence (18,000K JPY)

2015/04-2018/03 Grant-in-Aid for Young Scientists (B), JSPS, Japan
Process-based Crop Yield Prediction Using Satellite Observations (4,160K JPY)

2012/04-2013/12 Grant-in-Aid for Fellows, JSPS, Japan
Estimating Global Crop Yield Potential Using a Global Agricultural Water Resources Model (1,800K JPY)

Funded Projects as the Co-PI (& Funds as Co-PI)

2025/04-2028/03 Grants-in-Aid for Scientific Research Foundation (C), JSPS, Japan, PI: Asst. Prof. T. Mitsui (Juntendo U.)
English Title TBD (レイベント・シミュレーション手法に着想を得た極端気象制御アルゴリズムの開発)

2022/06-2025/03 Grants-in-Aid for Challenging Research (Exploratory), JSPS, Japan, PI: Prof. K. Ichii (U. Chiba)
English Title TBD (環北極域における超高頻度衛星観測データの創出による陸面劇的変動の早期高精度検出)

2021/07-2026/03 Grants-in-Aid for Scientific Research Foundation (S), JSPS, Japan, PI: Prof. T. Oki (U. Tokyo)
Study on global terrestrial hydrodynamics with satellite earth observations (20,930K JPY)

2021/04-2024/03 Environment Research and Technology Development Fund of the Ministry of the Environment, Japan [Strategic Research] PI: Prof. K. Ichii (Chiba U.)
English Title TBD (観測データ及びモデル推定の統合解析による陸域の GHG 収支評価; 15,000K JPY)

2021/04-2024/03 Environment Research and Technology Development Fund of the Ministry of the Environment, Japan [Young Research] PI: Prof. Y. Igarashi (Fukushima U.)
Prediction System for Radionuclides Redistribution due to Wild Fire in Contaminated Regions (10,946K JPY)

2020/04-2022/03 河川砂防技術研究開発公募, PI: Prof. S. Watanabe (U. Tokyo)
English Title TBD (大規模気候データを活用したこれからの河川計画策定に向けた技術開発; 343.2K JPY)

Cooperative Research Projects

2023/04-2026/03 RIKE-MOST Collaborative Research, PI: Prof. Miyoshi(RIKEN)

Comprehensive earthquake forecast model based on multi-geophysical data assimilation

2022/04-2027/03 JSPS Core-to-Core Program, PI: Prof. Ichii (Chiba U.)

GEOLAND-NET (GEOstationary-satellite LAND monitoring NETwork)

2022/04-2027/03 Advanced studies of climate change projection, MEXT, Japan, PI: Prof. Mori (Kyoto U.)

English Title TBD (ハザード統合予測モデルの開発)

2022/04-2025/03 JAXA Third Research Announcement, PI: Prof. Miyoshi (RIKEN)

Advances and applications of satellite data assimilation of clouds, precipitation, and the ocean

2021/07-2025/03 JST Mirai Program, PI: Prof. H. Tsukada (Chubu U.)

English Title TBD (非線形・複雑系に着目した認知症のロバストネス数理モデルとそのハブ因子の解明)

2020/07-2025/03 JICA-JST SATREPS (Science and Technology Research Partnership for Sustainable Development), PI: Prof. K. Tanaka (Kyoto U.)

Development of Innovative Climate Resilient Technologies for Monitoring and Controlling of Water Use Efficiency and Impact of Salinization on Crop Productivity and Livelihood in Aral Sea Region

2020/04-2023/03 Program for Promoting Researches on the Supercomputer Fugaku, MEXT, PI: Prof. M. Satoh (U. Tokyo)

Large Ensemble Atmospheric and Environmental Prediction for Disaster Prevention and Mitigation

2020/04-2023/03 Global Prominent Research of Chiba University, PI: Prof. N. Tsumura

Creation of Material Appearance and Affective Imaging

2020/04-2023/03 JAXA Precipitation Measurement Mission, PI: Prof. Miyoshi (RIKEN)

Enhancing Precipitation Prediction Algorithm by Data Assimilation of GPM Observations

2013/04-2016/03 地球観測技術等調査研究委託事業, PI: Prof. A. Higuchi (Chiba U.)

