

KAGES NEWSLETTER

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한미 지리정보 및 환경과학 협회 소식지

발행인: 허미선 편집: 이지은, 전범석

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From The President

회장 인사말



KAGES 회원 및 후원자 여러분
안녕하세요?

지난 한해 열심히 달려 다시
여름의 문턱에 섰습니다. 가장
기억에 남는 보람찬 활동이라면
지난 3 월 25 일에 덴버
콜로라도에서 있었던
신진학자들을 위한 포럼 (Young

Korean Geographers Forum), 멘토링 세션 및 총회일
것입니다. 이번 뉴스레터에서는 그 소식을 다양하게 전달해
드리겠습니다. 그동안 해리포터의 책에서 처럼, 2D 화면
속에서 살아 움직이던 회원님들을 3D로 직접 만날 수 있었던
너무나도 좋았던 시간이었습니다. 40 여분의 회원 및
후원자님들이 대면으로 그리고 10 여분이 비대면으로
참석해 주셨습니다. 이 자리를 빌어 총회 준비를 함께 준비해
주신 KAGES 이사진의 모든 이사님께, 그리고 현
대한지리학회 회장님이신 정성훈 교수님과 국제부 이재현
교수님께 감사한 마음 전합니다.

신진학자들을 위한 포럼은 두 세션으로 여섯분의
연구발표가 있었습니다. 1부에서는 김규식 (Florida State
University 박사과정 재학), 최문기 (University of Utah
박사과정 재학), 허소정 (Texas State University 박사과정
재학), 김효경 (Kyung Hee University 석사과정 재학)의
연구발표가 있었고, 2부에서는 오세원 (University of
Texas 박사과정 재학), 안윤정 (Colorado University
박사후과정 펠로우)의 발표가 있었습니다. 발표자분과 패널
교수님들 및 참가자들에게 감사한 마음 드립니다. 포럼 후
열린 멘토링에서는 학생회원들이 취업 및 유학생화에 대한
질문을 일반회원들에 여쭙고 경험을 나눌 수 있는 유익한
시간을 가졌습니다.

정기 총회는 대면과 비대면을 동시에 열어서 가능한 한 많은
분들과 소통하려 노력하였습니다. 일년동안 저희 KAGES 의
활동 사항을 보고했고, 특히 학생들의 스칼라쉽 및 어워드
시상식으로 기쁨을 함께 나눌 수 있었습니다. 대한지리학회

후원 학생 논문으로는 장한별 (Temple University,
박사과정 재학) 학생 회원님이, 그리고 University of North
Alabama 에 재직중인 심선희 교수님의 후원으로 마련된 심
트레블 어워드로는 오세원 (University of Texas, 박사과정
재학)과 최문기 (University of Utah, 박사과정 재학) 학생
회원님들이 수상하였습니다. COVID 로 연기되었던 2022 년
심 트레블 어워드를 안윤정 (Colorado University
박사후과정 펠로우), 김규식 (Florida State University
박사과정 재학), 그리고 허소정 (Texas State University
박사과정 재학) 께도 수상하였습니다. 또한 허소정님은 학생
리더쉽 부문 수상도 하였습니다.

정기 총회는 재미한인과학기술자 협회 (Korean-American
Scientists and Engineers Association, KSEA) 및 대한
지리학회의 지원으로 함께 할 수 있었습니다. 감사합니다.

마지막으로 이 자리를 빌어 내년 2023-2024 년도
KAGES 를 이끌어 주실 회장단 및 새로운 이사님들을 소개해
드리고자 합니다. 제 15 대 회장으로 활동해 주실 Park
University 의 차호섭 교수님의 리더쉽 아래, University of
Northern Colorado 의 이지은 교수님께서 부회장 및 회장
당선인으로 활동해 주시겠습니다. 또한 안윤정 (Colorado
University 박사후과정 펠로우) 및 이진형 (Western
University, Canada, 교수) 님이 신규 이사로 선출 되셨고,
학생 이사로는 최문기 (University of Utah, 박사과정
재학)님이 새로이 활동해 주시겠습니다. 새로운 이사진 및
회장단의 활약이 기대됩니다.

새로운 사람들은 늘 새로운 설렘을 주지만, 단체가 발전할 수
있는 또다른 이유는 그동안 성심을 다해 봉사해 주신 분들의
노력 때문입니다. 올해 6 월을 임기로 허경인 교수님께서
KAGES 이사진을 떠나십니다. 허경인 교수님은 11 대
회장을 2019-2020 학년도에 역임하셨고, 회장역임 후 3 년
봉사 기간동안 뒤에서 물심양면 KAGES 를 지원해
주셨습니다. 허경인 이사님은 그동안 이사진에서 Research
Committee Chair 로 신진학자들을 위한 포럼을 맡아서 해
주셨습니다. 감사한 마음 전합니다.

저희 KAGES 는 회원님들의 사랑과 관심으로 발전합니다.
올 한해동안 저희 이사진들과 함께 달려 주셔서
감사드립니다.

2023 년 5 월 허미선 드림.

Dear KAGES members and sponsors,

I hope your semester wrapped up nicely. You worked hard. You poured all your best into reaching your goals. It's time for a long, restful break. You deserve it. We deserve it!

The most memorable occasion during the 2021–2022 academic year was in-person events during the American Association of Geographers (AAG) on March 25th, 2023, in Denver, Colorado. It was the moment that the 2D people walked out of the screen. We could chat, drink, and share a sense of belongingness together. I thank the KAGES Board members for their dedication to making the events successful and Dr. Sunghoon Jung (President of the Korean Geographical Society) for joining from South Korea. There were about 50 people (40 in-person and ten online).

During the AAG, we hosted two Young Korean Geographers Forums (YKGF) sessions, mentoring sessions, and the KAGES's 2023 General Meeting. In this volume of the newsletter, we will showcase them. Six rising scholars made presentations in the YKGF: Kyusik Kim (Ph.D. student, Florida State University), Moongi Choi (Ph.D. student, University of Utah), Sojung Huh (Ph.D. student, Texas State University), Hyokyung Kim (Master's student, Kyung Hee University, Korea), Sewon Ohr (Ph.D. student, University of Texas), and Yoonjung Ahn (Postdoc, Colorado University). Drs. Bumseok Chun (Associate Professor at Texas Southern University) and I were panelists. Thanks for all the excellent research presentations and questions and answers from the audience.

The mentoring sessions were hosted as four small groups—three in-person and one online. The sessions were structured informally, offering opportunities for student members to ask questions to faculty and Postdoc fellows about tips for job search and life in general. Conversations continued later at the dinner celebrations.

There was the 2023 General Meeting (GM), which was held in a hybrid format. It was the time to share all the KAGES's efforts throughout the year with our members—from Ethics Council, Student Affiliate Group, Scholarship and Award, Sponsorships, Mentorship, and Election. The most exciting moment was celebrating awards and scholarships together. Recipients included Hanbyeol Jang (Ph.D. student, Temple University) for the Student Paper Award (sponsored by the KGS); Saewon Ohr (Ph.D. student, University of Texas) and Moongi Choi (Ph.D. student, University of Utah) for the

2023 SIM Travel Award (sponsored by Dr. Sunhui Sim, Professor, University of North Alabama); Sojung Huh (Ph.D. student, Texas State University) for the Student Leadership Award. In addition, the last year's SIM Travel recipients received their "conference travel" awards this time—recipients were Sojung Huh (Ph.D. student, Texas State University), Kyusik Kim (Ph.D. student, Florida State University), and Yoonjung Ahn (Postdoc, Colorado University). You may read more details in this newsletter.

