SPECTRUM

THE OFFICIAL NEWSLETTER OF THE ISPRS STUDENT CONSORTIUM
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SPOTLIGHTS

MOBILITY DATA TO SUPPORT COVID-19 ANALYTICS

SHEDDING LIGHT ON EARTH: Nighttime Light Revolutionized How We Understand Our World

THE ROLES OF GEOSPATIAL INFORMATION DURING THE COVID-19 PANDEMIC

Monitoring ambient air in the Philippines during COVID19 crisis using satellite data

The Vital Role of Electronic Cargo Tracking System (ECTS) and Geospatial Data in Curbing COVID - 19 Pandemic in Africa

IFOV

IMPORTANT FOCUSED OUTSTANDING VALUABLE

WOMEN IN GEOSPATIAL+ launches speakers database and webinar series on professional development

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ENGAGE *WITH OUR GLOBAL NETWORK OF EXPERTS AND* **BE EMPOWERED**

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NEWSLETTER

ISPRS STUDENT CONSORTIUM

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Dear ISPRS SC Newsletter readers,

I hope that you are all coping with the current health crisis. Even our message introductions these days have been affected by this pandemic. To be well and healthy is truly a privilege these days, more so to have access to basic needs.

Last March, the entire world was shaken by the declaration of the World Health Organization (WHO) of COVID-19 as a pandemic. Many countries started to place restrictions and to implement community quarantine or strict lockdowns to prevent the spread of the virus. This pandemic did not only stop our movements; for most of us, everything seemed to pause and there was no end in sight. Anxiety, fear, and uncertainty began to dominate us. The continued increase in the number of cases, the indescribable grief and loss, and the endless waiting for the vaccine that is yet to be developed has affected our mental and emotional well-being. This health crisis also revealed the injustices and inequalities that continue to exist in today's society. In September 1997, the famous author Malcom Gladwell wrote about "The Deadliest Virus Ever Known" in The New Yorker (https://www.newyorker.com/magazine/1997/09/29/the-dead-zone). In this article, he mentioned the strategies that the WHO had been implementing to monitor new flu viruses and that, in case another pandemic emerges, we would not be unprepared. But it made me ask, "Are we really not unprepared?" With Wuhan under continued surveillance by the WHO, how could we actually miss what was happening?

We now live in an unprecedented situation and we are forced to live in a different way. Social distancing never seemed to be more difficult than at this time, especially for those who already live far from their families and loved ones. At the onset of this pandemic, many people experienced extreme sadness or even cry at unexpected times. Who would have thought that staying at home would be so difficult when it was all we wanted when we were busy working or studying for many years? Who would have guessed that despite the time given to us in this pandemic, it would be so challenging to be productive? What you feel, what you see, and what you are experiencing right now are not exclusive to you – you are not alone.

Despite the difficulties, we see kindness and compassion everywhere. Many of us now have a deeper understanding about what truly matters and maybe a little bit of how we should live our lives. Technology is much more appreciated since it is now our way to keep connected and to nurture our personal and professional relationships. Some of us have gained insights about the different issues in our society – incompetent political leaders, poverty, gender inequality, and the lack of access to health services, to name a few. "How are you?" now has more meaning than before. Life is no longer a race, but something that we definitely need to live to the fullest.

It is also incredible to witness people working together and coming together from different disciplines to formulate solutions to overwhelming issues in an attempt to minimize the impacts of this pandemic while the vaccine is being developed. We see our scientific community providing information primarily on the spread of the virus. Maps are everywhere and have been guiding our society in determining vulnerable populations and places, in contact tracing, in locating hospitals with low medical supplies or limited hospital beds, and many more. In this special issue, we feature articles on the use of nighttime satellite imagery to understand human behavior, monitoring how air quality has changed in this pandemic using remotely sensed data, mapping mobility using mobile big data, and the role of electronic cargo tracking system and geospatial data in Africa.

We are also supporting our friends in Women in Geospatial + by featuring their upcoming activities in this Newsletter. Don't forget to sign up in the Speakers Database so that we can have more women speakers in panel discussions and conferences.

Last April, we introduced the ISPRS SC Virtual Rooms and continued with the Webinar Series in May, which you will read more about in this issue. We are also sharing the experiences and insights of some of our members during this pandemic. I would like to thank you all for the courage and inspiration.

On behalf of the Board of Directors, I extend our deepest sympathies to everyone who lost a loved one in this pandemic. Our well wishes to those who are affected and recovering. Our encouragement to all to continue following social distancing measures not only to protect yourself, but to protect all and to stay healthy and well. We also reach out to you all to show more kindness and compassion. Remember that we are all in this together and I leave you all with this message from Rebecca Solnit's Paradise Built in Hell:

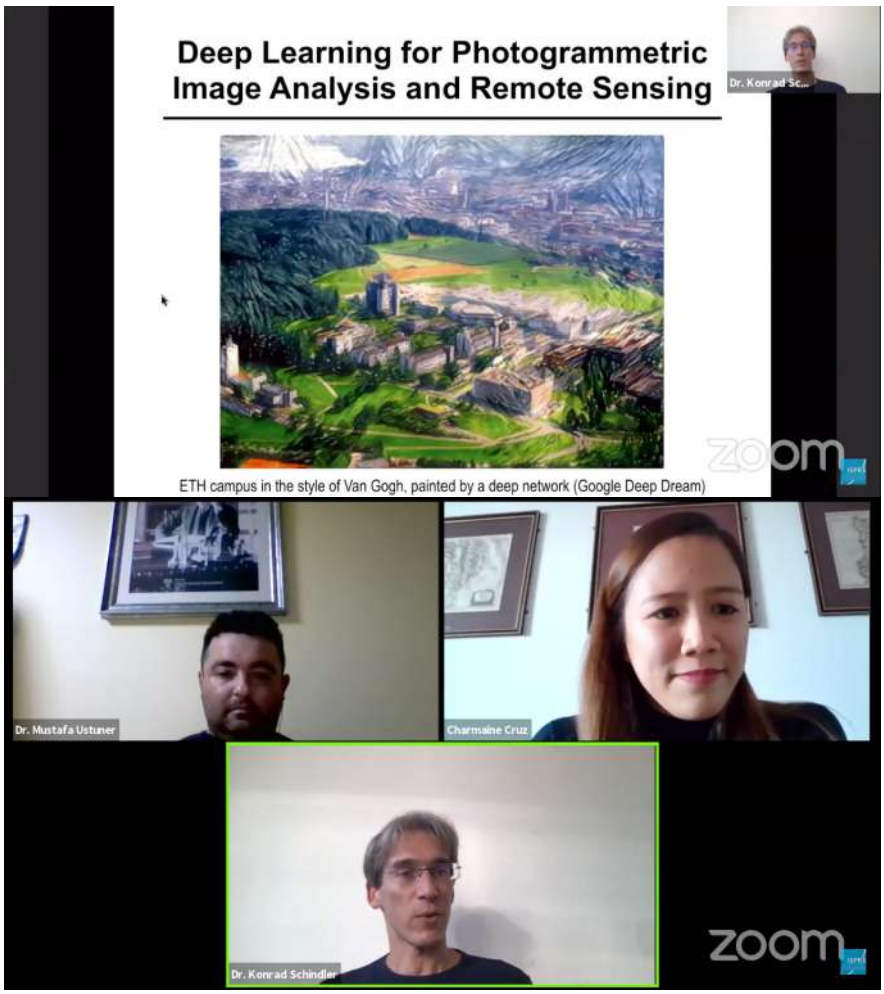
"Horrible in itself, disaster is sometimes a door back into paradise, the paradise at least in which we are who we hope to be, do the work we desire, and are each our sister's and brother's keeper."

SHERYL ROSE REYES
ISPRS SC PRESIDENT

ISPRS Student Consortium Webinar Series

BY: DR. MUSTAFA USTUNER
ISPRS Student Consortium Social Media Coordinator

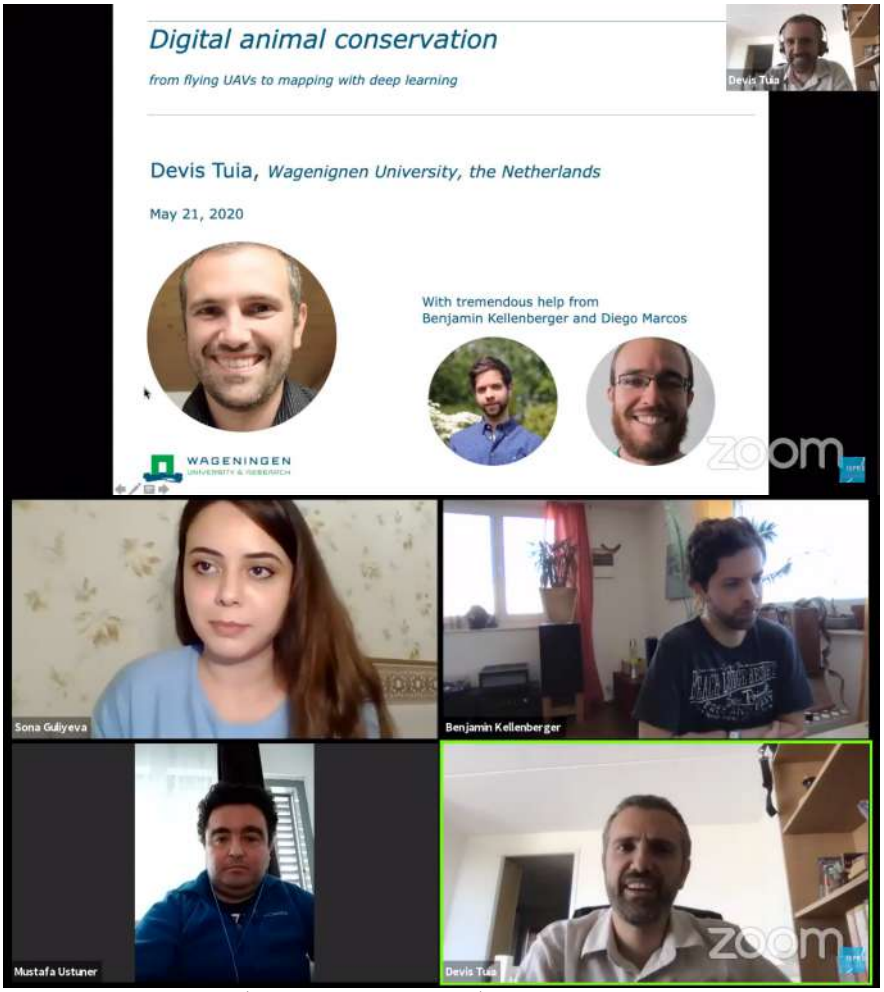
This year, the ISPRS Student Consortium (SC) started a new initiative called the "ISPRS SC Webinar Series" that attracted many students and offered them an opportunity to listen to technical talks and participate in question and answer (Q&A) sessions with the speakers. So far, two webinars have been held this year.



