Gadjah Mada University SEG Field Camp Poster
Geophysical Investigation to Uncover Mineral Prospect and HIRA (Hazard Identification and Risk Assessment) in Tirtomoyo District, Wonogiri, Central Java
SEG Field Camp 2022

OVERVIEW
Field Camp UGM-SEG 2022 is the final fieldwork for students of the Geophysics study program at the Faculty of Mathematics and Natural Sciences Universitas Gadjah Mada. This year, the Field Camp brings the theme “Geophysical Investigation to Uncover Mineral Prospect and HIRA (Hazard Identification and Risk Assessment)”. The field camp was located in Tirtomoyo District, Wonogiri, Central Java. This event is organized by the Society of Exploration Geophysicists (SEG). Field Camp 2022 integrates geophysical methods in a thematic project related to mineral prospecting in an area. In Field Camp 2022, the participants will work in a team to manage their project; from the preparation session, which includes fundraising, HSE assessment, and survey design; to the execution of the project itself, which includes data acquisition, processing, and interpreting; and finally the reporting which includes final presentations and result publication.

PRE EVENT
Geophysics Introduction for High Schoolers Seminar
Geophysics Introduction for High Schoolers Seminar was held on January 8th, 2022 via Zoom Cloud Meetings. This seminar aimed to introduce geophysics major to 3rd grade high school student in Yogjakarta Region who were going to go to college. The speaker of this event was lecturing from Gadjah Mada University, Dr. rer. nat. Ade Anggraini, S.Si. M.Si. In this seminar, she describes what a geophysicist major likes in general and the prospect fieldwork for geophysicists.

POST EVENT
Medical Check Up
Medical Check Up were held by some of Field Camp 2022’s participants associated with the staff of Puksesnas Tirtomoyo 2 and Dr. Manor Wasita Tirtomoyo Village. The main targets were the elderly who have serious medical problems.

Groceries Bazaar
And the second post-event was Groceries Bazaar, giving groceries packages by using vouchers for a limited amount of people. Medical Check Up and Groceries Bazaar were targeted for a total of 100 recipients respectively. These post events series began at 09:00 AM and until 12:00 P.M. The distribution of vouchers was assisted by the Chief of Tirtomoyo Village.

FIELD WORK
Field Camp UGM SC 2022 was held in 2 sessions with different survey areas. Field session 1 was held from March 17th until March 26th, 2022. Field Camp 2022’s field session 2 was held from June 2nd until June 12th, 2022. The survey area for session 1 is in the east and the survey area for session 2 is in the west. This activity was attended by all of Field Camp 2022’s participants. Besides students as the main participants, there were also teams of lecturers, assistants, and laboratory assistants who participated in the main event. Field Camp 2022 activities were divided into three main targets; mineral alteration, geohazard potential (the area that may possible landslide events), and geology structures.

THEORY TO PRACTICE
- Four times of webinars (Geological Regional Exposure Seminar, Mineral Exploration Using Geology and Geophysics Perspective Seminar, Geohazard Identification and Risk Assessment Seminar, and Implementation of K3 Culture (Occupational Health and Safety) to Minimize the Risk of Work Accidents Seminar).
- Seven times of study club (IP, VLF, AMT, Magnetic, Gravity, Refraction-MASW, and Microseismic).
- Seven days of work field per session (IP, VLF, AMT, Magnetic, Gravity, Refraction-MASW, and Microseismic).
- Data processing and presentation after work field.

RESULT
Mineralization
- Integrated Model of IP and VLF Methods
- Local Magnetic Anomaly from Magnetic Method Measurement Area 1

HIRA
- Landslide Vulnerability Map
- Puzzy Layer Model in Potentially Landslide Area
- High Equivalent Current Density (ECM) and chargeability value compared to the surrounding area indicate the presence of a mineralization zone. High ECM is indicated by the yellow zone, while chargeability is indicated by the blue zone. Where the two areas mutually reinforce the alleged metal mineralization zone. The low magnetic anomaly with the intensity of -60 to -260 nT is interpreted as a mineralization prospect zone.

Structure Identification
- AMT Cross Section Line and 2D Inversion Model
- Magnetic IUP Map and 2D section model
- Gravity CRA Map and 2D section model
- Structure identification is a supplementary study to support the other theme. Three methods are used which gravity, magnetic, and AMT to search for subsurface structure and delineate the elastic intrusion in the study areas.

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