Beach clean-up event at the 7th International Marine Debris Conference, South Korea

GEOINFORMATICS CENTER

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In This Issue

GIC at the 7th International Marine Debris Conference

Several GIC staff contributed original research at the 7th International Marine Debris Conference (7IMDC) in Busan, South Korea.

The six-day conference, which took place on 18-23 Sep 2022, was organized by the Ministry of Oceans and Fisheries of the Republic of Korea (MOF) and the United Nations Environment Programme (UNEP), with the organizational support of the Korea Marine Environment Management Corporation (KOEM), and the technical support of U.S. National Oceanic and Atmospheric Administration (NOAA).

Welcoming remarks were delivered by Cho Seung-hwan, ROK Ministry of Oceans and Fisheries; Park Heong-Joon, ROK Busan City Mayor; and Han Gijun, ROK KOEM CEO.

GIC staff presented in a technical session titled *Digital Innovation to Understand Plastic Litter in the Environment*. Presentations delivered by GIC focused on research conducted in support of Phase 2 of the UNEP Countermeasures Against Plastic Pollution endeavor. Those topics delivered at 7IMDC included AI monitoring of plastic litter on roadsides with vehicle-mounted cameras, AI-based plastic litter monitoring in canals and rivers with CCTV, citizen science for plastic litter monitoring, and plastic leakage source identification with GIS and remote sensing.

The conference featured several networking and social activities including a maritime photo and art gallery, a movie night featuring short films on marine debris, and (continued on next page)

GIC at 7th International Marine Debris Conference (cont.)

an International Coastal Cleanup Ceremony.

GIC staff were able to attend and also participate in the beach clean-up event at Gwangalli Beach which followed the ceremony.

The 7IMDC was brought together to showcase the latest research and spark collaborations to fight marine litter and plastic pollution. Click here to learn more about the 7IMDC at their website. . Click here to find out more about GIC's efforts to reduce plastic pollution.

GIC researchers at the
7th International Marine Debris Conference

Expert Group Meeting on Ground Truth Data for Agriculture Statistics

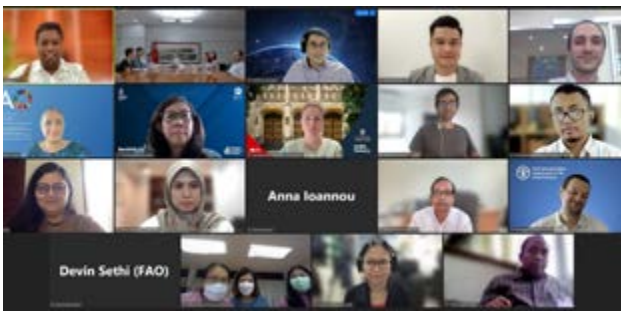
GIC and the Food and Agriculture Organization of the United Nations Regional Office for Asia and the Pacific (FAO-RAP) held an expert group meeting (EGM) on ground truth data for agriculture statistics from 13-15 September 2022.

The EGM brought together 30 GIS and statistics experts from national governments, academia, the private sector, and international organizations to share their experiences in collecting and using ground truth data for generation of agriculture statistics, and exploring opportunities to improve ground truth data collection, use, and exchange.

Ground-truth data are in-situ data that verify – typically using sampling techniques – the commodities and land areas identified or estimated by image processing algorithms. This ground truth data is used both to improve the algorithms, and to validate their results.

Presentations delivered by experts during the EGM focused on data collection, data use, and privacy considerations for ground truth data. Papers accompanying six of the presentations were selected to be included in an upcoming FAO regional publication on the use of ground truth data for agriculture statistics.

Participants in the EGM completed a survey to better understand the ground truth data needs of agricultural statisticians in the region. A paper based on the survey results is currently being compiled and will be included in the upcoming regional publication.



Group photo at the EGM on
Ground Truth Data for Agriculture Statistics

Yangon Preparing to Combat Plastic Pollution

GIC held a meeting with the Yangon City Development Committee (YCDC) to prepare for upcoming efforts to combat plastic pollution on 31 August 2022.

