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THE 7th INDONESIA INTERNATIONAL GEOTHERMAL CONVENTION & EXHIBITION 2019

13 - 15 AUGUST 2019

JAKARTA CONVENTION CENTER

INDONESIA'S GREATEST GEOTHERMAL CONVENTION & EXHIBITION

with theme

MAKING GEOTHERMAL THE ENERGY OF TODAY

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TUESDAY - AUGUST 13, 2019 - KAKATUA ROOM

CHAIR PERSON : YUDI KUSUMAH BACK-UP : RIKI IRFAN
CO-CHAIR PERSON : SURYA AJI PRATAMA

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
15.00 - 15.05	INTRODUCTION			
15.05 - 15.25	ES 01	UNIVERSITI KEBANGSAAN MALAYSIA, UNIVERSITI TEKNOLOGI PETRONAS, BAHAGIAN PERKHIDMATAN TEKNIKAL JABATAN MINERAL DAN GEOSAINS MALAYSIA	COMPREHENSIVE STUDY OF HOT SPRINGS POTENTIALS IN LOJING GEOTHERMAL COMPLEX, MALAYSIA	MOHAMMAD NOOR AKMAL ANUAR, MOHD HARIRI ARIFIN, HASSAN BAIOUMY, CHE AZIZ ALI, KAMAL ROSLAN, AKMA DIN, NORSAFINA, M. HASIIB MANSOR
15.25 - 15.45	ES 02	REYKJAVIK UNIVERSITY, GFZ GERMANY, PT PERTAMINA UTC	CHARACTERIZATION OF CHANGING SURFACE MANIFESTATIONS IN AN EXPLOITED GEOTHERMAL FIELD - HIGH ENTHALPY SYSTEM IN INDONESIA	LILY SUHERLINA, MAREN BREHME, JULIET NEWSON, M. YUSTIN KAMAH
15.45 - 16.05	ES 03	INSTITUTE OF TECHNOLOGY BANDUNG, GEOTHERMAL RESEARCH GROUP, CENTER FOR GEOLOGICAL RESOUCES, GEOLOGICAL AGENCY	EVOLUTION OF BEUNGGA GEOTHERMAL SYSTEM REVEALED FROM SURFACE MANIFESTATION	AIDINA ANISA, NINIEK RINA HERDIANITA, DEDE IIM SETIAWAN
16.05 - 16.35	BREAK			
16.35 - 16.40	INTRODUCTION			
16.40 - 17.00	ES 04	INSTITUTE OF TECHNOLOGY BANDUNG	GEOLOGY OF MT. RATAI-PESAWARAN HYDROTHERMAL SYSTEM, LAMPUNG, INDONESIA	TRI BAGUS PRABASWARA, NINIEK RINA HERDIANITA
17.00 - 17.20	ES 05	DISTAV UNIVERSITÀ DI GENOVA, ELC ELECTROCONSULT S.P.A.	OVERVIEW OF GEOTHERMAL RESOURCES OF NORTHERN ITALY	MASSIMO VERDOYA, CLAUDIO PASQUA, PAOLO CHIOZZI

TUESDAY - AUGUST 13, 2019 - KENARI ROOM

CHAIR PERSON : DENNY MF. MENDROFA BACK-UP : RIZA PASIKKI
CO-CHAIR PERSON : PETER

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
15.00 - 15.05	INTRODUCTION			
15.05 - 15.25	ENG 01	STAR ENERGY GEOTHERMAL DARAJAT II, LTD.	DARAJAT GEOTHERMAL POWER PLANT PROTECTION SYSTEM IMPROVEMENT	NIXON MANIK, BAYU SATMOKO
15.25 - 15.45	ENG 02	UNIVERSITY OF SRIWIJAYA	ANALYSIS OF TEST PRODUCTION WITH HORIZONTAL LIP METHOD OF Y WELL CLUSTER K IN PT. PERTAMINA GEOTHERMAL ENERGYULUBELU AREA, LAMPUNG	AUDIAH FADHILAH, UBAIDILLAH ANWAR PRABU, WENNY HERLINA
15.45 - 16.05	ENG 03	PRAKLA BOHRTECHNIK GMBH / PT BAUER EQUIPMENT INDONESIA	REPRESENTATIVE RESULTS AND COSTS SAVED: SLIM HOLE	INGO P.C. ROTT
16.05 - 16.35	BREAK			
16.35 - 16.40	INTRODUCTION			
16.40 - 17.00	ENG 04	PT PERTAMINA GEOTHERMAL ENERGY	CORROSION PREVENTION OF BURRIED REINJECTION PIPELINE USING GEOTHERMAL-POWERED IMPRESSED CURRENT CATHODIC PROTECTION IN LAHENDONG GEOTHERMAL AREA	VIQAR ADLY GANI, ACHMAD ARDIALIM, AHMAD INDRA SAKTI H, LUHUNG PRAVUBINANTAKA, M. ALBARROSYAH PUTRA
17.00 - 17.20	ENG 05	PT CITRA TUBINDO TBK., KS ORKA (PT SMGP AND PT SGI)	A THERMAL CASING CONNECTION TEST FOR GEOTHERMAL WELLS IN KS ORKA	M. FAHMI SUNGKAR, HENDRA SIMANJUNTAK, BOGA ISA, ASHADI ASHADI, YUDI HARTONO

TUESDAY - AUGUST 13, 2019 - MURAI ROOM

CHAIR PERSON : KHASANI BACK-UP : DIMAS TAHA
CO-CHAIR PERSON : MULYADI

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
15.00 - 15.05	INTRODUCTION			
15.05 - 15.25	RM 01	STAR ENERGY GEOTHERMAL (WAYANG WINDU) LTD.	NUMERICAL MODEL OF WAYANG WINDU GEOTHERMAL SYSTEM TO OPTIMIZE PRODUCTION STRATEGY	RIZA PASIKKI, BOYKE BRATAKUSUMA, MULYADI
15.25 - 15.45	RM 02	STAR ENERGY GEOTHERMAL DARAJAT II, LTD.	DARAJAT UNIT 2 AND UNIT 3 UPSTREAM PRESSURE OPTIMIZATION	AGUS RIYADI, SIGIT WINARNO
15.45 - 16.05	RM 03	INSTITUTE OF TECHNOLOGY BANDUNG	PRE-FEASIBILITY STUDY OF WELLHEAD GENERATING UNIT IN WATER DOMINATED SYSTEM	MUHAMMAD ALWY DAHLAN, HERU BERIAN PRATAMA, NENNY MIRYANI SAPTADJI
16.05 - 16.35	BREAK			
16.35 - 16.40	INTRODUCTION			
16.40 - 17.00	SPEC 04	SCHLUMBERGER	WELL TARGETING BASED ON TEMPERATURE AND STRUCTURAL MODEL IN GEOTHERMAL FIELD BY USING PETREL SOFTWARE	SRI MULYANI, DEDI JUANDI
17.00 - 17.20	SPEC 05	INSTITUTE OF TECHNOLOGY BANDUNG	3D GEOLOGICAL MODELLING WORKFLOW USING LEAPFROG GEOTHERMAL: PRELIMINARY STAGE	CLAUDIO R.I. PONGGOHONG, SURYANTINI, ANGGA B. PRATAMA

TUESDAY - AUGUST 13, 2019 - MALEO ROOM

CHAIR PERSON : YAYAN SOFYAN BACK-UP : CRISTOVIK SIMATUPANG
CO-CHAIR PERSON : RIFQA A. WICAKSONO

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
15.00 - 15.05	INTRODUCTION			
15.05 - 15.25	SPEC 01	STAR ENERGY GEOTHERMAL DARAJAT II, LIMITED	CERTIFIED EMISSION REDUCTION ISSUANCE PROGRESS OF CLEAN DEVELOPMENT MECHANISM GEOTHERMAL PROJECT IN INDONESIA	MUHYIDIN
15.25 - 15.45	SPEC 02	INSTITUTE OF TECHNOLOGY BANDUNG	LITHIUM IN BRINE WATERS FROM THE INDONESIAN GEOTHERMAL SYSTEMS: COULD IT MEET THE NATIONAL NEEDS OF MAKING LITHIUM BATTERIES?	NINIEK RINA HERDIANITA, I GUSTI BAGUS EDDY SUCIPTA, ADITYA YUDA KENCANA
15.45 - 16.05	SPEC 03	STAR ENERGY GEOTHERMAL (WAYANG WINDU) LTD.	HIV AIDS PROGRAM IN THE GEOTHERMAL COMPANY: A STRATEGIC WAY TO SUSTAINABLE GEOTHERMAL OPERATION IN FACING THE THREAT OF GLOBAL PANDEMIC	DEDDI EKAPUTRA RANGAN, SANDRIANA TADJOEDDIN, RAHMAT D. GULO, JEDI RIJENDRA, AFRIONALDI, STEVANO DIHART
16.05 - 16.35	BREAK			
16.35 - 16.40	INTRODUCTION			
16.40 - 17.00	GEN 06	STAR ENERGY GEOTHERMAL SALAK, LIMITED	SROI ANALYSIS TO MEASURE THE IMPACT OF CSR PROGRAM - CASE STUDY IN STAR ENERGY GEOTHERMAL SALAK	DALI SADLI MULIA, FERNANDO EKA SATRIA, REVA SASISTIYA
17.00 - 17.20	GEN 07	STAR ENERGY GEOTHERMAL DARAJAT II, LIMITED, UNIVERSITAS ISLAM NUSANTARA	BUFFERZONE PROGRAM AS A STRATEGIC IMPLEMENTATION OF COMMUNITY DEVELOPMENT PROGRAM BASED ON SECURITY IN DARAJAT FOREST AREA	MARADEN H. PANGGABEAN, DALI SADLI MULIA, PANJI PRANADIKUSUMAH, OKKE ROSMALADEWI