食糧安全保障に向けた衛星入力を活用した環太平洋域での広域収量推定および短期予測の試み

Seeding Funds

2021/04-2022/03 ERAN Collaborative Research for Young Scientists, PI: Dr. J. Hu of Kotsuki Lab.

Quantify the fire trends and resuspension radionuclides using remote sensing data for radioactively contaminated forests in Ukraine

2020/04-2021/03 FY2020 ERAN Collaborative Research for Young Scientists

Implementing Radioactive Transport/Diffusion Modules into an Integrated Hydrological Model for Long-term Projections

Contribution to Research Community

Editorship of Scientific Journals

2020/06-Present Editor, Journal of the Meteorological Society of Japan

2020/09-Present Editor, Journal of the Japan Society of Hydrology and Water Resources

Committee Member of Scientific Activities

2025/04-Present 洪水予測検討会 委員

2024/12-Present 河川懇談会 委員

2023/11-Present Program Committee Members, Japan Geoscience Union Meeting 2024, JpGU

2022/12-Present Member of Hydrology Division, Committee on Hydroscience and Hydraulic Engineering, JSCE

2022/09-Present Working Group Member of IHP-IX Strategic Plan (Theme 3: Bridging the data and knowledge gap)

2022/09-Present 水文・水資源学会 JpGU 対応委員会 委員

2022/07-Present JAXA・地球観測に関する科学アドバイザリ委員会・PMM 分科会（後継ミッショングループ & 利用促進検討グループ）

Advisory

2025/04-Present Research Advisor, Railway Technical Research Institute, Japan

2024/04-Present Research Adviser, TOYOTA KONPON Research Institute, Japan

Editorship/Committee Member of Scientific Activities (finished)

2017/01-2018/12 Columns by Senior Researchers, Japan Society of Hydrology and Water Resources (発想のたまご)

2015/01-2016/12 Columns by Young Researchers, Japan Society of Hydrology and Water Resources (若手のページ)

2015/06-2017/05 Associate Member, Committee on Hydroscience and Hydraulic Engineering, Japan Society of Civil Engineers

Scientific Organizing Committee

Data-driven approaches for weather and hydrological predictions, JpGU 2024, 2025 (main convener)

Hydrology & Water Environment Session, JpGU 2024 (main convener)

The RIKEN International School on Data Assimilation (RISDA 2018), Jan. 22-26, 2018.

Local Conference Organization (Co-Chair)

ICIAM 2023: New mathematical trends in weather prediction and inverse problems, 2023

The 7th International Symposium on Data Assimilation (ISDA2019), Jan. 21-24, 2019.

The RIKEN International School on Data Assimilation (RISDA 2018), Jan. 22-26, 2018.

Organizer of Scientific Activity in Japan

2025/04-Present データ同化研究連絡会

2024/10-Present 地球科学における AI・データ同化研究セミナー

<https://sites.google.com/view/earth-data-science>

The RIKEN International School on Data Assimilation (RISDA 2018), Jan. 22-26, 2018. (co-chair)

Thesis/Dissertation committee (completed)

2025/XX Y.I. (The University of Tokyo; Prof. TBU)

TBD

2024/07 Joshua C. K. Lee (University of Reading; Prof. Ross Bannister)

Convective-scale hybrid data assimilation over the Maritime Continent

2023/03 Xiao Wang (The University of Tokyo; Prof. Kei Yoshimura)

Historical weather reconstruction by data assimilation of cloud cover from old diaries

International Activity

Hosting Oversee Researchers/Professors

2023/08 Prof. Craig Bishop, University of Melbourne

2023/08 Dr. Steve Penny, Sofar Ocean of U. S.