All such events were made possible by support from the Korean–American Scientists and Engineers Association (KSEA) and the Korean Geographical Society (KGS).

For about three weeks before the General Meeting, the KAGES held an online voting for the following year's leadership and new board members. The voting results were announced during the GM. I am pleased to announce Dr. Ho-Seop Cha (Associate Professor, Park University) as the 15th President of KAGES, Dr. Jieun Lee (Associate Professor, University of Northern Colorado) as the Vice President/President-Elect, Drs. Yoonjung Ahn (Postdoc, University of Colorado–Boulder) and Jinhyung Lee (Assistant Professor, Western University, Canada) as new board members, and Moongi Choi (Ph.D. student, University of Utah) as the new student board member. We are thrilled to have this exceptional leadership of the KAGES.

I would like to share our special appreciation to Dr. Kyung In Huh (Cal Poly Pomona) for her service to the KAGES. Dr. Huh will leave the board after her term of service ends in June 2023. She was the 11th President during the 2019–2020 academic year and served additional three years as a board member. She organized the Young Korean Geographers Forums (YKGF) as the Research Committee Chair. We thank you for your service!

On behalf of the KAGES Board, I thank you for your continued support. I hope you enjoy the summer and meet again in the Fall.

Best regards,

Misun Hur.

KAGES Forum

New operational data-driven inundation forecasting system and its economic impact on agriculture: fier over lower mekong



이형기
(Hyongki Lee)
Associate Professor
Department of Civil and
Environmental Engineering
University of Houston

This study has implemented and operationalized FIER system (Forecasting Inundation Extents using REOF analysis) [1], a new data-driven satellite imagery-based inundation extent forecasting framework, for the Lower Mekong floodplains [2], where the implementation of the conventional approach is challenging due to its highly complex hydrological system. Simply speaking, FIER forecasts inundation extents based on a correlation between historical inundation extents and hydrological data (water levels or streamflow). Once the correlation is identified, inundation extents can be forecasted with forecasted hydrological data available from an external forecasting system. Specifically, FIER decomposes multi-temporal historical satellite images into significant spatiotemporal patterns using the Rotated Empirical Orthogonal Function (REOF) analysis. The patterns are then coupled with the hydrological data by regression models. Then, the forecasted hydrological data, when available, can be used as inputs to synthesize forecasted satellite-like images, from which the corresponding forecasted inundation extents can be delineated. Consequently, FIER becomes much more computationally efficient and scalable than conventional approaches.

In addition, a freely available user-friendly operational web application (<https://fier-mekong.streamlit.app/>) hosted by a cloud platform has been built as well. The system operationally generates daily continuous forecasts of inundation extents and depths with lead times of up to 18 days. The inundation forecasts can be exported as GeoTIFF files for further geospatial analysis, such as combing with different land cover data

for spatial prediction of flood-induced damages and economic losses.

In [2], we generated FIER-forecasted inundation extents for the wet season of 2020 and 2021, and cross-compared them with inundation extents from the real Sentinel-1A images, to demonstrate its skills. The error sources of forecasted inundation extents include the error in the input forecasted water levels, as well as the uncertainties in the FIER regression models that were possibly caused by human intervention activities (e.g., with the dense network of dikes, sluice gate operation, water pumping).

Forecasting Inundation Extents using REOF Analysis (FIER)-Mekong

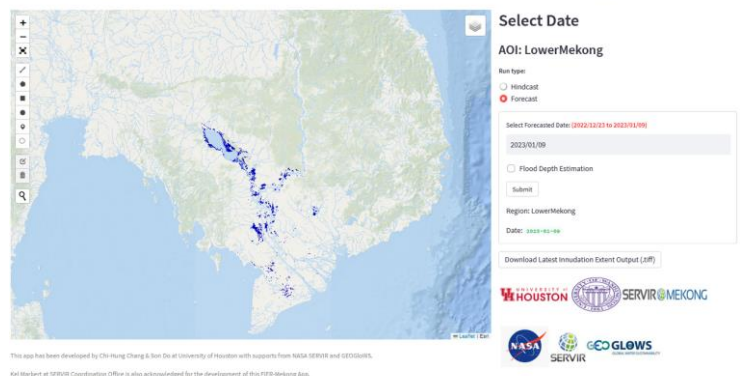


Fig. 1 Frontend GUI of the operational FIER-Mekong web application (<https://fier-mekong.streamlit.app/>) with the 18-day forecasts of inundation extents.

We also demonstrated an application of FIER-Mekong for spatial prediction of flood-induced rice economic losses [2]. Such spatial loss prediction can help decision-makers prioritize when and where proactive flood damage prevention measures should be taken. For instance, decision-makers can disseminate flood risk warnings to the inhabitants in the areas where rice paddies may be damaged by floods in the following days through Short Message Service (SMS) on mobile phones via local providers. After being informed, the local inhabitants can then evaluate the necessity to adjust the rice reaping schedule. For future work, the spatial flood-induced loss prediction will be made available on the web application, so decision-makers or any end-users that have an internet connection can directly obtain the results without processing the data on their own. Such an open web application can also help address the delays in flood warning dissemination caused by bureaucratic inefficiency or inadequate infrastructure investment in developing countries since local inhabitants with internet access can get information directly from the web application on their

own. Note that FIER-Mekong can also generate daily hindcasted inundation extents with historical water levels, which are also important for land-use planning and risk mapping. The FIER-hindcasted inundation extents and rice economic losses for the year 2018, the most recent wet year, were also presented in [2].

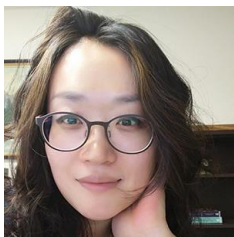
More importantly, with cloud-based databases, such as the Google Earth Engine (GEE) data catalog that archives the Sentinel-1 imagery over the globe, FIER has the potential to be easily implemented in other flood-prone regions in the world.

References

- [1] C.-H. Chang, H. Lee, D. Kim, E. Hwang, F. Hossain, F. Chishtie, S. Jayasinghe, and S. Basnayake, "Hindcast and forecast of daily inundation extents using satellite SAR and altimetry data with rotated empirical orthogonal function analysis: case study in Tonle Sap Lake Floodplain," *Remote Sens. Environ.*, vol. 241, 111732, 2000.
- [2] C.-H. Chang, H. Lee, S.K. Do, T.L.T. Du, K. Markert, F. Hossain, S.K. Ahmad, T. Piman, C. Meechaiya, D.D. Bui, J.D. Bolten, E. Hwang, H.C. Jung, "Operational Forecasting Inundation Extents using REOF analysis (FIER) over Lower Mekong and its potential economic impact on agriculture", *Environ. Model. Softw.*, vol. 162, 105643, 2023.