TUESDAY - AUGUST 13, 2019 - NURI 1 ROOM

CHAIR PERSON : YUNUS DAUD BACK-UP : GINANJAR
CO-CHAIR PERSON : ANGGA PRATAMA

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
15.00 - 15.05	INTRODUCTION			
15.05 - 15.25	GEN 01	PT PERTAMINA GEOTHERMAL ENERGY	OPTIMIZING OPERATIONAL EXPENSE BY DEVELOPING A MONITORING AND UPDATING SYSTEM OF OPERATIONAL BUDGET STATUS AT PT PGE KAMOJANG	RAKA KAUTSAR LAHIA, REZA AMALUDIN, DONA FEBI ROSALINA, A. NOVI PURWONO
15.25 - 15.45	GEN 02	THE WORLD BANK	COMPARISON OF GLOBAL APPROACHES TO GEOTHERMAL RESOURCE RISK MITIGATION	MUCHSIN CHASANI ABDUL QADIR
15.45 - 16.05	GEN 03	PT PERTAMINA GEOTHERMAL ENERGY AREA LAHENDONG	LIFE CYCLE ANALYSIS OF GEOTHERMAL POWER PLANT SYSTEM OPERATION IN THE LAHENDONG GEOTHERMAL FIELD	MUHAMMAD GILANG MADIANTARA, AHMAD INDRA SAKTI HARAHAP, RAMADONI FEBRIANDINATA
16.05 - 16.35	BREAK			
16.35 - 16.40	INTRODUCTION			
16.40 - 17.00	GEN 04	THE WORLD BANK	RAPID ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT TO AVOID HIGH-RISK AREAS IN GEOTHERMAL EXPLORATION AND DEVELOPMENT	AGUSTINA PARWITOSARI, NININ KANIA DEWI, MUCHSIN CHASANI ABDUL QADIR
17.00 - 17.20	GEN 05	PT SUPREME ENERGY RANTAU DEDAP	THE INVOLVEMENT OF LOCAL INSTITUTION AND COLLABORATION WITH GEOTHERMAL INDUSTRY IN INCREASING LIVELIHOOD OF THE PROJECT AFFECTED PEOPLE	ERWIN PATRISA FLORIS, ISMOYO ARGO

TUESDAY - AUGUST 13, 2019 - NURI 2 ROOM

CHAIR PERSON : SURYANTINI BACK-UP : PRIHADI
CO-CHAIR PERSON : MARINO C. BAROEK

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
15.00 - 15.05	INTRODUCTION			
15.05 - 15.25	ES 06	UNIVERSITY OF DIPONEGORO	IDENTIFYING OF GEOTHERMAL MANIFESTATION EXISTENCE AND CHARACTERIZATION OF SULPHIDATION TYPE USING LANDSAT-8 IMAGE PROCESSING RESULTS: CASE STUDY OF MOUNT PAPANDAYAN AREA, GARUT REGENCY, WEST JAVA PROVINCE	SINATRYA DIKO PRAYUDI, DAFFA ARROFI, RINAL KHAIDAR ALI
15.25 - 15.45	ES 07	PT SORIK MARAPI GEOTHERMAL POWER	AN OVERVIEW GEOCHEMISTRY IN SORIK MARAPI GEOTHERMAL FIELD	RYAN HIDAYAT, RIDHA HENDRI, VICKY CHANDRA
15.45 - 16.05	ES 08	UNIVERSITY OF PEMBANGUNAN NASIONAL "VETERAN" YOGYAKARTA	IDENTIFICATION OF HEAT SOURCE AND STRUCTURE USING GRAVITY AND MAGNETIC DATA INTEGRATION ON NON VOLCANIC GEOTHERMAL SYSTEM OF PARANG WEDANG	MUHAMMAD ZAKI, NADYA NOORVITA
16.05 - 16.35	BREAK			
16.35 - 16.40	INTRODUCTION			
16.40 - 17.00	ES 09	STAR ENERGY GEOTHERMAL SALAK, LTD., INDEPENDENT CONSULTANT	PRECISION GRAVITY MONITORING OF SALAK GEOTHERMAL FIELD: INSIGHT AND CONSTRAINTS FOR NUMERICAL SIMULATION	M. WILDAN PERDANA, FIKRI RAHMANSYAH, GREGG NORDQUIST
17.00 - 17.20	ES 10	RESEARCH & TECHNOLOGY CENTER (RTC) OF PERTAMINA, UNIVERSITY OF LAMPUNG	A CORRELATION OF MERCURY (AS) AND HIDROGEN SULFIDE (H2S) GAS DISTRIBUTION WITH A FAULT STRUCTURE ON ULUBELU GEOTHERMAL SYSTEM	TAUFIQ, JATMIKO PRIO ATMOJO, YUNIS, SATRYO BUDIRAHARJO, B. MUJIHARDI, K. ROZAQ, MAHARANI, DIMAS DWI SAPUTRA

WEDNESDAY - AUGUST 14, 2019 - KAKATUA ROOM

CHAIR PERSON : GINANJAR
CO-CHAIR PERSON : RIKI IRFAN
BACK-UP : RIFQA A. WICAKSONO

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
13.45 - 13.50			INTRODUCTION	
13.50 - 14.10	ES 11	RESEARCH & TECHNOLOGY CENTER (RTC) OF PERTAMINA, UNIVERSITY OF LAMPUNG	A CORRELATION OF ARSENIC (AS) GAS DISTRIBUTION WITH SUBSURFACE TEMPERATURE LOG TO DETERMINE A HIGH TEMPERATURE ROCK OR STEAM ZONE ON ULUBELU GEOTHERMAL SYSTEM	JATMIKO PRIO ATMOJO, SATRYO BUDIRAHARJO, YUNIS, TAUFIQ, B. MUJIHARDI, K. ROZAQ, MAHARANI, DIMAS DWI SAPUTRA
14.10 - 14.30	ES 12	ELC ELECTROCONSULT S.P.A., DISTAV UNIVERSITÀ DI GENOVA	THE GEOTHERMAL EXPLORATION OF THE EAST AFRICAN RIFT SYSTEM: RECENT ADVANCES	CLAUDIO PASQUA, MASSIMO VERDOYA, PAOLO CHIOZZI
14.30 - 14.50	ES 14	UNIVERSITY OF DIPONEGORO	DETERMINATION OF GEOTHERMAL RESERVOIR CHARACTERISTIC AND HYDROTHERMAL ALTERATION MODEL BASED ON COMPREHENSIVE SURFACE MAPPING, GEOCHEMICAL, AND XRD ANALYSIS: CASE STUDY OF WIROGOMO AREA	SAIFULLAH FATAH AL-AYYUBI, GARINDRA YOGISWARA, NABILAH AFIFAH HABNI HARAHAP, ARIEF BUDIMAN USTIAWAN, NAVENDRA CHISTA YOGATAMA
14.50 - 15.10	ES 15	CENTRAL FOR MINERAL COAL AND GEOTHERMAL RESOURCES, GEOLOGICAL AGENCY OF INDONESIA, MINISTRY OF ENERGY AND MINERAL RESOUCES	ABSOLUTE DATING OF THERMAL HISTORY USING THERMOLUMINESCENCE	STEPHEN SIMAMORA, DIKDIK RISDIANTO, NIZAR MUHAMAD NURDIN
15.10 - 15.30	ES 16	UNIVERSITY OF INDONESIA, STAR ENERGY GEOTHERMAL (WAYANG WINDU), LTD.	ANALYSIS OF OPTIMUM STATION SPACING IN MAGNETOTELLURIC DATA ACQUISITION BY USING 3-DIMENSIONAL FORWARD AND INVERSE MODELLING FOR GEOTHERMAL EXPLORATION	DHARA ADHNANDYA KUMARA, YUNUS DAUD, RIFQA AGUNG WICAKSONO, WAHYU NOOR IQWAN, FIKRI FAHMI, EWIN RAHMAN DZUHRI
15.30 - 15.45			BREAK	
15.45 - 15.50			INTRODUCTION	
15.50 - 16.10	ES 17	UNIVERSITY OF INDONESIA, PT NEWQUEST GEOTECHNOLOGY	SEA EFFECT ANALYSIS IN MAGNETOTELLURIC DATA USING FORWARD AND INVERSE 3-D MODELING FOR GEOTHERMAL EXPLORATION	EWIN RAHMAN DZUHRI, YUNUS DAUD, FIKRI FAHMI, WAHYU NOOR IKHWAN, DHARA ADHNANDYA KUMARA
16.10 - 16.30	ES 18	UNIVERSITY OF LAMPUNG	INTEGRATING OF GEOMAGNETIC DATA AND VERTICAL ELECTRICAL SOUNDING FOR IDENTIFICATION OF RESERVOIR AND GEOTHERMAL FLUIDS IN GEOTHERMAL PROSPECTS RAJABASA MOUNTAIN	SYAMSURIJAL RASIMENG, JAKASURA LEANDRO TARIGAN, DITHA ARLINSKY AR., M. IKHSAN FADHILLAH