Dispatching Young Researchers/Students

2024/04-05 Y. Muto, University of Melbourne (Hosted by Prof. Bishop)

2022/09-10 T. Tsuchiya, K. Oishi and T. Otaki, University of Maryland (Hosted by Prof. Poterjoy)

Record of Editorship and Review

Editor of Scientific Journals

- (06) Journal of Meteorological Society of Japan (JMSJ by MSJ)
- (03) 水文・水資源学会誌

Referee of Scientific Journals

- (01) Advances in Atmospheric Sciences (by Springer)
 - (01) Atmosphere (by MDPI)
 - (01) Earth, Planets and Space (EPSP by Springer)
 - (01) Earth and Space Sciences (ESS by AGU)
 - (01) Geoscientific Model Development (GMD by EGU)
 - (01) Hydrology and Earth System Sciences (HESS by EGU)
 - (03) Hydrological Research Letters (HRL by JSHWR)
 - (01) Journal of Agricultural Meteorology (JARGMET by SAMJ)
 - (03) Journal of Advances in Modeling Earth Systems (JAMES by AGU)
 - (02) Journal of Geophysical Research – Atmospheres (JGR-A by AGU)
 - (03) Journal of Hydrology (JoH by Elsevier)
 - (09) Journal of Meteorological Society of Japan (JMSJ by MSJ)
 - (01) Meteorological Applications (by RMS)
 - (01) Meteorology and Atmospheric Physics (by Springer)
 - (08) Monthly Weather Review (MWR by AMS)
 - (06) Nonlinear Processes in Geophysics (NPG by EGU)
 - (02) Quarterly Journal of the Royal Meteorological Society (QJRMS by UK's RMS)
 - (04) Scientific Online Letters on the Atmosphere (by MSJ)
 - (01) Tellus (by MISU Stockholm U.)
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- (01) ながれ
 - (14) 土木学会・水工学論文集
 - (01) 土木学会・地球環境シンポジウム論文
 - (02) 土木学会・AI&データサイエンス論文集

(04) 水文・水資源学会誌

(01) 土木学会論文集

(01) 統計数理

Last Update: Nov. 2024

Review of Scientific Proposal

FY2023 Deutsche Forschungsgemeinschaft (DFG)

FY2018 RIKEN Incentive Research Projects

Outreach and Media

Outreach

2018/11-Present JAXA Real-time Weather Watch (contributing as a developer)
https://www.eorc.jaxa.jp/theme/NEXRA/index_e.htm

2017/05-2019/10 Weather Forecaster, RIKEN Weather Forecast
<https://weather.riken.jp/index.html>

Press Release

- | | |
|-------------------|---|
| 2025/01/15 | From drops to data: Advancing global precipitation estimates with the LETKF algorithm
https://www.eurekalert.org/news-releases/1070377 |
| 2024/06/14 | Quantum data assimilation: A quantum leap in weather prediction
https://www.eurekalert.org/news-releases/1047954 |
| 2021/07/07 | Improving Typhoon Prediction with Geostationary Radar Observation
https://www.riken.jp/press/2021/20210707_1/index.html |
| 2020/08/20 | Global Precipitation Forecasting System by Simulation and Satellite Obs.
https://www.eorc.jaxa.jp/theme/NEXRA/index_e.htm |

Media

see <https://www.kotsuki-shunji.com/cv.html>

Education

Awards to Supervised Researchers/Students

- 2023/08 **Outstanding Presentation Award, MSF DA Summer School in 2023**
河崎文俊 (M2)
- 2023/02 **Paper Encouragement Award, Committee on Hydraulic Engineering ,Japan Society of Civil Engineers**
藤村健介 (M1) “降雨流出氾濫モデルのアンサンブルデータ同化安定化に関する研究”
- 2022/10 **Outstanding Presentation Award, JSHWR-JAHS Joint Symposium in 2022**
塩尻大也 (PD) “スペースセンサ位置最適化手法を活用した効率的な雨量計位置決定”