Special Contribution I

KAGES Sponsorship Program Report: Golden Compass: Groundbreaking Support for Trailblazing Women



이지은
(Jieun Lee)
Associate Professor
Department of Geography, GIS,
and Sustainability
University of Northern Colorado

지난 수천년 동안 여성들은 땅과 물을 가로지르며 위치를 탐지하고 기록하는 지도를 만들며 그 영역을 돌보는 역할을 해왔습니다. 마치 현 시대의 연구자들이 원격지리정보체계를 이용하듯이 말이죠. 지리학자이며

역사학자인 Judith Tyner 에 따르면 4 세기 중국에서는 중요한 정보를 지니는 지도가 마모되지 않도록 한 고위 관리가 그의 익명의 여동생에게 수를 놓도록 하였고, 메르카토르 도법의 창시자인 메르카토르도 (Gerardus Mercator) 역시 지도의 채색자로서 수 명의 여성을 고용하였다고 합니다.

우리가 지금 살아가고 있는 이 시대에는 성 정체성 때문에 특정 직업에 배제되지도 않고 그러하여서도 아니되지만, 여성 지리학자가 된다는 것은 여전히 도전적일 수 있습니다. 특히 다른 나라로 이주하여 그 학계에서 일하는 경우에는 새로운 환경에서 인종적 지위와 모국어가 아닌 언어를 구사하는 것에서 오는 편견이 더하여지기에 더욱 그러합니다. 미국의 지리학 혹은 관련분야의 학계에서 전문가로서 훌륭하게 일하고 있는 외국출신의 여성학자들은 유색인종이자 영어를 제 2 혹은 3, 4 의 언어로 구사하는 공통점을 지니고 있습니다. 또한 자신의 재능을 최대한 활용하고 경력에 미치는 영향을 극대화하는 데 필요한 사회적, 경제적, 문화적 자본 역시 부족할 수 있기에 풍부한 전문 분야의 지식과 업적에도 불구하고 외국 출신으로서의 많은 어려움을 종종 겪게 됩니다.

2022 년 처음 시작된 Golden Compass 프로그램은 우리와 같이 다른 나라에서 미국으로 이주하여 지리학 혹은 관련 분야에서 경력을 쌓고있는 여성학자들을 위하여 전문적인 능력향상과 개인의 경험을 허심탄회하게 공유할 수 있는 안전한 네트워크의 장이 될만한 프로그램으로 시작되었습니다. Golden Compass 프로그램 참가자들은 경력 향상과 리더십 훈련을 목표로, 의미 있는 전문 네트워크를 만들고 미국에서 생활하고 일하면서 겪는 모험과 어려움을 공유하기 위하여 한 자리에 모이게 된 것입니다. 사실 Golden Compass 프로그램은 TRELIS (The Training and Retaining Leaders in STEM - Geospatial Sciences)의 mini grant 로 구상이 되었었습니다. 제 3 차 TRELIS fellow 로 선발되어 하와이로 워크숍을 가려던 꿈은 2021 년 코로나로 인하여 물거품처럼 사라지고 virtual workshop 을 연달아 Zoom 에서 하는 불운하고도 의미로운 경험을 하게되었습니다. 여성 공간지리학자의 성공과 리더십을 위한 수많은 유용한 대화가 이어졌지만 아무래도 외국 출신의 여성학자들에게 꼭 필요한 이야기를 나누고 탐구하기에는 부족함이 있었지요.

운이 좋게도 TRELIS 프로그램 수료 후 여성 지리학자 및 GIS 과학자의 전문성 개발을 이어가도록 mini-grant 지원의 기회가 주어졌고 Golden Compass 프로그램이 선발되었습니다. 저말고도 TRELIS 동문 및 지도자가 공동주최자 (Dr. Mônica Haddad of Iowa State University, Dr. Huyen Le of Ohio State University, 그리고 Dr. Laxmi Ramasubramanian of San José State University)로 함께 일구어 낸 Golden Compass 프로그램은 UCGIS (University Consortium of GIS) 와 TRELIS 의 mini grant 을 바탕으로 시작되었습니다. 당시 미국 내 대학교에서 교수로 재직하고 있는 참가자 모집을 위하여 기존의 TRELIS

동문들의 추천이 이어졌고, 추천받으신 분들 가운데 지원하신 분들 중 세부전문분야, 직위 순위 및 문화적 배경 또는 국적에 따라 최종적으로 16분의 참가자가 선발되었습니다. 하지만 mini grant 수령액은 이들의 일정으로 가능하면 많은 여성학자들을 콜로라도 덴버로 초청하기에는 많이 부족한 상태였습니다. 용기를 내어 전달한 이메일 요청과 면담을 통하여 다행스럽게도 미국 지리학자 협회(American Association of Geographers) 그리고 본인이 몸담고 있는 University of Northern Colorado 에서는 외국 출신의 여성교수들을 위한 Golden Compass program 의 의미가 가치를 알아보고 너넉한 지원을 해주었습니다. 우리가 몸담고 있는 자랑스러운 KAGES 또한 sponsorship 프로그램을 통하여 힘을 더하여 주었기에 참가자 전원 및 훌륭한 몇 분의 강사까지 무사히 초청할 수 있었습니다.



그림 1 Golden Compass Banner

변덕이 심한 콜로라도 덴버의 날씨를 감안하여 최종적으로 2022년 5월 21일과 22일이 워크숍 날짜로 선정되었습니다만, 언제나 그렇듯이 가는 날이 장날인듯 20일부터 시작된 봄날의 눈보라는 주최측 4인방 모두를 매우 당혹스럽게 하였지요. 앞마당 복숭아 나무의 큰 나뭇가지를 부러뜨릴만큼 거세된 눈보라가 다행히도 5월 21일 당일 아침이 되니 잦아들었습니다. 드디어 오후가 되어 Golden Compass 의 막을 올리게 되었고 참가자 모두는 설레는 마음으로 서로를 알아가기 시작했습니다.



그림 2 공식 일정 이후에도 이어진 뜨거운 대화의 장

마치 오랫동안 기약만 있고 만나지 못했던 친구를 만난듯 뜨거운 대화가 이어졌습니다. 처음 만난 서로이지만 무엇보다 깊은 신뢰와 이런 대화와 토론이 꼭 필요했다는 동감이 있었기에 가능했던 일이었습니다. Golden Compass 프로그램 커리큘럼의 첫 주제는 networking 과 mentoring 으로써 참가자 모두는 자신의 진로를 되돌아보며, 외국 출신의 학자로서 직면했던 고유의 경험과 어려움을 함께 나누고 고민해주었던 멘토(mentor)에 대한 이야기들을 나누었습니다.



그림 3 Golden Compass 워크숍 중에.

Golden Compass 프로그램은 위에서 언급된 바와 같이 networking 과 mentoring 이외에도 career trajectories and leadership, professional communication 및 work-life integration 등의 주제로 구성되어 있습니다. 이틀째인 5월 21일에도 참가자 모두는 앞서 말한 주제들을 중심으로 University of Colorado-Denver 의 Center for Faculty Development and Advancement 에서 열정적인 워크숍의 시간을 보내게 됩니다. 특히 참가자 모두 영어가 모국어가 아님에도 불구하고 강의실이나 회의에서 성실하게 대화에 참여하지만 외국 출신이기에 마주하게 되는 편견과 차별에 통감하며 그에 어떻게 효과적으로 대응할 수 있는지에 대하여 배울 수 있었습니다. 이어서 진행된 career trajectories and leadership 을 주제로 한 강연에서는 Drs.

