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ICHARM

International Centre for Water Hazard and Risk Management
under the auspices of UNESCO

Message from Executive Director

Snowy regions are 'lightful' and wet air masses are lighter

Many say that snowy regions are dark, but observations using an illuminometer tell us otherwise. In winter, the cloud-filled sky over a snowy region is actually more 'lightful' by 10 percent than the cloud-free sky in a snow-free region. True, less solar energy arrives at the land surface in snowy regions because of clouds. However, almost all energy that reaches the ground is reflected upward on the land surface and then downward on the bottom of clouds. This multiple-scattering process increases the brightness in snowy regions. In other words, a bright snowy region is a quality luminous environment created by indirect lighting from the "natural reflective ceiling and floor."

Next, let's take a look at clouds. As you know, clouds consist of 10 to 100 μm water droplets, into which water vapor condenses as it ascends from the ground to the sky. Then, don't you wonder why wet air masses, which seem heavier than the air, can keep themselves floating in the sky?

The gas law tells us the secret. It says that the same number of molecules are included in a certain volume at a certain temperature and pressure regardless of gas type. Dry air is a mixture gas of oxygen and nitrogen at a ratio of four to one. The average weight of an air molecule is 28.8 because the weights of oxygen and nitrogen molecules are 32 and 28, respectively, while a water molecule weighs 18. Let's consider an air mass with five molecules in a certain volume at a certain temperature and pressure. The weight of a perfectly dry air mass is $28.8 \times 5 = 144$. A wet air mass can be expressed by replacing dry air molecules with the same number of water molecules. If one dry air molecule is replaced with one water molecule, the weight is $28.8 \times 4 + 18 \times 1 = 132.2$. If two, $28.8 \times 3 + 18 \times 2 = 122.4$. This means that the air mass becomes lighter as it becomes wetter.

If we are willing to observe and understand water's mystique, we will be able to see an amazing world existing right before us. And as the two examples show, science can be a big help. Let's enjoy exploring the world of water through science.



Keynote Lecture at the Symposium on River & Basin
Integrated Communications, Tokyo,
December 2, 2022
河川情報シンポジウムでの基調講演
(東京、2022年12月2日)

雪国は明るく、湿った空気は軽い

雪国は暗いと言われます。しかし冬に、一面雲で覆われた雪国の空と、雪のない地域の晴天日の空を照度計で測って比較しますと、雪国のほうが1割程度明るいのです。雪国では雲が広がりやすいために地表に届く太陽光は減りますが、届いた光のほとんどが雪面で反射され、それがまた雲の底面で反射され、光が多重に反射しあう光環境ができるからということが分かりました。つまり雪国は、壁や天井、床を間接光で明るくした良好な光環境ということができます。

その雲は、地表付近の湿った空気が増して、上空で凝結して10~100ミクロンメートルの水滴になったものです。ところで、湿った空気は重いはずなのになぜ上空に昇っていくのか、不思議に思われませんか？

気体はその種類に抛らず、一定の気温、気圧であれば、一定の体積に含まれる気体分子の数は気体の種類によらず、同じという法則があります。乾いた空気は酸素と窒素が1対4の割合で混ざった気体で、酸素の重さは32、窒素の重さは28ですから、乾いた空気分子の重さは28.8となります。一方水は水素2個と酸素1個が結合したものですので水分子の重さは18になります。ある容器に5個の気体分子があったと考えましょう。完全な乾燥空気の場合の重さは $28.8 \times 5 = 144$ となります。これを気温、気圧を変えずに少し湿った空気にします。つまり5個の乾燥空気分子の1つを水分子に置き換えます。そうすると乾燥空気分子4、水分子1となり、重さは $28.8 \times 4 + 18 \times 1 = 132.2$ となります。さらに湿った場合を考え、乾燥空気分子3、水分子2としますと、重さは $28.8 \times 3 + 18 \times 2 = 122.4$ となります。このように、空気は湿れば湿るほど軽くなるのです。

水的神秘性を素直に観ることができれば、違った世界が広がるかも知れません。科学を通して、水の不思議を楽しんでみませんか。

January 31, 2023

KOIKE Toshio

Executive Director of ICHARM

Special Topics

3. The 9th International Conference on Flood Management (ICFM9) / 第9回洪水管理国際会議 (ICFM9) 開催のお知らせ
5. Executive Director received the AGU Ambassador Award / 小池俊雄センター長がアメリカ惑星科学連合アンバサダー賞を受賞

Research

6. HyDEPP-SATREPS Philippines Project Activity Report: The 3rd Joint Coordinating Committee in Manila and Training in Japan / HyDEPP-SATREPS フィリピンプロジェクト活動報告：マニラでの第3回合同調整会議の開催と訪日研修の実施
7. UPLB's IdSCW First International Conference on Interdisciplinary Water Studies
8. Training on Emergency Response for Local Government Officers by using "Collection of Critical Situations during Flood Emergency Response" / 水害対応ヒヤリ・ハット事例集を活用した地方自治体職員向けの研修
9. Introduction of ICHARM research projects / 研究紹介
Abdul Wahid Mohamed RASMY, Senior Researcher [Developing a system for the integrated management of water resources and disasters in poorly gauged basins] / アブドウル ワヒド モハメッド ラスミー主任研究員「Developing a system for the integrated management of water resources and disasters in poorly gauged basins」

Training & Education

11. Educational program updates / 研修活動報告
13. Comments from new doctoral course students / 博士課程 新入学生からのコメント
14. Comments from new master's program students / 修士課程 新入学生からのコメント
17. Action Reports from ICHARM Graduates
Norain Binti Osman, Senior Civil Engineer, Malaysia Public Work Department, PWD (Jabatan Kerja Raya Malaysia)
18. Hands-on training on RRI in JICA short-term training / 短期研修でのRRIハンズオントレーニング

Information Networking

19. The 69th ICHARM R&D Seminar / 第69回 ICHARM R&D セミナーの開催
19. The 11th Annual Meeting of Working Group on Hydrology, ESCAP/WMO Typhoon Committee / 第11回台風委員会水文部会の年次会合開催
20. The 1st face-to-face meeting of WMO RA II Coordination Panel for Hydrology / 世界気象機関 (WMO) アジア地区水文調整パネル第1回会合
21. Participation in the stakeholder consultation meeting and preparatory meeting of UN 2023 Water Conference / 国連水会議のステークホルダー協議会合、準備会合に参画

Public Relations

22. ICHARM welcomed young visitors from Miyagi Prefecture Tagajo High School / 宮城県多賀城高校ご訪問

Field Survey

23. A field survey in Thailand / タイにおける現地調査等の報告

Miscellaneous

24. Comments from internship students / インターン生からのコメント
25. Awards / 受賞リスト
25. Business trips / 海外出張リスト
25. Visitors / 訪問者リスト
26. Publications / 発表論文リスト

Editor's Note / 編集後記**Request to participate in online survey on ICHARM Newsletter****ICCHARMニュースレター読者アンケートのお願い**

ICCHARMでは、2006年3月の設立以降、最新の動向をお知らせする「ICCHARMニュースレター」を、年4回発行しています。

ついでには、一層の内容の充実を図るべく、読者の皆様にアンケートをさせて頂きたく以下のサイトにアクセス頂き、アンケートにお答え頂ければ幸いです。

<https://forms.gle/gGVQY3APPxpWw1sM8>

回答期限：2023年4月27日まで

回答時間（目安）：5分程度

Thank you for subscribing ICHARM Newsletter. ICHARM has been publishing the quarterly newsletter since its establishment in March 2006 to deliver the latest news about research, projects and other activities to readers around the world. As we are currently working on the improvement of the newsletter, we would be grateful if you could spare time to answer the following questions and let us hear your voices about our publication.

Survey posted at: <https://forms.gle/gGVQY3APPxpWw1sM8>

Survey to be done by: April 27, 2023

Time required: about 5 minutes

Special Topics

The 9th International Conference on Flood Management (ICFM9)

第9回洪水管理国際会議 (ICFM9) 開催のお知らせ

The International Conference on Flood Management (ICFM) is held every three years to discuss a wide range of flood-related issues and achieve significant academic and cross-disciplinary changes. The conference is an active forum for engineers, planners, natural and social scientists, health professionals, disaster managers, decision-makers, policymakers, and other researchers and practitioners to come together from around the world and share the latest findings, information, and experiences. It has been an excellent opportunity for people involved in flood management to learn the current status of water infrastructure systems in each country, get to know fellow experts in other countries, and actively participate in the co-creation of wisdom. Holding an ICFM in Japan will be the first time in 12 years since ICFM5 took place in Tokyo in 2011.



Under its grand theme, "River Basin Disaster Resilience and Sustainability by All: Integrated Flood Management in the Post-Corona Era," ICFM9 plans presentations and discussions on important issues to be addressed in the post-corona era, including how to rebuild a flood-sensitive society and how to shift the current flood management to comprehensive and multi-layered water-related disaster risk reduction that combines hard and soft measures and takes climate change into account.

<Schedule>

Saturday, February 18

Event: High-level Symposium on Integrated Flood Management in the post-COVID-19 era

Venue: National Graduate Institute for Policy Studies (GRIPS), Minato-ku, Tokyo

Sunday, February 19 - Tuesday, February 21

Events: Opening and closing ceremonies, plenary sessions, parallel sessions, special sessions, etc.

Venue: Tsukuba International Congress Center, Tsukuba City, Ibaraki Prefecture

Admission: Paid admission to the events

<Plenary sessions>

The plenary sessions have keynote addresses and discussions on the following four themes:

- Plenary 1: Concerted Actions towards a Resilient, Sustainable and Inclusive Society
- Plenary 2: Integrated Flood Management
- Plenary 3: Adaptation to Changes
- Plenary 4: River Basin Disaster Resilience and Sustainability by All –Showcases–

<Parallel sessions>

Twenty-four parallel sessions are scheduled over the two days, covering 10 broad themes on flood management, including "Data Integration, Modeling, and Early Warning" and "Education for Effective Flood Management."

<Special session>

The following five special sessions will be held for unique themes that are not discussed in the parallel sessions, such as cross-disciplinary or region-specific themes.

- How to Use New Climate Events in Flood Risk Analyses
- SATREPS Project between Japan and Philippines toward Climate Resilience
- Global Flood Monitoring and Modeling
- Toward Quality-oriented Societies in Asia through the Actions for Water-related Disasters Risk Reduction and Climate Resilience by All in the River Basins of Asia
- Establishing Network focusing on Flash Flood Disaster: Comparison between

洪水管理国際会議 (ICFM) は3年ごとに開催され、洪水に関する様々な問題を議論し、学術的・分野横断的に重要な変化を実現することを目的としています。本会議には、世界各国のエンジニア、プランナー、自然科学者、社会学者、健康専門家、災害管理者、意思決定者、政策立案者など、様々な研究者や実務者が一堂に会し、最新の知見・情報・経験を共有する場として、活発な活動を行っています。本会議は各国の水インフラシステムの現状や実務関係者を把握するとともに、知恵を生み出す“共創の場”として大変有意義な絶好の機会となります。日本での開催は、第5回(2011年東京)以降、12年ぶりとなります。

ICFM9では、“River Basin Disaster Resilience and Sustainability by all ~ポストコロナ時代の統合洪水管理~”を大きなテーマとし、コロナ後の社会において、洪水に配慮した社会の再構築や、ハードおよびソフト対策を組み合わせ、気候変動を考慮した包括的かつ多層的な水災害リスク軽減に転換をどのように行うかなどに関して、発表および議論が行われる予定です。

<全体スケジュール>

〇2月18日(土)

[場所: 政策研究大学院大学 (東京都港区)]

High-level Symposium on "Integrated Flood Management in the post-COVID-19 era"

〇2月19日(日) -21日(火)

[場所: つくば国際会議場 (茨城県つくば市)]

開閉会式・全体会議・分科会・特別セッションなど

(参加費: 有料)

<全体会議>

全体会議は、4つのテーマにて基調講演や議論が行われます。

<分科会>

洪水管理に関し、「データ統合・モデリング・早期警報」や「効果的な洪水管理のための教育」など幅広く設定された10のテーマに沿って、2日間で24の分科会が予定されています。

<特別セッション>

上記10のテーマにとどまらない、分野横断的なテーマや特定の地域を対象とするなど、ユニークなテーマを対象とした、5つの特別セッションを開催します。

<ブース展示>

ICFM9へは洪水災害被害軽減に関心を持つ国内外からの参加者が多く見込まれることから、各企業・団体による技術展示ブースを設置します。各企業等の皆様が持つ優れた技

術や知見を知る絶好の機会となります。

既にオンラインでの事前登録は終了していますが、会場での当日登録も可能です。

詳細なプログラムは公式サイト (<https://icfm9.jp/index.html>) をご覧ください。

MENA and Asia (JSPS WaFFNet Project)

<Booth exhibition>

Since ICFM9 is expected to attract many participants from Japan and abroad who are interested in flood disaster risk reduction, companies and organizations will put up a booth to exhibit their technologies. This will be a great opportunity to learn about the excellent technologies and knowledge that each company and organization has to offer.

Participating companies and organizations (subject to change):

1. Asia Air Survey Co., Ltd. (アジア航測)
2. Mitsui Consultants Co., Ltd. (三井共同建設コンサルタント)
3. CTI Engineering Co., Ltd. (建設技術研究所)
4. NTT DATA
5. Yachiyo Engineering Co., Ltd. (八千代エンジニアリング)
6. Japan Bosai Platform (日本防災プラットフォーム)
7. NEXUS EC SDN BHD
8. Hitachi Power Solutions (日立パワーソリューションズ)

Online pre-registration has already been closed, but you can still register for the conference on sight.

For a detailed program, please visit the ICFM9 official website at <https://icfm9.jp/index.html>.