Internal Awards to Supervised Researchers/Students

- 2025/03 **Dean Award, Faculty of Engineering, Chiba University**
井貫恵多朗 (B4)
- 2025/03 **Outstanding Presentation Award, Remote Sensing Course, Chiba University**
島袋隆也 (M2) “拡散モデルを用いた降水分布のダウンスケーリング手法の開発”
- 2024/03 **Dean Award, Graduate School of Science and Engineering, Chiba University**
藤村健介 (M2)
- 2023/12 **Outstanding Presentation Award, Remote Sensing Course, Chiba University**
河崎文俊 (M2) “量子アニーリングを用いたデータ同化手法の開発”
- 2023/12 **Outstanding Presentation Award, Remote Sensing Course, Chiba University**
島袋隆也 (M1) “深層学習モデルによる浸水深時空間分布のエミュレート手法開発”
- 2023/02 **Outstanding Presentation Award, Remote Sensing Course, Chiba University**
大石健 (M2) “Sinkhorn アルゴリズムを用いて高速化された局所粒子フィルタの開発”
- 2022/12 **Outstanding Presentation Award, Remote Sensing Course, Chiba University**
齋藤匠 (M1) “特異ベクトル空間におけるデータ同化と観測位置決定手法への応用”
- 2021/12 **Outstanding Presentation Award, Remote Sensing Course, Chiba University**
土屋建 (M1) “GradCAM を用いた熱帯低気圧画像識別器の高度化”

Dissertations

See <https://kotsuki-lab.com/achievements/thesis/>

Teaching Experiences at RIKEN

Spring 2019	Data Assimilation A, a graduate- and undergraduate-level introductory data assimilation course, Faculty of Science, Kyoto University
Spring 2018	Data Assimilation A, a graduate- and undergraduate-level introductory data assimilation course, Faculty of Science, Kyoto University
Fall 2017	Data Assimilation B, a graduate- and undergraduate-level advanced data assimilation course, Faculty of Science, Kyoto University
Spring 2017	Data Assimilation A, a graduate- and undergraduate-level introductory data assimilation course, Faculty of Science, Kyoto University
Spring 2016	Special Lecture on Mathematical Science: Data Assimilation, a graduate- and undergraduate-level introductory data assimilation course, Faculty of Science, Kyoto University
September 2016	iTHES School on Data Assimilation, RIKEN iTHES http://www.data-assimilation.riken.jp/jp/events/ithes_da_2016fall/

Student Interns Supervised (at RIKEN)

- [5]. Aulia Febianda Anwar Tinumbang, Kyoto University (RIKEN CCS internship program, 2018)
- [4]. Andrew Pensoneault, University of Iowa (RIKEN CCS internship program, 2018)
- [3]. Takuya Kurihana, University of Tsukuba (RIKEN AICS internship program, 2017)
- [2]. Taiga Shibata, University of the Ryukyus (RIKEN AICS internship program, 2017)
- [1]. Yaping Chang, University of Chinese Academy of Sciences (RIKEN International Program Associate, 2015)

Achievements

Publications: Peer-reviewed Articles (*: Corresponding Author)