WEDNESDAY - AUGUST 14, 2019 - KENARI ROOM

CHAIR PERSON : RIZA PASIKKI BACK-UP : MULYADI
CO-CHAIR PERSON : ALI ASHAT

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
13.45 - 13.50	INTRODUCTION			
13.50 - 14.10	ENG 06	SCHLUMBERGER, STAR ENERGY	UNIFIED LOGGING UNIT - DIGITALIZING GEOTHERMAL DRILLING IN STAR ENERGY GEOTHERMAL	FEBRA SAKTI DEWA, SUFIAN ELSALEH, HULYADI HALIM, MOUSA NAMAVAR, CHARBEL OUEIS, TOMMY SOUVANIR, DODDY DARMAWAN
14.10 - 14.30	ENG 17	STAR ENERGY GEOTHERMAL SALAK/ DARAJAT	INCIDENT INVESTIGATION AND ROOT CAUSE ANALYSIS (RCA) BEST PRACTICES TO IMPROVE SAFE AND RELIABLE GEOTHERMAL PLANT OPERATIONS	U. ANANG ISCHAK, INDRA RAHMANSYAH
14.30 - 14.50	ENG 12	FUJI ELECTRIC CO., LTD.	FUJI GEOTHERMAL ORC POWER GENERATION SYSTEM	HIROSHI OYAMA, SHIGETO YAMADA
14.50 - 15.10	ENG 13	SARULLA OPERATION LTD.	FOCUS IMPROVEMENT: MEASURING LEVEL OF CONDENSATE PUMP TO INCREASE UNIT RELIABILITY UP TO 98%	RICHARD ALEXANDER, ARGY RIGWAN, EFRATA MELIALA, QUERUBIN WENDELL, KADAR ADITAMA
15.10 - 15.30	ENG 14	PT PERTAMINA GEOTHERMAL ENERGY - ULUBELU	OPTIMIZATION OF USING COOLING TOWER FAN IN THE GEOTHERMAL POWER PLANT OF ULUBELU UNIT 4 IN HOUSE LOAD SAVING	NIZAR MUSLIM, YUSUP ANWAR RIDWAN
15.30 - 15.45	BREAK			
15.45 - 15.50	INTRODUCTION			
15.50 - 16.10	ENG 08	SCHLUMBERGER, STAR ENERGY GEOTHERMAL	GEOTHERMAL CEMENTING DESIGN AND METHODOLOGY ENHANCEMENT IN WAYANG WINDU	ERIC TANOTO, ALLAM PUTRA RACHIMILLAH, CINTO AZWAR, FEBRA SAKTI DEWA, TOMMY SOUVANIR
16.10 - 16.30	ENG 16	STAR ENERGY GEOTHERMAL SALAK, LTD.	SALAK TURBINE ROTOR SUSCEPTIBILITY ANALYSIS AGAINST SULFIDE STRESS CRACKING	DIVA E. NATAPRAWIRA, ADRIAN MUSKAN
16.30 - 16.50	ENG 11	PT INDONESIA POWER	ACHIEVEMENTS AND CHALLENGES TO UTILIZE EXPLORATION WELLS INTO DEVELOPMENT OF COMMERCIAL GEOTHERMAL POWER PLANTS, CASE STUDY ULUMBU 4 X 2.5 MW	SUGENG TRIYONO, DWI HANDOYO SAPUTRO, BUDI WIBOWO

WEDNESDAY - AUGUST 14, 2019 - MURAI ROOM

CHAIR PERSON : ASHADI BACK-UP : PETER
CO-CHAIR PERSON : DIMAS TAHA

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
13.45 - 13.50			INTRODUCTION	
13.50 - 14.10	ENG 10	SCHLUMBERGER, STAR ENERGY GEOTHERMAL, AERATED DRILLING ASSOCIATES	COMPREHENSIVE AERATED DIRECTIONAL DRILLING APPLICTION IN WAYANG WINDU GEOTHERMAL PROJECT CAMPAIGN	AGUS ZIYAD KURNIA, TOMMY SOUVANIR, CITRA CHRISTINA
14.10 - 14.30	ENG 09	SCHLUMBERGER	OBTAINING ULTIMATE ZONAL ISOLATION IN GEOTHERMAL WELL: RECOMMENDATION & BEST PRACTICE OF GEOTHERMAL WELL CEMENTING DESIGN & OPERATION	ALLAM PUTRA RACHIMILLAH, ERIC TANOTO, CINTO AZWAR
14.30 - 14.50	ENG 15	UNIVERSITY OF DIPONEGORO	UTILIZATION OF SURFACE GEOTHERMAL MANIFESTATION (STEAMING GROUND) AS SMALL-SCALE ELECTRICAL POWER PLANT IN KAWAH MATI KAMOJANG, GARUT REGENCY: THERMOELECTRIC COOLER TECHNOLOGY	NAVENDRA CHISTA YOGATAMA, DANI MUHAMAD IQBAL, HEZRON CHRISTIAN MARBUN, KODRAT CAHYO WICAKSONO, MELIANA ATMIKA
14.50 - 15.10	ENG 07	SCHLUMBERGER, STAR ENERGY GEOTHERMAL	REAL TIME DECISION CENTER: DRIVING OPERATIONAL EXCELLENCE IN GEOTHERMAL DRILLING	GATRA KUSUMA, FEBRA SAKTI DEWA, PUTHUT HADI SURYA, TOMMY SOUVANIR, AGUS ZIYAD KURNIA, HULYADI HALIM
15.10 - 15.30	ENG 18	PT PERTAMINA GEOTHERMAL ENERGY AREA LAHENDONG	MAINTAINING THE AVAILABILITY OF STEAM SUPPLY TO GEOTHERMAL POWER PLANT UNIT 1-4 WITH PIPELINE DEBOTTLENECKING PROJECT AT PGE LAHENDONG	ACHMAD SANI ZAHID, MUKHAMAD NASHIR, VIQAR ADLY GANI, BAGUS REKA SUSILO, MANDA WIJAYA KUSUMAH, APRIYANSAH TONI
15.30 - 15.45			BREAK	
15.45 - 15.50			INTRODUCTION	
15.50 - 16.10	ENG 26	UNIVERSITY OF PEMBANGUNAN NASIONAL "VETERAN" YOGYAKARTA	STUDY CASE COMPARISON OF LONG STRING AND TIE BACK STRING IN DARAJAT FIELD	KHANSA HANIFA ZAHRA, SUCI NUR HIDAYAH, MOHAMMAD FIDI ABGANIS HERMAWAN
16.10 - 16.30	ENG 27	PT PERTAMINA DRILLING SERVICES INDONESIA	DESIGN AND APPLICATION OF AERATED AND FOAM DRILLING FLUID, CASE STUDY IN DRILLING OPERATION IN INDONESIA	WISNU ADI NUGROHO, ALI IMRAN RANGKUTI, SATRIA HERMAWAN
16.30 - 16.50	ENG 28	BAKER HUGHES, A GE COMPANY (BHGE)	HYBRID DRILL BIT TECHNOLOGY, IMPROVED ROP, DRILLED INTERVAL AND CONTRIBUTED TO 96 HOURS CUMULATIVE SAVING IN ONE GEOTHERMAL WELL IN SOUTH SUMATERA OPERATION	MOHAMMAD KHAIRANTO NUGROHO, SON N. PHAM

WEDNESDAY - AUGUST 14, 2019 - MALEO ROOM

CHAIR PERSON : ARIAS SUGANDHI BACK-UP : MARINO C. BAROEK
CO-CHAIR PERSON : CHRISTOVIK SIMATUPANG

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
13.45 - 13.50	INTRODUCTION			
13.50 - 14.10	ENG 22	EHIME UNIVERSITY, KYOTO UNIVERSITY	THERMO-HYDRO-MECHANICAL MODELING TO SIMULATE LAHENDONG GEOTHERMAL FIELD	MUHAMMAD QARINUR, HIDEAKI YASUHARA, NAOKI KINOSHITA, SHO OGATA
14.10 - 14.30	ENG 29	TURBODEN S.P.A.	ORC, AN EFFICIENT AND DEPENDABLE SOLUTION FOR MODERN GEOTHERMAL APPLICATIONS, TURBODEN'S EUROPEAN EXPERIENCE	JOSEPH BONAFIN, DAVID PAUL
14.30 - 14.50	ENG 24	PT PERTAMINA GEOTHERMAL ENERGY	NITROGEN LIFTING METHOD TO DISCHARGE GEOTHERMAL WELLS	ERWANDI YANTO, GAMAL HASTRIANSYAH, AHMAD FAHMI FANANI, M. BAYU SAPUTRA, FADIEL EVAN MARASTIO, FERNANDO PASARIBU, MARIHOT S.P. SILABAN
14.50 - 15.10	ENG 25	INSTITUTE OF TECHNOLOGY BANDUNG, PT INDONESIA POWER	THERMODYNAMICS AND PROCUREMENT COST ANALYSIS OF DEVELOPING BINARY CYCLE FROM BACK PRESSURE TURBINE POWER PLANT IN FLORES, INDONESIA	NAUFAL NANDALIARASYAD, DIMAS TAHA MAULANA, REZA ADIPRANA, PRIHADI SETYO DARMANTO
15.10 - 15.30	ENG 19	SARULLA OPERATION LTD.	GEOCHEMISTRY ROLE IN GEOTHERMAL BINARY BRINE IN THE FIRST INTEGRATED COMBINE CYCLE POWER PLANT OPERATION IN INDONESIA: SARULLA CASE STUDY	MUHAMAD ANDHIKA, MONA NATALIA SIAHAAN, SANIF ISA ARITONANG, RIZVY ASNIN NASUTION, SAHAT BERUTU
15.30 - 15.45	BREAK			
15.45 - 15.50	INTRODUCTION			
15.50 - 16.10	ENG 20	ISLAMIC UNIVERSITY OF TECHNOLOGY BANGLADESH, ISLAMIC UNIVERSITY IN UGANDA	MACHINE LEARNING MODEL FOR IMPROVING SINGLE FLASH GEOTHERMAL ENERGY PRODUCTION: A CASE OF INDONESIA	ALDI CAHYA MUHAMMAD, K. HABIBUL KABIR, ADAM A. ALLI
16.10 - 16.30	ENG 21	PT SUPREME ENERGY MUARA LABOH	DEVELOPMENT OF THE FIRST DUAL FLASH GEOTHERMAL POWER PLANT IN INDONESIA	MUNGGANG H. PURNANTO, STEFANUS WISANTO, RUSWANTO BIN NURUDIN DATA
16.30 - 16.50	ENG 31	PT SOKORIA GEOTHERMAL INDONESIA	DRILLING COST REDUCTION INITIATIVES FOR GEOTHERMAL DRILLING	YUDI HARTONO, ASHADI, SENTANU W. REKSALEGORA