一般公開シンポジウム 「君は想定外の洪水から生き残れるか e-sports@KasenBousai ~」 のお知らせ

ICHARM では、ICFM9 における一般公開シンポジウムとして「君は想定外の洪水から生き残れるか～e-sports@KasenBousai～」を以下の要領で開催します。

特に本シンポジウムでの挑戦的な取り組みとして、つくば近郊の中学校・高校・大学の学生による、洪水疑似体験システムを活用したグループ対戦型競技会を開催します。競技会では、洪水時の情報収集やマイ・タイムラインなどに関する事前学習を行った各校の代表者が、仮想空間上のアバターを操作し、いかに防災情報を集めてうまく避難できるかを競います。

また、水問題に関する世界の第一人者である東京大学 沖大幹教授による基調講演も行います。

皆様の参加をお待ちしております。

タイトル: 「君は想定外の洪水から生き残れるか～e-sports@Kasen Bousai～」

日時: 2月19日(日) 13:30-15:30

場所: つくば国際会議場 (エポカルつくば) (茨城県つくば市竹園)

プログラム: (変更になる場合があります。)

【基調講演】

東京大学工学系研究科 沖大幹 教授
(東京大学総長特別参与、
国際連合大学上級副学長、
国際連合事務次長補)

「国内外の気候変動問題について」(仮)

【洪水に関する取組紹介】

A public symposium to be held during ICFM9

“Can You Survive an Unexpected Flood? e-sports@KasenBousai”

ICHARM will host a public symposium, “Can You Survive an Unexpected Flood? e-sports@KasenBousai,” during ICFM9.

What is particularly unique about this symposium is that it includes an e-sports event. Students from junior high schools, high schools, and universities in and around the Tsukuba area will meet in a group competition using a virtual flood experience system. They will study beforehand how to gather flood-related information and “My Timeline,” a personal list of desired actions in case of a flood, recommended by the Japanese government to prepare for potential floods. On the event day, they will compete on how well they can gather necessary information and complete evacuation safely while maneuvering an avatar in a virtual flood situation.

The symposium will also feature a keynote speech by Professor OKI Taikan of The University of Tokyo, one of the world’s leading experts on water issues.

We hope many people will join us on this fascinating occasion.

Title: Can You Survive an Unexpected Flood? e-sports@KasenBousai

Time & Date: 13:30-15:30, Sunday, February 19

Venue: Tsukuba International Congress Center (Epochal Tsukuba)
Takezono, Tsukuba City, Ibaraki Prefecture

Program (subject to change):

1. Keynote speech:

Title: Climate change issues in Japan and overseas

Speaker: OKI Taikan

Professor, Graduate School of Engineering, The University of Tokyo
Special Advisor to the President, The University of Tokyo
Senior Vice-Rector, United Nations University, Japan
Assistant Secretary-General, United Nations



2. Presentations:

ICHARM

- Development of a water level forecasting system and a flood analysis system
- Development of a virtual flood experience system

Ministry of Land, Infrastructure, Transport and Tourism

- "My Timeline": Prepare a personal list of actions for future flood events

3. Special event:

e-sports@KasenBosai

Fee: Admission free

Language: Japanese

Note: Pre-registration is required. Sign up via the address or QR code below by Wednesday, February 15.

<https://forms.gle/h8H5uxA9SuP7vcR2A>

< ICHARM による研究 >

- 水位予測システムおよび氾濫解析システムの開発

- 疑似洪水体験システムの開発

< 国土交通省による取組 >

- マイ・タイムライン

【水防災競技会**～ e-sports@KasenBosai ～】**

費用：無料

言語：日本語のみ

その他：事前の登録が必要です。下記アドレスから登録ください。

(締切：2月15日(水))

<https://forms.gle/h8H5uxA9SuP7vcR2A>

(Written by KURIBAYASHI Daisuke)

Executive Director received the AGU Ambassador Award**小池俊雄センター長がアメリカ惑星科学連合アンバサダー賞を受賞**

ICHARM Executive Director KOIKE Toshio was presented with the American Geophysical Union (AGU) Ambassador Award at the Honors Ceremony of the AGU Fall Meeting 2022, held on December 14 in Chicago, USA. Every year, an awardee is selected for their outstanding contributions to social impact, service to the Earth and space community, scientific leadership, and promotion of talent/career pool. This year, the AGU recognized his lifetime commitment to scientific developments. They include, among others, his scientific achievements, such as the development of an integrated hydrological modeling system with emphasis on energy and CO₂ fluxes and soil moisture distribution, and his leadership in a research initiative of the World Climate Research Program's (WCRP) Global Energy and Water Cycle Experiment (GEWEX) and in shaping international programs, such as the Sendai Framework for Action on Disaster Risk Reduction and the intergovernmental Group on Earth Observations (GEO). In addition to scientific activities, his dedication to providing training for new-generation scientists in many developing countries, including Bangladesh, Pakistan, and the Philippines, was recognized with the AGU Ambassador Award.

ICHARMの小池俊雄センター長が、2022年12月14日米国シカゴにて開催されたアメリカ惑星科学連合フォーラムミーティング2022 (AGU Fall Meeting 2022)にて、AGUアンバサダー賞を受賞しました。この賞は毎年、社会貢献、地球・宇宙科学コミュニティへの貢献、科学的リーダーシップ、及び次世代の育成に大きく寄与した方に授与されるものであり、今回の表彰は小池センター長の長年にわたる科学の発展への寄与をAGUが認識した形となります。その例として、エネルギー、CO₂及び土壌水分分布に重きを置いた統合水文モデルシステムの開発、世界気候研究計画(WCRP)の全球エネルギー・水循環実験(GEWEX)をはじめとする研究イニシアティブにおけるリーダーシップ、及び仙台防災枠組や地球観測に関する政府間会合(GEO)等の国際プログラムにおけるリーダーシップが挙げられます。また、これら科学分野における貢献の他、バングラデシュ、パキスタン、フィリピン等の開発途上国における次世代研究者の育成への献身もアンバサダー賞受賞の理由となっています。

Scenes from the Honors Ceremony
授賞式の様子

(Written by NAITO Kensuke)

Research

HyDEPP-SATREPS Philippines Project Activity Report: The 3rd Joint Coordinating Committee in Manila and Training in Japan

HyDEPP-SATREPS フィリピンプロジェクト活動報告：マニラでの第3回合同調整会議の開催と訪日研修の実施

ICHARMは「地球規模課題対応国際科学技術協力プログラム(SATREPS)」に基づくフィリピンとの共同研究プロジェクト「気候変動下での持続的な地域経済発展への政策立案のためのハイブリッド型水災害リスク評価の活用(略称:HyDEPP-SATREPS)」の日本側代表実施機関として、2021年6月のキックオフ会議以降、日比両国の共同研究機関とともに様々な活動を行っています。

2022年11月16日に、マニラ首都圏ケソン市内にて、日比両国の各研究機関代表者による第3回合同調整会議(JCC)を開催しました。合同調整会議は半年に一度、開催していますが、コロナ禍による現地渡航の自粛のため、キックオフ会議、第1回・第2回合同調整会議ともに、オンライン形式で開催してきました。今回の第3回合同調整会議は、対面での初めての開催になるとともに、参加した日本側メンバーにとっても2019年9月以来の約3年ぶりの現地渡航となりました。合同調整会議では、各研究グループより研究の進捗について報告があり、例えば、2022年9月の台風Kardingによる浸水について、マニラ首都圏北部のパンプンガ川流域にて運用中のRRIモデルを用いた洪水監視システムが浸水を検知することができた旨の報告がありました。また、合同調整会議の前後には、4つの連携機関への訪問も行い、対面により充実した議論を行いこともできました。

2022年11月27日から12月10日にかけて、フィリピン側のプロジェクトメンバー14人を日本に招聘し、洪水リスク評価・管理技術をテーマとした訪日研修を行いました。第1週目はICHARMに滞在してもらい、日本側メンバーからの技術紹介や意見交換を行うとともに、鬼怒川や鶴見川等の洪水管理についての現地視察を行いました。第2週目は京都・滋賀に移動し、琵琶湖や支川の洪水管理や琵琶湖疎水についての現地視察を行うとともに、滋賀県立大学や滋賀県琵琶湖環境科学研究センター、京都大学の日本側メンバーを訪問し、対面での意見交換を行いました。本プロジェクトで対象とするマニラ首都圏南部のパッシング・マリキナ川・ラグナ湖流域に位置するラグナ湖は、琵琶湖の約1.3倍の面積を有するフィリピン最大の湖です。琵琶湖の洪水管理技術だけでなく、環境・水利用など様々な側面に関しても、訪日研修参加者との議論を行うことができました。また、ラグナ湖の西岸地域は近年、急速に都市化しつつあるため、特に、鶴見

The Project for Development of a Hybrid Water-Related Disaster Risk Assessment Technology for Sustainable Local Economic Development Policy under Climate Change in the Republic of the Philippines (HyDEPP-SATREPS) is a joint research project between Japan and the Philippines under the Science and Technology Research Partnership for Sustainable Development (SATREPS). Since the kick-off of the project in June 2021, ICHARM and collaborative institutions, both in Japan and the Philippines, have been conducting various activities.

On November 16, 2022, the 3rd Joint Coordinating Committee (JCC) was held in Quezon City, Metro Manila, with representatives from research organizations of the two countries. The JCC has so far met every six months. However, since the kick-off and the 1st and 2nd JCC meetings were held online due to travel restrictions under the COVID-19 pandemic, the 3rd JCC was the first face-to-face meeting since the project started. Japanese research members visited the Philippines for the first time in three years since September 2019. At the JCC, each research group reported on the progress of their assignments. For example, one group explained that the flood monitoring system using the RRI model in operation in the Pampanga River basin in the northern part of Metro Manila successfully detected the flooding caused by Typhoon Karding in September 2022. Before and after the meeting, the Japanese members also visited four cooperating government organizations and had fruitful face-to-face discussions.

From November 27 to December 10, 2022, 14 project members from the Philippines were invited to Japan as part of training on flood risk assessment and management technology. During the first week, they attended meetings at ICHARM, where the Japanese members explained the technologies they had been working on and exchanged ideas and opinions with their Filipino counterparts.

The invited members also took field trips to the Kinugawa River, the Tsurumi River, and other relevant sites. Since the western shore of Lake Laguna, a project site, has been rapidly urbanized in recent years, the Filipino members showed great interest particularly in flood risk management technologies implemented in the Tsurumi River basin as potential measures to cope with the urbanization.

In the second week, the Filipino project team moved to the Kyoto and Shiga area to see flood management in Lake Biwa and its tributaries, including the Lake Biwa Canal. They also met the Japanese project members of the University of Shiga Prefecture,



Photo 1 At the 3rd JCC meeting in Manila
写真1 マニラでの第3回合同調整の集合写真



Photo 2 With participants of training in Japan in front of the ICHARM building
写真2 訪日研修メンバーとの ICHARM 建物前での集合写真

the Lake Biwa Environmental Research Institute, and Kyoto University for face-to-face discussions. Since Laguna Lake, the largest lake in the Philippines with an area approximately 1.3 times larger than Lake Biwa, is part of the project area, the Pasig-Marikina River and Laguna Lake Basin in the southern part of Metro Manila, the project members of both countries were able to discuss not only flood management technologies used in Lake Biwa but also various aspects of the lake, such as its environment and water use.



Photo 3 On the building top overlooking the Tsurumi River basin
写真3 鶴見川流域の現地視察

As the pandemic-related restrictions had been virtually lifted, project members could finally meet their partners for the first time at the meeting in Manila or the training in Japan. These occasions were valuable opportunities for both project teams to deepen the cooperative relationship.

(Written by OHARA Miho)

川流域における都市化に対応した洪水リスク管理技術に対しては、大きな関心が寄せられました。

コロナ禍を経て、マニラでの合同調整会議や訪日研修の機会に、初めて対面で顔を合わせたプロジェクトメンバーも多く、両国の連携を深める貴重な機会となりました。

UPLB's IdSCW First International Conference on Interdisciplinary Water Studies

The University of the Philippines Los Baños (UPLB) Interdisciplinary Studies Center for Water (IdSCW), which conducts a collaborative 5-year SATREPS project with ICHARM, held the first International Conference on Interdisciplinary Water Studies termed "iWatCon 2022" on November 10 and 11, 2022, under the theme of "REIMAGINING WATER FUTURE: Connecting the Visible and Invisible." This 2-day online conference was attended by more than 120 participants, with Executive Director of ICHARM KOIKE Toshio as the keynote speaker.

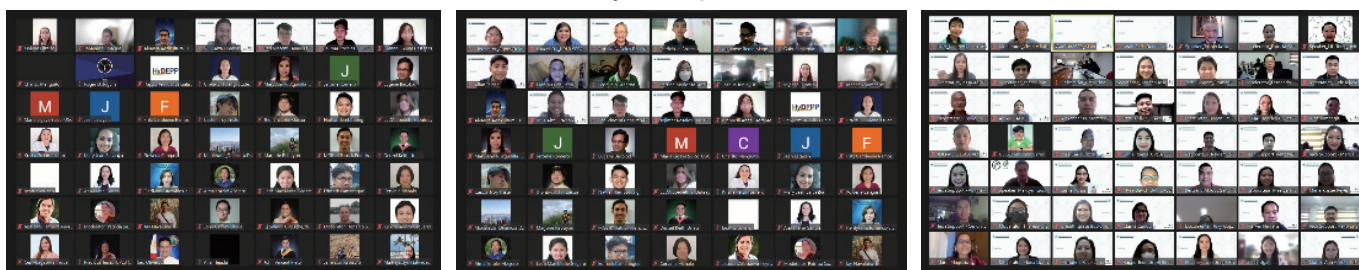


Figure 1 iWatCon 2022 Online

In his keynote address, the executive director discussed the water cycle consilience, a concept highly relevant to the conference theme. It is about the integration of observations and models and stresses that the key to understanding the mechanism and relationship between phenomena occurring at different places and time is data integration and analysis, after which the results should be shared among communities worldwide. This translates to an output of science that should be used in making evidence-based decisions. He cited some examples of a water cycle consilience framework that can connect the visible and the invisible: for instance, groundwater variation using satellite data; the coupled data assimilation of a land surface model and a dynamic vegetation model; and the three-month prediction in the seasonal production of wheat in Morocco, Algeria, and Tunisia. This water cycle consilience as a framework may lead the participants and organizers of its advocacy to take conscious transformative steps in having sustainable projects and programs that will be very useful in achieving evidence-based policies and decisions.