- [50]. Kurosawa, K., Okazaki, A., Kawasaki, F. and **Kotsuki, S.** (2025): Bridging Data Assimilation and Control: Ensemble Model Predictive Control for High-Dimensional Nonlinear Systems. *Nonlin. Processes Geophys.* (accepted)
- [49]. Matsugishi, S., Chen, Y. W., Terasaki, K., Yashiro, H., **Kotsuki, S.**, Kanemaru, K., Yamamoto, K., Satoh, M., Kubota, T. and Miyoshi, T. (2025): Intercomparison of NICAM–LETKF JAXA Research Analysis (NEXRA) version 2 and 3. *SOLA*. doi: [10.2151/sola.2025-035](https://doi.org/10.2151/sola.2025-035)
- [48]. Matsugishi, S., Chen, Y. W., Terasaki, K., Kanemaru, K., **Kotsuki, S.**, Yashiro, H., Yamamoto, K., Satoh, M., Kubota, T. and Miyoshi, T. (2025): NICAM–LETKF JAXA Research Analysis (NEXRA) Version 2.0. *Geosci. Data Journal*, 12, e70011. doi: [10.1002/gdj3.70011](https://doi.org/10.1002/gdj3.70011)
- [47]. Ohtsuka, T., Okazaki, A., Ogura, M. and **Kotsuki, S.** (2025): Convex Optimization of Initial Perturbations toward Quantitative Weather Control. *SOLA*, 21, 158-166. doi: [10.2151/sola.2025-020](https://doi.org/10.2151/sola.2025-020)
- [46]. Yamamoto, K., Ma, W., Matsugishi, S., Satoh, M., **Kotsuki, S.**, Miyoshi, T., Kachi, M., Kubota, T. and Yoshimura, K. (2025): Development and validation of a global ensemble hydrological simulation system: TE-Global NEXRA. *Hydrol. Res. Lett.*, 19, 80-86. doi: [10.3178/hrl24-00022](https://doi.org/10.3178/hrl24-00022)
- [45]. Muto, Y. and **Kotsuki, S.*** (2024): Estimating global precipitation fields by interpolating rain gauge observations using the local ensemble transform Kalman filter and reanalysis precipitation. *Hydrol. Earth Syst. Sci.*, 28, 5401-5417. doi: [10.5194/hess-28-5401-2024 \(press released\)](https://doi.org/10.5194/hess-28-5401-2024)
- [44]. Oettli, P. and **Kotsuki, S.*** (2024): An Objective Detection of Separation Scenario in Tropical Cyclone Trajectories Based on Ensemble Weather Forecast Data. *J. Geophys. Res.*, 129, e2024JD040830. doi: [10.1029/2024JD040830](https://doi.org/10.1029/2024JD040830)
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Publications: Conference Paper (*; Corresponding Author)

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- [1]. **Kotsuki, S.*** and Tanaka, K. (2013): Estimation of Climate Change Impact on Japanese Rice Yield and Water Resources. *Proceedings of 2013 IAHR World Congress*, A10344.

Publications: Non Peer-reviewed Articles

- [1]. **Kotsuki, S.*** and Tanaka, K. (2013): Long-term Water Balance Analysis Using Different Precipitation Products in Upper Chao Phraya River, Thailand. *Proceedings of 6th APHW conference*.

Keynote Presentations

- [1]. **Kotsuki, S.**: Exploring weather control technology to steer the atmosphere towards favorable directions based on ensemble data assimilation. ISDA 2024, October 21-25, 2024. (Oct. 23, Kobe University, Kobe)

Invited Presentations

- [19] **Kotsuki, S.**, Kawasaki, F., Ohashi, M. and Tsuyuki T.: Quantum Data Assimilation: A New Approach to Solving Data Assimilation on Quantum Annealers. ISDA-Online: Data Assimilation Methodology, March 13, 2025. (Mar. 13, online)
- [18] **Kotsuki, S.**, Kawasaki, F. and Ohashi, M.: Quantum Data Assimilation: A New Approach to Solve Data Assimilation on Quantum Annealers. 地震研セミナー, January 26, 2024. (Jan. 26, online)
- [17] **Kotsuki, S.**, Kawasaki, F. and Ohashi, M.: Quantum Data Assimilation: A New Approach to Solve Data Assimilation on Quantum Annealers. RIKEN Data Assimilation Seminar, January 23, 2024. (Jan. 23, online)
- [16] **Kotsuki, S.**: Weather Prediction and Modification Studies Based on Ensemble Data Assimilation. JAMSTEC APL Guest Seminar, September 19, 2023. (Sep. 19, JAMSTEC Yokohama Institute for Earth Sciences, Yokohama / online)
- [15] **Kotsuki, S.**, Saito, T., Ouyang, M. and Shiojiri, D.: Combining Data Assimilation and Data-driven Sparse Sensing Placement Method For Designing Better Observation Locations. ISDA-Online: Parameter Estimation & Inverse Modelling, June 2, 2023. (Jun. 2, online)
- [14] **Kotsuki, S.**, Shiojiri, D., Ouyang, M., Muto, Y., and Kanemaru, K.: Improving Global Precipitation Estimates by Hydrological Land Data Assimilation. AMS Annual Meeting, January 11, 2023. (Jan. 11, Colorado Convention Center, Denver / online)
- [13] **Kotsuki, S.**, Ouyang, M., Saito, T. and Shiojiri, D.: Combining Data Assimilation and Sparse Sensing Placement Method For Designing Better Observing Networks. RIKEN Data Assimilation Seminar, September 14, 2022. (Sep. 14, online)