The ISPRS SC Webinar Series: Deep Learning for Photogrammetric Analysis and Remote Sensing

The first webinar, titled "Deep Learning for Photogrammetric Analysis and Remote Sensing," was held on 20 February 2020 by Dr. Konrad Schindler who is a professor at the Department of Civil, Environmental and Geomatic Engineering, Institute of Geodesy and Photogrammetry in ETH Zürich. In today's era of big data, deep learning techniques have been becoming more vital to pursuing data-intensive science. Deep learning (DL) has attracted the interest of many people since this learning method revolutionized the computer vision field, as it is capable of achieving unprecedented accuracy with big data including image classification and analysis for Photogrammetry and Remote Sensing. Through this sharp success in this domain, deep learning has become one of the hottest emerging topics of today in many fields including Computer Vision and Remote Sensing. Dr. Schindler provided technical details about artificial neural networks (including Multi-Layer Perceptron, Backpropagation, Deep Networks, Convolutional Neural Networks, Recurrent Neural Networks, and Feature Learning) and demonstrated some interesting studies in the area of Geospatial Engineering, such as tropospheric path delays, mapping street-side trees, vegetation height from space, and DEM filtering. There was a Q&A session at the end of the webinar, which was very helpful for participants to make some complicated details of DL clearer and better understanding. There was a great interest in the first webinar as it logged a high number of participants from more than ten countries worldwide.

The second webinar, titled "Digital Animal Conservation - From Flying UAVs to Mapping



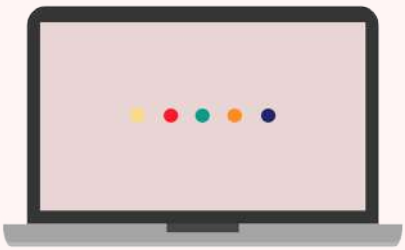
The ISPRS SC Webinar Series - Digital Animal Conservation

with Deep Learning," was held on 21 May 2020 by Dr. Devis Tuia who is a professor at Wageningen University, the Netherlands. As with the first webinar, there was a great interest in the second webinar as it also logged a high number of participants from more than ten countries worldwide. Digital technologies such as advanced imaging and cutting-edge computer vision (along with advanced deep learning methods) could help to advance wildlife conversation and protect biological diversity. Automatic identification and counting of the wild animals in nature has critical importance for monitoring these populations without damaging their habitats and nature. UAVs (i.e. multi-sensor cameras) offer a great opportunity for monitoring the animals in the wildlife and deep learning is able to count the animals with high accuracy in an automatic way. In this webinar, Dr. Tuia addressed the problem of detecting and counting animals without damaging their habitats in order to provide accurate counts in an automatic way. In particular, Dr. Tuia talked about how deep learning can help, especially when assisted by enthusiastic nature lovers willing to screen images for protecting wildlife. There was a Q&A session at the end of the webinar which was very beneficial for participants to understand the details of how DL can be implemented through UAV data processing in remote sensing.

The ISPRS SC thanks Dr. Konrad Schindler and Dr. Devis Tuia for their fantastic webinars. We really enjoyed listening to your talks.

Link to the webinar videos and presentations:
http://sc.isprs.org/isprs_sc_webinars.html

THE ISPRS SC VIRTUAL ROOMS



With almost all countries around the world imposing either a lockdown or a community quarantine, everyone was forced to stay at home and to do everything remotely or virtually whenever possible. The ISPRS Student Consortium Board of Directors realized the need to keep our members connected and to find a place, so we started an initiative called Virtual Rooms. Initially borne out of our fear of being isolated and alone, far from our families and friends, as well as the anxiety brought about by this pandemic, the ISPRS SC Virtual Rooms became our platform to meet new friends, to bridge the gap among generations, to connect our members to ISPRS experts, to introduce amazing individuals and groups in our profession and to help each and everyone who participated to adjust to this new way of navigating a new way of strengthened communication, changing lifestyles, improving work and research practices and being mindful of what truly matters.

The initial run of the ISPRS SC Virtual Rooms features five different rooms:

The Wisdom from the White Elephants

One of our virtual rooms features some of the legends in remote sensing, photogrammetry and spatial information science. We have so many questions that we may or may not want to be addressed – some of them need immediate answers and solutions, some questions we may feel that it might be too trivial and embarrassing to ask. But, fear not! No question is too simple or complex to these experts. Come and ask for the wisdom of the ISPRS White Elephant Club!

In Memory of Schrodinger's Cat

Remember the famous cat? The only way to know if the cat is still alive or not, is to open the box. Maybe you are also in doubt about your research – Is it going to live or am I reaching a dead end? The only way to find out is to discuss it with fellow students and young professionals. This is our virtual "brown bag session," so join us if you would like to get insights and feedback on your current work in progress.

Writer's Block

Stuck on the chapter 2, paragraph 1, sentence1 of your report/manuscript? We hear you! You are not alone having this writer's block. Let's draw comfort, inspiration, encouragement and techniques from each other's writing experiences.

Bring your own Sunshine!

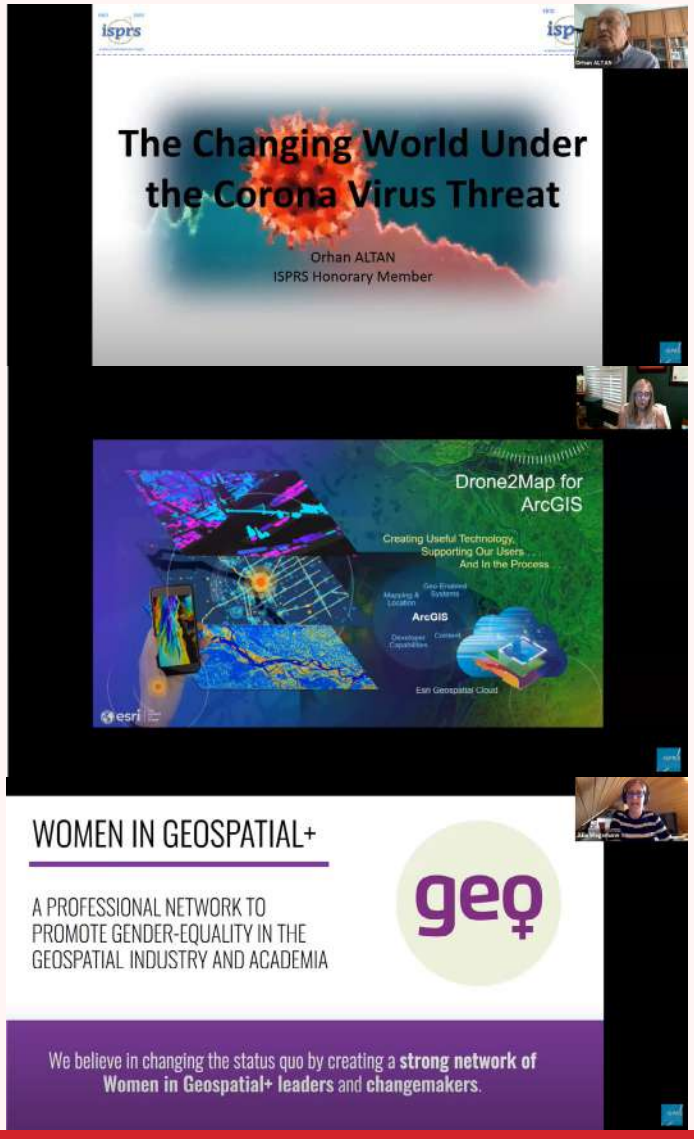
"Wherever you go (inside the house lol), whatever the (global) situation is, always bring your own sunshine." Although we can't go outside to get our daily dose of Vitamin D from the sun, we can avoid being a zombie by bringing our own sunshine! Lighten the mood and bring some warmth into the conversation. Talk about anything under the sun, because we are all in this together.

The ISPRS SC Super Friends

We love meeting people and new friends! In this room, we invite friends of the ISPRS SC who can share tips and tricks, great wisdom, inspiration and encouragement to our community. Some heroes wear capes, but some of them have superpowers and amazing knowledge in remote sensing, photogrammetry and spatial information science as well brilliant leadership skills and incredible passion for advocacy. We also have wonderful friends to provide support and advice to help you get through this challenging time.