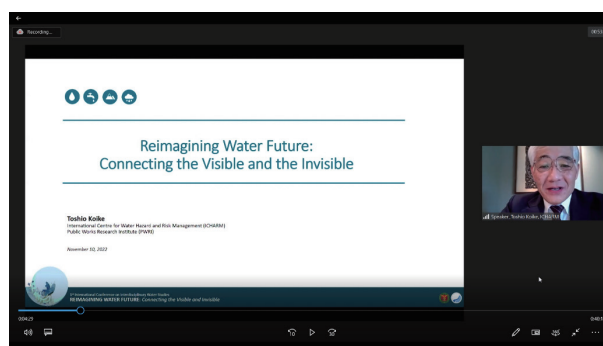


Figure2: Executive Director Koike delivering his keynote address at iWatCon 2022 participants

(Written by Ballaran, Vicente Jr. G.)

Training on Emergency Response for Local Government Officers by using “Collection of Critical Situations during Flood Emergency Response”

水害対応ヒヤリ・ハット事例集を活用した地方自治体職員向けの研修

ICHARM では、地方自治体の災害対応力の向上を目指して、2020年6月から、「水害対応ヒヤリ・ハット事例集」をホームページで公開しています。この事例集は、水害対応において、職員が「困る・焦る・戸惑う・迷う・悩む」などの状況に陥る事例を「水害対応ヒヤリ・ハット事例」として新たに定義し、地方自治体が公表している過去の水害での災害対応検証報告書などからこれらの事例を抽出し、冊子「地方自治体編」として取りまとめたものです (https://www.pwri.go.jp/icharm/special/topic/20200625_flood_response_collection_j.html)。

事例集の公表後、依頼に応じて、本事例集に関する講演や研修の提供も行っています。2022年は、6月1日に消防庁主催の全国防災・危機管理トップセミナーにて市区長向けに講演を行った他、1月14日に内閣府防災スペシャリスト養成研修の鳥取県主催の地域研修、12月27日に一般財団法人消防防災科学センター主催の市町村職員防災連続講座においても講演を行いました。また、2月9日に熊本県庁、7月14日に埼玉県狭山市役所、10月18日に愛媛県西条市役所の職員向けに、研修を行いました。

2023年は、1月19日に一般財団法人全国建設研修センター研修にて研修を担当している他、引き続き、依頼に応じて研修を提供していく予定です。

ICHARM published a booklet entitled “Collection of Critical Situations during Flood Emergency Response” on its homepage in June 2020, aiming to improve the emergency response capacities of local governments and promote more effective management of flood disasters. Defining critical situations as ones in which local government officers panic, do not know what to do, cannot make a decision, are confused, struggle in dilemma, etc., during an emergency response effort, this collection introduces typical critical situations from the review reports of past flood disasters. (https://www.pwri.go.jp/icharm/special_topic/20200625_flood_response_collection_e.html).



Collection of Critical Situation during Flood Emergency Response (Main Content: local government response)
水災害対応ヒヤリ・ハット事例集（地方自治体編）

Since its publication, ICHARM has been providing lectures and training on emergency response based on the collection. In 2022, we offered them on various occasions, such as a seminar on disaster prevention and crisis management for municipal mayors held by the Fire and Disaster Management Agency of Japan on June 1, regional training for DRR specialists in Tottori Prefecture by the Cabinet Office on January 14, part of a training program for municipal officers by the Institute of Scientific Approaches for Fire and Disaster on December 27.



Training session at Saijo City Hall in Ehime Prefecture
愛媛県西条市役所での研修の様子

We also provided training for the officials of the Kumamoto Prefectural Government on February 9, the Sayama City Office in Saitama Prefecture on July 14, and Saijo City Office in Ehime Prefecture on October 18.

In 2023, we conducted training at the Japan Construction Training Center on January 19 and will continue to offer such opportunities upon request.

(Written by OHARA Miho)

Introduction of ICHARM research projects / 研究紹介

ICHARM sets three principal areas of activity: research, capacity building, and information network. It plans and implements projects in these areas in order to fulfill its mission, always keeping in mind "localism", a principle with which we respect local diversity of natural, social and cultural conditions, being sensitive to local needs, priorities, development stage, etc., within the context of global and regional experiences and trends of disasters.

At present, ICHARM conducts innovative research in the following five major areas:

- (1) Data collection, storage, sharing, and statistics on water related disasters
- (2) Risk assessment on water related disasters
- (3) Monitoring and prediction of changes in water related disaster risk
- (4) Proposal, evaluation and application of policy ideas for water related disaster risk reduction
- (5) Support in constructing the applicability of water-related disaster management

This issue introduces a researcher as listed below:

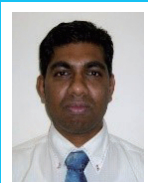
Abdul Wahid Mohamed Rasmy, Senior Researcher

Developing a system for the integrated management of water resources and disasters in poorly gauged basins

ICHARMは、その使命を果たすため、世界及び地域での災害の傾向及び経験と災害対応に関する地域のニーズ、重要課題、開発段階等を踏まえつつ、自然、社会及び文化といった地域の多様性を考慮する原則というローカリズムを念頭に、研究、能力育成及び情報ネットワーク構築の3本柱を有機的に連携させて、現地実践活動を実施しています。

そのうち、研究としては

- (1) 水災害データの収集、保存、共有、統計化
 - (2) 水災害リスクのアセスメント
 - (3) 水災害リスクの変化のモニタリングと予測
 - (4) 水災害リスク軽減の政策事例の提示、評価と適用支援
 - (5) 防災・減災の実践力の向上支援
- の5つの柱のもと、革新的な研究活動を行っています。
- 本号では、アブドゥルワヒドモハメッドラスミー主任研究員の「Developing a system for the integrated management of water resources and disasters in poorly gauged basins」を紹介いたします。



Developing a system for the integrated management of water resources and disasters in poorly gauged basins

Abdul Wahid Mohamed Rasmy, Senior Researcher
アブドゥル ワヒド モハメッド ラスミー 主任研究員

I have been working with ICHARM since 2015, and my activities at ICHARM are aligned with ICHARM's three pillars (i.e., research, education and capacity building, and information networking). My research is in the field of water and sustainability in a changing climate. Hence, my major research contributions have been achieved in the field of satellite rainfall estimation, ensemble flow forecasting, and climate change impact assessment, as well as the development of an advanced hydrological model for seamless modeling to address various water-related issues (i.e., flood, drought, and water availability) under a changing climate. Presently, I am working on the development of a system for the integrated management of water resources and disasters in line with the mid- to long-term plan of ICHARM (2022-2027) (i.e., developing a highly reliable technology) by integrating multi-platform data, various state-of-the-art models, and other technologies (Fig. 1) to support and implement the three major global agendas (i.e., Sendai Framework on Disaster Risk Reduction, Paris Agreement on Climate Change, and Sustainable Development Goals) by obtaining evidence-based information for the effective management of water resources and water-related disasters under a changing climate in poorly gauged basins around the world.

As shown in Fig. 1, the system for the integrated management of water resources and disasters is based on the following two major ongoing research activities at ICHARM:

1. Generating reliable distributed rainfall data in poorly gauged basins:

Real-time or near-real-time rainfall data with high spatial and temporal resolutions are a prerequisite for effective water and disaster management. However, since they are rarely available for most river basins, freely-available global satellite precipitation products (SPPs) are alternatively used thanks to recent technological advancement. ICHARM has continuously collaborated with JAXA to maximize near-real-time SPPs for effective water resources management in poorly gauged basins. As SPPs are subjected to various errors, information from ground gauges is incorporated to improve the quality of SPPs in hydrological applications. ICHARM has investigated and proposed a network design method for finding a threshold and configurations necessary for effective bias correction of SPPs and flood infrastructure investment (Zhou et al., 2022). A rainfall climatology map derived from SPPs can also alternatively be used for finding the gauge threshold and its configurations to guide smart investment in poorly gauged basins in order to establish rainfall observation infrastructure and merge real-time ground data with real-time SPPs to produce superior rainfall products for the effective basin-wide management of water resources and water-related disasters.

2. Development and application of a hydrology and crop/vegetation coupled model:

Distributed Hydrological Models (DHMs) with the capability of simulating catchment-scale water and energy budgets

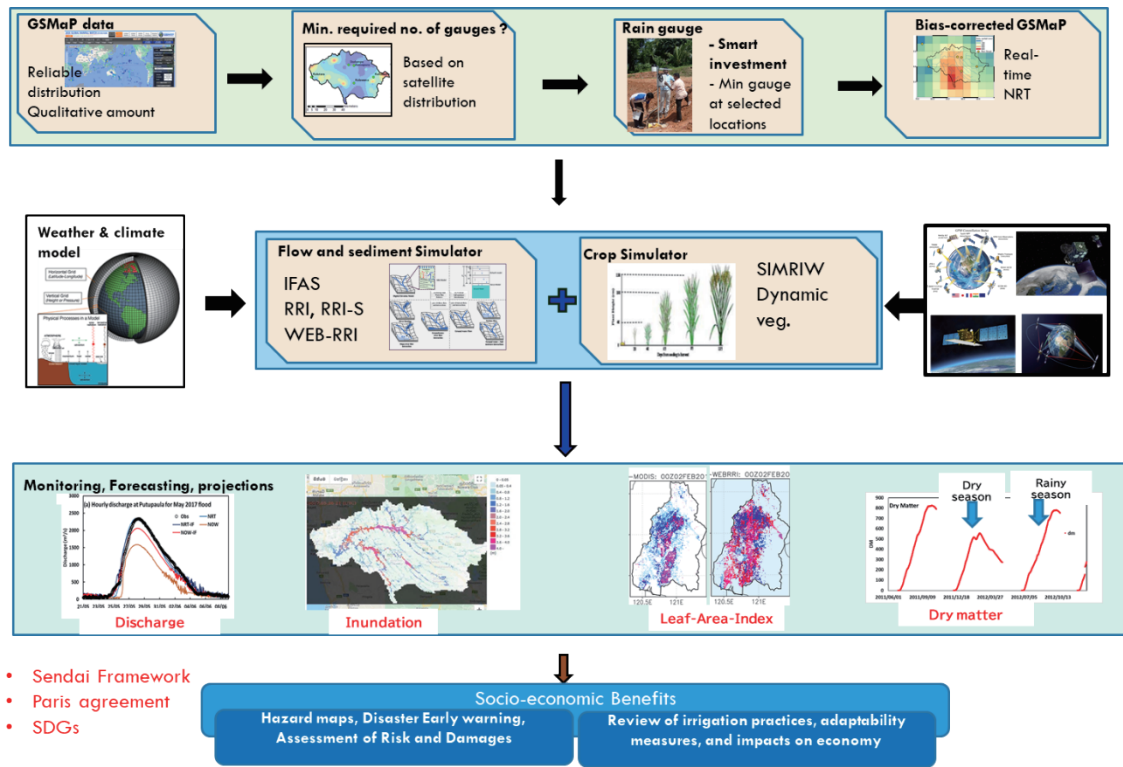


Fig. 1. A system for the integrated management of water resources and disasters in poorly gauged basins

and rainfall-runoff-inundation processes are essential tools for the Integrated Water Resource Management (IWRM) and Water-related Disaster Risk Reduction (WDRR) under a changing climate. ICHARM’s RRI model mainly considers the conservation of water balance and ignores several important physical processes, which can be sources of uncertainties. ICHARM has developed the Water and Energy Budget-based RRI (WEB-RRI) model to improve interception, evapotranspiration (ET), infiltration, runoff, and inundation processes, thereby improving the accuracy of low-flow estimation, flood onset timing, peak flood discharge, and inundation characteristics (Rasmy et al., 2019). Notably, it is compatible with various input variables produced from multiple data sources such as satellites, re-analyses, in-situ data, and GCM projections for long-term seamless simulations of past and future climates. The model has been applied to several projects led by ICHARM/PWRI, such as flood forecasting and climate change impact assessments, in different parts of the world. To expand the model applicability and simulate vegetation growth and crop yield, the WEB-RRI model was coupled with the dynamic vegetation model (Sawada and Koike, 2014) and the Simulation of Weather Rice – SIMRIW (Homma et al., 2017). The applicability of the coupled model is currently under verification in the Pampanga River basin of the Philippines and the Solo River basin of Indonesia. By applying the coupled model with various forcing data (e.g., real-time and long-term predictions and climate projection data), the system can generate very useful socio-economic information for different purposes (e.g., hazard maps, disaster early warning, assessment of risk and damage, review of irrigation practices, evaluation of adaptation measures, and assessment of impacts on the economy) to support and implement the three major global agendas.

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Training & Education

<https://facebook.com/icharmtrainingcourse/>



Educational program updates

研修活動報告

Since 2007, ICHARM, in cooperation with the Japan International Cooperation Agency (JICA) and the National Graduate Institute for Policy Studies (GRIPS), has provided a master's program, "Water-related Disaster Management Course, Disaster Management Policy Program (JICA Knowledge CO-Creation Program on "Flood Disaster Risk Reduction)," mainly designed for foreign government officers to obtain a degree in one year. The students learned theories and practices in the first half from October to March and work on their theses in the second half from April to August. The program started its 16th year, welcoming 13 new students on September 30, 2022.