Vonu (Piyushimita) Thakuria (Rutgers University), Justine Blanford (University of Twente) 그리고 Kerry (Li) Fang (Florida State University)가 각자의 진로의 여정, 문화적 차이에서 오는 어려움과 방해적 요소들, 그리고 어떻게 그것들을 헤쳐나갔는지에 대한 경험과 조언을 열정적으로 나누어 주었습니다. 그 이외의 주제들을 나누는 시간에서도 참가자들 역시 신뢰감, 발언의 자유 및 안전감 등을 바탕으로 뜨거운 대화를 이어갔습니다.

5 월의 덴버에서 대화의 장을 마련한 것은 주최자들의 몫이었지만 그 공간을 뜨거운 신뢰감과 각자의 전문 분야 및 진로에 관한 열정으로 채워준 참가자들 덕분에 Golden Compass 를 성공적으로 마칠 수 있었습니다. 그들의 넘치는 에너지와 성공에 대한 포부 그리고 지리공간학 및 관련 학계에 함께 몸담은 여성동료들을 공동체적인 성공을 함께 염원하는 마음가짐은 제 자신을 겸허하게 만들어주었고 외국 출신의 훌륭한 여성학자들의 성공과 리어쉽을 뒤받침하는 Golden Compass 프로그램을 지속하고자 하는 근원이 되었습니다. 올해 4 월 덴버에서 개최된 AAG annual meeting 에서는 Golden Compass 프로그램의 일환으로 좌담회 (round table discussion)도 이어갈 수 있었습니다. 이 글을 빌어 지난 해 Golden Compass 프로그램에 1 기로 참여하여 주신 그리고 지난 4 월의 2023 AAG round table 토론회에 함께하여 주신 KAGES 회원분들께 깊은 감사를 드립니다.



그림 4 Golden Compass 2022 inaugural cohort and organizers.

*This article is adopted from an article, 'From Meridian,' published in Esri ArcNews Magazine Spring 2023 issue: <https://www.esri.com/about/newsroom/arcnews/groundbreaking-support-for-trailblazing-women/>

Special Contribution II

KAGES Mentoring Program 2022-2023

Report



윤혜진
(Hyejin Yoon)
Associate Professor
Department of Geography
University of Wisconsin –
Milwaukee

KAGES의 멘토링 프로그램은 2018 년도에 처음 시작되어 벌써 5 회째 멘토-멘티 여러분들이 프로그램에 참여 하고 있습니다. 주로 박사과정에 재학중인 학생회원(멘티)과 학계나 다른 연구원 등에 계신 일반 회원들(멘티) 간의 진로 개발 및 교류 증진을 주 목표로 하고 있습니다. 최근 2 년 사이에는 이미 박사학위를 마치고 박사후 과정이나 신입 교수가 되신 신진 학자분들도 멘토로 참여하는 등 많은 분들이 관심을 가져주고 계십니다. 2022-2023 학년도의 프로그램이 2022 년 7 월에 시작되었고, 본 학년도에는 총 11 분, 5 그룹이 활동 중에 있습니다. 특히 이번 해에는 한국에 계신 멘토님들도 참여해주셔서 본 프로그램에 힘을 보태 주셨습니다. 2023 년 3 월에 콜로라도 덴버에서 열린 AAG 학회 참석하는 멘토님과 멘티님들이 직접 만나시게 KAGES 차원에서 지원을 해드렸습니다. 멘토-멘티 활동은 주로 온라인 미팅을 중심으로 학회 이외에도 멘티분이 멘토님의 학교가 있는 도시를 방문하는 등 다양한 방식으로 진행되고 있습니다. 이 자리를 빌어 2022-2023 학년도에 본 프로그램에 참여하고 계신 멘토 및 멘티 분들께 깊은 감사 드립니다. 본고에서는 2022-2023 년도 멘토, 멘티 참여자들을 대상으로 실시한 멘토링 프로그램에 대한 의견 및 조언 등을 다른 KAGES 회원님들과 나누어 보려 합니다.

2022-2023 멘토링 프로그램에 대한 의견 설문조사는 2022 년 3 월과 4 월 사이에 이루어 졌으며, 총 6 분의 멘토님들과 총 5 분의 멘티님들이 귀한 시간 내주시어 조사에 참여해 주셨습니다. 멘토링 프로그램에 참여하시는 분들의 세부 전공을 최대한 고려하여 일대일 매칭을 원칙으로, 한 달에 한 번정도는 꼭 멘토-멘티 분들이 만나시길 권유하고 있습니다. 이를 제외하면 각 팀의 멘토 및 멘티님들의 자율 및 유연하게 활동을 하시게끔 아주 세부적인 가이드 라인은 제공하지 않고 있습니다. 혹시나 KAGES 에서 매년 실시하고 있는 멘토링 프로그램에 관심이 있으시거나 의문이 있으신 분들이 계시다면 이 글을 통해 멘토링 프로그램이 어떻게 이루어지며, 또한 참석자들이 어떻게 생각하시는지에 대한 답변이 되었으면 합니다. 또한 아직까지 멘토링 프로그램에 경험이 없는 분들께 참여를 권해 드립니다.

1. 전반적인 만족도 조사

이번 조사에서는 멘토분들이 매우 만족한다(100%)라고 의견을 주셨고, 멘티 여러분들 역시 매우 좋다(83%) 또는 또는 만족한다(17%) 이라는 긍정적인 평가를 주셨습니다.

2. 만남의 횟수 및 시간

멘토분들께서는 프로그램을 시작한 이후 몇번의 만남을 지속적으로 가지셨는지에 대한 질문을 드렸습니다. 응답을 해주신 멘티님들이 멘토님들과 7 회 이상(60%), 3 회에서 5 회 사이(20%), 1 회에서 3 회(20%) 정도의 만남을 지속해 주셨습니다. 1 회 만날 때마다 짧게는 30 분에서 1 시간 사이의 시간을 함께 하시거나 혹은 직접 멘토님이 사는 도시에 방문하여 1 일 이상도 함께 만나시는 경우도 있었습니다.

3. 프로그램의 효과 및 긍정적인 측면

멘티분들 전원이 본 프로그램을 통해 본인의 학업 수행에 전반적으로 도움이 되었다로 본 프로그램에 긍정적인 반응을 보여 주었습니다. 박사과정 및 커리어 전반에 걸친 조언이 주를 이루었으며, 자세하게는 인터뷰나 구직 시 필요한 멘토님들의 경험을 진솔하게 나눌 수 있어서 좋았다고 답변하였습니다. 그 외에도 일과 생활 균형잡기, 컨퍼런스 준비, 또는 CV 작성, 연구 논문에 대한 직접적인 피드백, 네트워킹 구축 등 다양한 관심사를 나누며, 멘티님들 본인의 학교 지도교수님과는 나누기 힘들었던 궁금점 등을 멘토님들과 함께 활동을 하였습니다.