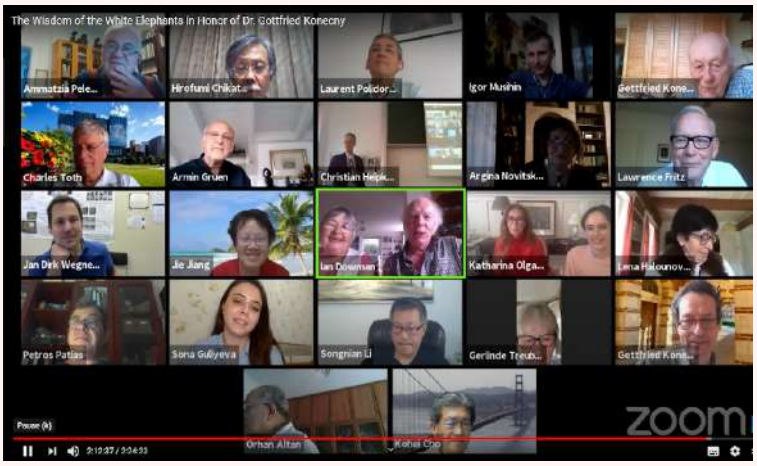
Three of the Virtual Rooms were open rooms, which include In Memory of Schrodinger's Cat, Writer's Block and Bring Your Own Sunshine! – moderated by the Board of Directors and guest moderators. Two featured very special guests, the Wisdom of the White Elephants and the ISPRS SC Super Friends. The open rooms provided a more relaxed atmosphere to our members, where we can freely exchange ideas, ask and give advice and just enjoy having a good conversation with fellow students and young researchers from different countries.

The Wisdom of the White Elephants featured the legends of remote sensing, photogrammetry and spatial information science, which is adhoc committee of ISPRS called The White Elephant Club. Led by Dr. Armin Gruen, this Virtual Room provided great presentations on doing research, writing good journal papers and thesis and more importantly, lessons brought about by this pandemic and taken from the lifelong experiences of the White Elephant Club members. Our members had the amazing opportunity of meeting and exchanging ideas with Dr. Shunji Murai, Dr. Gottfried Konecny, Dr. Orhan Altan, Dr. Ian Dowman and Dr. John Trinder. We also interacted with Dr. Wolfgang Kainz and Dr. Marguerite Madden. This Virtual Room was a great example of knowledge transfer from different generations in the Society and the Consortium. Many of our members were greatly inspired and encouraged, not to mention starstruck, in meeting many of the people who supported and contributed to the development and advancement of our profession. Our very special guest, Dr. Charles Toth, together with Dr. Konecny, presented the past and the present of ISPRS, taking us back as about a hundred years in history and bringing it home to the present Society.



One of the greatest experiences that the Board of Directors wanted to share with the Consortium members was the friendships built in organizing various activities for the youth and building our professional networks. We learned more about the amazing work that the Group on Earth Observations (GEO) was doing around the world with Steven Ramage, Laura Mugeha and Diana Mastracci. Caroline Bowe from Dublin City University provided us with valuable insights on managing our personal challenges in this pandemic and how to find our strength to keep moving forward. We also learned about the development of space technology in two different countries. Dr. Rustam Rustamov gave us an overview of the current status of cooperation and integration in Azerbaijan. We had a very interesting and meaningful discussion with the young researchers from STAMINA4 Space in the Philippines about the development of small satellites. Dr. Joseph Kerski and Dr. Lorraine Tighe of Esri introduced us to the power of geospatial data and to a wealth of GIS resources and networks. They also shared with us lessons learned from their professional experiences, how they see the future of working with geospatial data and the need for more experts in the fields of remote sensing and GIS will be in the coming years. Our friends from UNOSAT also shared their recent experiences with Typhoon Harold and how they made use of satellite imagery and other data to provide a rapid assessment to aid the local government. Khaled Mashfiq and Jakrapong Tawala also challenged

us to think beyond data and the realize the real impacts of the research that we do using remote sensing and geospatial information. Sabrina Szeto and Julia Wagemann from Women in Geospatial+ gave us a very important discussion on inclusivity and leaving no one behind. They emphasized the importance of women in the profession as well as many underrepresented groups and how we need to keep these important issues in mind as we move forward in our careers. With their presentation, we were able to understand why we need to get involved and why we need to make our voices heard. Finally, this pandemic has definitely altered the way we learn and the way we teach. Dr. Joane Serrano of the University of the Philippines Open University gave us the final takeaway on how we can keep learning and teaching during this health crisis. With so much fear, anxiety and uncertainty, our productivity and motivation have been seriously affected and we can only keep going if we accept this situation and the most important thing would be to forgive ourselves.



Recently, we also had a once-in-a-lifetime opportunity of celebrating the birthday of one of the most important figures in ISPRS through The Wisdom of the White Elephants - Dr. Gottfried Konecny. Aptly entitled, "A Life for Photogrammetry and Remote Sensing," this event showed us a timeline of experiences, contributions and achievements of Dr. Konecny as well as his amazing travels, lifelong friendships and continued inspiration to his dear family. Despite his numerous achievements and being a well-known persona in photogrammetry and remote sensing, this celebration also exemplified the importance of friendships and personal relationships in one's career and we are truly humbled to witness and take part in commemorating one of the legends of the ISPRS White Elephant Club.

When the Virtual Rooms started, I can honestly say that I did not expect this to be the platform that it came to be – we simply wanted to connect and support our members. The overwhelming response from our members and the truly humbling contributions of the invited speakers, both from ISPRS and in our scientific community, made this initiative a great success. Our deepest thanks to all our invited speakers who shared their time and knowledge to our members and to everyone who joined us (over and over again) for giving us the chance to know you personally and talk to you in these Virtual Rooms. We will be coming back again soon with more special guests and themes that are relevant to our profession so stay tuned!

For the Virtual Rooms resources (videos, presentations and Q&A recordings), please visit: http://sc.isprs.org/virtual-rooms.html

The ISPRS SC Virtual Rooms FEEDBACK

NAIMA BOUHSANE
PhD student
Mohammed V University,
Faculty of Sciences Rabat
MOROCCO

The ISPRS SC Virtual Rooms were the best event that I joined virtually from home, especially during the COVID-19 crisis. I enjoyed the scientific contributions shared by several researchers, and I learned a lot from the invited speakers. It was a good opportunity for me to meet students and researchers from different countries through ISPRS SC virtual events.

Many thanks to the ISPRS team for their organization and for their time spent to prepare such events, and I hope to attend other ISPR SC activities in the future.

LAXMI THAPA
Survey Officer
Survey Department, Government of Nepal
NEPAL

I wholeheartedly appreciate the efforts taken by the ISPRS SC to organize Virtual Room Sessions in diverse topics - from how to write a proposal to the career session in GIS/Remote Sensing and technical presentations on different issues of our domain. This platform provided a wonderful opportunity to interact with the subject experts directly even amid the ongoing pandemic. Active involvement of widely known scientists/scholars from White Elephant Club motivated me more to attend the sessions to hear their years of experiences. All the sessions I attended were indeed fruitful, and interacting with professionally-alike people from around the globe was something I cherish about the virtual room.

Few things that I would suggest to improve for the future are the time consistency of all the sessions to avoid confusion in context of global time zone differences and timely email alerts if possible.

Looking forward to another such event in the future!

GABRIELE CANDELA
Researcher
Mediterranea University
ITALY

Very interesting and stimulating seminars and conferences during the hard pandemic period, these Virtual Rooms became a good way to deal with the quarantine and also a great opportunity to meet legendary professors and passionate professionals and create a network between students from all over the world! Hope that these virtual rooms can continue in the next months and became a fixed appointment between students involved in the ISPRS Student Consortium.

MOHAMED ABDELKADER
Assistant Researcher
Soils, Water and Environment Research Institute
Agricultural Research Center
Ministry of Agriculture and Land Reclamation
EGYPT

Virtual Room was a really inspiring experience for me, as I met international professors who worked for great organizations like NASA, ESA, JAXA, and others. It was like an international meeting with motivated international students, professional organizers, and great experts. It was really exciting during White Elephants sessions to meet knowledgeable and innovative professors like Gottfried Konecny who engaged in mapping the lunar landing site at NASA in 1966, Prof. Shunji Murai, Prof. Armin Gruen, Prof. Orhan Altan, Prof. Rustam Rustamov, Prof. John Trinder and all other respected experts in other sessions.

I was keen to attend most of the lectures because of my interest and attraction in them. The lectures were informative, interesting, concise and full with interaction.

I really want to appreciate all efforts worked on producing this great work and hope it continues periodically discussing different international topics related to photogrammetry, remote sensing, and spatial information sciences.

VASALA SAICHARAN
Ph.D. Scholar
National Institute of Technology Karnataka
INDIA

Thank you very much ISPRS SC, for this wonderful initiation of virtual rooms. I'm very grateful to this society, which is bridging the gap between experts and the younger generation with these one to one sessions. It is helping in building connections and in enriching our knowledge in the field of remote sensing.

From ISPRS SC White Elephant Club to Super friends, each session of the virtual room is well conducted. The sessions, like the history of remote sensing by Prof. Gottfried Konecny, were really informative. It was a great opportunity to meet (virtually) and get motivated from remote sensing legends like Orhan Altan, Armin Gruen, and others. My best regards to the ISPRS SC board of directors, for their relentless efforts in conducting these virtual rooms over a period of 1 month in April. Because of these virtual rooms, I never felt like I was in lockdown (COVID19) or self-isolated and I got few international research scholar friends.

Thank you, ISPRS SC, keep conducting these kinds of activities in the near future, more power to you people.

MIGUEL LUIS LAGAHIT
MSc Student
National Cheng Kung University
TAIWAN (ROC)

I would like to congratulate the ISPRS SC on such a wonderful project! Not only did you manage to impart participants with information from well-seasoned professionals in the field, but you have also managed to provide a huge academic network that can encourage international and multi-disciplinary cooperation amongst us students. I hope that you can continue to provide more online events like this in the future. It is very helpful, especially in times of an ongoing pandemic when people are encouraged to stay indoors. If ever the SC will decide to pursue such endeavors, I will be more than glad to assist! **加油**!