●Opening ceremony

On September 30, the 16th opening ceremony of the master's course for the academic year 2022 was held at the ICHARM auditorium. Deputy Director General of JICA Tsukuba SHIBATA Kazunao, GRIPS Professor SUGAHARA Masaru, PWRI President FUJITA Koichi, and other executives attended the ceremony and gave a warm welcome speech to the students. Ms. RANAPURA DEWAGE of Sri Lanka also delivered an address on behalf of the students.

●Lectures

<Special lectures >

ICHARM occasionally invites experts in water-related fields and holds special lecture sessions for master's and doctoral students and ICHARM researchers to update themselves with the latest knowledge and findings and deepen their insights and understanding in their research areas.

On October 4, ICHARM invited Dr. Zhongbo Su, a professor at the University of Twente in the Netherlands, to give a special lecture. He is one of the world's foremost experts on remote sensing and modeling of hydrological processes and climate data and information. It was an extremely valuable opportunity for newly enrolled master's students to start their one-year program.

On the same day, Professor Emeritus of the University of Yamanashi TAKEUCHI Kuniyoshi also gave a special lecture on NINOMIYA Sontoku, Japan's famous social reformer in the 19th century. He restored many towns and villages devastated by floods and famines using his extensive agricultural knowledge, civil engineering talent, and unique administrative skills. The students learned how the spirit of Sontoku has been inherited in ICHARM's mission of "Localism and Empowerment."

The following day, they visited the Ninomiyasontoku Museum in Moka City, Tochigi Prefecture. The students learned a lot from museum staff and Professor Emeritus TAKEUCHI, as well as from leaflets and other documents, about Sontoku and his accomplishments, including his four teachings: "Act sincerely to others," "Work hard to repay for the virtue of others," "Keep the living standard within your income," and "Invest the residuals for the future."

<Intensive Lectures by GRIPS>

For about two weeks from November 8, students attended intensive lectures hosted by GRIPS together with the students of the International Institute of Seismology and Earthquake Engineering (IISEE) of the Building Research Institute (BRI) and Japanese students from other institutions. The lectures were mainly conducted online. Each

ICHARM では、2007年以降、(独)国際協力機構(JICA)及び政策研究大学院大学(GRIPS)と連携して、主に外国人行政職員を対象として、約1年間で学位を取得できる修士課程「防災政策プログラム水災害リスクマネジメントコース」(JICA研修「洪水防災」)を実施しています。例年、10月から翌年3月までの6カ月は主に講義や演習が行われ、4月から8月にかけて学生は論文執筆に取り組みます。

今年度は第16年目を迎え、2022年9月30日より新たに13名の修士学生が本コースに参加しております。

●第16期研修 開講式

9月30日にICHARM 講堂において、2022年度修士コース開講式を実施しました。JICA 筑波からは柴田和直次長、GRIPSからは菅原賢教授、土木研究所から藤田光一理事長及び幹部職員が出席し、それぞれ歓迎の挨拶を述べました。また、学生を代表して、Ms. RANAPURA DEWAGE (スリランカ)が挨拶を行いました。

●講義

< Zhongbo Su 氏による特別講義 >

ICHARM では、修士・博士学生や ICHARM 研究者を対象として、水文学や水災害に関する所外の研究者や専門家を招聘し、最新の知識や知見を提供いただくことで、参加者の研鑽を深める機会として、不定期に特別講演を開催しております。

10月4日、オランダのトゥエンテ大学の教授である Zhongbo Su 氏を ICHARM にお招きし、講演をいただきました。Su 氏は、水文過程のリモートセンシングとモデル、気候データと情報に関する世界一級の専門家であり、新たに入学した修士学生にとっては、今後1年間の課程のスタートに、極めて貴重な機会を得ることができました。

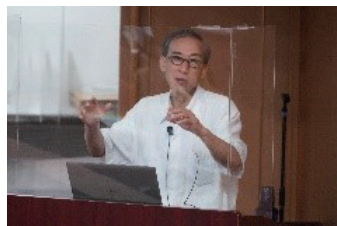
< 竹内邦良山梨大学名誉教授による特別講義 >

同じく10月4日に竹内名誉教授による二宮尊徳に関する特別講義が行われました。

二宮尊徳は、19世紀の著名な社会改革者で、その豊富な農業知識、土木の才能及び独特な管理能力により、洪水、飢饉等で荒廃した多くの町村を復興させた人物であります。学生は、二宮尊徳の精神が、ICHARM の使命である「ローカリズムとヒューマンエンパワーメント」にどのように受け継がれているかについて学びました。また、翌日には栃木県真岡市にある二宮尊徳資料館を訪れ、資料館の解説員及び竹内名誉教授から尊徳の教えである「至誠」「勤労」「分度」「推譲」など、豊富な資料をもとに説明を受けました。

< GRIPS における集中講義 >

11月8日から約2週間にかけて、学生は建築研究所国際地震工学センター(IISEE)の学生や他所所属機関の日



Special lecture by Prof. Su
Su 教授による特別講義



Students surrounding the statue of Sontoku (back row, center) at Ninomiyasontoku Museum
二宮尊徳資料館にて二宮徳像を囲んで

本人学生と共に GRIPS 主催の集中講義に出席しました。主にオンラインでの実施でありましたが、プログラム終盤のプレゼンテーションでは、学生同士の投票により、ICHARM から2名の学生が Best Presentation Award を受賞し、後日、ICHARM にて江頭進治研究・研修指導監より表彰されました。

● 視察

< 10月19日～21日 鬼怒川流域視察 >

3日間の現地視察において、国土交通省関東地方整備局の職員及び原田大輔 ICHARM 専門研究員同行のもと、学生は、渡良瀬川流域と鬼怒川流域を訪れました。渡良瀬川流域では、足尾銅山で採掘された銅による日本の経済発展と、それによる環境破壊など、渡良瀬川流域の歴史が紹介されました。鬼怒川流域では、霞堤や連続堤防の建設、治水対策、ダムを含む水資源・発電の歴史、2015年の堤防決壊と洪水氾濫について学びました。

視察後に、学生は自国の状況と比較しながら今回の視察で学んだことをレポートとして提出しました。その一部を以下、掲載します。

【学生からの声】

■ パキスタンの場合、洪水警報局は設置されているが、その数は限られており、すべての河川をカバーしているわけではない。特に丘陵地の急流は、今年のように大きな鉄砲水が発生することがある。また、新しいコンセプトである霞堤がないため、帰国後、関係当局に霞堤の設置を提案する予定である。(パキスタン修士学生)

■ フィリピンのような発展途上国では、非構造的な対策と構造的な対策を統合したアプローチを採用する必要がある。問題は、フィリピンが災害軽減よりも災害対応に重点を置いていることである。予測や早期警報といった非構造的な活動だけでは不十分で、堤防やダムといった構造的な減災のための構造物の支援が必要であり、この2つを組み合わせることが、洪水の影響を軽減する最も効果的な方法であると考えられる。日本はその最良の例を採用していると言える。(フィリピン修士学生)

■ 現在、スリランカは頻りに洪水に見舞われる傾向にある。そのため、日本で行われている洪水管理手法の多くは、スリランカでも有効に活用することができる。また、自然の保水・遊水機能の保全を含む総合的な洪水管理の推進は、スリランカにとって重要である。しかし、現在の経済状況を考えると、ポンプ場や砂防ダムの建設は非常に高価な洪水管理技術である。さらに、スリランカのいくつかの河川流域では水文データの測定と収集が包括的でない。したがって、一連の水位観測所を適切に維持している日本のやり方は、スリランカが未測量の河川流域に独自のテレメータ付き河川計測ネットワークを設計する上で実に良い例となる。(スリランカ修士学生)

最後に、現地訪問にご対応頂いた関係者の皆様に深い感謝の意を表します。

student made a presentation to conclude the two-week program, and two from ICHARM won the Best Presentation Award as a result of voting among the students. They were later presented with a certificate of the award by Professor EGASHIRA Shinji, the research and training advisor of ICHARM.

● Field trip

< Watarase and Kinu River basins >

On October 19-21, the master's students took a three-day field trip and visited the Watarase and Kinu River basins, accompanied by officers of the Kanto Regional Development Bureau of the Ministry of Land, Infrastructure, Transport and Tourism and HARADA Daisuke, a research specialist of ICHARM. At the Watarase River basin, they listened to an officer explaining the basin's history, including the economic development of Japan, which was closely related to the copper mining at the Ashio Copper Mine, located near the river, and the resulting environmental destruction. At the Kinu River basin, they learned about the construction of open and continuous levees, flood control measures, the history of water resources development and power generation, including dams, and the levee breach and flood inundation in 2015.

After the visit, students submitted a report on what they learned during the field trip, comparing the various measures they saw with the situation in their countries. The following are parts of their reports.

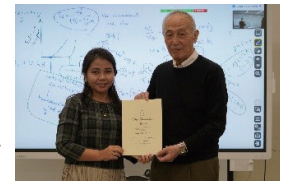
【Comments from students】

■ *Student from Pakistan: In the case of Pakistan, we have installed flood warning stations, but these are limited and not covering all streams. Especially hill torrents are ungauged, causing huge flash floods like this year. We do not have open-type levees, which are a new concept, and I will propose some open-type levees at some locations in Pakistan to the concerned authorities upon my return.*

■ *Student from the Philippines: In developing countries like the Philippines, an integrated approach using both non-structural and structural measures must be adopted. The problem is that the country focuses on disaster response rather than mitigation. It can only do so many non-structural activities like forecasting and early warning, but we all know that it isn't enough because there is a need for the support of structural mitigating measures like levees and dams. A mixture of these two is seen to be the most effective way of mitigating the impacts of floods, and Japan caters the best example for that.*

■ *Student from Sri Lanka: Currently, Sri Lanka is prone to frequent flooding. Thus, most of the flood management methods practiced in Japan can be effectively used in Sri Lanka. The promotion of integrated flood management, which includes the preservation of the natural retention and retarding functions, is really important for Sri Lanka. However, considering the current economic condition of the country, the construction of pumping stations and sabo dams are really expensive flood management techniques for Sri Lanka. The hydrological data measurement and collection are not comprehensive in some river basins in Sri Lanka. Therefore, Japan's practice of maintaining a proper series of water level measuring stations is a really good example for Sri Lanka to design its own telemetered river gauging network for ungauged river basins.*

Finally, ICHARM would like to express the deepest gratitude to all the staff and officials who cooperated on this field trip.



A ceremony of the Best Presentation Award
Best Presentation Award 授賞式



Students listening to an explanation about open levees at Moka Flood Prevention Station
真岡防災ステーションにて霞堤の説明



At Kawaji damu
川治ダムにて

(Written by MIYAZAKI Ryosuke)

Comments from new doctoral course students

博士課程 新入学生からのコメント

Four students joined the 2022-2024 doctoral program in October. They would like to say a brief hello to the readers around the world.

2022年10月、2022-2024年度博士課程に4人の研修員が加わりました。彼らからのコメントをここに紹介いたします。



Jayasekara Sachintha

Supervisor: USHIYAMA Tomoki

My name is Jayasekara Sachintha from Sri Lanka. I have been working as a Meteorologist in the Department of Meteorology in Sri Lanka. I have obtained my first master's degree in Applied Statistics from the University of Peradeniya, Sri Lanka and I completed my second master's in Environmental Sciences in the University of Tsukuba, Japan. I am currently pursuing my PhD degree in Disaster Management at GRIPS.

I am interested in extreme weather forecasting, and hope to focus my study on improving the extreme weather forecasting in pre-monsoon and post-monsoon seasons in Sri Lanka. Thus, I am glad to have this opportunity to study and work with experts in water-related hazard and disaster management. This will be a perfect opportunity for me to enhance my knowledge and skills and contribute to the betterment of my department and country.



Hote Hassan Haren

Supervisor: KOIKE Toshio

I am an employee of the Government of Pakistan and belong to the Pakistan Administrative Service, which enables me to work across the country in different roles. I hold a Master of Governance and Public Policy degree from the University of Queensland, Australia under the Australia Awards scholarship programme. After having worked in flood disaster situations across different regions of the country, I developed an interest in addressing policy and governance related issues of the disaster management paradigm. The focus of my research is to explore avenues for improving flood disaster risk governance in Pakistan. Today's literature tells us that disasters result due to human actions or inaction because hazards by themselves do not cause disasters, as it is the vulnerability of a society that exposes it to a hazard situation, which in turn results into a disaster. My aim is to find ways for making Disaster Risk Reduction (DRR) a continuous process of the disaster management system in Pakistan, by addressing cross-sectoral and multi-disciplinary aspects for achieving integrated management of flood related risk.

I am thankful to JICA, GRIPS, PWRI and ICHARM for allowing me this opportunity to work for the betterment of my country.



Tuladhar Subash

Supervisor: KOIKE Toshio

I am Subash Tuladhar, a Senior Divisional Hydrologist at Department of Hydrology and Meteorology under Ministry of Energy, Water Resources and Irrigation in Nepal. I have been working with Snow Survey and Glacial Lake Section in my organization. I have completed MSc in Water Resources Engineering from Tribhuvan University, Nepal in 2009.

It is great opportunity for me to join the PhD course in Disaster Management at GRIPS and to carry out research work in ICHARM. My research interest is to study on impact of climate change on water resources of mountainous catchments with frozen water (snow, glacier and permafrost) and to understand the basin hydrology of mountainous catchments of Nepal by assessing the contribution of snow and glacier-melt in river runoff. I intend to utilize the knowledge gained from the course to serving the wider society and my country.