WEDNESDAY - AUGUST 14, 2019 - NURI 1 ROOM

CHAIR PERSON : PRIHADI BACK-UP : YAYAN SOFYAN
CO-CHAIR PERSON : RAMADHAN

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
13.45 - 13.50	INTRODUCTION			
13.50 - 14.10	SPEC 06	STAR ENERGY GEOTHERMAL DARAJAT II, LIMITED	I-FIELD IMPLEMENTATION FOR ENERGY EFFICIENCY IMPROVEMENT IN DARAJAT UNIT II AND III POWER PLANTS	WIBISONO YAMIN, OTTO HARI KARYAWAN, AGUS RIYADI
14.10 - 14.30	GEN 10	INSTITUTE OF TECHNOLOGY BANDUNG, KYUSHU UNIVERSITY	THE APPLICATION OF NUMERICAL SIMULATION RESULT FOR GEOTHERMAL FINANCIAL MODEL WITH PROBABILISTIC APPROACH: A COMPREHENSIVE STUDY	NEVI CAHYA WINOFA, ADE LESMANA, HERU BERIAN PRATAMA, NENNY MIRYANI SAPTADJI, ALI ASHAT
14.30 - 14.50	SPEC 09	PT RIGSIS ENERGI INDONESIA, INSTITUTE OF TECHNOLOGY BANDUNG	THE SIGNIFICANCE OF DRILLING DATA MANAGEMENT TO IMPROVE GEOTHERMAL DRILLING OPERATION	DANIEL ADITYATAMA, RIVIANI KUSUMAWARDANI, DORMAN PURBA, FARHAN MUHAMMAD, RIBKA ASOKAWATY
14.50 - 15.10	GEN 12	PT RIGSIS ENERGI INDONESIA, GEO DIPA ENERGI, PPSDM CEPU, INSTITUTE OF TECHNOLOGY BANDUNG	UTILIZATION OF MULTI-CRITERIA DECISION ANALYSIS (MCDA) IN SELECTING CONTRACT TYPES FOR GEOTHERMAL EXPLORATION DRILLING PROJECT IN INDONESIA	FARHAN MUHAMMAD, VICKI AGUSTINO, DORMAN P. PURBA, DANIEL W. ADITYATAMA, RULY HUSNIE, MUKHAMAD F. UMAM, RIBKA ASOKAWATY
15.10 - 15.30	ES 19	INSTITUTE OF TECHNOLOGY BANDUNG	EXPERIMENTAL DESIGN USING THREE-LEVEL FULL FACTORIAL DESIGN FOR PROBABILISITC RESOURCE ASSESSMENT IN ATADEI GEOTHERMAL FIELD, INDONESIA	MARCHEL CHRISTIAN SUPIJO, HERU BERIAN PRATAMA, SUTOPO
15.30 - 15.45	BREAK			
15.45 - 15.50	INTRODUCTION			
15.50 - 16.10	ES 20	PT JACOBS	POWER DENSITY UPDATE OF INDONESIAN FIELDS	MAXWELL WILMARTH, GUGI GANEFIANTO
16.10 - 16.30	ES 21	PT SCHLUMBERGER GEOPHYSICS NUSANTARA, GEOTHERMEX, A SCHLUMBERGER COMPANY	INTEGRATED ADVANCE FRACTURE ANALYSIS: A CASE STUDY FROM FALLON FORGE WELL 21-31, NEVADA, USA	PASCA SIBURIAN, TITO PERDANA, HERI TANJUNG, MERZA ADEYOSFI, LEONORA LILASARI, SONNY WIYOGA

WEDNESDAY - AUGUST 14, 2019 - NURI 2 ROOM

CHAIR PERSON : FERNANDO PASARIBU BACK-UP : YUDI KUSUMAH
CO-CHAIR PERSON : WAMBRA ASWO N.

TIME	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
13.45 - 13.50	INTRODUCTION			
13.50 - 14.10	GEN 08	WOMEN IN GEOTHERMAL (WING) INDONESIA	THE BENEFIT AND ROLE OF WOMEN IN GEOTHERMAL (WING) INDONESIA ON SUPPORTING RENEWABLE ENERGY INDUSTRY	RATIH NURRUHLIATI, JANE BROTHERIDGE, JANE BYDDER, PRI UTAMI, KRIS PUDYASTUTI
14.10 - 14.30	GEN 11	PT RIGSIS ENERGI INDONESIA, PPSDM CEPU, INSTITUTE OF TECHNOLOGY BANDUNG, UNIVERSITY OF TRISAKTI	GEOTHERMAL ENERGY DEVELOPMENT COMPARISON AMONG TOP GEOTHERMAL PRODUCERS	DORMAN P. PURBA, RIBKA F. ASOKAWATY, DANIEL W. ADITYATAMA, RANY C. PUTRI, RIVIANI KUSUMAWARDANI, MUKHAMAD UMAM
14.30 - 14.50	GEN 09	HUMAN RESOURCE DEVELOPMENT AGENCY OF MEMR, DIRECTORATE GENERAL OF NEW, RENEWABLE ENERGY, AND ENERGY CONSERVATION OF MEMR	THE GEOTHERMAL CAPACITY-BUILDING INITIATIVES BY THE MINISTRY OF ENERGY AND MINERAL RESOURCES	MUKHAMAD FAESHOL UMAM, HUSIN SETIA NUGRAHA, AHMAD FATHONI
14.50 - 15.10	SPEC 10	NEW ZEALAND TRADE AND ENTERPRISE	A REVIEW OF GEOHEAT AS NEW ZEELAND'S GEOTHERMAL DIRECT USE STRATEGY	WINI RIZKININGAYU
15.10 - 15.30	GEN 13	GUNUNG HALIMUN SALAK NATIONAL PARK, SPATIAL ANALYST OF INDONESIA HERPETOFAUNA FOUNDATION, STAR ENERGY GEOTHERMAL SALAK	JAVAN LEOPARD IN SEGS CONCESSION AREA: THE HARMONY BETWEEN WILDLIFE AND GEOTHERMAL	MISBAH SATRIA GIRI, SENJAYA MERCUSIANA, NUR INDAH RISTIANA, ALI SAHID, WILI EKARIYONO