- [12] **Kotsuki, S.** and Ouyang, M.: Optimizing mobile observing placements for numerical weather prediction: Idealized experiments with a simplified AGCM. AOGS 2022, August 1-5, 2022. (Aug. 03, online)
- [11]. **Kotsuki, S.**, Terasaki, K., Satoh, M. and Miyoshi, T.: Ensemble-Based Data Assimilation of GPM DPR Reflectivity into the Nonhydrostatic Icosahedral Atmospheric Model NICAM. JpGU 2021, June 3-6, 2021 (June 3, online)
- [10]. **Kotsuki, S.**, Miyoshi, T., Kondo, K. and Potthast, R.: A Local Particle Filter and Its Gaussian Mixture Extension: Experiments with an Intermediate AGCM. RIKEN Data Assimilation Seminar, September 11, 2020, (Sep. 11, online)
- [9]. **Kotsuki, S.**, Pensoneault, A., Okazaki, A. and Miyoshi, T.: Weight Structure of the Local Ensemble Transform Kalman Filter: A Case with an Intermediate AGCM. JpGU-AGU Joint Meeting 2020, July 12-16, 2020. (July 13, Makuhari Messe, Chiba)
- [8]. **Kotsuki, S.**: Leading Research on Data Assimilation in Global Weather Prediction System. Topological Data Analysis Laboratory Seminar, Apr. 29, 2020. (Apr. 29, Kyoto-Univ., Zoom)
- [7]. **Kotsuki, S.**: Introduction of Data Assimilation and Its Techniques. Topological Data Analysis Laboratory Seminar, Apr. 29, 2020. (Apr. 29, Kyoto-Univ, on Zoom)
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- [4]. **Kotsuki, S.**: Improving Global Precipitation Forecasts using Satellite-derived Precipitation Data, NWP seminar Bureau of Meteorology, Aug. 17, 2019. (Aug. 17, Australian Bureau of Meteorology, Melbourne)
- [3]. **Kotsuki, S.**, and Miyoshi, T.: Diagnosing Observation Impacts and Error Covariance with NICAM-LETKF. LMU Data Assimilation Seminar, Jun. 18, 2019. (Jun. 18, Munich Univ, Munich)
- [2]. **Kotsuki, S.**, and Miyoshi, T.: Diagnosing Observation Impacts and Error Covariance with NICAM-LETKF. DWD NWP Seminar, Jun. 13, 2019. (Jun. 13, Deutscher Wetterdienst, Offenbach)
- [1]. **Kotsuki, S.**, Sato, Y., Terasaki, K., Yashiro, H., Tomita, H., Satoh, M. and Miyoshi, T.: Model Parameter Estimation with Data Assimilation using NICAM-LETKF. JpGU Meeting 2019, May 26-30, 2019. (May 29, Makuhari Messe, Chiba)