Rahman Md Shahinur

Supervisor: EGASHIRA Shinji

I am Md Shahinur Rahman. I have been working in Bangladesh Water Development Board (BWDB) as an Executive Engineer under Ministry of Water Resources (MoWR) since 2012, responsible for water resources management and development in our country. I completed my Master’s degree on Disaster Management from GRIPS on 2020 and currently pursuing my PhD degree in Disaster Management at GRIPS, ICHARM, PWRI with the support of the JICA Long Term Training Program for Disaster Risk Reduction (DRR) to Implement the Sendai Framework program. I strongly believe that studying in GRIPS and ICHARM with the support of the JICA would be the best opportunity to conduct research in the field of Disaster risk reduction (DRR) to learn advanced DRR knowledge and technologies.

ICHARM is the global center of excellence for water related disaster management under the auspices of UNESCO and I am very happy to be a part of this prestigious institution. My research interest is to analysis the long-term geomorphological changes in fine sediment dominated areas (focused on the Meghna Estuary area) in the flow fields with tidal currents and seasonal floods. In addition, I will focus on evaluating a sustainable measure for new land reclamation and development of reclaimed land utilizing fine sediments in the coastal areas.

Comments from new master’s program students

修士課程 新入学生からのコメント



I am Ugyen Phuntsho from the Kingdom of Bhutan. Before joining ICHARM, I was working as an engineer at the Ministry of Works and Human Settlement. My responsible in the division involves solving water-related disasters particularly mandated to look after the riverine and urban flooding issues in the country. To be a part of ICHARM is a great opportunity and I am looking forward to grabbing every opportunity to learn from scientists and professors. Upon completion of the master’s program, I am expected to augment my technical expertise in flood management and contribute more towards building a flood resilience community.



My name is Pema Cheda and I am from Bhutan. I have served as an Executive Engineer with the Flood Engineering and Management Division of the Department of Engineering Services, Ministry of Works and Human Settlement, since 2014 in Bhutan. It is a huge pleasure for me to have this chance, and I want to express my gratitude for being selected as a student of the Disaster Management Program run by JICA, GRIPS, and ICHARM, PWRI in 2022–2023.

I want to express my gratitude for being given this opportunity and for being selected to pursue my master’s program in the Disaster Management Program run by JICA, GRIPS, and ICHARM, PWRI in 2022–2023. ICHARM has given me the opportunity to gain knowledge about the theories, strategies, and research surrounding water-related disasters. With all the facilities at ICHARM, the environment is conducive to learning, so I want to make the most use of it. Moreover, all the ICHARM’s participants are wonderfully helpful and cooperative. In order to serve my country and carry out my responsibilities dutifully, I am eager to put all of my knowledge, scientific prowess, experiences, and best practices gained at ICHARM to the best use.



I am Muhammad Yawar Abbas from Pakistan. Since 2014, I have been a civil engineer with the Gilgit-Baltistan Public Works Department, where I currently occupy the position of Executive Engineer (XEN). I obtained new experiences working in various regions of the province of GB.

Positive traits can be found in Japanese people’s conduct, attitudes, and ways of thinking about life and work. The Japanese culture, which is regarded as one of the best in the world, is one with which I am looking forward to enhancing bilateral ties.

I have been subjected to water catastrophes since I was a young child. I’m excited to study in the Master’s Disaster Management Policy Program with ICHARM and GRIPS. This study’s findings can be used to improve the living conditions of the people in my home country.

I will conclude by saying that together, let’s construct a brighter tomorrow. In the end, my discoveries will assist my country accomplish its goals for sustainable development.



I am Muhammad Farooq, working in Pakistan Water and Power Development Authority (WAPDA) as Director Water Resources Management. My assignments include flood monitoring, reporting & coordination for flood routing through WAPDA operated reservoirs for mitigation of flood peaks, flow forecasting and coordination for water distribution among provinces.

I feel privileged to be part of this Disaster Management Policy Program at ICHARM/GRIPS, an excellent opportunity provided by JICA. Pakistan is continuously facing devastating flood events since the last decade including 2010 & 2022 super floods causing a huge loss to the lives and properties of the people of my country. After successful completion of this program, I will be able to devise plans to respond future flood events in a better and efficient manner. I will also impart the knowledge and skills gained through this program to the young professionals of my organization as a capacity building measure.



Mabuhay! from the Philippines. My name is Lady Ella C. Chu, a Local Government Operations Officer VI of the Department of the Interior and Local Government. I have been working in the Department since 2015 and experienced various challenges in the field of local governance and disaster management. This scholarship offers to me a great opportunity to widen my horizon in disaster management and be able to share the knowledge when I go back to my country. The program creates a venue to share and learn from different countries, acquire best practices, and build camaraderie among participants and Japanese people.

Japan always holds a place in my heart as I love its culture, food, places, and the people. With that I am grateful for this rare chance to witness and experience Japan for one year. Arigato gozaimasu!



I am Horace Hogan Frigillana from the Philippines. I am Engineer II at the Planning and Design Division of the Department of Public Works and Highways (DPWH) Regional Office 01 in San Fernando City, La Union Province.

My work is mainly involved in the Prevention and Mitigation Phase of Disaster Management, particularly in the preparation of Hydrologic and Hydraulic Analysis of our Bridge, Flood Control and Drainage Projects.

My sincerest thanks and gratitude to DPWH for their trust in nominating me for this course; to JICA, ICHARM – PWRI and GRIPS for giving me this rare opportunity to become one of the scholars for this Masters Course and to learn much about Flood Disaster Risk Management. I am looking forward in acquiring all knowledge and skills, in giving back to my country in addressing our problems in flooding and in fostering closer ties between my country and Japan.



Mabuhay! I am John Paul Luching Lusabia from the Philippines. I work as a Local Disaster Risk Reduction Management Officer (LDRRMO) in the Municipality of Mambusao, Capiz. I think the biggest challenge in the practice of Disaster Risk Reduction Management in the Philippines is the ability penetrate consciousness and turn knowledge into behaviors. As a LDRRM Officer, who focuses on the four thematic areas of disaster management i.e., Prevention and Mitigation, Preparedness, Response and Recovery and Rehabilitation, it is my duty to ensure that DRRM will not remain a concept but rather a lifestyle for ALL. By so doing, DRRM becomes a positive value and a conscious behavior geared towards building a resilient and sustainable community. For what is structural and non-structural measures in managing disaster risks without the right values and sensible behaviors. This is what sets the Japanese apart from any other and I am learning it first-hand here in Japan.

I am truly honored of this once in a lifetime opportunity and I am hoping to be able to bring something, if not all, back to the Philippines when this learning journey ends. Thank you so much, JICA. Arigato Gozaimasu, PWRI and ICHARM. Maraming Salamat po, GRIPS.



I am Allen B. Orogo, from the Philippines. I am a Hydrologist working at the Philippine Atmospheric, Geophysical and Astronomical Services Administration. I majored in Physics in my bachelor at Ateneo de Naga University. Fundamentally, my task is to provide hydrological forecast for the entire Bicol River Basin including daily hydrological forecast, Flood Advisories and Flood bulletins. These are used as guides by our Disaster management officers for decision-making during the occurrence of flood-related hazards.

The first time I have heard of pursuing Master's degree in ICHARM was in 2017 when I participated in a capacity development for flood risk management in the same institution. My enthusiasm was stirred as I envisioned meaningful professional experiences ICHARM is offering. Soon enough I was accepted as a Master's Student in Flood Disaster Risk Reduction for the year 2022-2023. It has been a great privilege being endowed with scholarly education through series of lectures, research activities and field trips. I will forever be indebted to JICA and ICHARM for giving me such an opportunity for professional growth that I can use for the enhancement of my functions in giving accurate and timely flood forecast for the Bicol River Basin community.



I am Charya Jayathilaka from Sri Lanka. I am a Chartered Civil Engineer serving in the Sri Lanka Land Development Corporation. My working division is Research and Design Division, where I am involved in urban stormwater drainage design and hydrological study works for flood mitigation and low-lying land development projects.

Studying at ICHARM is a great opportunity for me where can get knowledge and experience in theoretical, practical and research related to the field of flood disaster management. I must thank JICA, GRIPS, PWRI and ICHARM for giving me this great opportunity. All the members of the ICHARM are very cooperative and they treat us equally. Also, this is a great opportunity to spend a year in Japan and be exposed to one of the best cultures and societies in the world.

After completion of this program, I am looking forward to serving my nation with the knowledge and experiences which I gain here for the betterment of my motherland.



I am Ranapura Dewage Thilini Kaushalya from Sri Lanka. I am a Chartered Civil Engineer working in the Irrigation Department. It is a great opportunity to spend one year of my life in Japan because I can expose to the Japanese culture which is known as one of the world's best. I would like to thank ICHARM/PWRI/GRIPS/JICA and the People of Japan for giving me this opportunity.

I am privileged to select this master's degree program because I will be exposed to the latest knowledge, techniques, and state of art facilities for disaster risk reduction during this programme. Therefore, I believe that studying at ICHARM / PWRI and GRIPS would provide an environment that would allow me to strive for unparalleled academic excellence and immerse me in a unique sociocultural setting which will definitely be a place where I can flourish.

After completion of this program, I hope to apply and transfer the knowledge gained from this program to my motherland as a professional to work towards preventing catastrophic life and property damage due to disasters.



I am Ligia Mediadora Amaral Soares from Timor Leste. I have been working at Department of Analyze, Evaluation and Inspection, National Directorate of Roads, Bridges and Flood Control under by the Ministry of Public Works since 2015 as an Engineer.

It is a great privilege to me to get an opportunity to be part of Master degree program in Water Related Disaster Management organized by JICA, GRIPS and ICHARM, PWRI. This program is a valuable opportunity to acquire knowledge from various experts here and gain new skill and experiences especially water related disaster management.

I am happy to meet and share the experiences with all my colleagues from other countries such as Bhutan, Pakistan, Philippine, Srilangka and Tunisia. Thank you so much for this opportunity.

After completion this program, I am looking forward to serving my country with all the knowledge, experiences and good practices and implement them in a better way.



Hello. I am Zeferino de Fatima Tilman from Timor-Leste. I have been working as an Asisstant Officer of GIS at Institute Of Petroleum And Geology under the Ministry of Petroleum and Mineral Resources since 2018. My last position before coming to Japan was at GIS Technician in Geological Hazar Unit under the devision of Geological Hazar and Geotecch Engineering.

I am very thankful to be a part of the master's program at ICHARM. for me This is an opportunity for me to learn Japanese knowledge and technology in disaster management.

on the other hand , I can learn directly from experts in the field of water-related disaster. I am also pleased to meet and share experiences with coleagues from other countries. in addition, i will applying the valuable experience and knowledge that I got through this program to serve my country better.



I am Housem Youssfi, Principal engineer working at the ministry of Equipment and Housing of Tunisia at the urban hydraulic division. My responsibilities are carrying out the studies and follow up the works related flood risk reduction. Tunisia is highly exposed to a wide range of natural hazards including floods, drought, earthquakes, landslides, forest fires, and snowstorms.

Japan is considered as one of the most leading countries in disasters management in the world. I am fortunate to have chance to study master in ICHARM which really a very good place for me to learn about the relevant experience of Japan in disaster management. I hope this experience will help me to inspire solutions to tackle with floods problems in particular and disasters in general in my country.

Action Reports from ICHARM Graduates

ICHARM provides graduate-level educational programs for foreign government officers in charge of flood risk management in collaboration with GRIPS and JICA: a one-year master's program, "Water-related Risk Management Course of Disaster Management Policy Program," and a three-year doctoral program, "Disaster Management Program."

Since their launches, over 180 practitioners and researchers have completed either of the programs. They have been practicing knowledge and experience acquired through the training in various fields of work after returning to their home countries. This section is devoted to such graduates sharing information about their current assignments and projects with the readers around the globe. Norain Binti Osman (Malaysia), who graduated from the master's program in 2021, has kindly contributed the following article to this issue.

ICHARMでは、政策研究大学院大学（GRIPS）、国際協力機構（JICA）と連携して、世界各国から洪水対策の行政官を対象として、1年間の修士課程「防災政策プログラム 水災害リスクマネジメントコース」を実施するとともに、3年間の博士課程「防災学プログラム」を実施しています。これまで180名を超える実務者・研究者の方々が各課程を修了し、帰国後、本研修で習得された知識や経験を生かして、様々な分野において活躍されています。

ICHARMニュースレターでは、こうした卒業生の方々から、ご活躍の様子について寄稿していただくこととしております。本号では2021年（14期）修士課程卒業のNorain Binti Osman氏（マレーシア）から寄稿いただきましたので、ご紹介します。

Norain Binti Osman

Senior Civil Engineer, Malaysia Public Work Department, PWD (Jabatan Kerja Raya Malaysia)



Being one of the Civil Engineer in Malaysia Public Work Department (PWD) who graduated from a Flood Risk Reduction Master (Disaster Management) program offered by JICA, GRIPS and ICHARM was such a great pleasure and opportunity for me. Although it was during the pandemic Covid-19 and the 1st year of quarantine period, it is still such a great experienced and exposure to me. I was also blessed to receive the study leave permission from the Public Service Department (Jabatan Perkhidmatan Awam, JPA) and Public Work Department, PWD on joining the Master program.

To start with, I joined PWD in early 2005, three years after I graduated a degree from the local university. Being in service with the government sector for 17 years, brings me to a number of experiences where the human resources (HR) strategic in PWD was to give the officer a job rotation experienced. I was with Building and Facilities Maintenance Branch for 6 years from 2014-2020, it's one of the 24 branches in PWD. My experienced was to performed condition assessment which called Building Condition Assessment (BCA) to government buildings by assessing the defects present, determining the risks if the structure is left in its original condition with or without maintenance work and finding out the maintenance work that need to be done to preserve the building in its working condition. I brought my experienced on how PWD did the BCA into my thesis writing during the master program. In which, it became a starter for the BCA to become a tool to assessed building condition after the flood occurred and it was used for the assessment after the flood event in November- December 2021. Currently BCA has become the important tool for PWD and Malaysian Government on managing the asset in both pre and post disaster.