4. 향후 프로그램 운영을 위한 제언

멘티님들이 생각하시는 멘토링 프로그램의 장점으로는 현재와 비슷하게 멘토-멘티 참여자들의 세부 전공 분야를 최대한 맞추어서 매칭을 하는 것이었습니다. 또한 멘토님들은 프로그램 운영에 있어 세부적인 가이드라인이 주어지면 더 도움이 될것 같다는 제언과 과거 프로그램에 참여하여 프로그램 종료 후에도 계속 멘토-멘티 관계를 유지하고 있는 참여자들에 대한 조사 등이 이루어질길 바라는 의견도 있었습니다. 즉, 단기적인 멘토링 프로그램이 아닌, 장기적인 멘토링 프로그램으로도 확장이 멘토링 프로그램의 역사가 길어짐에 따라 필요한 시점이라는 좋은 말씀도 주셨습니다. 또한 멘토와 멘티 참가자 전원이 함께 모이는 회의 또는 멘토님들간의 상호 경험 나누기도 도움이 될 수 있을것이라는 의견도 주셨습니다.

본 학년도의 멘토링 프로그램은 이번 6 월말까지 진행되며, 중간 서베이 이후에도 참여자분들이 더 많은 경험을 하실 수 있길 바랍니다. 다시 한번 올 한해 멘토링 프로그램에 참여하고, 소중한 의견을 나누어 주신 2022-2023 년도 멘토링 프로그램 참여자분들께 깊은 감사 드립니다. 곧 새로 시작될 2023-2024 학년도의 멘토링 프로그램 참여자 모집에 관한 이메일이 KAGES 회원분들께 발송될

예정입니다. 기존 참여자분들 중에서도 계속 참여하고 싶으시거나 또는 새롭게 멘토링 프로그램에 참여하고 싶으신 분들은 윤혜진 이사(yoon3@uwm.edu)에게 문의 주시기 바랍니다. 성심성의껏 여러분들의 프로그램 참여를 도와드리겠습니다.

KAGES Ethics Council

Ethical Issues Concerning Authorship

Part I: Definitions and Practices



조인정
(Injeong Jo)
Associate Professor
Department of Geography
and Environmental Studies
Texas State University

Authorship involves both credit and responsibility. The concept of authorship may sound straightforward, but the norms and practices of authorship vary across disciplines, across cultures, and even between research groups and laboratories within the same discipline (McNutt et al. 2018). More specifically, “the various conventions differ in their expectations of what effort earns authorship, what the order of authorship signifies (if anything), how much accountability for the research the corresponding author assumes, and the extent to which authors are accountable for aspects of the work that they did not personally conduct” (McNutt et al. 2018, 2557).

Multiple authorship, or co- or shared authorship, is commonplace in many disciplines. Making authorship decisions among multiple contributors is not always an easy task, and it becomes more complex and difficult to navigate when it involves collaborators from different disciplines. Researchers have paid increased attention to the ethical issues related to the concept and practice of authorship in the recent literature on research integrity (Hosseini and Gordijn 2020). Four common ethical issues that have been of particular interests among researchers are: 1) authorship perceptions, definitions and practices, 2) defining order of authors on the byline, 3) ethical and unethical authorship practices, and 4) authorship issues related to student/non-research personnel-supervisor collaboration (Marušić et al. 2011).

The purpose of this article is to provide an overview of these common issues concerning authorship (Part I) and suggest guidelines to prevent or resolve authorship disputes (Part II). The second part of the article also briefly touches on the topic of AI tools and authorship and provides a list of helpful resources. Part I consists of four sections: 1) Defining authorship, 2) Order of authors, 3) Faculty–student authorship, and 4) Unethical authorship practices, and Part II (to be published in the Fall 2023 KAGES Newsletter) includes three sections: 1) Handling or prevent authorship issues, 2) From authorship to contributorship, and 3) AI tools and authorship.

Defining authorship

The most widely used guidelines for authorship, which were published by [the International Committee of Medical Journal Editors](#) (ICMJE), require four criteria:

- 1) substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- 2) drafting the work or revising it critically for important intellectual content; AND
- 3) final approval of the version to be published; AND
- 4) agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

According to the ICMJE guidelines, also known as the Vancouver guidelines, those who do not meet all four criteria should not be considered authors but should be acknowledged. For example, providing administrative assistance, securing funding, collecting data, or providing general supervision of a research team alone does not constitute authorship. These individuals and their contributions should be cited in the acknowledgments section instead (Tarkang et al. 2017).

However, researchers have criticized the ICMJE criteria as too restrictive to be workable in practice. The argument is that strict application of this definition to modern research contexts is impractical because a blind application of authorship criteria may lead to the exclusion of significant contributors (Hosseini and Gordijn 2020).

To encourage a broader adoption of authorship standards, McNutt et al. (2018) proposed an alternative definition, in which each author is expected to:

- 1) have made substantial contributions to the conception or design of the work; or the acquisition,

analysis, or interpretation of data; or the creation of new software used in the work; or have drafted the work or substantively revised it or drafted the work or substantively revised it; AND

- 2) have approved the submitted version (and any substantially modified version that involves the author’s contribution to the study); AND
- 3) have agreed both to be personally accountable for the author’s own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature (McNutt et al. 2018, 2558).

This definition significantly broadens the eligible activities of authors by merging the first and second ICMJE requirements, making the involvement in drafting or revising a manuscript just one of a few possible authorship roles.

The minimum requirements for authorship that are standard in all definitions seem to be (1) a substantial contribution to the work and 2) accountability for the work and its presentation in a publication ([Committee on Publication Ethics 2019](#)).

Determining order of authors

Although the ICMJE guidelines clearly distinguish authors and non–author contributors, they do not provide specific criteria to determine the order of authorship. In many disciplines, the author order indicates the relative contribution of the authors (Albert and Wager 2003; Tarkang et al. 2017). The first author almost always made the most significant contribution to the research and the writing. However, disciplinary differences exist in the meaning and implications of the sequence of the other authors, making a universal understanding of authorship order complicated. For example, in some disciplines, significance is attached to being the last author, the person who conceived the initial idea for the project, who secured funding, and who played a supervisory and management role. In other disciplines, the last author is the person who made the least intellectual contribution. Commonly, that the authors between the first and last are listed in order of the significance of the contribution they have made. However, no consensus has been reached to guide this decision. There also have been suggestions to list middle authors randomly or list all coauthors alphabetically, but these make evaluating the

contribution and responsibilities of authors even more difficult from their relative positions in the byline. There seem to be no clear criteria for authorship order that is acceptable to all disciplines.

What is most important is that these decisions be made collectively among authors (ICMJE). Both the contribution and the responsibility of each author in relation to the content being published should be seriously considered (McNutt et al. 2018). Competition for a more desired position (e.g., first or last authorship) may be unavoidable, but the effort needs to be made to ensure that the authorship order decisions do not result in unfair treatment of less powerful authors, such as junior and doctoral researchers (Hosseini and Gordijn 2020).

Faculty–student authorship

Authorship is further complicated given the dynamics of the faculty–student relationship. The norms and practices of faculty–student authorship vary among different academic disciplines. In some disciplines, the leader of the lab or PI of the project becomes the first (or last) author of all publications while in other disciplines, authorship is determined by intellectual contribution. The challenges involve balancing the roles and motivations of both parties during collaboration to handle inherent power differences, inexperience in authorship practices, and time management constraints because “potential exists for missteps by either party resulting in role confusion, conflict of interest and even exploitation, whether intentional or accidental” (Eiswirth and Fry 2022, 116).