VAIBHAV KATIYAR
PhD Student
Yamaguchi University
JAPAN

The Virtual Room has been one of the interesting initiatives from ISPRS SC in this tumultuous time. I participated in various sessions such as 'Writer's block' where Charm, Sheryl and other members of SC shared some important tips and tricks that can help students and researchers to get a push for academic writing. Similarly, in the various sessions of 'The Wisdom of the White Elephants', the legends of our fields shared their views and suggestions for better presentation making, creative paper & proposal writing, and other important things. They also gave their bits of wisdom on the future outlook of remote sensing and the other subdomains of geospatial fields and how we should prepare for the future. Besides these, there were many other interesting sessions in which I have participated such as 'Women in Geospatial+', "Finding your strengths through challenging times" etc. Overall, I had a rewarding experience and I am thankful to the organizers for such an interesting combination of sessions. I am looking forward to more of these activities in the future.

NICOLAS PUCINO
PhD Student
Deakin Marine Mapping Group,
Deakin University
AUSTRALIA

The Virtual Rooms experience has been the highlight of my quarantine. Professionally managed but in an informal setting, the meetings were at the same time a place of learning and socialization.

Every night, instead of wasting time on TV Series, I was looking forward to meet the guest speakers and my new peers in the ISPRS room. After a few sessions, it felt like I was catching up online with a group of friends.

The talks were always of very high level, engaging and inspiring. The most important thing that I learned from the Virtual Rooms is that the real big bosses of remote sensing and photogrammetry (i.e. The White Elephant Club) are brilliant, open-minded, and very friendly people, willing to listen and give out precious advice to remote sensing newbies like myself.

I miss ISPRS virtual rooms now.

Thanks ISPRS Student Consortium for this awesome initiative!

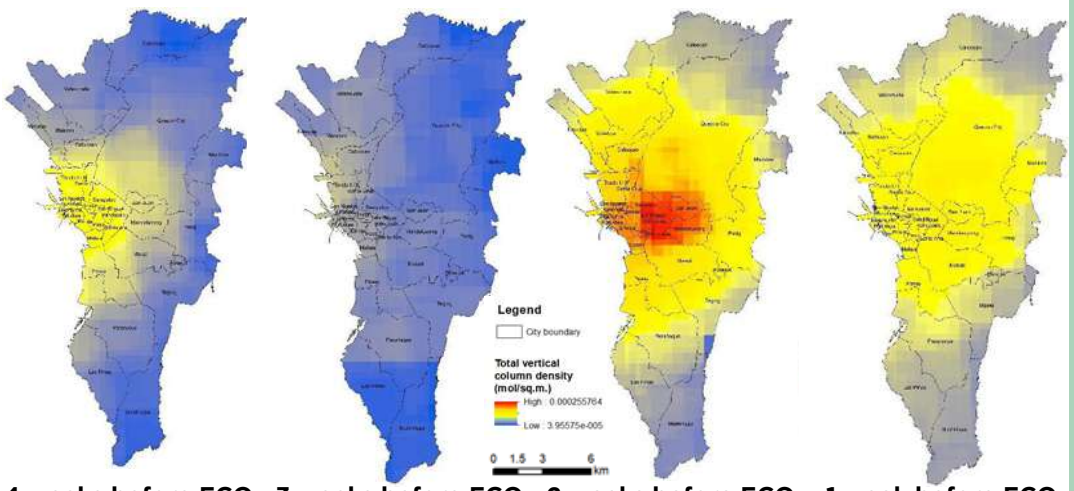
MONITORING AMBIENT AIR IN THE PHILIPPINES DURING COVID19 CRISIS USING SATELLITE DATA

BY: ROSEANNE V. RAMOS AND AYIN M. TAMONDONG

Monitoring the air quality in highly urbanized areas, especially in Metropolitan Manila, has been of recent interest because of the changes in the activities of the local population upon observing the quarantine guidelines set by WHO. The activities of the transport and industrial sectors were reduced significantly as vehicles (i.e. public utility vehicles such as buses, jeepneys, tricycles, taxis, etc.) were not allowed to operate within the region, and commercial establishments, factories, and industrial plants were temporarily closed. Some private vehicles were allowed to provide essential services such as the delivery of food and medical supplies. These limited activities were implemented during the Enhanced Community Quarantine (ECQ) imposed by the government from March 16 to May 15, 2020. To assess the effects of the reduced anthropogenic activities, the authors analyzed satellite data taken days before the ECQ and during the period of ECQ.

The measurements from the TROPOspheric Monitoring Instrument (TROPOMI), which is the only payload onboard the Sentinel 5P of the European Space Agency (ESA) (Ialongo et al., 2020), were utilized in this research to provide information on the concentrations of air pollutants, specifically NO2, in the region. The TROPOMI is a multispectral imaging spectrometer that detects solar radiation reflected or scattered back to space from Earth's atmosphere and surface and measures atmospheric variables such as nitrogen dioxide (NO2), ozone (O3), sulfur dioxide (SO2), methane (CH4), carbon monoxide (CO) and aerosols-related parameters (Omrani et al., 2020). It can provide daily NO2 measurements of the region with a spatial resolution of 3.5 x 7 kilometers (Ialongo et al., 2020). In this case study, the weekly average concentrations of NO2 were determined from Sentinel 5P TROPOMI Near Real-Time (NRTI) data using Google Earth Engine scripts. NO2, which arises primarily from anthropogenic sources (Lin et al., 2019), is a criteria pollutant mostly generated by road vehicles and industrial activities (Ryu et al., 2019) and is a known marker for traffic-related air pollution (Fallah-Shorshani et al., 2017). Figure 1 shows the satellite-derived average NO2 levels before the

Weekly Average of NO2
Total Vertical Column density (mol/sq. m.) before ECQ



4 weeks before ECQ (Feb 17-23) | **3 weeks before ECQ (Feb 24 – Mar 01)** | **2 weeks before ECQ (Mar 02 –08)** | **1 week before ECQ (Mar 09 –15)**

Figure 1. Weekly average of NO2 total vertical column density (in mol/sq. m.) based on Sentinel 5P TROPOMI NRTI data before the ECQ in Metro Manila, Philippines

About the authors:

Roseanne V. Ramos is currently an Assistant Professor at the Department of Geodetic Engineering at the University of the Philippines. She obtained her MSc degree in Geomatics Engineering with a specialization in Geoinformatics and BSc degree in Geodetic Engineering in the same university. Her research interests include the use of geospatial technologies for environmental applications. She recognizes the value of collaborations with different scientists and researchers using Remote Sensing (RS) and Geographic Information Systems (GIS) to develop maps and models for water and air quality monitoring.

Ayin M. Tamondong is currently taking her doctoral studies at the Department of Transdisciplinary Engineering, Tokyo Institute of Technology under the Nakamura Laboratory. She is on study leave as an Assistant Professor at the Department of Geodetic Engineering, University of the Philippines. She graduated BS Geodetic Engineering and MSc Remote Sensing from the same university. Her research interests include applications of remote sensing, geographic information system, and numerical modeling in the coastal environment

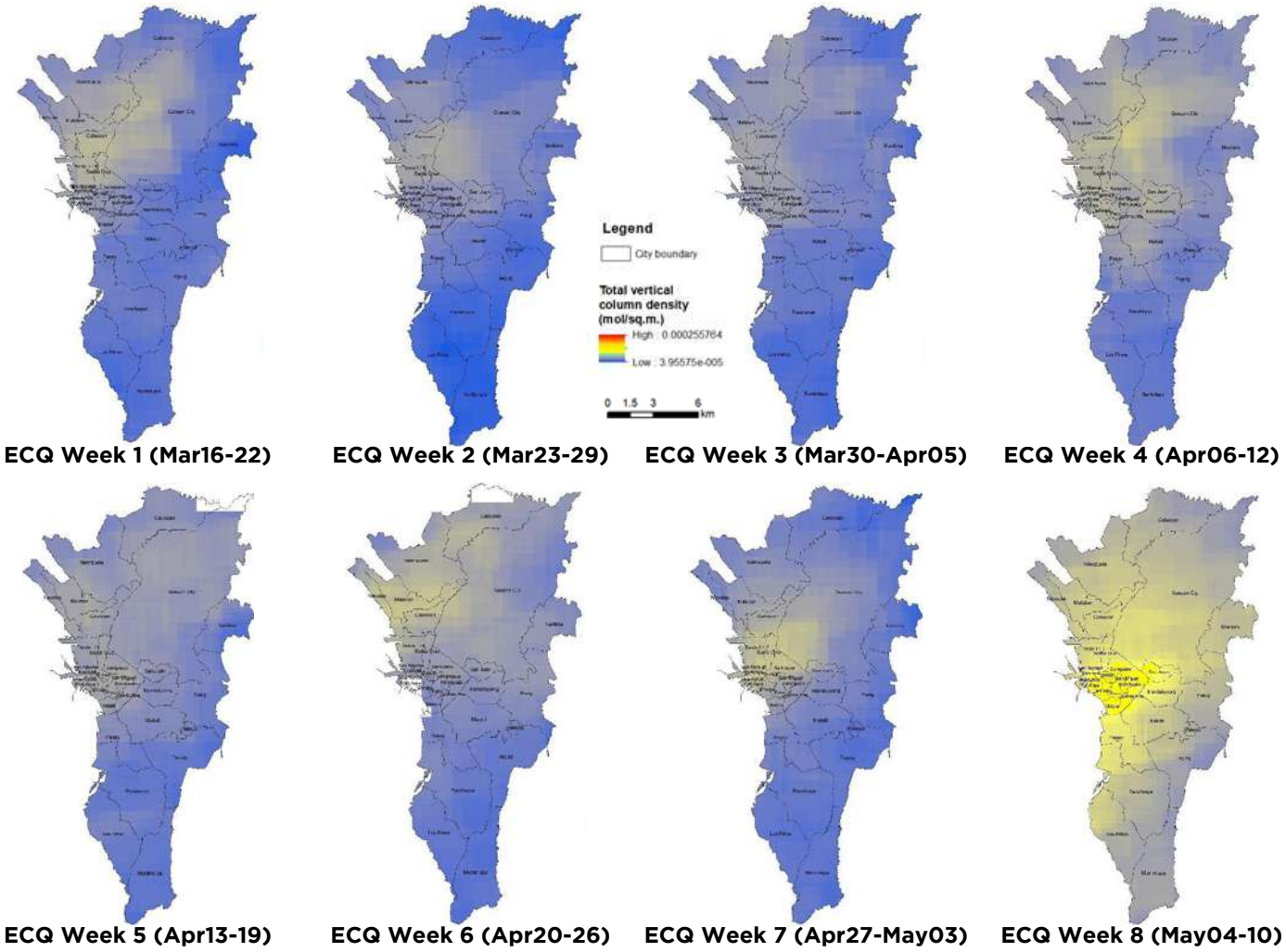


Figure 2. Weekly average of NO2 total vertical column density (in mol/sq. m.) based on Sentinel 5P TROPOMI NRTI data during the ECQ in Metro Manila, Philippines

implementation of ECQ while Figure 2 shows levels during the 2-month implementation of ECQ in Metro Manila.