A Building Condition Assessment (BCA) activity at one of the schools involved in the flood

Besides that, right after graduating and returned to Malaysia, I was placed in the Competency Development and Examination Unit. It is one of the Unit in the Policy, and Corporate Management Branch, PWD. Blessing with the grade promotion during the study, my return to fill in the placement was somehow, a challenge and an opportunity for me. My task is to oversee the opportunity on the in-service training for all the officers in PWD, initiating a collaborative works with the local Universities on enhancing the officer's competency and development, and to upgrade the competency model that used by PWD since 2014. Getting myself placed in the branch is out my control, but what I have learned while I was in Japan and from master program is that I could use the experienced to establish something. Favorably, a medium to interact with all the government agencies and universities to initiate any works and collaborative study especially on the disaster management and policy program that involved with PWD. These also a medium for me to identify the gap about disaster knowledge among the officers in PWD and then bridge them together with the collaboration among agencies that connected with the gap.

As the civil service in Malaysia must interact effectively with the private sector, PWD's officers need to initiate and be the catalyst for the private sector, transforming it to become more proactive rather than reactive. Prior to

this, one of the activities that I am involved was organizing a Master on Disaster Risk Management program with Malaysia-Japan International Institute of Technology (MJIT). PWD, previously had identified about 20 numbers of officers with a multi-disciplinary technical background to joined in the program.

This program was a structured program tailored with the PWD where, the syllabus was agreed to be custom-made with the scope of work in PWD. As PWD is one of the key agencies involved in mitigating and disasters especially on the federal roads and slope management, PWD need more effort to establish their role and responsibility when it comes to the disaster mitigation and risk reduction. One of the objectives of this program was to incorporate the dissertation study with the current situation in



PWD's officers involved in the collaborative program and studies with MJIT on Disaster Risk Management

PWD on implementing the mitigation and risk reduction. The findings and output of the thesis or dissertation is used to propose to the PWD's top management on way forward for the PWD to emphasize, engage, and undertake the responsibilities to become the relevant to in control with the responsibilities on disaster mitigation and reduction. Besides that, PWD and MJIT is also collaborating in other activities related to disaster. One of the programs is the National Slope Plan that schedule to be enhance sooner in 2023.

Hands-on training on RRI in JICA short-term training 短期研修での RRI ハンズオントレーニング

JICA の 2022 年度課題別研修「インフラ施設（河川・道路・港湾）災害対策とマネジメント」コースが 10 月 17 日から 12 月 21 日まで実施され、12 月 2 日に ICHARM にて柿沼太貴研究員と望月貴文主任研究員と沼田慎吾交流研究員が「洪水予測モデルの概要と演習について」に関する講義・実習を行いました。研修の参加者はアルジェリア、チリ、ガイアナ、ホンジュラス、インド、インドネシア、セントビンセントおよびグレナディーン諸島、東チモール、トルコ、バングラディッシュの 10 名の実務者で、洪水予測に関する講義と RRI モデルを用いたハンズオントレーニングを行いました。実際の流域を事例としたトレーニングでは、各自のコンピュータで実際に RRI モデルを操作し、流域モデルの作成や流量の算出、そして、水深、氾濫エリア等の結果の表示までを習得しました。専門分野が河川分野でない参加者も、RRI モデルや ICHARM の洪水予測に関する取組について多数の質問をするなど、意欲的に受講していました。受講者の中には、研修を通して、RRI モデルのシミュレーション精度が高いことに加え、ハンドリングが容易であることを実感し、自国に取り入れたいとの発言もありました。

Researcher KAKINUMA Daiki, Senior Researcher MOCHIZUKI Takafumi, and Exchange Researcher NUMATA Shingo gave a lecture and hands-on training about a flood forecasting model at ICHARM on December 2, 2022, as part of a JICA training, "JFY2022 Disaster Risk Reduction and Management on Infrastructure (River, Road and Port)," held from October 17 to December 21. The training participants consisted of ten practitioners from Algeria, Chile, Guyana, Honduras, India, Indonesia, Saint Vincent and the Grenadines, Timor-Leste, and Bangladesh. They first received a lecture on flood forecasting and hands-on training on how to use the Rainfall-Runoff-Inundation (RRI) model. Then, they practiced operating the RRI model on their personal computers for a sample basin, creating basin models, calculating river discharge, and displaying results such as water depth and flood area. The participants whose expertise is not river engineering also engaged actively in the training, asking many questions, including ones about the RRI model and ICHARM's efforts in flood forecasting. Some of the participants commented that they would like to introduce the RRI model to flood forecasting in their countries, realizing its high forecasting accuracy and operability through the training.



Participants of JICA short-term training in 2022
2022 年度 JICA 短期研修参加者



Scenes from the technical training
技術研修風景

(Written by KAKINUMA Daiki)

Information Networking

The 69th ICHARM R&D Seminar 第 69 回 ICHARM R&D セミナーの開催

ICHARM has been organizing Research and Development (R&D) Seminars on an irregular basis to provide researchers with opportunities for self-development and updating themselves with the latest research by inviting domestic and international experts in the field of risk management and water-related issues.

The 68th R&D Seminar was held on 11th October, 2022, inviting Professor Andras Szollosi-Nagy of the Department of Water Environmental Policy, National University of Public Service, Hungary. The professor was the chair of the Intergovernmental Council of UNESCO Intergovernmental Hydrological Programme (IHP) for two years from 2016 and the vice-chair of the Ministerial Council of the World Water Forum. He was also deeply involved in establishing ICHARM by devoting himself to making various arrangements as the UNESCO contact person at that time and has since been very supportive of its activities. As his professional career shows, the professor is well-versed in global issues and current developments in hydrology.



Prof. Szollosi-Nagy lecturing
講演を行うソロンナジ教授

On this occasion, he delivered a presentation entitled "Global changes and their impacts on the hydrological cycle," addressing current global issues in water science and the prospects for freshwater resources in the 21st century. Pointing out that extreme floods, droughts, and other events have been more frequent in recent years, with an example of 100-year floods occurring every 20 years in many parts of the world, Professor Szollosi-Nagy concluded that the current infrastructure approach, which is based on the concept of "T-year design flood" developed using the stationary hydrological cycle hypothesis, is no longer effective. He then suggested the urgent need for new approaches and standards adjusting to the non-stationary nature of the hydrological cycle. He also added that conventional structural measures should be reviewed regardless of their scales to cope with new challenges and mentioned the construction of more infrastructure for floodwater storage, for example.

ICHARM will continue organizing seminars at various opportunities in the future to update researchers with the latest knowledge and skills on water-related issues across a wide range of perspectives.

(Written by KURIBAYASHI Daisuke)

ICHARM では、水災害分野に関する国内外の専門家を招聘し、最新の研究や知見について講演いただき、参加者の研鑽を深める機会として、「ICHARM R&D セミナー (ICHARM 研究開発セミナー)」を不定期に開催しています。

第 69 回の今回は、10 月 11 日にハンガリー国立公共サービス大学水環境政策学部教授の András Szöllösi-Nagy 氏をお招きしました。ソロンナジ教授は、2016 年から 2 年間ユネスコ IHP (政府間水文学計画) 政府間理事会議議長を務め、世界の水文分野の課題や最新情勢に精通されるとともに、世界水フォーラム閣僚会議の副議長として活躍されました。さらにソロンナジ教授は、ICHARM 設立時のユネスコ側担当者として諸調整に尽力され、ICHARM に対する理解も深いです。

「Global changes and their impacts on the hydrological cycle」と題された講演では、現在の世界的な水科学の課題と 21 世紀の淡水資源の展望について概説されました。現在では洪水や干ばつなどの極端な現象の頻度または確率が増加しており、例えば、今日では世界の多くの地域で 20 年ごとに 100 年の洪水が発生していることに触れられ、定常水文過程の仮説の下で開発された「T 年設計洪水」の概念などの現在の設計方法論はもはや有効ではないと述べられました。このため、今後は水文過程の非定常性を適切に考慮するために、新しい設計方法論と基準が必要であり、より多くの貯水の必要性など、いくつかの構造的対策の再検討があらゆる規模で必要であると述べられました。

ICHARM では今後も様々な機会をとらえ、幅広い分野から水災害・リスクマネジメントに関わる知見を広く伝えるべく、セミナーを開催していく予定です。

The 11th Annual Meeting of Working Group on Hydrology, ESCAP/WMO Typhoon Committee

第 11 回台風委員会水文部会の年次会合開催

On October 18, 2022, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) of Japan hosted the annual meeting of the Working Group on Hydrology (WGH) of the ESCAP/WMO Typhoon Committee in Tokyo in a hybrid format of face-to-face and online. ICHARM sent three researchers: Deputy Director MATSUKI Hirota, Senior Researcher MIYAMOTO Mamoru, and Researcher KAKINUMA Daiki. MIYAMOTO served as the chairperson in the meeting. Of the 14 members, five (Japan, Lao PDR, Malaysia, the Philippines, and Thailand) attended the meeting in person, and six participated online. At the meeting, the representatives of the

2022 年 10 月 18 日に台風委員会水文部会の年次会合が国土交通省の主催で東京における対面とオンラインによるハイブリッド形式で開催されました。ICHARM からは、松木洋忠グループ長と宮本守主任研究員、柿沼太貴研究員の 3 名が参加し、宮本主任研究員が議長を務めました。会合には 14 のメンバー国・地域のうち 5 カ国が (日本、ラオス、マレーシア、フィリピン、タイ) が対面参

加し、6カ国がオンライン参加しました。会合では、メンバーの国・地域から今年の台風の状況や被害について報告があり、7つの年次運用計画についても成果や進捗について各リーダーから報告がありました。その他、水文部会の今後の運用体制についても議論が交わされ、日本が議長国を引き続き務めることや宮本主任研究員を含む現行の水文部会議長および副議長の体制が次期についても継続されることが提案されました。

ICHARM では、台風委員会を関係国とのネットワーキングや連携強化のための最も重要な国際的枠組みの1つと位置づけ、引き続き地域間協力に貢献していく予定です。

members reported on this year's typhoon events and damage, and each leader of the seven Annual Operating Plans (AOPs) presented the results and progress of their efforts. In addition, the meeting also discussed the future operation structure of WGH and suggested that Japan would continue to serve as the chair country and that the current chair and vice chair of WGH, including MIYAMOTO, would continue to lead the group during the next term of two years.

ICHARM recognizes the Typhoon Committee as one of the most important international frameworks for networking and strengthening cooperation with related countries and will continuously contribute to strengthening inter-regional cooperation.



Participants in the 11th Annual Meeting of Working Group on Hydrology, Typhoon Committee (left: face-to-face participants at the meeting room of MLIT, right: online)
(左：国土交通省会議室における対面、右：オンライン)

(Written by MIYAMOTO Mamoru)

The 1st face-to-face meeting of WMO RA II Coordination Panel for Hydrology 世界気象機関 (WMO) アジア地区水文調整パネル第1回会合

2022年10月31日から11月1日にかけて世界気象機関 (WMO) アジア地区水文調整パネル第1回対面式会合がラオスのビエンチャンで開催され、宮本守主任研究員が参加しました。会合の目的は、9月にオンラインで行われた準備会合を踏まえ、WMO 組織再編後、アジア地区水文調整パネルを新たに発足させるものでした。会議では、WMO アジア地区の水文学・水資源の専門家が水文に係わる活動のワークプランとマイルストーンについて議論し、実施計画について合意形成が図られました。宮本主任研究員からは、「水のレジリエンスと災害に関するプラットフォームを通じた洪水レジリエンスの強化」と「IFM ヘルプデスクの IWRM 包括のための拡大」に関するテーマをリードすることが確認されました。

また11月1日の午後と11月3日の午前まで HydroSOS* 実装ワークショップが開催され、世界の水文状況を監視・予測するための WMO のシステムである HydroSOS のアジア地域の4つのサブ地域 (中央アジア、東アジア、南・東南アジア、西アジア) における実装計画について議論が交わされました。宮本主任研究員は東アジアのリーダーとして実装を推進することが提案されました。

このように ICHARM では引き続き国際機関や各国のステークホルダーと協力して水災害リスク軽減に努める予定です。

The 1st face-to-face meeting of the World Meteorological Organization (WMO) Regional Association II (RA II) Hydrological Coordination Panel (HCP) was held in Vientiane, Lao PDR, from October 31 to November 1, 2022. Senior Researcher MIYAMOTO Mamoru participated from ICHARM. The purpose of the meeting was to launch the HCP of RA II after the reorganization of WMO, following the online preparatory meeting held in September. At the meeting, experts in hydrology and water resources from WMO RA II discussed work plans and milestones for activities related to hydrology and made a consensus on the implementation plans. MIYAMOTO confirmed that he would lead the themes on the "enhancement of flood resilience through a platform on water resilience and disasters" and the "expansion of the IFM helpdesk to include IWRM."



The 1st face-to-face meeting of RA II HCP, WMO
第1回世界気象機関第二地域協会 (アジア) 水文調整パネル対面会議の様子

In addition, a HydroSOS* implementation workshop was held from the afternoon of November 1 to the morning of November 3. The workshop discussed plans for four sub-regions in Asia (Central Asia, East Asia, South/Southeast Asia, and West Asia) to implement a HydroSOS, which is WMO's system for monitoring and predicting global hydrological status. The workshop also proposed that MIYAMOTO would take the lead in the implementation project in East Asia.

Through these opportunities, ICHARM will continue to work with international organizations and national stakeholders in each country to reduce water-related disaster risks.