Unethical Authorship Practices

Hosseini and Gordijn (2020) pointed out that “the so-called questionable practices are believed to be much harder to identify and difficult to frame as a violation of the norms of authorship” (293), and these authorship practices are deemed detrimental to research (McNutt et al. 2018).

Honorary (or undeserved) authorship is the practice of granting authorship to someone who has not contributed to or was marginally involved in the work. Three modalities of honorary authorship can be identified although they may overlap: gift authorship, guest authorship, and coercive authorship.

Gift authorship is often granted to senior figures (e.g., department head or a senior academic). In this case, “the gift author may gain prestige by being associated with the publication, and the author may gain approval

for their work from the senior academic” (Tarkang 2017, 40). Many researchers are also willing to include a senior academic as a co-author, expecting this to facilitate the publication of their work or enhance their career prospect. Gift authorship also occurs when the author includes colleagues, hoping that the gift author will do the same for them in their other publications. Gift authorship develops frequently because both the author and the gift author benefit from the relationship.

Guest authorship occurs when authorship is granted out of appreciation or respect for an individual despite the lack of direct contribution. For example, a well-known figure is invited to become a co-author in the belief that the expert standing of the guest author will increase the likelihood of publication and credibility of the work. It also occurs when the author wants to hide a paper’s industry ties by including an academic author.

Coercive authorship occurs when a senior author forces a junior one to include a gift or guest author. This is one of the most serious of the unethical authorship practices because “it does not only include undeserved attribution of authorship but also involves undue influence on the junior part of the interaction” (Aliukonis et al. 2020, 3).

Ghost authorship refers to the practice of not listing a person who contributed substantially to a paper as an author or co-author mainly to hide a conflict of interest. The ICMJE guidelines clearly condemn this practice by stating that “all those designated as authors should meet all four criteria for authorship, and all who meet the four criteria should be identified as authors.” Ghost authorship also occurs when a professional writer is hired and engages in writing a paper, thesis, or dissertation, but is not acknowledged. Pharmaceutical companies commonly employ ghost writers to compose clinical trial reports.

Forged authorship arises when an individual did not contribute to the published work but was included as an author without their knowledge or consent. Researchers fabricate co-authors mainly to increase the likelihood of publication. Forged authorship is also used when a researcher is attempting to publish fraudulent work, hoping that adding a co-author from a trusted institution will make their work seem plausible.

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Additional Resources

COPE Seminar 2021: Ethical authorship versus fraudulent authorship:

<https://publicationethics.org/resources/seminars-and-webinars/ethical-versus-fraudulent-authorship>

KAGES 2023 Annual Meeting Report

올해 2023 년 KAGES 총회는 콜로라도 덴버 (Denver, Colorado)에서 열릴 AAG Annual Meeting 현장에서 in-person 형식과 동시에 줌 (Zoom) 을 이용한 온라인 옵션도 함께 진행되었습니다.

KAGES 에서 개최하는 Young Korean Geographers Forum I & II, 멘토링 세션 이후에 진행된 2023 년 KAGES 총회는 지난 1 년 간 KAGES 활동 보고와 학생회원들에게 장학금 수여가 진행되었습니다. 매년 후한 지원을 해주시는 대한지리학회의 현 회장이신 정성훈 교수님(강원대)의 인사말씀 이후에는 KAGES 임원 선출선거 및 선거결과발표 역시 진행되었습니다. 총회 후의 식사모임까지 활동 사진을 다음과 같이 전하여 드립니다. 내년 하와이에서 개최되는 AAG 2024 annual

meeting 에서 함께 열릴 KAGES 의 총회에도 많은 KAGES 회원 여러분들께서 참여하시기를 기대합니다.



Figure 1 Young Korean Geographers Forum



Figure 2 KAGES mentoring session



Figure 3 KAGES general meeting



Figure 4 The Korean Geographical Society (대한지리학회) President's greetings



Figure 5 Group photo of the KAGES 2023 general meeting



Figure 6 Social gathering after the general meeting

이번 AAG 2023 annual meeting 에서 발표한 KAGES 회원 명단은 다음과 같습니다.

KAGES members' presentations at 2023 AAG, Denver, Colorado

- Hyowon Ban (California State University, Long Beach), Integrating Digital Mapping in K-12 STEM Education: User Interviews.
- Ho-Seop Cha (Park University), Drone education in Geographic Information Systems.
- Moongi Choi (university of utah), Fixing Equifinality of ABM: sequential parameter space searching method based on global sensitivity analysis.
- "Bumseok Chun (Texas Southern University), 1. Spatial impact of greening strategy on thermal inequity by the legacy of the Homeowners' Loan Corporation (HOLC) in Houston, Texas; 2. Spatial patterns of bike ridership on bike-sharing program in Houston, Texas."
- Chaeyeon Han (Georgia Institute of Technology), Mental Health Facility Visits Before and After the Outbreak of Covid-19: The Role of Neighborhood Built Environment.
- Jessie Hong-Dwyer (The Ray), Developing a crowd-sourced community mapping application for students' sense of community and belonging.
- Jiwon Jang (Arizona State University), Delineating neighborhood boundaries using cellphone data.
- Hayoung Jeong (City University of New York), Public Land for the Public Good? : Examining Community Land Trusts Efforts for Community-Controlled Urban Development in New York City.
- Chanwoo Jin (Northwest Missouri State University), Predicting Households' Residential Mobility Trajectories: A Geographically Localized Interpretable Model-agnostic Explanation.
- Paul Jung (Inha University), Global and Local Indicator of Spatial Association of Functional Data: Re-extending Geary's C.
- Junghwan Kim (Virginia Tech), A methodological investigation of the spatial coverage and temporal variability of Google Street View (GSV) images in small- and medium-sized cities: A people-based approach.
- Kyusik Kim (Florida State University), Assessing the Effects of Centroid Assignment Methods on Measuring Accessibility.
- Keumseok Koh (Univ of Hong Kong), A metropolitan-scale, three-dimensional agent-based

model to assess the effectiveness of the COVID-19 interventions.

- Hoeyun Kwon (University of Iowa), Human mobility or COVID-19 incidence: Which comes first? Unearthing the association of time series trends of human mobility and COVID-19 incidence.
- Won Sang Lee (Gangneung-Wonju National University), Exploring the Regional Patterns of Technological Convergences and their Embeddings.
- Gahyun Lee (University of Michigan), The political ecology of a territorial dispute: local conflict on Migingo Island.
- Jiyoung Lee (Louisiana State University), Understanding Street Theft Hotspots Using Machine Learning and Google Street Image.
- Jieun Lee (University of Northern Colorado), Urban abandonment, crime, and impaired walkability in Detroit; Golden Compass Onward: securing Success of Foreign-Born Women Faculty in Their Career, Leadership, and Life in the United States (round table session).
- Jonghee Lee-Caldararo (University of Kentucky), Loneliness and care in sleepless Seoul: Towards an understanding of the contractions of 24/7 urban life.
- Hyunseo Park (Michigan State University), Automated quantification of greenspace maintenance level assessment using Street View images and deep learning methods.
- Gina Park (Cornell University), Just Cleaner Air: Measuring Effectiveness of Cleaner Trucks on Addressing Environmental Justice.
- Jeongchang, Seong (University of West Georgia), Development of a Traffic Congestion Index from Spatiotemporal Big Data for Urban Transportation Research and Applications; Modeling the Probabilities of Vehicle Crashes Using Machine Learning Methods with Congestion Amounts and Spatiotemporal Features at Montgomery County, Maryland; Does Traffic Congestion Increase Vehicle Crashes? A Regional Scale Study with a Novel Congestion Index and Machine Learning Methods."
- Jiyun Shim (Kyungpook National University), A Before-and-After Study in Changes of the Railway Network Centrality on the Opening of SRT in Korea: Focused on PageRank Centrality.
- Sunhui Sim (University of North Alabama), Accessibility of new urbanism communities in the us: in the case of connectivity to existing urban, transit service, road connection and walkability.