Measuring air pollutants using ground-based instruments tends to be limited and confined to a few selected locations. Satellite observations, on the other hand, allow measurements of pollutants covering an extensive area with temporal and spatial data variations and can provide data for regions where in situ measurements are not available. (Lin et al., 2019). The maps presented in this research illustrate the variations of NO2 levels spatially and temporally as observed mostly in the central part of Metropolitan Manila. However, these results need to be verified with ground data from continuous monitoring stations established by government agencies. For accurate mapping of the air pollutant, the authors will explore the integration of other remotely sensed data and air dispersion models.

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MOBILITY DATA TO SUPPORT COVID-19 ANALYTICS

The mobility restrictions related to the COVID-19 pandemic have resulted in the biggest disruption to individual mobilities in modern times. While the number of lives lost has been high, the crisis is fundamentally geographical in nature as the prevention measures are not pharmaceutical but actually geographical. Therefore, examining the spatial aspect is important in understanding the broader implications of the pandemic. Mobile big data provides a possibility to study the spatial effects of the crisis on fine spatiotemporal scales. Teleoperators, social media platforms, and tech giants like Google or Apple continuously record the whereabouts of people even in normal times. This information may be useful in understanding the impact of response measures on the everyday interactions of people during a pandemic as well as in studying the long term impacts of the restrictions on well-being in different areas and among different groups of people.

The Interdisciplinary Digital Geography Lab at the University of Helsinki has studied the mobility of people using various mobile big data sources for years. Usually the focus has been on the socio-spatial interactions of people or on human-nature interactions. More concretely, the aim has been to understand how people interact with each other and their environment using big mobile data analytics. During the COVID-19 pandemic, we used our data and knowledge to explore how the use of space by people has changed and the implications this may have. Following the idea of openness in science, which is particularly important during a crisis situation, we published the first results as blog posts even before the scholarly papers are finalized or out.

The use of mobile phones produces spatial data. The data collected by teleoperators, social media platforms, and tech giants like Google or Apple can serve to understand the impacts of pandemics on our mobility.

Our first results with mobile operator data from Finland showed interesting patterns in mobility behavior. The skiing season was peaking in Lapland just when the pandemic hit and, while big cities quieted down, people still travelled to their skiing destinations until the resorts were forced to close. Inter-municipal day visits - particularly in bigger cities - dropped well before the Lapland travel did, as bigger cities are popular commuting destinations and people started to stay home. A similar ceasing of activity was soon visible throughout the country and, by the time the government banned travelling between the capital and other regions, people had already decreased visits considerably. The only exception were municipalities with high numbers of summer cottages which received an overload of population, even if the recommendation was specifically not to go to cottages as getting medical help might be harder. While broad mobility patterns are now clear for the spring period, we work to understand better which population groups were the most affected by the mobility restrictions in cities, the entire country, and also at the scale of the Nordic countries.

Also other types of continuously collected data sets reveal the outcomes of the crisis. The decline in social media posts in the national parks of the global south suggest expectedly the ceasing of tourism in these areas. At the same time, remotely sensed forest fire data shows a rapid increase in the forest fires e.g. in the national parks of Madagascar, one of the global biodiversity hotspots. It seems the COVID-19 pandemic has caused an increase in bushfires inside protected areas as people need to seek alternative ways to cope in uncertain times. To what extent this can be traced to the loss of tourism generated income is still unclear, but the data will allow us to follow the long-term impacts of the crisis.

All in all, the crisis has demonstrated the power of big data in following and understanding rapid crises like COVID-19. It has also shown how difficult it is to obtain the data collected by the private companies to serve the public good, even at a very aggregate level. Currently, the best data on mobility of all of us mobile phone users is collected by private companies with various interests. The research community should ensure that there are mechanisms in place to access this data to study dynamics of population when needed and without sacrificing privacy.

TUULI TOIVONEN

Tuuli Toivonen is a Professor of Geoinformatics at the University of Helsinki, Finland. She leads the interdisciplinary Digital Geography Lab, with 10+ researchers working with big spatial data for fair and sustainable societies.

Links:

Digital Geography Lab: https://www.helsinki.fi/en/researchgroups/digital-geography-lab_

Digital Geography Lab blog with COVID-19 analysis results: https://blogs.helsinki.fi/digital-geography/

Think Open Blog about openness of Science during COVID-19: https://blogs.helsinki.fi/thinkopen/tag/covid-19/

SHEDDING LIGHT ON EARTH:

Nighttime Light Revolutionized How We Understand Our World

Given the rapid spread of COVID-19 and its broad impact on global society, the need for understanding its impact on economies has led to the utilization of Remote Sensing (RS) data. Satellite observations—including those taken at night—are becoming a primary source for tracking the progress of the pandemic and its impacts in close to real-time. RS analysis has been applied to understand changes in energy consumption, transportation, social interactions, the functionality of critical infrastructure, tourism, trade, and emissions. These enabled us to understand the large-scale impacts of COVID-19, from the impacts of the pandemic on business and transportation networks to monitoring the gradual recovery after lifting the lockdown.

The use of nighttime lights is a prime example of how RS can be used to enhance our understanding of the complex challenges facing society. Since the early 1990s, with the launch of DMSP-OLS, remotely sensed observations of nighttime light have been used to understand human activity on Earth, particularly in data-scarce regions. Today, newer sensors, such as VIIRS/DNB, provide nighttime light data with higher spatial resolution and granularity. With advances in the availability and the quality of nighttime lights data, together with improvements in the computing power, analytical methods, and workflows, the number of scientific applications increased tremendously.

Nighttime light observations provide a unique glimpse into human behavior and socio-economic patterns and into the nature of human-Earth interactions. Nighttime light observations are especially vital in countries where timely, accurate, and reliable statistical or administrative data is poor. In these countries, nighttime light measurements can provide important insights into where people are, how people move, understand patterns of economic development, or evaluate the economic impacts of investments in infrastructure. While the nighttime light observations still contain the issues of noise and measurement errors, especially when compared across space and time, there is a general consensus that nighttime lights have comparative advantages representing multiple dimensions related to human presence and activity on Earth.

Recently, a plethora of research has been published in the field such as measuring the extent and characteristics of urbanization processes, estimating economic growth at a national and sub-national level, mapping global poverty, tracking local household wealth, education and health, map population density, migration and mobility patterns, understanding armed conflicts, measuring accessibility to electricity and electrification, community resilience, fishing activity, coral reef health, and more. Researchers have also shown that nighttime lights can explain brain development and human behavior.

Moreover, by looking at the relation between the distribution of the population on Earth and the occurrence of different types of hazards, nighttime light measurements can be used to evaluate how humans adapt and respond to hazards. They can also be utilized as an instrument to guide resilience planning. For example, the World Bank`s City Resilience Program utilizes nighttime light data in its City Scan product to highlight where hotspots of economic activity may be developing in flood-prone areas.

DR. RAN GOLDBLATT
(https://www.linkedin.com/in/ran-goldblatt-34365886/)

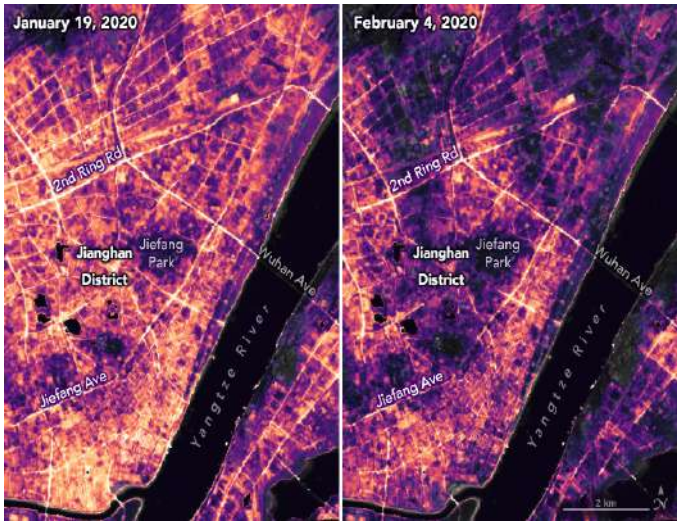
Dr. Ran Goldblatt is a Chief Scientist at New Light Technologies (NLT) in Washington DC. Dr. Goldblatt has a background in remote sensing and geospatial analysis, at scale, and the development of methodologies and tools for monitoring, for example, natural hazards, LCLU changes, urbanization processes, economic development. Dr. Goldblatt leads multiple projects conducted with the World Bank, including monitoring economic activity with nighttime lights, tracking urbanization processes in developing cities, evaluating deforestation processes, mapping the economic benefits of new transportation corridors and estimating exposure of vulnerable populations and assets to increased flooding. He also supports FEMA's disaster remote sensing team leading modernization initiatives underway to automate collection, processing, and dissemination of imagery for the national disasters community. Dr. Goldblatt received his Bachelor's, master's, and Ph.D. in Geography and the Human Environment from Tel-Aviv University (Israel) and has worked as a Post-doctoral researcher and Lecturer at the University of California, San Diego.