*HydroSOS: Global Hydrological Status and Outlook System (<https://community.wmo.int/activity-areas/global-hydrological-status-and-outlook-system-hydrosos>)

(Written by MIYAMOTO Mamoru)

Participation in the stakeholder consultation meeting and preparatory meeting of UN 2023 Water Conference

国連水会議のステークホルダー協議会合、準備会合に参画

The UN 2023 Water Conference, officially named the United Nations Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action, "Water for Sustainable Development," 2018–2028, will be held on March 22–24, 2023, at the United Nations Headquarters in New York. It has been 46 years since the last UN Water Conference took place in March 1977 in Mar del Plata, Argentina. A preparatory meeting was convened for this long-overdue conference at the headquarters on October 24–25, and Mr. MORI Noriyuki, the Director for Special Research, participated from ICHARM.

On October 24, a stakeholder consultation meeting was held in a round table format with related organizations and groups to discuss actions to be included in the Water Action Agenda. Based on the results, a preparatory meeting was held to discuss and finalize the dialogue themes for the upcoming UN Water Conference.



Opening Address by Li Junhua/UNDESA • Under Secretary General
@ UN Water Conference - Stakeholder Consultation Meeting
国連水会議・ステークホルダー協議会合 (Li Junhua/UNDESA • Under Secretary General の開会挨拶)

Approximately 1,200 stakeholders participated in the stakeholder consultation meeting. It was divided into five roundtables (Governance, Capacity Development, Data and Information, Innovation, and Finance) for interventions and discussions. Mr. MORI mainly participated in the roundtable on Capacity Development and made an intervention claiming as follows:

- For resilience and sustainability against water-related disasters, it is important to increase the understanding and collaboration of all stakeholders in river basins.
- However, each basin has its own uniqueness, facing different problems, nurturing indigenous knowledge and experiences, and requiring site-specific solutions.
- Moreover, as water-related disasters impact the water-food-energy-nexus and the quality of life, including health, education, labor, and poverty, inter-sectoral cooperation and actions are essential.
- Thus, it is crucial to foster "Facilitators," that is, catalytic beings capable of integrating and translating interdisciplinary scientific and indigenous knowledge for all stakeholders to cooperate in building social consensus in their river basin.

Moreover, he proposed specific actions to develop a platform in each river basin and use it to foster facilitators by explaining, for example, the "Online Synthesis System for Sustainability and Resilience (OSS-SR)," which has been implemented in the Philippines, Indonesia, Sri Lanka, and West Africa under the International Flood Initiative (IFI).

Approximately 20 stakeholders made interventions at each round table, which were reported at the preparatory meeting on October 25 as the High-Level Summary of Stakeholder Dialogue of the Preparatory Meeting for the UN 2023 Water Conference (<https://www.un.org/pga/77/2022/10/25/high-level-summary-of-stakeholder-dialogue-of-the-preparatory-meeting-for-the-un-2023-water-conference/>).

2023年3月22日から24日にかけてニューヨークの国連本部において、国連水会議（正式名は、United Nations Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action, "Water for Sustainable Development", 2018–2028）が開催されます。国連水会議は、前回1977年3月にアルゼンチン・マルデルプラタで開催されて以来、実に46年ぶりの開催となります。この会議に向けた準備会合等が10月24日から25日に国連本部において開催され、ICARMから森特別研究監が出席して議論に参画しました。

10月24日には関係機関・組織・団体との間でWater Action Agendaに盛り込むべき取組事項等についてラウンドテーブル方式で議論を行うステークホルダー協議会合が行われ、10月25日には、その会合の結果も踏まえつつ、国連水会議のテーマ設定等について議論を行い確定させる準備会合が開催されました。

ステークホルダー協議会合には約1200名の関係者が参加し、5つの円卓会議（① Governance ② Capacity Development ③ Data and Information ④ Innovation ⑤ Finance）に分かれて、口頭での意見表明や議論が行われました。森特別研究監は主に② Capacity Developmentの円卓会合に参画し、

- 水災害への強靭性や持続可能性を確保するためには、流域での幅広いステークホルダーの理解や協働が重要であること、
- 一方で各流域の特性や固有の問題に応じた個別の解決策が必要であることや、土着固有の知識経験の蓄積があること、
- また水災害はWater-Food-Energy Nexusや健康、教育、労働、貧困といった広範な生活の質に影響を及ぼすことから分野横断的な協力や行動が欠かせないこと、
- そこで水災害対策に関する流域での社会的合意形成のために、分野横断的な科学知識や土着固有の知識を統合し、それらを関係者に分かりやすく伝達することのできる、各流域でのFacilitator育成が重要であることを主張しました。

その上で、主にInternational Flood Initiative (IFI)の枠組みのもと、フィリピン、インドネシア、スリランカ、西アフリカで取組んでいる「知の統合システム」を念頭に、流域単位でのプラットフォーム構築と、そのプラットフォームを用いたFacilitatorの能力育成の取組を、具体的なActionとして提案しました。なお各円卓会合では概ね20程度のステークホルダーからの意見表明が行われ、「High-Level Summary of Stakeholder Dialogue of the Prepa-

ratory Meeting for the UN 2023 Water Conference」 (<https://www.un.org/pga/77/2022/10/25/high-level-summary-of-stakeholder-dialogue-of-the-preparatory-meeting-for-the-un-2023-water-conference/>) として取りまとめられ、翌日の準備会合の冒頭で報告されました。

また準備会合では議論の結果、① Water for Health、② Water for Sustainable Development、③ Water for Climate, Resilience and Environment、④ Water for Cooperation、⑤ Water Action Decade をテーマとする国連水会議の枠組みが合意され、準備を進めていくこととなりました。ICHARM では引き続き、その知見・経験をベースとしたアピールやインプットを行い、我が国の水分野でのプレゼンス向上や、特に水防災の主流化に寄与に貢献していきます。

In addition, as a result of discussions, the preparatory meeting agreed on a conference framework with five dialogue themes, i.e., Water for Health; Water for Sustainable Development; Water for Climate, Resilience, and Environment; Water for Cooperation; and Water Action Decade, and keeping close cooperation in preparations for the March 2023 event. ICHARM continues to provide input based on its knowledge and experience to contribute to increasing our worldwide presence of the water sector, especially to mainstreaming water-related disaster reduction around the globe.



Intervention by Mr. MORI @ Roundtable of Stakeholder Consultation Meeting
ステークホルダー協議会合・円卓会議での Intervention (森特別研究監)

(Written by MORI Noriyuki)

Public Relations

ICHARM welcomed young visitors from Miyagi Prefecture Tagajo High School 宮城県多賀城高校ご訪問

宮城県多賀城高校災害科学科の1年生 38名と引率の先生方が、11月1日と2日との2班で ICHARM を訪問され、職員からの講義や質疑応答を行いました。

この「災害科学科」は、2011年の東日本大震災により未曾有の被害を受けた宮城県において、復興の重点として掲げられた災害教育の充実の一環として、大震災から学んだ教訓を確実に次世代に伝承するとともに、将来国内外で発生する災害から多くの命と暮らしを守ることができる人材を育成するため、防災系の専門学科として設置されたものです。

講義では、ICHARM の概要紹介に始まり、中小河川水位予測システムの開発や気候変動将来ハザード予測、国際ネットワーク展開に関する話題、そしてフィリピンでの技術援助プロジェクトなど幅広い内容を紹介しました。

質疑応答では、「ICHARM が行っている取り組みの中で、今後の日本に最も必要とされることは何ですか。」といった鋭い質問も出されるなど、生徒さんたちの意識の高さ、将来への希望を感じるとともに、我々職員も刺激を得た良い機会となりました。

Thirty-eight first-year students of the Disaster Science Department of Miyagi Prefecture Tagajo High School and their teachers visited ICHARM in two groups on November 1 and 2. ICHARM researchers welcomed the students, giving lectures and answering questions.

The Disaster Science Department was established as a special department to enhance disaster education, which was a priority of the reconstruction project started after the Great East Japan Earthquake in 2011, from which Miyagi Prefecture suffered unprecedented damage. The department aims to pass on the lessons learned from that catastrophe to the next generation and develop human resources who can contribute to mitigating damage in future natural disasters.

The lectures started with an overview of ICHARM, which was followed by others covering a wide range of topics, including developing a water level forecasting system for small and medium-sized rivers, forecasting future hazards due to climate change, promoting international networking, and conducting a technical assistance project in the Philippines.

During the Q&A session, students asked sharp questions such as “What is the most important thing that Japan needs in the future among the initiatives that ICHARM is doing?” The event turned out also to be a good opportunity for ICHARM staff to feel hopeful about the future and take a fresh look at their work.



Lecture by an ICHARM researcher
ICHARM 研究者による講義



Q&A session
質疑応答

(Written by SHINYA Takafumi)

Field Survey

A field survey in Thailand

タイにおける現地調査等の報告

Senior Researcher MIYAMOTO Mamoru and Exchange Researcher NUMATA Shingo visited Thailand for five days, from October 24 to 28, 2022, for a field survey and a research meeting on the SATREPS¹ program in Thailand, "Regional resilience enhancement through establishment of Area-BCM² at industry complexes in Thailand (research representative: Professor WATANABE Kenji, Nagoya Institute of Technology)." This project aims to develop an Area-BCM tool for three industrial parks in Ayutthaya Province to visualize the impact of disaster risks on the industry by region and then build an operation system to utilize the tool for the industrial parks and surrounding areas, thereby realizing a community that is resilient to disasters. ICHARM is in charge of building and analyzing flood inundation models and assessing risks in order to establish an Area-BCM.

During the field survey in Ayutthaya Province, the two researchers investigated the shapes of water channels, water channel networks, and the height of flood walls at multiple locations in the two industrial parks that had not yet been surveyed. The water levels of the Chao Phraya River and its waterways were high due to the heavy rainfall from August to October, which caused flooding on a scale second only to the 2011 event that prompted the country to start this project. Therefore, they also checked the effectiveness of the current flood control that draws water from the Chao Phraya River through floodgates to farmland and observed the inundation of low-lying land. Flood inundation models for the two industrial parks are already under development, and the results of this survey are expected to further improve the accuracy of the models.



Flooding in farmland around an industrial park
工業団地周辺の農地での浸水の様子

In the research meeting, the ICHARM researchers listened to Assistant Professor Piyatida Ruangrassamee of Chulalongkorn University explain the progress in the development of flood prediction for the Chao Phraya River, another joint project of theirs with the Hydro-Informatics Institute (HII) of Thailand, and discussed calibration methods with the professor and other experts. In relation to this, they also talked about a workshop on the application of the RRI model scheduled at HII in May 2023, including cooperation in dispatching lecturers from ICHARM.



Meeting at Chulalongkorn University
チュラロンコン大学での打ち合わせ

In addition, the day after the survey, the ICHARM researchers visited the Thai Meteorological Department (TMD) to consult with them about the current flood forecasting and warning system. Since TMD possesses multiple types of rainfall data, including those collected using Doppler radars, they discussed future cooperation between TMD and ICHARM in synthesizing and effectively utilizing such data for flood forecasting and warning.

In this project and others, ICHARM hopes to continue promoting new research and initiatives with related organizations in Thailand.

¹ SATREPS: Science and Technology Research Partnership for Sustainable Development

² Area-BCM: Area Business Continuity Management

タイにおける SATREPS¹ プログラムである「産業集積地における Area-BCM² の構築を通じた地域レジリエンスの強化 (研究代表: 名古屋工業大学 渡辺研司教授)」に関する現地調査と研究打ち合わせのため、2022年10月24日～28日に宮本守主任研究員と沼田慎吾交流研究員がタイに出張しました。このプロジェクトでは、アユタヤ県にある3つの工業団地を対象に、災害リスクが産業に与えるインパクトを地域ごとに可視化する Area-BCM のツールを開発し、工業団地及び周辺地域に導入することで運用体制の構築を図り、災害に強い地域社会の実現を目指しています。ICHARM では Area-BCM 構築のため、工業団地での洪水氾濫モデルの構築及び解析、リスク評価を担当しています。

アユタヤ県での現地調査では、未調査だった2つの工業団地において、複数地点の水路形状や流路網、洪水擁壁の高さなどの確認を行いました。今年は8月～10月の雨量が多く、本プロジェクトのきっかけになった2011年に次ぐ規模の洪水が発生したため、調査時においてもチャオプラヤ川や水路の水位は高くなっていました。そのため水門からチャオプラヤ川の水を農地に引き込む洪水調節や低い土地での浸水なども確認しました。2つの工業団地の洪水氾濫モデルは既に開発を進めています。今回の調査結果によりモデルの更なる精度向上が期待されます。

研究打ち合わせでは、別のプロジェクトにおいてチュラロンコン大学と水気情報研究所 (HII) が進めているチャオプラヤ川洪水予測の開発について、チュラロンコン大学のピヤティダ助教から進捗説明を受け、キャリアレーション手法などについて議論しました。これに関して、RRIモデルの適用に関するワークショップが来年の5月にHIIで予定されており、ICHARMからの講師派遣の協力について協議しました。また、調査の翌日にはタイ気象局を訪問し、現業の洪水予測・予警報システムについて議論しました。タイ気象局ではドップラーレーダーをはじめとする複数の降雨情報を有しているため、これらを合成し効果的に洪水予警報に活用することについて、タイ気象局とICHARMの今後の協力について協議しました。このように本プロジェクトに留まらず、プロジェクトをきっかけにしたタイの関係機関との新しい研究や取り組みについても引き続き推進していきたいと思っております。

¹ SATREPS: 地球規模課題対応国際科学技術協力プログラム

² Area-BCM: 地域型事業継続マネジメント

JST SATREPS HP 「産業集積地における Area-BCM の構築を通じた地域レジリエンスの強化」

https://www.jst.go.jp/global/kadai/h2908_thailand.html

(Written by NUMATA Shingo)

Miscellaneous

Comments from internship students

インターン生からのコメント

ICHARMでは、五三裕太さん（東京大学大学院）、Sebastian Lopezさん（National University of Cordoba）、Chamal Pereraさん（名古屋大学大学院）の3名をインターン生として受け入れました。

ICHARMでの活動を振り返って、3名からコメントをいただきました。

ICHARM accepted three internship students, Mr. ITSUMI Yuta from the University of Tokyo, Dr. Sebastian Lopez from National University of Cordoba, and Mr. Chamal Perera from Nagoya University.