Join KAGES!

KAGES 의 회원으로 초대합니다! 아직 회원 가입을 하지 않으셨나요? 회원 가입/리뉴 신청서를 작성하셔서 support@kage.org 로 보내주십시오. 회비 납부 역시 Paypal 로 쉽게 하실 수 있습니다 (<http://www.kages.org/season2/join-membership/>).

IJGER

International Journal of
GEOSPATIAL AND ENVIRONMENTAL RESEARCH

Editor-in-Chief
Dr. Woonsup Choi (최운섭)
University of Wisconsin-Milwaukee

The International Journal of Geospatial and Environmental Research (IJGER) is an international journal sponsored by the Korea-America Association for Geospatial and Environmental Sciences (KAGES). As a non-profit organization, KAGES fosters scientific interactions between Korea and the USA for Korean or Korean-American students, scientists, and professionals in the geospatial-technical and environmental science fields. As part of its mission, KAGES launched IJGER to provide a forum for discussion between its members and researchers in the field. KAGES has the ultimate authority on the ownership and management of IJGER. IJGER welcomes contributions that fit our aims and scope from anywhere by anyone in the world.

Submit your manuscript to IJGER now! If you have any questions, feel free to contact the chief editor of IJGER, Dr. Woonsup Choi (choiw@uwm.edu).

IJGER Early Career Paper Award

This award supports research of the members of KAGES who are either graduate students or early career scholars. The award is sponsored by Dr. Hyejin Yoon in the Department of Geography at the University of Wisconsin-Milwaukee. Total amount of \$900 will be awarded to three early scholars who publish their research in IJGER for three years from 2021.

KAGES Grant & Sponsorship

KAGES Student Affiliated Group Mini-Grant

The KAGES Student Affiliated Group Mini-Grant program is designed to encourage networking and personal growth among Korean KAGES student members who are affiliated with an academic institution in the U.S. and Canada. This grant program is sponsored by the Korea-America Association for Geospatial and Environmental Sciences (KAGES), a non-profit organization whose mission includes:

- Supporting student members to develop their career success through education and research;
- Supporting members to develop research, teaching, and services;
- Promoting interactions between South Korea and the U.S. in geospatial technology and environmental science fields.

KAGES welcomes any proposals/activities that address the overarching mission of the organization. Activities may include but are not limited to inviting an expert for a talk to their meeting, organizing a workshop, or meeting for their professional development. Each student group can apply multiple proposals/activities. KAGES will support up to \$300 annually per group. The total number of awards will be determined later. A student group may reapply for funding for the following years. For further information, please visit <http://www.kages.org/season2/kages-student-affiliated-group-mini-grant/>.

The KAGES Sponsorship Program

The KAGES Sponsorship program aims to support professional activities and events led by KAGES members for their career development and leadership. This program is designed to continue the organization's mission of supporting members' research, teaching, and services and promoting interactions between South Korea and the United States in geospatial and environmental science fields. KAGES welcomes a project proposal that expands the overarching mission of the organization. This sponsorship program will support up to \$500 for all approved projects. The funds will vary by project and are based on availability in the KAGES budget. KAGES members must be the key personnel in the proposed project. Potential projects could include but are not limited

to a professional development workshop, a professional networking event, or an academic seminar.

Key conditions are as follows:

- The project should aim to reach out to a broader scholarly community.
- KAGES sponsorship must be acknowledged during project activities.
- The sponsorship is intended to help KAGES members who are organizers of professional activities and events, not mere participants in the activities and events.
- The project has another funding source to achieve its goals (preferred but not required).

For further information, please visit

<http://www.kages.org/season2/category/activities/kages-sponsorship-program/>.

KAGES Members' Recent Publications

성정창 (University of West Georgia): Seong, J., Kim, Y., Goh, H., Kim, H., & Stanescu, A. (2023). Measuring Traffic Congestion with Novel Metrics: A Case Study of Six U.S. Metropolitan Areas. *ISPRS International Journal of Geo-Information*, 12(3), 130. <https://doi.org/10.3390/ijgi12030130>

Quantifying traffic congestion is a critical task for transportation planning and research. Numerous metrics have been developed, mainly focusing on changes in vehicle speeds, their extents, and travel time. In this study, new metrics are presented using the Hägerstrand's space-time cube that has been studied from time geography perspectives since the 1960s. Particularly, the product of distance and time, i.e., distanceTime, is proposed as a base metric to measure traffic congestion amounts. Using the base metric such as mileHours, metrics of weighted congestion and normalized congestion amounts were also developed. New metrics were applied to six metropolitan areas and their vicinities in the United States (Atlanta, Chicago, Washington, D.C. and Baltimore, Dallas and Fort Worth, Los Angeles, and New York), and congestion amounts were calculated and compared. The Google Traffic Layer API was used to obtain traffic congestion datasets for six months (April-September 2022), and GIS (geographic

information systems) was used for delineating road features and traffic intensity levels. Among the six areas, New York and its vicinity showed the largest congestion when only heavy congestion was used. Los Angeles and its vicinity showed the largest congestion when all congestion levels were considered. This study shows that the proposed metrics are very effective in summarizing traffic amounts and broadly applicable for further analyses of traffic congestion phenomena by associating various other factors, such as weekdays, months, or gas prices. The new metrics developed in this research may help transportation researchers and practitioners by providing them with a set of metrics applicable to summarizing congestion amounts by synthesizing congestion intensity, extent, and duration.

성정창 (University of West Georgia): Seong, J. C. (2023). Coordinate Transformations. *The Geographic Information Science & Technology Body of Knowledge (4th Quarter 2022 Edition)*, John P. Wilson (ed.). DOI: 10.22224/gistbok/2023.1.2. <https://gistbok.ucgis.org/bok-topics/coordinate-transformations>;

Coordinate transformations are needed to align multiple GIS datasets to one coordinate system when they use multiple coordinate systems. To transform coordinates, the properties of the source and target coordinate systems such as datums, projection methods, and their measurement origins and units should be identified carefully. Implemented in most GIS software and GIS data viewers, the on-the-fly projection technology projects GIS datasets automatically without the need for manual coordinate transformations by users. The coordinate transformation mechanisms for vector and raster datasets are different because the raster datasets require pixel value resampling during coordinate transformations. As a case study, eight GIS datasets were downloaded from multiple websites and were reprojected to a coordinate system in QGIS.