Appendix A: CV only in Japanese

Publications: Peer-reviewed Articles in Japanese

- [23]. 井貫恵多朗, 金子凌, 岡崎淳史, 小槻峻司(2024): 深層学習に基づく生成モデルを用いたドップラー風速データからのランキン渦再構成. 水工学論文集, 81, -. doi: [10.2208/jscej.24-16185](https://doi.org/10.2208/jscej.24-16185)
- [22]. 毛束隆太, 武藤裕花, 岡崎淳史, 小槻峻司(2024): 災害被害数理モデルを用いた強化学習による洪水被害削減のための投資策の最適化. AI・データサイエンス論文集, 5, 186-193. doi: [10.11532/jsceiii.5.3_186](https://doi.org/10.11532/jsceiii.5.3_186)
- [21]. 武藤裕花, 塩尻大也, 小槻峻司(2024): 局所アンサンブルデータ同化を用いた地上雨量観測からの全球降水分布の推定. 水工学論文集, 80, -. doi: [10.2208/jscej.23-16197](https://doi.org/10.2208/jscej.23-16197)
- [20]. 佐々木景悟, 武藤裕花, 塩尻大也, 小槻峻司(2023): ベイズ最適化を用いた降雨流出氾濫モデルの計算効率性の高いパラメータ最適化に関する研究. AI・データサイエンス論文集, 4, 602-610. doi: [10.11532/jsceiii.4.3_602](https://doi.org/10.11532/jsceiii.4.3_602)
- [19]. 関令法, 塩尻大也, 小槻峻司(2023): 日本の降水量の次元圧縮を対象とした特異値分解と非負値行列因子展開の比較. AI・データサイエンス論文集, 4, 772-778. doi: [10.11532/jsceiii.4.3_772](https://doi.org/10.11532/jsceiii.4.3_772)
- [18]. 島袋隆也, 塩尻大也, 小槻峻司(2023): 深層学習モデルによる浸水深時空間分布のエミュレート手法開発. AI・データサイエンス論文集, 4, 553-560. doi: [10.11532/jsceiii.4.3_553](https://doi.org/10.11532/jsceiii.4.3_553)
- [17]. 白石健太, 武藤裕花, 小槻峻司(2023): 深層学習に基づく超解像技術を用いた降水量データの高解像度化に関する研究. AI・データサイエンス論文集, 4, 515-521. doi: [10.11532/jsceiii.4.3_515](https://doi.org/10.11532/jsceiii.4.3_515)
- [16]. 斎藤匠, 小槻峻司*, Mao OUYANG, 塩尻大也(2022): スペースセンサ最適化を用いた大次元力学系における有効な観測位置決定手法の開発. 水工学論文集, 78, 391-396. doi: [10.2208/jscejhe.78.2_I_391](https://doi.org/10.2208/jscejhe.78.2_I_391)
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Invited Presentations (in Japanese)

- [21] 小楢峻司: 数理構造を活用した気象予測・制御研究 —さきがけからムーンショットへ—, 日本数学会教育研究資金問題検討委員会シンポジウム, 03/19, 2024. (Mar. 19, Online)
- [20] 小楢峻司: 気象制御実現への挑戦, JAAS 年次大会 2023 「会いに行ける科学者フェス」, 10/08, 2023. (Oct. 08, 秋葉原 UDX, 東京)
- [19] 小楢峻司: 「観測の価値」を最大化するデータ同化・予測手法の開発, 2023 年度 第 2 回 OR セミナー, 07/04, 2023. (Jul. 04, 構造計画研究所, 東京/Online)
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- [15] 小楢峻司: 「観測の価値」を最大化するデータ同化・予測手法の開発, DNA 気候学 雲解像気候学セミナー, 07/19, 2022. (Jul. 19, Online)
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- [12] 小楢峻司: 数値計算と観測を融合するデータ同化 一天気予報の仕組みと研究の最前線一, あかりんアワー, 11/02, 2021. (Nov. 02, 千葉大付属図書館 N 棟 1 階)
- [11]. 小楢峻司: フラックス観測データを活用したデータ同化とスペースセンシング, JapanFlux データ利用・共同研究促進ワークショップ, 08/05, 2021. (Aug. 05, Online)
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- [8]. 小楢峻司: リモートセンシングデータを使った天気予報研究の最前線. 千葉大学経済人俱楽部・絆 公開講座, 02/21, 2020. (Feb. 21, 千葉大学アカデミックリンクセンター)
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- [3]. 小楢峻司, 黒澤賢太, 三好建正: 全球大気データ同化システム NICAM-LETKF を使った EFSO 観測インパクト推定. 第 8 回データ同化ワークショップ, 01/19, 2018. (Jan 19, 明治大学中野キャンパス)
- [2]. 小楢峻司, 三好建正: 全球大気アンサンブルデータ同化システム NICAM-LETKF による衛星降水観測データ同化. 地震研特定共同研究(B)「データ同化」勉強会, 2017. (Jul 14, 東大地震研究所)
- [1]. 小楢峻司, 三好建正: 予測モデルのためのデータ同化. PSTEP 研究集会「太陽地球圏環境予測のためのモデル研究の展望」, 01/26-27, 2017. (Jan 27, 名古屋大学, 名古屋)