They kindly contributed short messages as below while looking back as their activities at ICHARM.

Mr. ITSUMI Yuta (the University of Tokyo) / 五三裕太（東京大学大学院）

Stay period: April 1 - December 2, 2022

インターンでは、1次元河床変動計算を通じて、土砂水理学の基礎知識、生きた川の難しさを学びました。これまで、川は文化そのものであり、人々の思想、哲学を映し出す鏡だと考えてきましたが、ICHARMでの8ヶ月を経て、土砂の流れとしても見るようになりました。メカニズムには未知の点も多い中で、変化を続ける現実の川と真摯に向き合う謙虚な姿勢が重要と感じています。一から丁寧に指導くださった江頭先生、原田さん、秦さん、今後の研究の第一歩を踏み出す機会を支えてくださった皆さま、ありがとうございました。

I enjoyed eight months in ICHARM, finding an attractive world of river sediment. In my previous view, rivers are culture, like a mirror reflecting people's mind, thought, or philosophy. But now, I can see rivers as sediment flows. Rivers flow on their own, even though there remain many unknown topics; sorting, bank formation, and supply estimation. I realized river engineers must chase them desperately. During the internship, I studied 1-D river flow computation, which gave me fundamental knowledge of sediment hydraulics and the difficulties of live rivers. Thanks to Egashira-sensei, Harada-san, and Qin-san for great guidance and to everyone for the opportunity to take my first step toward understanding rivers.



Dr. Sebastian Lopez from Argentina (National University of Cordoba)

Stay period: September 6 - October 20, 2022

My name is Sebastian Lopez, I'm currently a Phd. Student at the National University of Cordoba, Argentina. Working in the "Institute for advanced studies in engineering and technology" (IDIT-CONICET), the institution is one of the institutions participating in the Argentina SATREPS Project "PREVENIR", as well as ICHARM. The main purpose of this SATREPS project is to develop a flood alert early warning system for densely populated areas in Argentina, which will couple meteorological forecast with flooding simulation in the target area. Hydrological simulation is needed, therefore my main task during my seven weeks stay in ICHARM was to learn about RRI-Model, develop a model for Suquia river's Basin, calibrate and validate it.

During my stay, I was under the supervision of USHIYAMA-sensei, AIDA-sensei and KAKINUMA-sensei, which they very kindly give me all their knowledge and support for accomplishing the proposed goals, as well as letting me know a lot about Japanese culture and cuisine (which I enjoyed it very much). I developed the model for the target area and calibrate the parameters to achieve a good performance according to observed data. These results are very important for the SATREPS project. We visited Kinugawa River's dams and let me learn a lot about how dams are operated in Japan. Finally, I attended to hydrological lectures, that will enforce my Phd. Carrer.

I would like to thank Prof. MIYOSHI (Principal Researcher of SATREPS project), Prof. Garcia (My Phd. Advisor), Prof. KOIKE (Executive Director of ICHARM), Prof. USHIYAMA, Prof. AIDA, Prof. KAKINUMA and every researcher and staff member of ICHARM, for the great opportunity of working in such a great institution and for make me feel like home. ありがとうございました



Yunishigawa dam visit with USHIYAMA-san and KAKINUMA-san.

Mr. Chamal Perera from Sri Lanka (Nagoya University)

Stay period: November 7 - November 21, 2022

My name is Chamal Perera and I am from Sri Lanka. I am a PhD student from the Nagoya University and my supervisor is Dr. Shinichiro Nakamura.

I was very fortunate to do an internship at ICHARM during 7-21st November 2022 under the supervision of Dr. TAMAKAWA Katsunori, Dr. Mohamed Rasmy and Dr. USHIYAMA Tomoki. During my internship, I learned to use Global Climate Models (GCM) to analyze the future climate variability in the Kelani River Basin, Sri Lanka. The predicted high rainfall conditions from the GCMs were used to simulate a hydrological model (HEC-HMS) to identify the high flow conditions in the study region. As per the analysis, I was able to understand the possibility of occurrences of more frequent flood conditions by the end of the 21st century. The knowledge I acquired during the internship is very important for the incorporation of climate change factors to my PhD research.

I would like to thank ICHARM staff and all the students for their support and cooperation during my stay at the ICHARM.

どうもありがとうございました



Awards / 受賞リスト

* October - December 2022

- Public Works Research Institute and the University of Tokyo won the Excellence Award at the good digital award 2022 from the Digital Agency.
Project title: Development of a system to conduct data assimilation method using observed water levels and provide predicted water levels using forecast rainfall data for small and medium-sized rivers



- 土木研究所と東京大学がデジタル庁の good digital award 2022 で優秀賞を受賞しました。

プロジェクト名: 観測水位を活用した傾向分析による中小河川の水位情報システムの開発

- Executive Director KOIKE Toshio was awarded AGU Ambassador Award.
*See **Special Topics** on page 5.

- 小池俊雄センター長がアメリカ惑星科学連合アンバサダー賞を受賞しました。(5ページの**Special Topics**を参照。)

Business trips / 海外出張リスト

* October - December 2022

- October 23-28, MORI Noriyuki, New York, USA, (1) to participate in the Stakeholder consultation and Preparatory Meeting for the United Nations Water Conference 2023 (2) to participate in the High-level Preparatory meeting for the 6th UN Special Thematic Sessions on Water and Disasters
- October 24-28, MIYAMOTO Mamoru and NUMATA Shingo (-October 27), Bangkok, Thailand, to conduct field surveys of the SATREP project on regional resilience enhancement through establishment of Area-BCM at industry complexes in Thailand
- October 30-November 4, MIYAMOTO Mamoru, Vientiane, Lao PDR, to Attend RA II CP-H, RA II HydroSOS Implementation workshop and 4th Global DWAT workshop
- November 9-17, MIYAMOTO Mamoru, NAITO Kensuke (-November 20), and Ralph Allen Acierto, the Philippines, (1) to visit to IFI platform-associate ministries and agencies in Metro Manila and have research meetings and site visits in the Davao River Basin (2) research meetings in Laguna Lake Basin (NAITO Kensuke)
- November 8-17, KOIKE Toshio, Bali, Barikpapan and Manila, the Philippines, (1) HELP Advisors Meeting (2) Keynote talk at iWatcon (3) G20 Special Meeting (4) to visit to Nusantara (5) to visit to IFI platform-associate ministries and agencies in Metro Manila (6) to join HyDEPP-SATREPS meeting
- November 13-18, OHARA Miho, November 13-20, NAGUMO Naoko, November 26-30, AIDA Kentaro, and November 8-30, Ballaran, Vicente Jr. G., the Philippines, (1) to visit related organizations for SATREPS project(LLDA, DPWH, PAGASA, DOST-PHIVOLCS, UPD, MMDA, UPLB Lab. and DOST Lab.) (2) to hold the 3rd JCC (Joint Coordinating Committee) face-to-face (3) to conduct field surveys of Pasanjan river, Sta. Maria, Pampanga and Candaba area
- December 4-16, KOIKE Toshio, Koblenz, Germany, Paris, France, Washington D.C. and Chicago, USA, (1) IGWCO, ICWRGC (2) UNESCO head quarters (3) ICIWaRM (4) AGU award
- December 12-18, NAITO Kensuke, Chicago, USA, to attend AGU Fall Meeting 2022
- December 13-16, MIYAMOTO Mamoru, KAKINUMA Daiki and NUMATA Shingo, Bangkok, Thailand, to conduct field surveys of the SATREPS project on regional resilience enhancement through establishment of Area-BCM at industry complexes in Thailand

Visitors / 訪問者リスト

* October - December 2022

- Visited by Prof. Zhongbo Su and Dr. UENO Kenichi, October 4, 2022 *See **Training & Education** on page 11.
Purpose: To deliver a special lecture
- Visited by Prof. András Szöllösi-Nagy, October 11, 2022 *See **Information Networking** on page 19.
Purpose: Invited speaker for the 69th ICHARM R&D Seminar

- Visited by Dr. Manuel Antonetti, October 11, 2022

Purpose: To lecture on research into flood forecasting and to share information on research



- Visited by HyDEPP-SATREPS project members from the Philippines, November 27-December 1, 2022 *See **Research** on page 6.
- Purpose: Training on flood and risk assessment and management technology

Publications / 発表論文リスト

* October - December 2022

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- Daiki Kakinuma, Mamoru Miyamoto, Yosuke Nakamura, Anurak Sriariyawat and Supattra Visessri, *Development of an Inundation Model for Creating Industrial Park-Scale Risk Information for Area-BCM, Journal of Disaster Research (JDR)*, Vol.17, Issue6, pp.877-888, 2022年10月1日
- Tedla, Mihretab G., Mohamed Rasmy, Katsunori Tamakawa, Hemakanth Selvarajah and Toshio Koike, *Assessment of Climate Change Impacts for Balancing Transboundary Water Resources Development in the Blue Nile Basin, Sustainability*, Vol.14, No.22, November 2022, 15438. <https://doi.org/10.3390/su142215438>
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- 柿沼太貴、沼田慎吾、望月貴文、久保田啓二朗、中村要介、小池俊雄、池内幸司、降雨流出応答特性を考慮した洪水予測のための粒子フィルタ適用手法の検討、第67回水工学講演会、土木学会論文集B1(水工学)、土木学会、Vol.28、No.2、pp.L_403-L_408、2022年11月24日
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- Kattia Rubi Arnez Ferrel, HARADA Daisuke and EGASHIRA Shinji, *Effect of suspended sediment on bed evolution in a meandering river of the Bolivian Amazon*, 第67回水工学講演会、土木学会論文集B1(水工学)、土木学会、Vol.78、No.2、pp.L_883-L_888、2022年11月23日
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- AIDA Kentaro, Abdul Wahid Mohamed RASMY, TAMAKAWA Katsunori, KUBOTA Keijiro, MATSUKI Hirotada and KOIKE Toshio, *Research plan for "High-frequency and high-spatial-resolution soil moisture monitoring using SAR and microwave radiometer and application research to hydrological models", The Joint PI Meeting of JAXA Earth Observation Missions FY2022*, JAXA, 2022年11月7日
- Kattia Rubi ARNEZ FERREL, HARADA Daisuke and EGASHIRA Shinji, *LATERAL SORTING IN A SUSPENDED SEDIMENT DOMINATED MEANDERING RIVER, ANALES del XXX Congreso Latinoamericano de Hidráulica, XXX Congreso Latinoamericano de Hidráulica, IAHR*, Vol.3, pp.303-304

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None / 該当者無し

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5. PWRI Publications / 土木研究所刊行物 (土木研究所資料等)

None / 該当者無し

6. Other/ その他

None / 該当者無し

Editor's Note

編集後記

Thank you for reading the ICHARM Newsletter. I hope everything is going well with you all.

Here in Japan, we have had pretty cold weather but at the same time started sensing that spring is approaching little by little, as the Mt. Tsukuba Plum Blossom Festival is scheduled to begin on February 18 for about a month in the plum grove of Mt. Tsukuba overlooking PWRI.

Things in our country are slowly returning to normal, although we are having the 8th wave of COVID-19. More Japanese have started going abroad, and more foreigners have started coming to Japan.

As mentioned in this issue of the newsletter, ICHARM will host the 9th International Conference on Flood Management (ICFM9) in Tsukuba City, Ibaraki Prefecture, starting on February 19.

Back in August 2021, about a year and a half ago, at a special webinar held as a replacement for ICFM8, which was canceled due to the worldwide pandemic, Executive Director KOIKE Toshio announced that ICHARM would host ICFM9 in Tsukuba, Japan, in February 2023. Since then, all its staff has been working hard for a successful event. We are now expecting nearly 400 participants.

Under the grand theme of "River Basin Disaster Resilience and Sustainability by All: Integrated Flood Management in the Post-Corona Era," ICFM9 will be an invaluable occasion for presentations and discussions on a broad range of flood-related issues, such as restructuring societies into highly flood-conscious ones.

We look forward to seeing you in Tsukuba when spring is just around the corner.

ICARM Newsletter Editorial Committee
KURIBAYASHI Daisuke

日本では厳寒の候となりましたが、皆様いかがお過ごしでしょうか。

寒い中ですが、土木研究所を見下ろす筑波山の梅林では、2月18日から約1か月間、「筑波山梅まつり」が開かれる予定であり、少しずつ春が近づいてくるのが感じられます。

日本国内では、新型コロナウイルス第8波が流行していますが、海外との人の往来も回復しつつあります。

さて、本ニュースレターでも紹介しましたが、ICARMは、来る2月19日から「第9回洪水管理国際会議 (ICFM9)」を茨城県つくば市で開催します。

遡れば、約1年半前の2021年8月、新型コロナウイルス感染症のため中止となったICFM8の代替として開催された特別ウェビナーにおいて、小池俊雄センター長から2023年2月にICFM9をつくばで主催する旨、意思表示がなされました。その後、ICARM一丸となって準備作業を進め、おかげで現在約400名近くの参加が見込まれています。

ICFM9では、“River Basin Disaster Resilience and Sustainability by All ~ポストコロナ時代の統合洪水管理~”を大きなテーマとし、コロナ後の社会における洪水に配慮した社会の再構築などに関して、発表および議論が行われる予定です。

春を待つつくばで、皆様とお会いできることを心待ちにしています。

ICARM ニュースレター
編集委員会
栗林 大輔

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We welcome your comments and suggestions.