In the meeting, 20 participants from the YCDC were introduced to a methodology created by GIC for plastic monitoring. GIC staff provided a walk-through for a customized Survey123 mobile app which is used to collect plastic litter data. Participants learned how to gather data with the mobile app and will subsequently embark on a plastic litter survey in Myanmar.

The meeting was held to support a project titled *Strengthening Capacity for Marine Debris Reduction in ASEAN Region through Formulation of National Action Plans for ASEAN Member States and Integrated Land-to-Sea Policy Approach Phase2*.

A follow-up meeting will be held on 24 October 2022 which will focus on performing quality control following a plastic litter survey with examples of suitable and poor plastic litter data.

Applications of Geoinformatics for Agriculture Training Course at GIC

Sudents from JAU Gunjarat at GIC training course

A group of 13 students from Junagadh Agricultural University in Gujarat, India attended an extensive training course at GIC on applications of geoinformatics technology for agriculture from 25 July to 23 September 2022.

During the two-month training course, students learned how to code in Python to perform remote sensing analysis in Google Earth Engine, build and configure IoT devices to remotely monitor field conditions like soil moisture and salinity, and how to operate multirotor drones for crop monitoring.

Initially, students learned through lectures and examples delivered by GIC research staff. With sufficient practical knowledge, students transitioned to project-based learning in which they independently applied the skills learned from the lecture series to tackle larger tasks.

The group also visited NECTEC's Plant Factory located at the National Science and Technology Development Agency. There, they got to experience an indoor solution to agriculture with controlled growing conditions. This includes several benefits including protection against insects, elimination of the need to apply pesticides, growth optimization, and resource conservation.

A follow-up training course for Junagadh Agricultural University administrators will take place in November and December of this year.

PyAEZ Research Secondment at the International Institute for Applied Systems

GIC researchers Swun Wunna Htet and Dr Kittiphon Boonma spent 4 weeks on a research secondment at the International Institute for Applied Systems Analysis (IIASA) in Luxenburg, Austria, from the 14th of August to the 11th of September 2022.

The goal of this academic visit was part of the PyAEZ (a Python package for setting up an Agro-Ecological Zoning framework) on-going development, under the LOA between GIC-AIT and the FAO.

GIC researchers worked closely with Dr Günther Fischer, an expert on AEZ and a sole developer of the Global AEZ (GAEZ) code, on which PyAEZ is based. Dr Fischer helped out the team by checking and verifying the AEZ calculations used in PyAEZ, as well as comparing and verifying the output results. All of the discussions with Dr Fischer were invaluable to our team and to the development of PyAEZ.