DR. STEVEN RUBINYI
(https://www.linkedin.com/in/steven-rubinyi-13b76b37/)

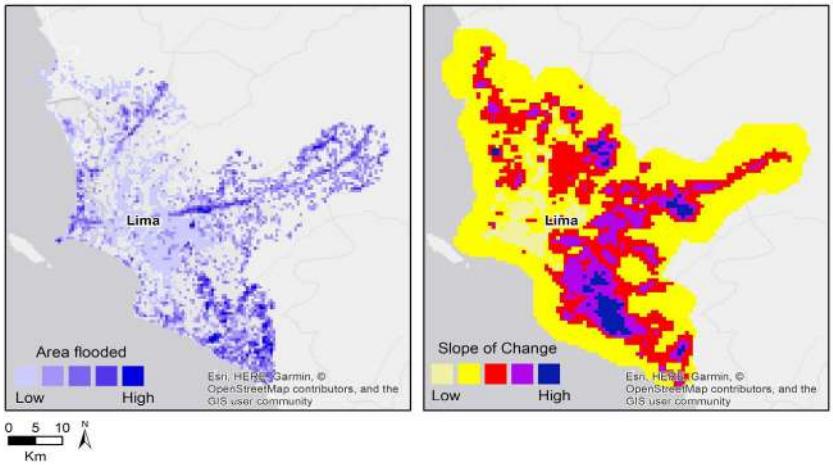
Steven Rubinyi is a Disaster Risk Management Specialist at the World Bank, where he works to bring emerging digital technologies to cities to support their resilience planning efforts under the City Resilience Program. Steven also leads the City Creditworthiness Initiative and works at a thematic level on communities of practice aimed at leveraging geospatial solutions across the World Bank investment portfolio and bringing innovative financing solutions to cities. He has worked at the World Bank for seven years, including four years based in South Asia where he worked on investment project operations focused on urban and coastal resilience, and housing reconstruction from the 2015 Nepal Earthquake.

DR. HOGEUN PARK
(https://www.linkedin.com/in/hogeun-park-0a067950/)

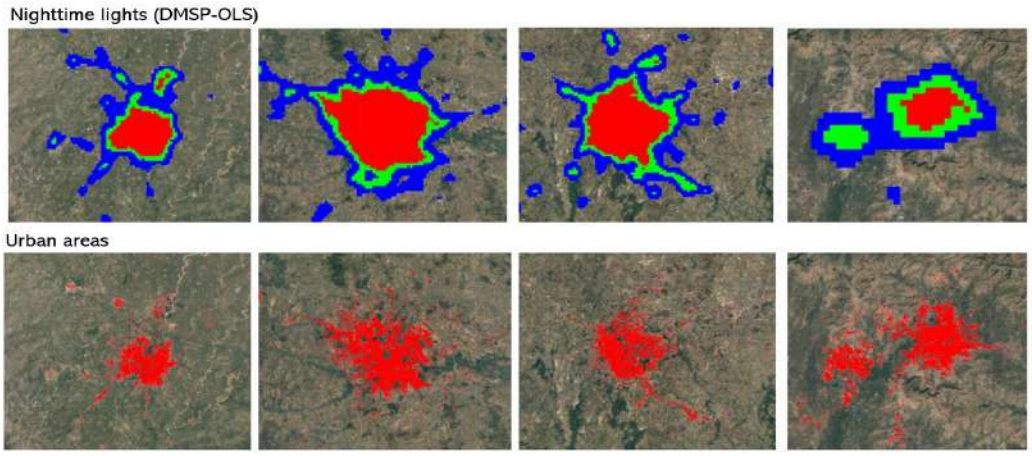
Hogeun Park is a Junior Professional Officer with the Middle East and North Africa (MENA) region of the World Bank's Urban, Disaster Risk Management, Resilience, and Land Global Practice. His work focuses on the intersection of urban planning and spatial analytics, which enabled us to deliver the projects with empirical and rigorous evidence. Prior to joining the Bank, Hogeun was a Big Pixel postdoctoral fellow in UC San Diego. He has published widely in leading peer-reviewed journals on the topic of urban development, spatial analytics, and remote sensing. He completed his PhD in Planning from Michigan State University with a fellowship from the Korean government. His previous research and work experience also include the Korea International Cooperation Agency (KOICA), International Rice Research Institute (IRRI), and the Asia Foundation (TAF).



Lighting changes between Jan. 19 and Feb. 4, 2020 in Jianghan District, a commercial area of Wuhan, China, as retrieved by the Visible Infrared Imaging Radiometer Suite (VIIRS) using NASA's Black Marble product suite: https://blackmarble.gsfc.nasa.gov/. Source: NASA's Goddard Space Flight Center (GSFC) and Universities Space Research Association (USRA)



The City Resilience Program (CRP) incorporates nighttime light data in the Resilience City Scans to guide resilience planning and investments in infrastructure. The map on the right illustrates the intensity of change in the emission of nighttime lights (2013-2019) as picked up from VIIRS imagery – as an indicator for changes in economic activity. The values represent the slope of a regression line (i.e., intensity of light against time). Blue areas represent a positive slope – an increase in the intensity of nighttime light emission. Yellow areas represent a negative slope – a decrease in the intensity of nighttime light emission. The map on the left illustrates the total area detected as flooded in numerous flood events since 2015.



Nighttime lights provide a good proxy for the distribution of built-up land cover and urban areas on Earth

In light of these advances in nighttime light remote sensing, Remote Sensing journal will host a Special Issue edited by the authors of this post dedicated to the various applications of remote sensing in a wide range of domains. This issue will stimulate progress in the RS research domain related to the utilization of nighttime lights in a wide range of scientific domains, including economics, social sciences, disaster management, environmental sciences, ecology, urban studies, and more. The issue will bring together original and novel studies demonstrating the applications of remotely sensed nighttime lights in a wide range of multidisciplinary and interdisciplinary domains. Review contributions are also welcomed. More information about this Special Issue is available here:

https://www.mdpi.com/journal/remotesensing/special_issues/RS_Night_Time_Light

THE VITAL ROLE OF ELECTRONIC CARGO TRACKING SYSTEM (ECTS) AND GEOSPATIAL DATA IN CURBING COVID - 19 PANDEMIC IN AFRICA

At the beginning of the year 2020, the globe was struck by the outbreak of the now Pandemic Corona Virus Disease (COVID-19) that some countries took for granted as normal flu originating from Wuhan, China. During the early months of 2020, the virus hit African countries as a result of the international movement of both humans and goods. This forced different countries to impose "lockdowns", curfews and other travel restrictions to reduce the spread of the virus, especially across borders.

16 of Africa's 55 countries are landlocked, meaning that they can only depend on road or railway transport systems from seaports to the different destinations with little use of air cargo transport due to its high cost and unavailability in some areas. All these 16 landlocked countries are among the developing countries which have trade deficits, implying that more than 60% of their consumed goods are imported rather than locally-made. These countries face starvation and death due to lack of basic and essential imported goods, and their inadequacy to sustain their import substitution strategies.

Putting into context Uganda's perspective, since the first Corona Virus Disease (Covid) case in mid-March 2020, the number of cases increased with at least 60% of these being cargo truck drivers from different geographical territories. This has been efficiently managed by testing all truck drivers at border stations. However, these truck drivers are allowed to proceed with their journey while awaiting their results due to the long turnaround time. Upon receipt of the results after close to 24 hours, these cargo drivers are tracked using Global Positioning System (GPS) and Geospatial Data wherever they will have reached with their cargo.

Effective July 2013, Uganda procured an electronic cargo tracking system (ECTS) that has enabled real-time monitoring of goods in transit. This has been observed to be an efficient e-solution in terms of cost and time.

Launched in 2014, this ECTS was extended to cover the five EAC member states. This has become vital in the surveillance of COVID – 19 infected cargo drivers who deliver the goods both in Uganda and the neighboring countries. This provides real-time information on the actual location and the path of the driver together with their contacts along the routes.

From a continental perspective, in countries where these cargo tracking systems are effective monitoring of COVID-19e transmission by tested individuals should be by a mere click on the system to tell the exact location of the driver. This will enable the medical authorities to identify and trace all the contacts for isolation and further management.

Finally, if we engage science and geospatial data in the fight against COVID-19 we can control this pandemic and we can kick it out of the world like what we have done with other previous pandemic and epidemics. This will need collaboration with all stakeholders in science and research to obtain accurate and coded data.

ASIMBAKARI PATRICE
Officer Staff Compliance – Internal Audit Department
Uganda Revenue Authority (URA)

Financial management, Taxation, Finance and Accounting expert with over 08 years' experience. He is passionate about research, reading, and training. He is a Certified Public Accountant (CPA) of Uganda, Graduate of Accounting and Finance (Hons) with Master's Degree of Science in Accounting and Finance of Makerere University.