AUGUST 13 - 14, 2019

NO	TOPICS CODE	AFFILIATION	TITLE OF PAPER	AUTHOR
14.45 - 15.00				
1	GEN 14	PT PERTAMINA GEOTHERMAL ENERGY	EMPOWERMENT OF QUAIL BREEDER (EAGLE FEED SUPPLIER) TO EAGLE CONSERVATION CENTER IN GEOTHERMAL KAMOJANG AREA WITH UTILIZING FECES TO BE FERTILIZER AS AN ADDITIONAL VALUE	DARUSSALAM
2	GEN 15	UNIVERSITY OF LAMPUNG	TYPES OF HYDROTHERMAL ALTERATION: STUDY CASE IN TANGGAMUS VULCANIC RING	AFIFFAH H, SUHARNO, BIMA HABIB NUGRAHA, IRHAZ ZULFAYANI, REGINA FEBRYZHA, M. FAJRI
3	ENG 23	PT PERTAMINA GEOTHERMAL ENERGY	A SIMPLE PREDICTION AND APPROACH TO DETERMINE RESERVOIR PRESSURE	ERWANDI YANTO, GAMAL HASTRIANSYAH, AHMAD FAHMI FANANI, M. BAYU SAPUTRA, FADIEL EVAN MARASTIO, FERNANDO PASARIBU, MARIHOT S.P. SILABAN
4	ENG 30	UNIVERSITY OF DIPONEGORO	SUPERHYDROPHOBIC SELF CLEANING LAYER IN PIPE SCALING	CYNTHIA DEWI SUSANTO, JOSE PRIMA BOANG MANALU, IGNATIUS BERNADI, ROYNALDO LUMBAN BATU
5	ENG 32	PT MEDCO GEOTHERMAL SARULLA	EFFECTIVENESS OF GEOTHERMAL OPERATOR FOR DELIVERING MAXIMIZE PLANT AVAILABILITY FACTOR	ARNALDO NAPITU
6	SPEC 07	PERTAMINA DRILLING SERVICE INDONESIA, HALLIBURTON	GEOTHERMAL WELL ANALYSIS USING UNDERBALANCE DRILLING MODULE ON LANDMARK HALLIBURTON WELLPLAN SOFTWARE	WISNU ADI NUGROHO, ALI IMRAN RANGKUTI, FERNANDO MARPAUNG, SAMUEL HALOMOAN SILITONGA, FRANKLY HARDYTANPUTRA, MUHAMMAD SINAR, BENO MARFIANTO, RANDY JANITRA, MUHAMMAD TAUFIQ QURRAHMAN, DESHINTA PUTRI
7	SPEC 08	UNIVERSITY OF PEMBANGUNAN NASIONAL "VETERAN" YOGYAKARTA	GEOTHERMAL SALT FACTORY (GSF) DESIGN IN PARANGWEDANG GEOTHERMAL, BANTUL, SPECIAL REGION OF YOGYAKARTA	ALFIAN GILANG, MOHAMMAD HASSAN JAUHARI, YUSRIL IHZA, MARIA THERESIA KRISTIATI
8	SPEC 11	UNIVERSITY OF DIPONEGORO	DEVELOPING INTERGRATED GEOTURISM IN UNGARAN'S GEOTHERMAL MANIFESTATION	DHINAR LUHUNG ANGGITA, YANUAR DIAN ANUGRAH
9	SPEC 12	UNIVERSITY OF DIPONEGORO	PRODUCTION BEHAVIOR COMPARISON OF CO2 AND WATER AS WORKING FLUID AS POSSIBILITY OF ENHANCED GEOTHERMAL SYSTEM IN SIBAYAK AND DRAJAT, INDONESIA	ROYNALDO LUMBAN BATU, IGNATIUS BERNADI, CYNTHIA DEWI SUSANTO, JOSE PRIMA BOANG MANALU
10	SPEC 13	UNIVERSITY OF DIPONEGORO	UTILIZATION OF GEOTHERMAL MANIFESTATION AS THE POTENTIAL OF THE LOMBONGO REGIONAL GEOMETIC, BONEBOLANGO REGENCY, PROVINCE OF GORONTALO	MIFTAHUL JANNAH, MUHAMMAD RIZQY GAU
11	SPEC 14	UNIVERSITY OF DIPONEGORO	INVESTIGATION AND PRELIMINARY STUDY OF GEOTOURISM PROSPECTS IN GEOTHERMAL AREA: A CASE STUDY IN NGEBEL GEOTHERMAL PROJECT, EAST JAVA, INDONESIA	FATHONI TRI KURNIAWAN, MUHAMAD FAUZAN TANJUNG, ILHAM ARIFAL GUNTORO
12	SPEC 15	INSTITUTE OF SCIENCE & TECHNOLOGY AKPRIND YOGYAKARTA	GEOTOURISM PROSPECT SELECTION USING ANALYTICAL HIERARCHY PROCESS (AHP): CASE STUDY IN TELOMOYO GEOTHERMAL AREA, INDONESIA	AULIA UMAMI, ALFATH ZAIN
13	SPEC 16	UNIVERSITY OF INDONESIA	USING CONTINUOUS WAVELET TRANSFORM FOR ENHANCING MAGNETOTELLURIC DATA IN GEOTHERMAL EXPLORATION	HAIDAR FIRDAUS AVICIENNA, YUNUS DAUD, NAUVAL IVANDITHO
14	SPEC 17	BRAWIJAYA VOLCANO & GEOTHERMAL RESEARCH CENTER (BRAVO GRC), UNIVERSITY OF BRAWIJAYA	GEOTHERMAL DIRECT UTILIZATION FOR FROST PROTECTION ON POTATO CROPS IN DIENG PLATEAU, CENTRAL JAVA	FARIZKY HISYAM, AFIFAH NURUL MAULINA
15	SPEC 18	UNIVERSITY OF DIPONEGORO	INTEGRATION OF GEOTHERMAL MANIFESTATION AND GEOTOURISM AS A CATALYST TOWARDS EDUCATING SOCIETY, ECONOMIC GROWTH AND SUSTAINABLE DEVELOPMENT BASED ON GEOTHERMAL ENERGY	MUHAMMAD ALI AKBAR VELAYATI SALIM, ASTRI YUNITA
16	SPEC 19	SARULLA OPERATION LTD.	INDONESIA GEOTHERMAL DASHBOARD WITH PLANT INFORMATION MANAGEMENT SYSTEM (PIMS)	KADAR ADITAMA

17	ES 13	UNIVERSITY OF PEMBANGUNAN NASIONAL "VETERAN" YOGYAKARTA	IDENTIFICATION OF GUCI, TEGAL, CENTRAL JAVA GEOTHERMAL MANIFESTATION BASED ON GEOLOGICAL GUIDE	ARHANANTA, ANGGITA MAHYUDANI RKT, ANTU RIDHA FALKHAN BARIZI, RIKO DWI KURNIAWAN, OSCARINO HUNAIFI AHMAD, AGUS HARJANTO
18	ES 22	UNIVERSITY OF DIPONEGORO	FAULT FRACTURE DENSITY (FFD) AND ALTERATION ZONE ANALYSIS TO DETERMINE FLUID-ROCK INTERACTIONS TO ENSURE EFFECTIVE DECISION MAKING OF PROSPECTIVE FIELDS IN MOUNT TELOMOYO, SEMARANG	ASTRI YUNITA, MUHAMMAD ALI AKBAR VELAYATI SALIM
19	ES 23	RESEARCH CENTER FOR GEOTECHNOLOGY, INDONESIAN INSTITUTE OF SCIENCES (LIPI)	NEW GEOTHERMAL EXPLORATION CONCEPT BASED ON CIRCULAR FEATURE OF LOW BOUGUER ANOMALY: MAGNATOTELLURIC DATA OF WEST JAVA GEOTHERMAL PROSPECT AREA AS THE EVIDENT OF NEW GEOTHERMAL EXPLORATION	EDDY GAFFAR, YAYAT SUDRAJAT, HARYADI PERMANA
20	ES 24	UNIVERSITY OF PEMBANGUNAN NASIONAL "VETERAN" YOGYAKARTA	KEPAHIANG GEOTHERMAL VOLUMETRIC POTENTIAL USING MONTE CARLO SIMULATION	WISNU ARDHI NUGROHO, ARINO MANGIHUT TUA SITANGGANG, DANIEL MARPAUNG, IVAN
21	ES 25	UNIVERSITY OF TRISAKTI	COMPARING HORNER & WAPLES IN TEMPERATURE PREDICTION	MUHAMMAD SYARIF FADHLURRAHMAN, KRIS PUDYASTUTI
22	ES 26	UNIVERSITY OF DIPONEGORO	REMOTE SENSING and GEOLOGICAL MAPPING METHOD FOR GEOTHERMAL PROSPECT ANALYSIS: CASE STUDY OF TELOMOYO GEOTHERMAL SYSTEM, CENTRAL JAVA	LESTARI BUTARBUTAR, KRISTINA SARAH YULIANA, ELENA SEKAR RAHAYU
23	ES 27	INSTITUTE OF SCIENCE & TECHNOLOGY AKPRIND YOGYAKARTA	GEOTHERMAL EXPLORATION USING APPLICATIONS GEOLOGICAL MAPPING, FFD SRTM, MODELLING CONCEPT OF STRUCTURAL CONTROL, PETROGRAPHY AND HOT WATER GEOTHERMOMETER ANALYSIS TO IDENTIFICATION AND EVALUATION POTENTIAL OF VOLCANO GEOTHERMAL ENERGY AT CANGAR, EAST JAVA	YOYOK RAGOWO SISWOMIHARJO. S, DESI KISWIRANTI, VENNY AYU SYAFRIANI, PAMELA FELITA ADIBRATA, AGUNG CANDRA SETIAWAN, DESSENSA
24	ES 28	UNIVERSITY OF DIPONEGORO	DETECTING THE EXISTENCE OF ALTERATION MINERALS IN THE ACTIVE GEOTHERMAL AREA OF TANGKUBAN PERAHU MOUNTAIN AND SURROUNDING AREAS USING RESULTS OF LANDSAT-8 PROCESSING TO IDENTIFY DISTRIBUTION OF SURFACE CONDITION CHANGES FROM THE HYDROTHERMAL PROCESS	SINATRYA DIKO PRAYUDI, DAFFA ARROFI, RINAL KHAIDAR ALI
25	ES 29	UNIVERSITY OF PEMBANGUNAN NASIONAL "VETERAN" YOGYAKARTA	INVESTIGATION OF GEOTHERMAL POTENTIALS OF MOUNTAIN LAMONGAN BASED ON MORPHOSTRUCTURE AND GEOCHEMICAL INSTRUCTIONS	ARHANANTA, KENNY LEKATOMPESSY, M. ALHAFIQ WAHYU NABILLAH, NAZWA KHOIRATUN HISAN, AGUS HARJANTO
26	ES 30	UNIVERSITY OF DIPONEGORO	GEOTHERMAL CHARACTERIZATION BASED ON SURFACE MANIFESTATION, ALTERED MINERALS, AND BICARBONATE HYDROTHERMAL FLUIDS (STUDY CASE: KALIULO, UNGARAN, CENTRAL JAVA)	NOAH JOEL THEOFILLUS, PETRUS ADITYA EKANANDA, DANI MUHAMMAD IQBAL, VERGANIA NURLITA PUTRI, YAUMAN MUAFA MUHAMMAD
27	ES 31	UNIVERSITY OF PEMBANGUNAN NASIONAL "VETERAN" YOGYAKARTA, CENTER FOR MINERAL, COAL AND GEOTHERMAL RESOURCES - GEOLOGICAL AGENCY BANDUNG	GEOELECTRICAL STRIKE VS GEOLOGICAL STRIKE TENSOR ROTATION IN 2-D MODELLING OF MAGNETOTELLURIC DATA. STUDY CASE: BONJOL GEOTHERMAL AREA, WEST SUMATERA	PAULUS FEBRIANTO PANDU WIBOWO, WIWID JONI, HAFIZ HAMDALAH
28	ES 32	UNIVERSITY OF BRAWIJAYA	HYDROTHERMAL CYCLE ESTIMATION BASED ON RECHARGE AND DISCHARGE ZONE IDENTIFICATION USING GRAVITY METHOD AND GEOCHEMISTRY FLUID ON ARJUNO-WELIRANG COMPLEX, EAST JAVA	BRAMASTA ADYA DEWANTA, IBANES PRAMITASARI, TRIA AINUR ROKHIS, NOVIA DWI RANTIKASARI, CHOLISINA ANIK PERWITA
29	ES 33	UNIVERSITY OF LAMPUNG	ANALYSIS OF FAULT AND DISTRIBUTION FLUID GEOTHERMAL USING DEM SATELLITE IMAGE DATA, LANDSAT 8 OLI/TIRS AND SATELLITE GRAVITY IN THE VILLAMASIN GEOTHERMAL PROSPECT AREA, JAYAPURA DISTRICT, EAST OKU REGENCY	JAKASURA LEONARDO TARIGAN, ELSADELLA NINDYA PUTRI
30	ES 34	UNIVERSITY OF PADJADJARAN, PSDMBP, GEOLOGICAL AGENCY, MINISTRY OF ENERGY	PREDICTION ZONE OF WAYANG WINDU GEOTHERMAL COMPONENT SYSTEM BASED ON THE INTEGRATION OF GEOPHYSICAL AND GEOLOGICAL DATA	MUHAMMAD SHOFI H., RETNO AULIA R. TUNGKAGI, NADA SALSABILA DEVA, PRIMA HILMAN