박진우 (University of Illinois Urbana-Champaign, Department of Geography & GIS): Park, J., Michels, A., Lyu, F., Han, S.Y., & Wang, S. (2023). Daily changes in spatial accessibility to ICU beds and their relationship with the case-fatality ratio of COVID-19 in the state of Texas, USA. *Applied Geography*, 154: 102929. <https://doi.org/10.1016/j.apgeog.2023.102929>

During the COVID-19 pandemic, many patients could not receive timely healthcare services due to limited availability and access to healthcare resources and services. Previous

studies found that access to intensive care unit (ICU) beds saves lives, but they overlooked the temporal dynamics in the availability of healthcare resources and COVID-19 cases. To fill this gap, our study investigated daily changes in ICU bed accessibility with an enhanced two-step floating catchment area (E2SFCA) method in the state of Texas. Along with the increased temporal granularity of measurements, we uncovered two phenomena: 1) aggravated spatial inequality of access during the pandemic, and 2) the retrospective relationship between insufficient ICU bed accessibility and the high case-fatality ratio of COVID-19 in rural areas. Our findings suggest that those locations should be supplemented with additional healthcare resources to save lives in future pandemic scenarios.

최운섭 (University of Wisconsin-Milwaukee): Borchardt, S., Choi, W. Effects of climate change and high-capacity wells pumping on streamflow and groundwater elevation in Northeastern Wisconsin. *Environ Earth Sci* 82, 148 (2023). <https://doi.org/10.1007/s12665-023-10818-1>

The number of high-capacity wells has increased substantially in the state of Wisconsin, United States, and concerns have been raised about their impact on both groundwater levels and streamflow. At the same time, Wisconsin's annual precipitation and temperature have been trending upward over the last 30 years and both are predicted to increase into the middle of the twenty-first century. The study demonstrates the simultaneous effects of climate change and groundwater withdrawal from high-capacity wells by employing two simulation models: the Soil & Water Assessment Tool (SWAT) and the USGS Modular Hydrologic Model (MODFLOW). SWAT was used to simulate the change in the recharge rate, and MODFLOW was then used to simulate the change in hydraulic head. The SWAT model predicted that future increases in Wisconsin's annual precipitation (5%) will cause increases in both groundwater recharge (16.7%) and streamflow (14.1%). The future increases in temperature (≈ 3 °C), however, are predicted to leave the state with a net deficit in both streamflow (-23.4%) and groundwater recharge (-19.6%). In addition, the MODFLOW model predicted a mean head elevation decrease of over 2 m due to changes in the climate and an additional decrease (≈ 3 m) in groundwater elevation surrounding high-capacity wells due to predicted increases in annual withdrawal rate.

Hyowon Ban (반효원) (California State University, Long Beach, Geography): Ban, H., & Kim, H. (2023). Analysis and

Visualization of Vessels' Relative Motion (REMO). *ISPRS International Journal of Geo-Information*, 12(3), 115. <https://doi.org/10.3390/ijgi12030115>

This research is a pilot study to develop a maritime traffic control system that supports the decision-making process of control officers, and to evaluate the usability of a prototype tool developed in this study. The study analyzed the movements of multiple vessels through automatic identification system (AIS) data using one of the existing methodologies in GIScience, the Relative Motion (REMO) approach. The REMO approach in this study measured the relative speed, delta-speed, and the azimuth of each vessel per time unit. The study visualized the results on electronic navigational charts in the prototype tool developed, V-REMO. In addition, the study conducted a user evaluation to assess the user interface (UI) of V-REMO and to future enhance the usability. The general usability of V-REMO, the data visualization, and the readability of information in the UI were tested through in-depth interviews. The results of the user evaluation showed that the users needed changes in the size, position, colors, and transparency of the trajectory symbols in the digital chartmap view of V-REMO for better readability and easier manipulation. The users also indicated a need for multiple color schemes for the spatial data and more landmark information about the study area in the chartmap view.

Members' News

Scholarly Accomplishments

윤혜진 (University of Wisconsin-Milwaukee): Award: The Title VI NRC Global Studies Research Fellowship for Fall 2023 in Global Studies at University of Wisconsin-Milwaukee. Her ongoing research project is "Globalized Fear and Young Female Asians during the COVID-19 pandemic in American Universities" with Dr. Hyowon Ban at California State University, Long Beach

About KAGES

Mission

As a non-profit organization, the mission of KAGES is to foster the following for Korean or Korean-American students, scientists and professionals in the geospatial-technical and environmental science fields:

- Support for students developing their career successfully through education and research
- Support for members developing research, teaching and services
- Promoting interactions between South-Korea and USA in geospatial technology and environmental science fields

Bylaws

- The KAGES Bylaws was revised and approved by the KAGES Board Members on Friday, April 9, 2021 and the revised version is accessible in PDF format from the following link: KAGES Bylaws. (http://www.kages.org/season2/wp-content/uploads/2015/04/KAGES-Bylaws-Final_5th_revision_2021.pdf)

Organization

- KAGES was founded on 11/17/2008 with eight founding board members:

Dr. Gi-Choul Ahn	Dr. Yeong-Hyun Kim
Dr. HeeJun Chang	Dr. Sun Yurp Park
Dr. Jinmu Choi	Dr. Jeong Chang Seong
Dr. Jongnam Choi	Dr. Changjoo Kim

Officers (July 2022 – June 2023)

President: Dr. Misun Hur
 Vice President: Dr. Hoseop Cha
 Secretary: Dr. Sanglim Yoo
 Treasurer: Dr. Hosuk Lee

2022-2023 Board members

Dr. Hoseop Cha (Park University): Vice President; Public Relation Committee
 Dr. Bumseok Chun (Texas Southern University): Newsletter; Technical Support
 Dr. Kelly Huh (Cal Poly Pomona): Past President (2019-2020); Research Committee
 Dr. Misun Hur (East Carolina University): President; Communication Committee, Public Relation Committee
 Dr. Injeong Jo (Texas State University): Past President (2021-2022); Legal, International Relation, and Public Relation Committee
 Dr. Jeon-Young Kang (Kongju National University): International Relation Committee
 Dr. Hosuk Lee (University of North Georgia): Treasurer; Communication Committee (Membership)
 Dr. Jieun Lee (University of Northern Colorado): Newsletter; Communication Committee
 Dr. Sanglim Yoo (Ball State University): Secretary; Scholarship & Award Committee

Dr. Hyejin Yoon (University of Wisconsin-Milwaukee): Past President (2020-2021); Legal Committee, Career Development Committee

Dr. Taehee Hwang (Indiana University): Scholarship & Award Committee

Sojung Huh (Texas State University): Student Board Member; Communication Committee; Technical Support Committee

Newsletter Editorial Team

Editor: Dr. Jieun Lee (University of Northern Colorado)

Associate Editor: Dr. Bumseok Chun (Texas Southern University)

Membership Benefits

- Members can actively involve in opportunities by KAGES to network with your professional peers for the fields of geospatial and environmental science.
- Members are eligible for a variety of KAGES awards and can apply grants by KAGES.
- Members have a voting right for KAGES elections.
- Each KAGES member is also to become a member for KSEA-Georgia Chapter during KAGES membership.
- For renewal of membership, or join the KAGES, please visit the KAGES website at <http://www.kages.org> or email at support@kages.org
Twitter: [@KagesOfficial](https://twitter.com/KagesOfficial)