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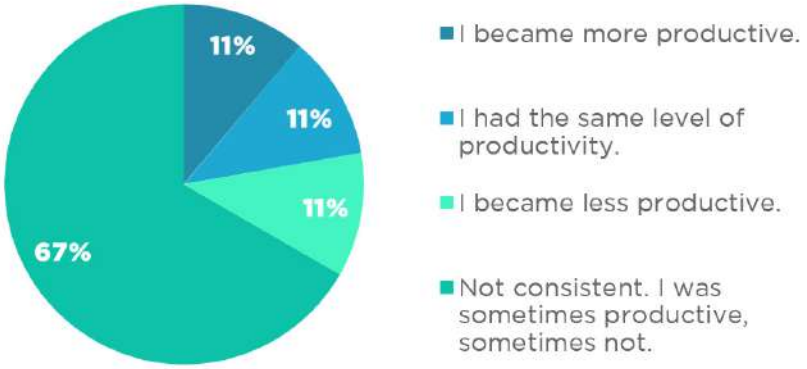
IMPORTANT FOCUSED OUTSTANDING VALUABLE

The ISPRS SC Newsletter Team reached out to the members of the Consortium for a short interview about the current situation, which was comprised of five questions. In these short interviews, the Consortium sought to understand how the situations differed among our members as well as the similarities on the challenges encountered.

The current health crisis may get the best of us and coping may not be as easy. But understanding our personal situation and realizing that many of us are also going through the same experiences. We would like to share some of the answers we received from our members in order to provide you with additional insights as well as inspiration to keep moving forward.

Responses from the short interview revealed that most of our respondents experienced inconsistencies with their daily productivity.

With many students and young professionals pursuing either a degree or advancement in their careers, many became more aware of their productivity. Here are some situations that demonstrate how the current situation affected an individual's productivity:



Being away from my home country, the pandemic added to my home sickness. Our research unit implemented a work from home arrangement. Regardless of the office hours, I work mostly at night. But depending on the availability of my family in my home country, I refined from work and focus of them. And most of the time, my productivity is dependent on the deadlines.
Donald Luna
Ph.D. student, UREP – INRA
France

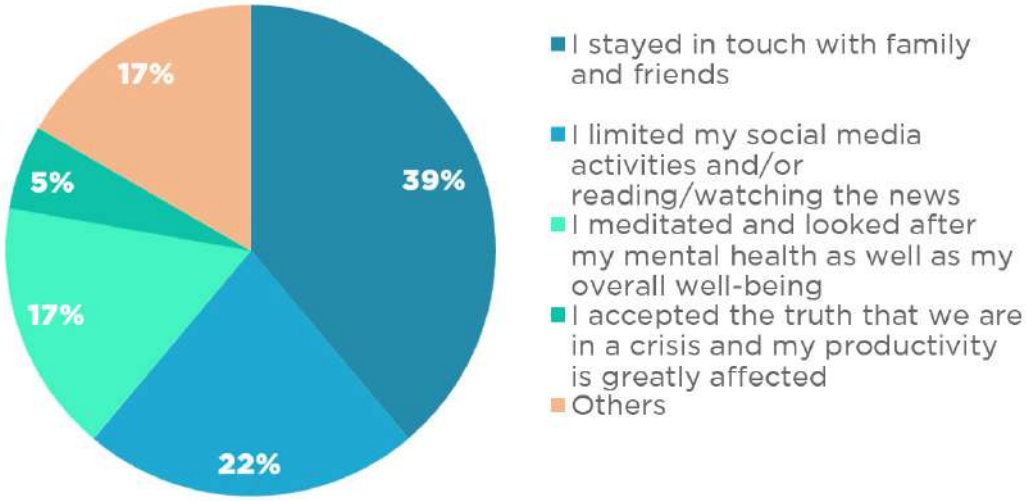
The constant barrage of negative news has affected my mental and emotional health, that it sometimes drives me to just pause my work until I feel better enough to work again.
Anonymous

I was no productive in the first days of quarantine, I was so depressed when I have read bad news, also when I found out that my relatives are ill too. After I decided not to read and see news about COVID, ISPRS SC virtual rooms and my lessons for students helped me to get up again and regroup. After I have started to manage my time at home, honestly it was one of my wishes work from home, even though I am a very social person in life :)
Sona Guliyeva
Ph.D. student, National Aviation Academy
Azerbaijan

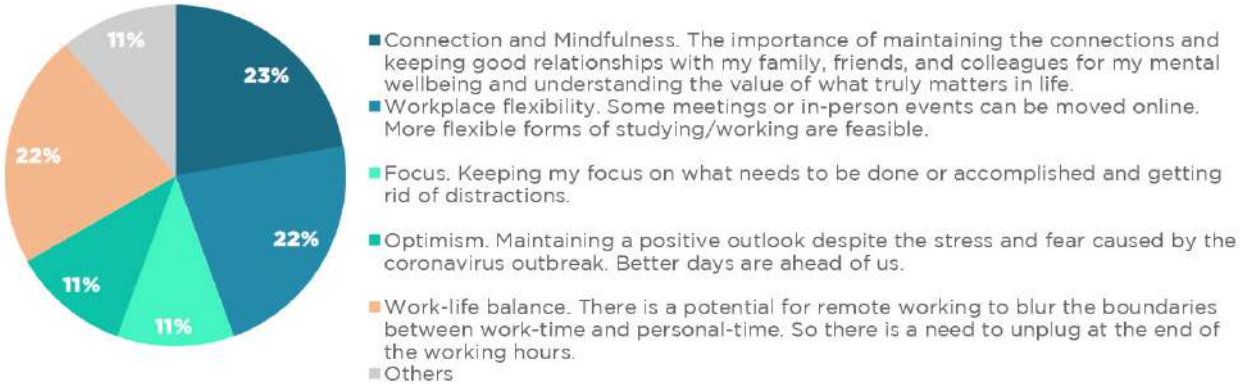
At the start of the pandemic, I was very productive. By April, my aunt and grandpa died. So, that's why it's not consistent. I still try to move forward, but it's very hard.
Leila Micahella Cruz
Student, University of the Philippines - Diliman
Philippines

Had an opportunity to connect with more research scholars and scientists from all over the world in the span of few months, which seem impossible to meet all in real case scenario in that short span of time. But personal research work is not satisfactory compared to before the pandemic.
Vasala Saicharan
Ph.D. Student
India

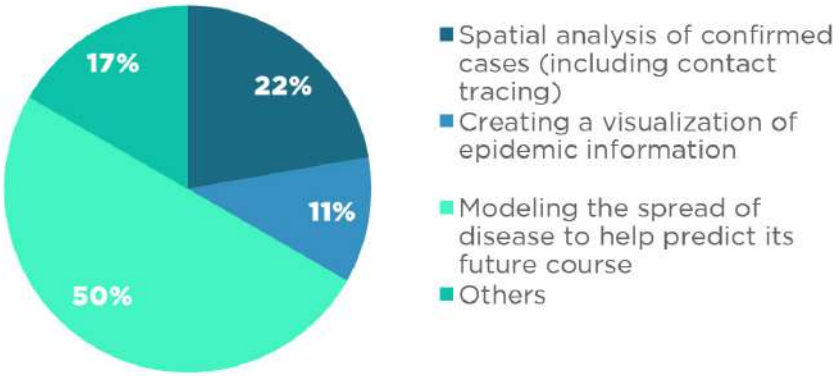
Coping with uncertainty, fear and grief caused by this pandemic was no easy task. But many of us also became more aware of the importance of looking after our personal well-being. Many of our respondents stayed in touch with their families and friends (about 39%). About 22% of the responses indicated that limiting social media engagement and watching the news less frequently were also a strategy to keep moving forward. The importance of looking not only after our physical health but as well as our mental well-being was also realized by about 17% of our respondents who meditated and took care of their overall well-being as coping mechanisms. Some respondents also mentioned the significance of accepting our current situation and that our productivity is greatly affected; some also contributed or volunteered in initiatives in their locality that are geared toward addressing the pandemic.



Since our lifestyle and many of the ways we "normally' live our lives, do our work, study and socialize have been altered to save more lives, there were many lessons learned from this current situation. Connection and mindfulness, workplace flexibility and work-life balance are the main takeaways of our respondents with the changes that happened in the last few months. Focus and optimism are also important in order to work and accomplish the goals we set.



As students and young professionals working in the fields of spatial information sciences, we are aware that the use of geospatial information and technologies is fundamental in understanding the pandemic. Space and time components of the pandemic are critical to its mitigation, as well as on how we respond to this event. Some roles of the geospatial information in the current pandemic are used for performing spatial analysis of confirmed cases including contact tracing, creating a visualization of epidemic information, and modelling the spread of disease to predict its future course.



Finally, we would like to share with you some thoughts, inspiration and encouragement from some of our members who responded to this short interview:

We all have to mindful about its cause and effects, but we also have to do our activities the earliest we know and assess the situation it would be right for us, but we also need to value our mental and physical well-being and do not panic.
Saurav Gautam
Deputy Head of Department, Department of Civil and Geomatics Engineering
Tribhuvan University, Nepal

Have a lot of patience for the non-digital natives. As we transition to a new normal of online meetings and more dependence on use of digital tools, the younger generations (us!) need to have more patience for those who are more challenged in using these online tools (our older colleagues). I think it would benefit both sides if we hold them by the hand and teach them some tips and tricks to make using the tools easier and more efficient for them, as it does for us. Some of them really do not have the instinct on how to make these digital things work for them so I think it would be nice to get out of our way to help them out.
Trixie Estomata
GIS Specialist, GIZ
Philippines

We should avoid thinking about everything that is currently going on and focus on the positives. Pick them out and concentrate on them like taking on other exciting online courses.
Charles Jjuuko
Researcher, Makerere University
Uganda

Locked at home for a long time gave a great chance to concentrate on dormant activities such as reading, scrutiny on my life & work riddles and thinking in general. Some old beautiful hobbies raised and returned bringing nostalgia, to find myself looking to those hobbies from different perspectives and easily unveil the secrets of those hobbies. In every ordeal a grant, we should think positively trying enhancing our skills and knowledge assured this adversity will vanish soon.
Mohamed Abdelkader
Assistant Researcher, Agricultural Research Center
Egypt

This experience should teach the importance of balancing work/social life/entertainment for the overall wellness of the human being.
Gabriele Candela
Researcher, Sapienza University of Rome
Italy