		AND MINERAL RESOURCES		
31	ES 35	UNIVERSITY OF INDONESIA	SEA WATER DESALINATION USING DISTILLATION METHOD BY UTILIZING THE GEOTHERMAL POTENTIAL OF TEMBOKO LEHI BEACH AS A SOLUTION OF DROUGHT IN SIAU TAGULANDANG BIARO DISTRICT, NORTH SULAWESI	NIKITA CHRISTINA, RATNA PERTIWI, MUHAMMAD RIZQY SEPTYANDY, NURCHASANAH ANANDA SARI
32	ES 36	CENTER FOR MINERAL, COAL, AND GEOTHERMAL RESOURCES, MINISTRY OF ENERGY AND MINERAL RESOURCES	GEOTHERMAL ACTIVE MANIFESTATIONS IN NON VOLCANIC AREA OF SOUTH EAST SULAWESI, INDONESIA	ANNA YUSHANTARTI, DUDI HERMAWAN
33	ES 37	UNIVERSITY OF LAMPUNG	FAULT STRUCTURE AND GEOTHERMAL SYSTEM ANALYSIS BASED ON GRAVITY INVERSION MODEL, MAGNETOTELLURIC AND GEOCHEMISTRY OF GEOTHERMAL PROSPECTING FIELD WAI SELABUNG SOUTH SUMATERA	CLARA ARMILIANY, DAVID SUGANDA PUTRA MANURUNG, DAVIT MANALU, SUHARNO, KARYANTO
34	ES 38	UNIVERSITY OF GADJAH MADA	GEOLOGY AND THE RELATIONSHIP OF LINEAMENT DENSITY WITH GEOTHERMAL MANIFESTATION DISTRIBUTION IN NORTHERN BAJAWA AREA, NGADA DISTRIC, EAST NUSA TENGGARA PROVINCE, INDONESIA	ASTRI INDRA MUSTIKA, AGUNG SETIANTO, AGUNG HARIJOKO
35	RM 04	INSTITUTE OF TECHNOLOGY BANDUNG	PROBABILISTIC METHOD: A NEW APPROACH FOR DETERMINING THE NUMBER OF MAKE-UP WELLS IN FEASIBILITY STUDY	FERI VERNANDO SALIM, HERU BERIAN PRATAMA, NENNY MIRYANI SAPTADJI
36	RM 05	INSTITUTE OF TECHNOLOGY BANDUNG	HOW TO MANAGE THE GEOTHERMAL FIELD IN ACHIEVING SUSTAINABLE POWER OUTPUT BASED ON RESERVOIR CHARACTERISTICS AND UNIQUE PROBLEMS CASE STUDY: GEOTHERMAL FIELDS IN INDONESIA	AKBAR DWI WAHYONO, HERU BERIAN PRATAMA

PROCEEDINGS, The 7th Indonesia International Geothermal Convention & Exhibition (IIGCE) 2019
Assembly Hall - Jakarta Convention Center Indonesia, August 13 - 15, 2019

INTEGRATING OF GEOMAGNETIC DATA AND VERTICAL ELECTRICAL SOUNDING FOR IDENTIFICATION OF RESERVOIR AND GEOTHERMAL FLUIDS IN GEOTHERMAL PROSPECTS RAJABASA MOUNTAIN

Syamsurijal Rasimeng, Jakasura Leandro Tarigan, Ditha Arlinsky. Ar, M. Ikhsan Fadhillah

Geophysical Engineering, Engineering Faculty, University of Lampung, Indonesia
Jl.Prof. Sumantri Brojonegoro No. 1, Bandar Lampung
e-mail: syamsurijal.rasimeng@eng.unila.ac.id

ABSTRACT

This study has been done to determine the spread of reservoir rocks and geothermal fluids that are beneath the surface of the geothermal prospect of Mount Rajabasa, South Lampung Regency, Lampung Province. The stages of study carried out in the form of (i) measurement of geomagnetic data and vertical electrical sounding AB/2 150, 300, 450 and 600 meters; (ii) magnetic anomaly data processing consisting of diurnal and IGRF correction, reduction of the surface, upward continuation, separation of regional-residual anomalies, reduction to the pole, and 3D residual anomalies modeling from reduction to the pole; (iii) determining the value of resistivity every depth. The range of geomagnetic anomalies obtained is -419.404 nT to 1429.022 nT. Based on the results of 3D residual anomalies from reduction to the pole process can be estimated that the geothermal reservoir has a susceptibility value of 0.0022 cgs (10^3 SI) to 0.289 cgs (10^3 SI) estimated as intermediate (andesitic-basaltic) rocks. The position of the reservoir is located southwest of the peak of Mount Rajabasa at a depth of 1300 meters below the mean sea level. The results of resistivity analysis showed that the capillary rock was characterized by a low resistivity value (10 - 60 Ωm) and a geothermal reservoir characterized by a high resistivity value (> 210 Ωm). Based on the profile of resistivity anomaly there is a distribution of geothermal fluid from the Northwest and extends with increasing depth. The cross section of the geomagnetic anomaly shows that the geological structure that traverses Northeast - Southwest and North-South is a fluid control factor in the area of the prospect of the Gunung Rajabasa geothermal, South Lampung Regency, Lampung Province.

Keywords: Geothermal, magnetic, Villamasin.

INTRODUCTION

Rajabasa Mountain is located in the south of Sumatra Island, precisely in Kalianda, South Lampung Regency. The presence of several geothermal manifestations on Mount Rajabasa is an indication of the potential for geothermal energy. Based on the interpretation of satellite imagery there are several lithological units produced from three volcanic cones that are interpreted as the old Mount Rajabasa, Mount Balerang, and the young Mount Rajabasa. This result is confirmed by the petrographic results in the field data in the form of fresh rock samples. Some alterations are also found in geothermal manifestations located in the north and south of Mount Rajabasa. Therefore it is necessary to do research on geological conditions in the geothermal prospect area of Mount Rajabasa (Darmawan et al., 2013).

In this study several geophysical methods were used, namely the magnetic method and the vertical electrical sounding (VES) method. In geothermal exploration, magnetic methods are useful for knowing magnetic field variations in the study area. The variation of magnetism is caused by nonhomogeneous magnetic properties of the earth's crust. Where rocks in geothermal systems generally have low magnetization compared to surrounding rocks. This is due to the demagnetization process by hydrothermal alteration processes, the process of converting existing minerals into paramagnetic or even diamagnetic minerals. The low magnetic value can interpret potential zones as reservoirs and heat sources (Sumintadirejo, 2005). Whereas, the VES method itself is one of the more effective types of resistance methods when used for shallow exploration, rarely providing layer information at depths greater than 1000 or 1500 feet. Therefore this method is rarely used for oil exploration but is more widely used in the field of geological engineering such as determination of bedrock depth, search for water reservoirs, also used in geothermal exploration. Excellence in general is the price of equipment is relatively cheap, survey costs are relatively cheap, the time needed is relatively very fast, can reach 4 measurement points or more per day, workload; small and light equipment so easy to mobilize, the personal needs of around 5 people, especially for Schlumberger configuration and data analysis globally can be directly predicted when on the ground

METHODS

The study using the geomagnetic method and Vertical Electrical Sounding was carried out in the Rajabasa Mountain, South Lampung Regency, Lampung Province. *Figure 1*, is a topographical modeling image of the research area accompanied by measurement points carried out in the area. The highest topography of Mount Rajabasa is at a value of 1200 meters above sea level. The point of magnetic measurement is spread from the northwest to the Northeast and around the foot of the mountain. Then for the vertical electrical sounding point of measurement there is an altitude of 200 to 300 meters above the surface of the earth which lies on the Northwest of the mountain area of Rajabasa.