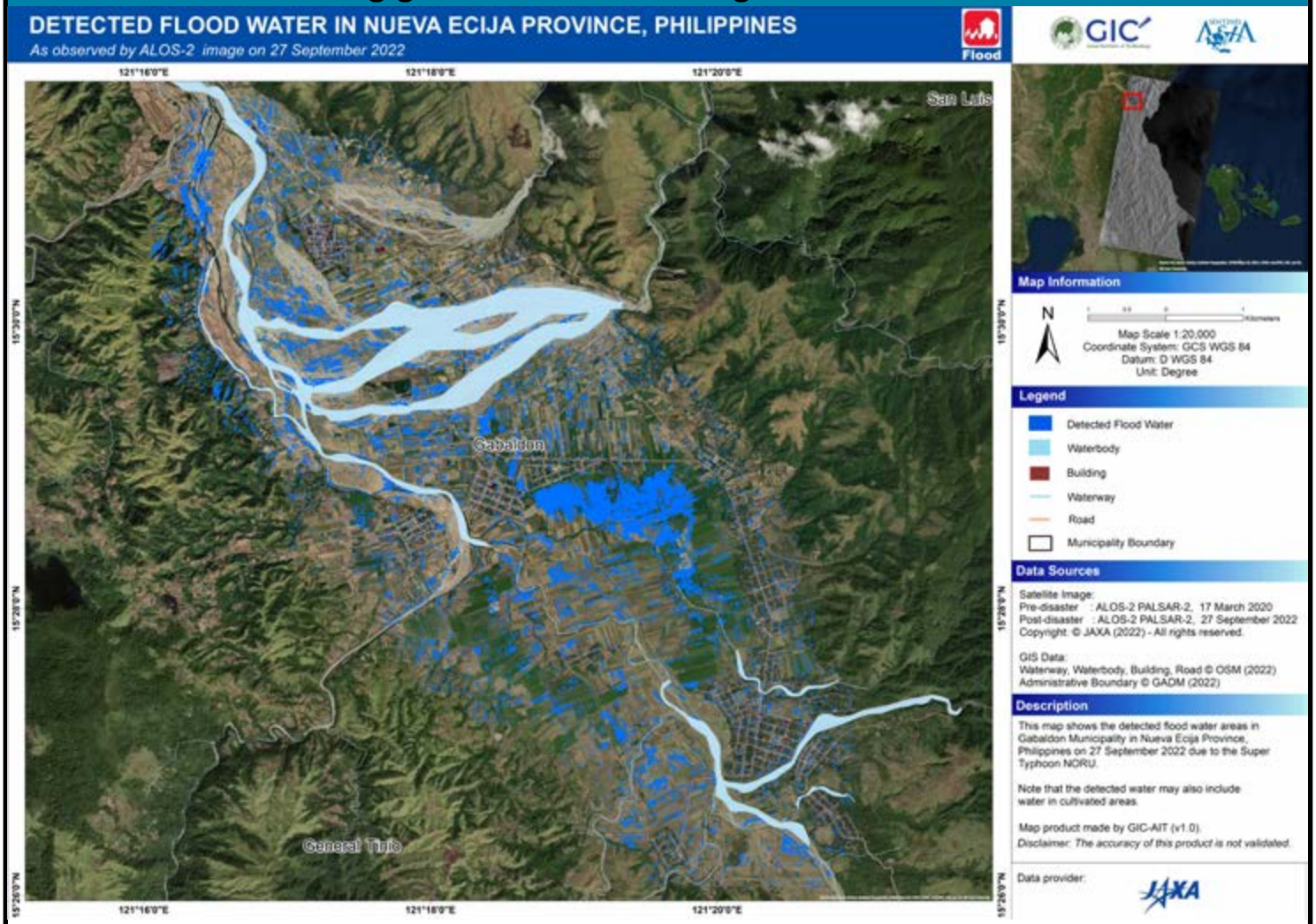
Though the development of PyAEZ still has a long way to go before it can catch up with GAEZ, this visit nudged our team towards in right direction as we developed professional understanding and collaboration between our center and an AEZ powerhouse such as IIASA. The PyAEZ team is now working to implement the updates from IIASA visit and hopes to publish a newer version of PyAEZ on GIC's repository.

There will also be a PyAEZ launch event at the end of November 2022 (dates TBD), followed by PyAEZ training for those interested. More information will follow once the registration for the event is opened.

Publications

In September, GIC along with MPA (Marine Plastic Abatement) Program, SERD, published a peer-reviewed journal article in Nature titled *Fate identification and management strategies of non-recyclable plastic waste through the integration of material flow analysis and leakage hotspot modeling.* The paper delivers the recent RnD pieces of GIC's plastic pollution portfolio using GIS analysis and mapping technology for waste management assessment.

Featured Sentinel Asia Value Added Product: Philippines Flood - September 2022



The above image is a valued added product (VAP) created by GIC depicting flooding in Nueva Ecija, Philippines, caused by Super Typhoon Noru. Maximum sustained winds of 195 km/h made Noru one of the most powerful typhoons of 2022. As a result, power was knocked out in Nueva Ecija and Aurora provinces. More than 700,000 people were affected by the typhoon, which includes more than 23,000 displaced persons. Time will reveal the damage to Nueva Ecija's 1-million+ hectares of farmland. GIC operates as the Principal Data Analysis Node (P-DAN) for the Sentinel Asia Program, a collective managed by the Asia-Pacific Regional Space Agency Forum to aid in disaster management with space technology. Maps like the one above are disseminated to national governments and line agencies during disasters to improve response activities.