Keep on working, at least you will end up with a few hours of productivity. Stay focused, and stay safe.
Vasala Saicharan
Ph.D. Student
India

Don't let the pressure built up, and don't let yourself stray from work. Basically, always be mindful of your mental and physical conditions. And remember that "nobody said it was easy". The current pandemic is all about survival, this is a challenge that we must to overcome.
Donald Luna
Ph.D. Student, UREP – INRA
France

"Be better", that's all I want to say, better to your family while you finally have such a nice time staying with them, better to the earth and nature while she is the one protecting and feeding us, better to yourself, better to future, better to time, learn new knowledge, make new friends.
Anonymous

Meditate and keep moving, physically and otherwise!
Anonymous

Changes, no matter how good or bad they are, they are always for the better and always contribute to development. One must be able to benefit in any situation, also in crisis. The word "crisis" from the Japanese language meaning "the possibility of danger". And we should try to take the opportunity from this situation too. The crisis we are facing does not depend on us, so we are obliged to accept this and find new ways and continue to move forward with a positive attitude and save a realistic outlook on life. Therefore, I wish you to always be strong and wise in order to be able to love this life with all its minuses and pluses. Good luck to everyone!
Sona Guliyeva
Ph.D. student, National Aviation Academy
Azerbaijan

We have to survive and thrive. Survive through taking care of ourselves, and keeping our sanity in check. Thrive by still moving forward by remembering our motivations and dreams.
Leila Micahella Cruz
Student, University of the Philippines - Diliman
Philippines

This pandemic has inspired me to think about our health more than anything. So, when everything goes back to normal or this whole situation of using sanitizers, washing hands and using masks become the new normal, we need to take a pause, take care of our health and others, too, along with our work.
Uday Chandra Chakma
Geodetic Survey Expert, Department of Land Records & Surveys, Ministry of Land
Bangladesh

Always have time for your friends. Talk, laugh, walk or exercise with them.
National Central University
Taiwan

XXIV ISPRS CONGRESS
VIRTUAL EVENT OF THE 2020 PRESENTATIONS
YOUTH FORUM

AUG 31-SEPT 02
01 SEPT

Nearly everything goes digital during the COVID-19 crisis, so does ISPRS. While the next physical Congress will be held in July 2021, many of the contributions submitted for the 2020 edition will be presented in the XXIV ISPRS Congress – Virtual event of the 2020 presentations which will take place on-line from August 31 to September 2nd, 2020

The Youth Forum will be hosted together with the Technical Commission V presentations on September 1.

The 2020 edition will be free of charge for presenters and for the audience (but a pre-registration is mandatory in order to calibrate the bandwidth of live streaming).

For more details: **http://www.isprs2020-nice.com/index.php/virtualevent-2/**

WOMEN IN GEOSPATIAL+

launches speakers database and webinar series on professional development

Women in Geospatial+ (WiG+) is a professional network to promote gender-equality and diversity in the geospatial industry and academia. The network aims to change the status quo by creating a strong network of Women in Geospatial+ leaders and changemakers by acting on four pillars:

The four pillars of Women in Geospatial+ activities.

COMMUNITY

The WiG+ community brings together women and other minority genders in the geospatial field by providing a safe platform (Slack community) for open and honest communication and exchange. We promote and foster the professional development of our members by sharing geospatial news and job vacancies as well as articles about diversity and tips about leadership and career development

EVENTS

Throughout the year we create opportunities to meet in person at geospatial conferences or virtually, where we regularly run "Career advancement" sessions, feature the work and achievements of women geospatial leaders and organise informal social events and meetups.

MENTORSHIP

WiG+ runs a year-long career mentorship program. The inaugural cohort featured 42 participants from 17 countries who were matched with mentors, mentees or peer mentors based on their career goals and time zones.

ADVOCACY

WiG+ advocates for more diversity in the geospatial domain and runs campaigns on Twitter and LinkedIn, such as the ProfileOfTheWeek, where WiG+ features members from the network, their work and projects they have been involved in.

In July, we launched the WiG+ speakers database. The aim of the speakers database is twofold. First, to give women+ in the geospatial domain a platform to put themselves forward as speakers and to gain confidence along the way. Second, to facilitate organizations in finding relevant women and people from underrepresented genders to be speakers for conferences and events. By using the speakers database, conference organisers can gain a reputation for being fair and equal while attracting more delegates at the same time.

The WiG+ speakers database was launched in July to provide a platform for speakers from underrepresented gender background and conference organisers alike with the aim to make geospatial conferences and events more diverse.

The database was launched together with the WiG+ webinar series on professional development. The webinar series began with two panel discussions, the first about 'Where are the Women Speakers' and the second about 'How to gain professional confidence.' The webinars will continue monthly, covering different topics related to career development, especially how to build up a virtual presence, in wake of the recent worldwide developments.

Join us and let us change the status quo together. Let us create a strong network of Women in Geospatial+ leaders and changemakers.

Website: *www.womeningeospatial.org*

Sign-up: *https://bit.ly/womeningeospatial_signup*

Twitter: @geospatialwomen

LinkedIn: *https://www.linkedin.com/company/women-in-geospatial*

UPCOMING WEBINAR SCHEDULE

SEPTEMBER 2020	OCTOBER 2020	NOVEMBER 2020
The Women in Geospatial+ Mentorship Program	Ramp Up Your Public Profile Part 1: LinkedIn and Twitter	Ramp Up Your Public Profile Part 2: Youtube

PHD Scholarships & Fellowships

Doctoral student in Remote Sensing & AI for Environmental Change Detection - KTH Royal Institute of Technology
Location: Sweden
Deadline: 20 July, 2020
Link: https://is.gd/Hh34na

Early Stage Researcher (PhD student) on "Machine Learning and Inverse Problems in Remote Sensing" - University of Eastern Finland
Location: Kuopio, Finland
Deadline: 31 July, 2020
Link: https://is.gd/HIeskb

PhD in seasonal prediction of harmful algae blooms - Nansen Environmental and Remote Sensing Center
Location: Bergen, Norway
Deadline: 1 August, 2020
Link: https://is.gd/arkmoD

PhD Studentship - Energy harvesting for remote sensing applications - University of Southampton
Location: Southampton, United Kingdom
Deadline: 31 August 2020
Link: https://is.gd/nlp0Rq

PhD position on remote sensing of ice shelf thinning (1.0 FTE) - Utrecht University
Location: Netherlands
Deadline: 15 August, 2020
Link: https://is.gd/KNI8ex

MASTERS Scholarships

International Water Center Scholarships for Master of Catchment Science at Griffith University
Location: Nathan, Australia
Deadline: 1 August 2020
Link: https://is.gd/RFThgM

Rhodes Scholarships at Oxford University for International Students
Location: United Kingdom
Deadline: Varies. July-October
Link: https://is.gd/YiPrNF

Commonwealth Scholarship at National University of Singapore
Location: Singapore
Deadline: 1 November 2020
Link: https://is.gd/WoqxEb

POSTDOCTORAL Positions & Jobs

Professorship "Spatial Structures and Digitalization of Forests" - Georg-August-Universität Göttingen
Location: Göttingen, Germany
Deadline: 31 July 2020
Link: https://is.gd/uYVNml

Tenure Track Position for a Scientist on "Remote Sensing in Landscape Research" - Leibniz Centre for Agricultural Landscape Research
Location: Müncheberg, Germany
Deadline: 3 August 2020
Link: https://is.gd/eqmFBh

Postdoc in Remote Sensing & AI for Global Environmental Change Monitoring - KTH Royal Institute of Technology
Location: Sweden
Deadline: 06 August 2020
Link: https://is.gd/bS0pzX

Researcher - Monitoring and Mapping of deforestation Norwegian Institute of Bioeconomy Research
Location: Norway
Deadline: 9 August 2020
Link: https://is.gd/wFT2HF

Three Postdoctoral research positions in radar remote sensing - Chalmers University of Technology:
A) Postdoctoral researcher in radar remote sensing of sea ice dynamics
B) Postdoctoral researcher in radar remote sensing of forest dynamics
C) Postdoctoral researcher in radar remote sensing of ocean surface dynamics
Location: Sweden
Deadline: 9 August 2020
Link: https://is.gd/T3ewki

Junior Professor (salary grade W1) - Technische Universität Berlin
Location: Berlin, Germany
Deadline: 14 August 2020
Link: https://is.gd/LJZxVS

Microwave Researcher with expertise in Synthetic Aperture Radar (SAR) - Aalto University
Location: Helsinki, Finland
Deadline: 17 August 2020
Link: https://is.gd/ToM9dX

UPCOMING EVENTS

AUG
SEP
OCT
NOV
2020

31 AUG *to* 02 SEP

XXIV ISPRS CONGRESS – VIRTUAL EVENT
Website: *http://www.isprs2020-nice.com/index.php/virtualevent-2/*

08-22 SEP

3D GEOINFO 2020 – VIRTUAL EVENT
Website: *http://ucl.ac.uk/3dgeoinfo*

14-17 SEP

3RD INTERNATIONAL WORKSHOP ON ARTIFICIAL INTELLIGENCE FOR 3D BIG SPATIAL DATA PROCESSING – VIRTUAL EVENT
Website: *http://www.dexa.org/ai3d2020/*

07-09 OCT

THE 5TH INTERNATIONAL CONFERENCE ON SMART CITY APPLICATIONS SAFRANBOLU, TURKEY
Website: *http://www.medi-ast.org/SCA20/*

26-27 NOV

GEOSPATIAL ASIA-EUROPE 2020 MARRAKECH,MOROCCO
Website: *http://www.geoinfo.utm.my/gae2020/*

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Please visit our ISPRS SC web page **sc.isprs.org** where you will find more information about Student Consortium, our previous Newsletter issues, SC activities, photo galleries from previous Summer Schools, interesting links etc.

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JULY 2020