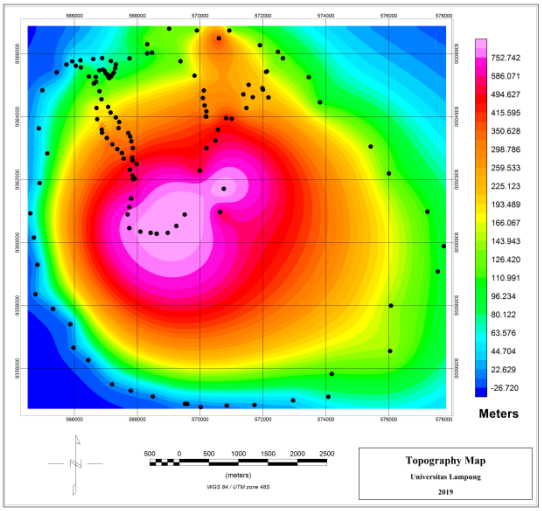

Figure 1: Topography map.

The principle of the magnetic method is to utilize magnetic susceptibility variations found in subsurface rocks. Magnetic method surveys have the benefit of knowing geological structures, such as faults, folds, igneous intrusions, geothermal reservoirs, groundwater aquifers, metal mineral deposits, and others (Lukhvich et al, 2003).

Basically the data from the measurement of magnetic fields is the contribution of three basic components, namely the main magnetic field of the earth, the outer magnetic field and the anomalous field. The main magnetic field value is the IGRF value. If the value of this main magnetic field is eliminated by diurnal correction, then the contribution of the main magnetic field is eliminated by IGRF correction. IGRF correction can be done by subtracting the IGRF value from the diurnal corrected total magnetic field at each measurement point in the appropriate geographical position. The correction equation (after diurnal correction) can be written as follows:

$$\Delta H = Htotal \pm \Delta Hharian \qquad (1)$$

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$$\Delta H = Htotal \pm \Delta Hharian \pm H_0 \qquad (2)$$

Where H_0 is IGRF

To simplify the processing and interpretation of magnetic data, the anomalous data of the total magnetic field that is still scattered in the topography must be reduced to a flat surface. This transformation must be done, because the data processing process further requires that the magnetic field input be distributed to the flat surface. This reduction uses Taylor series revisions written in equations (Blakely, 1995):

$$\Delta H_{(x,y,z_0)} = \Delta H_{(x,y,z)} - \sum_{n=1}^{n} \frac{z - z_0}{n!} \frac{\partial^n}{\partial x^n} \Delta H_{(x,y,z_0)} \qquad (3)$$

Then, an upward continuation process is carried out. upward continuation is performed to reveal anomalies caused by deeper sources or eliminate anomalies caused by superficial sources (Blakely, 1995). upward continuation is carried out on the total magnetic field anomaly map. Determination of regional anomalies is carried out by an upward continuation process on total magnetic field anomalies. The use of upward continuation is expected to help to separate regional anomalies from local anomalies. Continuation process with trial and error test is done by looking at the tendency of contour patterns of the results of continuation at a certain height (Indratmoko et al., 2009). The higher the data continuity, the more local information is lost and the regional information becomes clearer.

After the upward continuation process, a reduction to the pole is carried out. At low geomagnetic latitude magnetic data interpretation is more difficult than at high geomagnetic latitudes since anomaly maxima are not located directly over the causative bodies. This interpretation technique reduce dipole field to monopole field, the anomaly is directly above the causative body as like gravity anomaly, since it assume the perfect induction for simplicity. Reduction to the pole is done by making the object's inclination angle to 90º and its declination 0º. With the reduction to the poles, it is

expected to produce a magnetic anomaly pattern that is monopolistic in nature, thus facilitating qualitative interpretation (Yaoguo and Oldenburg, 2001).

After the reduction to pole stage is completed, 3D inversion modeling of residual rock geomagnetic anomalies below the surface. Model parameters from inversion modeling are obtained directly from the data. 3D inversion modeling provides an overview of susceptibility distribution.

If a 3-D subsurface model is built from a set of upright prisms with the intensity of magnetization or homogeneous susceptibility then the vector of magnetic data d (di, i = 1,2, ..., N) is a linear transformation between the intensity of magnetization of each prism (mi, i = 1,2, ..., M) with the kernel matrix (Grandis and Yudistira, 2001) sized (N X M) as follows :

$$d = G\,m \tag{4}$$

where,
G = matrix kernel
m = model parameter
d = data

The kernel matrix is an expression or elaboration of the geometry of an anomalous model built from a collection of prisms. Data (d) is magnetic anomaly data, while the model (m) parameter is the susceptibility of each prism and is the parameter sought. Combined data on the surface (z = 0) and the results of upward continuation (z > 0) produce data with a number greater than the number of model parameters (N> m so that the inversion solution is over-determined (Kusnida et al., 2009)

$$m = [G^T G\,]^{-1} G^T d \tag{5}$$

Besides using the magnetic method, the VES (Vertical Electrical Sounding) method is also used. According to Loke (2000), in this technique the measurement is the arrangement of the electrodes with the distance of the electrode spacing graduated arbitrarily for the observed point, while the potential electrodes (M and N) are fixed. In this case, the greater the distance of the electrode, the more injected current will be until the measurement location is covered. Where the type of resistance is given by Equations:

$$\rho = K\frac{\Delta V}{I} \tag{6}$$

where,
ρ = apparent resistivity
K = geometric factors
ΔV = potential difference
I = electric current

Based on geoelectric measurement techniques, there are two measurement techniques, namely the geoelectric method of resistivity mapping and sounding. Resistivity mapping geoelectric method is a resistivity method which aims to study the subsurface resistivity variations horizontally. Therefore, in this method the electrode spacing is fixed for all sounding points on the earth's surface. The resistivity sounding geoelectric method aims to study the resistivity variations of rock beneath the earth's surface vertically. In this method, measurements at a sounding point are carried out by changing the distance of the electrode. Changing the distance of the electrode is done from the distance of the small electrode then enlarges gradually. This electrode distance is proportional to the depth of the rock layers detected. The greater the electrode distance, the deeper the rock layers are detected (Menke, 1984)

The resistivity geoelectric method is one of the common geophysical methods used in geoelectric exploration. Geoelectric resistivity methods can be used to provide subsurface information by utilizing the electrical resistivity properties found in rock layers, where the earth is composed of rocks that have different electrical conductivity. The principle of the resistivity geoelectric method is the electric current is flowed into the earth layer by using two potential electrodes so that the potential current price can be known and the subsurface resistivity value can be determined. The data obtained in the field is the subsurface resistivity value data so that inversion calculations can be performed and resistivity variations obtained from a soil layer system associated with subsurface geological structures (Looke, 1995).

Based on the electrode configuration, a type of configuration is known, namely Schlumberger Configuration. In the Schlumberger configuration current electrodes and potential electrodes are placed as shown in *Figure 2*. This configuration is used to probe changes in subsurface resistivity vertically. At a fixed measuring point, the distance of the current and voltage electrodes is changed. Commonly used methods include Vertical Electrical Sounding (VES). According to Loke (2000), in this technique the measurement is the arrangement of the electrodes with the distance of the electrode spacing graduated arbitrarily for the observed point, while the potential electrodes (M and N) are fixed. In this case, the greater the distance of the electrode, the more injected current will be until the measurement location is covered. Where the type of resistance is given by Equations:

$$\rho = \frac{\pi\,(L^2 - I^2)}{2I}\,\frac{\Delta V}{I} = K\frac{\Delta V}{I} \tag{7}$$

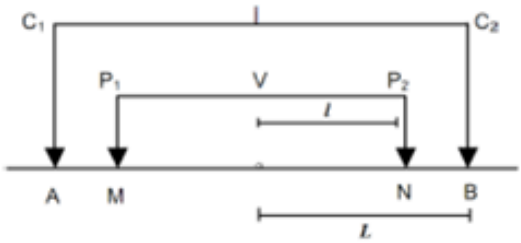

Figure 2: Schlumberger Configuration.

RESULTS AND DISCUSSIONS

Vertical Electrical Sounding

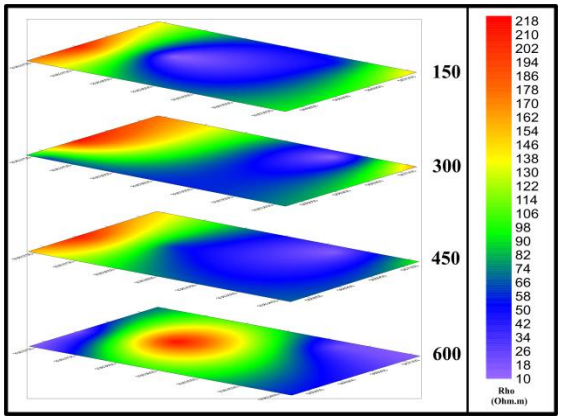

Figure 3: Reduce to level surface anomaly.