千葉大学 マル合審査

- [2]. 博士後期課程 : マル合 (2021 年 07 月)
- [1]. 博士前期課程 : マル合 博士後期課程 : 合 (2019 年 12 月)

千葉大学大学院 融合理工学府 地球環境科学専攻 リモートセンシングコース 講義

- [3]. リモートセンシング特論 II (T1&T2; FY23)
- [2]. 地球観測社会システム (分担; T4&T5; FY20, 21, 22, 23, 24, 25)
- [1]. 地球環境科学専攻特別講義 II (分担; T1&T2; FY21, 22, 24) # 隔年開催

千葉大学 工学部情報工学コース 講義

- [2]. 量子力学基礎(1) (T4&T5; FY20, 21, 22, 23, 24)
- [1]. リモートセンシング工学 (分担; T4&T5; FY19, 20, 21, 22, 23, 24, 25)

千葉大学 環境リモートセンシング研究センター 委員会 (赤字: 委員長)

- [25]. 中期計画推進, 自己点検・評価, 計算機および DB, 環境 ISO 実行, 広報, 予算, 学術推進企画小
- [24]. 中期計画推進, 自己点検・評価, 計算機および DB, 環境 ISO 実行, 広報, 予算, 学術推進企画小
- [23]. 中期計画推進, 自己点検・評価, 計算機および DB, 環境 ISO 実行, 広報, 予算, 学術推進企画小

- [22]. 中期計画推進,自己点検・評価,計算機およびDB,環境ISO実行,広報,予算,学術推進企画小
- [21]. 中期計画推進,自己点検・評価,計算機およびDB,環境ISO実行,広報,予算,学術推進企画小
- [20]. 中期計画推進,自己点検・評価,計算機およびDB,環境ISO実行,広報
- [19]. 中期計画推進,自己点検・評価

予算委員長としての活動

- ・HPリニューアル(<https://ceres.chiba-u.jp>)
- ・研究センター広報動画(<https://www.youtube.com/watch?v=-hdzeJl3QCw>)
- ・ロゴ作成(<https://ceres.chiba-u.jp/ceres/logo>)

千葉大学大学院 融合理工学府 リモートセンシングコース 委員会

- [23]. 研究推進・広報社会連携委員会
- [22]. 研究推進・広報社会連携委員会

千葉大学大学院 工学研究院

- [24]. 総務委員会

千葉大学 その他

- [23]. 千葉大学・工学研究院 リサーチ・ハブリーダー(研究院長特別補佐)
- [21, 22]. 科研費事前確認支援制度・支援教員

Appendix-B: Publications: Peer-reviewed Articles in Japanese (English)

- [16]. Saito, T., **Kotsuki, S.***, Ouyang, M. and Shiojiri, D. (2022): Improving the data-driven sparse sensor placement method for large-dimensional dynamical systems. *Ann. J. Hydraulic Engineering*, XX, XX-XX. doi: [10.2208/jscejhe.XXXX](https://doi.org/10.2208/jscejhe.XXXX) (in press)
- [15]. Fujimura, K., **Kotsuki, S.***, Yamada, M., Shiojiri, D. and Watanabe, S. (2022): Exploring appropriate inflation and localization methods to stabilize ensemble data assimilation of a rainfall-runoff-inundation mode. *Ann. J. Hydraulic Engineering*, XX, XX-XX. doi: [10.2208/jscejhe.XXXX](https://doi.org/10.2208/jscejhe.XXXX) (in press)
- [14]. Shiojiri, D., **Kotsuki, S.**, Saito, T., and Ouyang, M. (2022): Investigating effective rain gauge locations through the data-driven sparse sensor placement method. *Ann. J. Hydraulic Engineering*, XX, XX-XX. doi: [10.2208/jscejhe.XXXX](https://doi.org/10.2208/jscejhe.XXXX) (in press)
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