The results of vertical electrical sounding analysis (*Figure* 3) showed that the capillary rock was characterized by a low resistivity value (10 - 60 µm) and a geothermal reservoir characterized by a high resistivity value (> 210 µm). Based on the profile of resistivity anomaly there is a distribution of geothermal fluid from the Northwest and extends with increasing depth. The cross section of the geomagnetic anomaly shows that the geological structure of the Northeast and North-South is a fluid control factor in the area of the prospect of the Gunung Rajabasa geothermal, South Lampung Regency, Lampung Province.

Magnetic Method

Based on *Figure 4*, positive and negative anomalies that show a response to the surface anomaly magnetic surface. The value of the magnetic area is in the range of -419.404 nT to 1429.022 nT. When viewed from the total magnetic field anomaly data, there are considerations with the magnetic anomaly response caused by rocks below the surface. The response was indicated by the closure pair in the south, southeast, northwest, north and central parts of the study area.

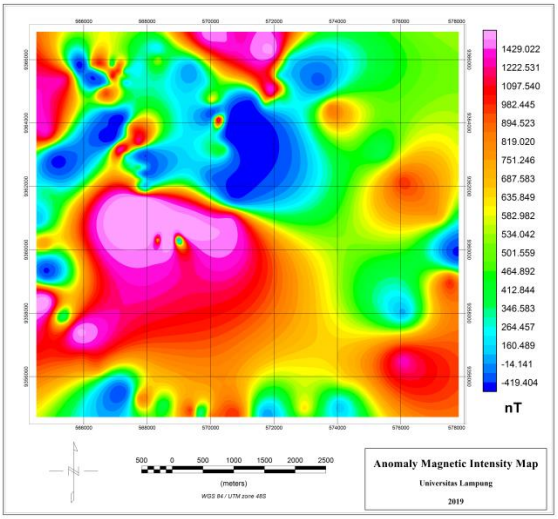

Figure 4: Total magnetic field anomaly.

On the contour map the results of the reduction to level sufrace do not have a significant difference in the anomalous value when compared with the anomalous value on the total anomaly contour map (*Figure 5*).

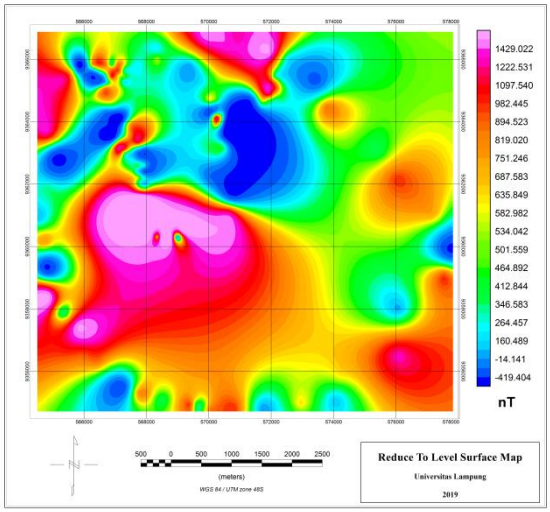

Figure 5: Reduce to level surface anomaly.

Qualitative interpretations of the regional anomaly maps obtained are obtained from the upward continuation process (*Figure 6*). Contour maps of regional geomagnetic anomalies determine the high value distribution in the range 622-903.822 nT which extends from the Southwest to the North.

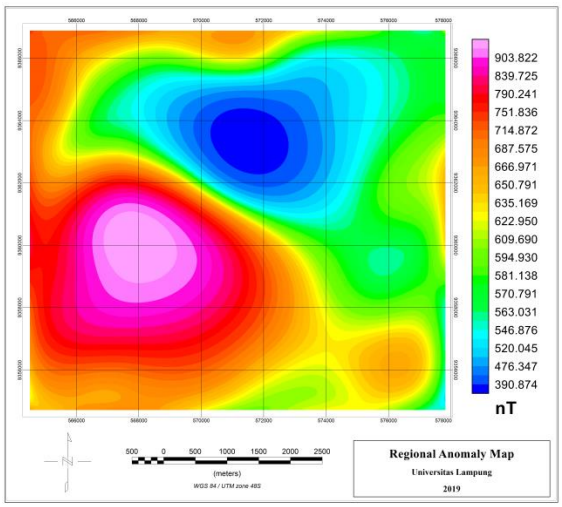

Figure 6: Regional anomaly.

After obtaining regional anomalies, the reduction process is then carried out to obtain residual anomaly values. After obtaining residual anomalies, then interpretations are carried out. Based on *Figure 7*, a residual anomaly map can be interpreted which shows a high anomaly value with a range of values of 751 to 1429 nT which is in the middle of the research area that stretches west and northwest of the study area. Based on these interpretations, that pattern of anomalies can indicate the existence of a geothermal reservoir.

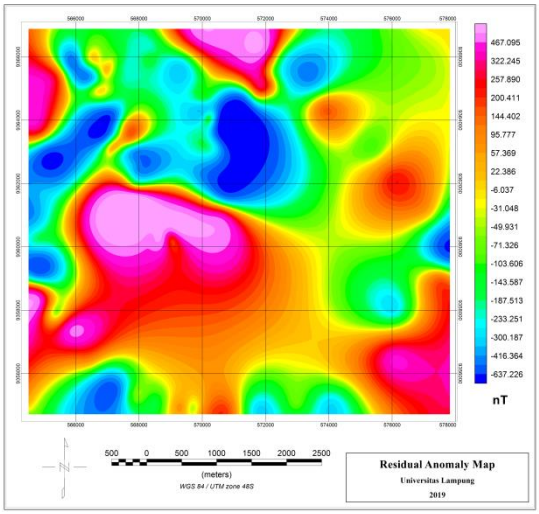

Figure 7: Residual anomaly.

After obtaining the remaining anomalies, then the remainder of the anomaly is used for the process of reduction to the poles to eliminate ambiguity in interpretation because of the magnetic nature of the two poles (Yaoguo and Oldenburg, 2001). The results of the reduction to pole process are shown in *Figure 8*. Based on the results of the process of reduction to the poles found in positive and negative patterns of magnetic anomalies. The reduced contours to the poles indicate areas that have high magnetic values produced by subsurface rock responses. The high values on the contours of the reduction to the poles are in the range 2020-6480. Where the high value stretches from North to South, then in the Northeast. Positive and negative anomalous patterns show manifestations. This anomaly shows the demagnetization process occurs below the surface.

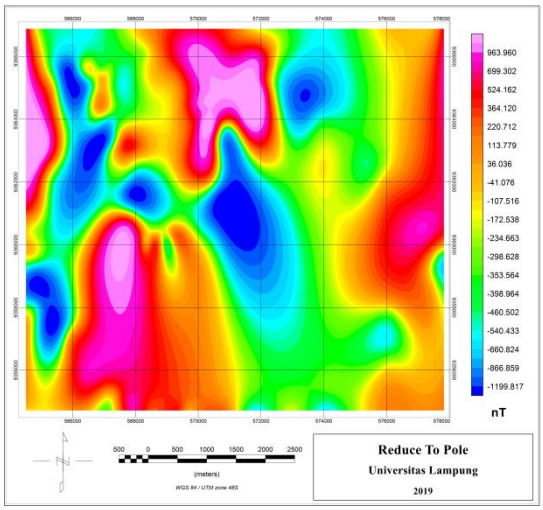

Figure 8: Reduction to pole anomaly.

Then the modeling process is carried out, in this study a 3D modeling process is carried out. Modeling is done to get the distribution and move the rock based on the required surface into a geothermal reservoir. 3D modeling uses anomalous data from the results of reduction to the poles. The results of 3D reduction to polar modeling can be seen in *Figure 9*. Based on the modeling results explain what is meant by the rock released into a geothermal reservoir that has a geometry consisting of a batholite with a type of stone made of igneous rock.

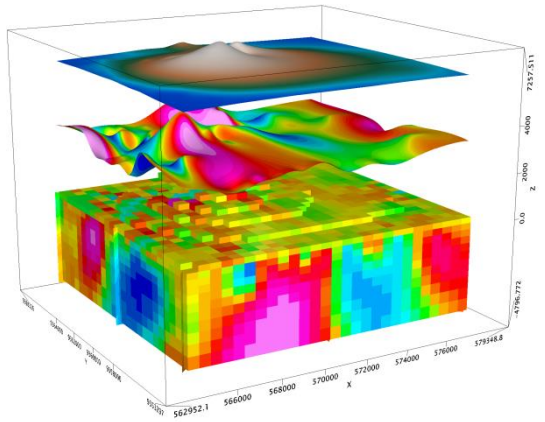

Figure 9: The susceptibility model from the inversion of the reduction to pole residual anomaly in the Rajabasa Mountain region.

The 3D model (*Figure 10*), the high suseptibility value is found in the part that has a high magnetic

anomaly which is indicated by the polar reduction anomaly contour map that is contained in the 3D model. If viewed from the topographic contour map in the 3D model, the high anomaly is found at an altitude of 800 to 1000 meters which is located on the back of Mount Rajabasa. Based on the suseptibility model in the 3D model, the anomaly has a geometry that extends from Northeast to Southwest in the study area. The rock geometry has batholite characteristics, wherein the batholite is an igneous rock that tries to rise to the surface and undergoes hardening and freezing so as to form a large and wide geometry. The suseptibility model has a high value with a range of values of 0.0022 cgs (103 SI) to 0.289 cgs (103 SI) with rock lithology, which is basaltic andesite located at a depth of 1300 meters below mean sea level. Based on this interpretation that the rock is a rock that has the potential to become a geothermal reservoir because it is seen from its very large geometry.

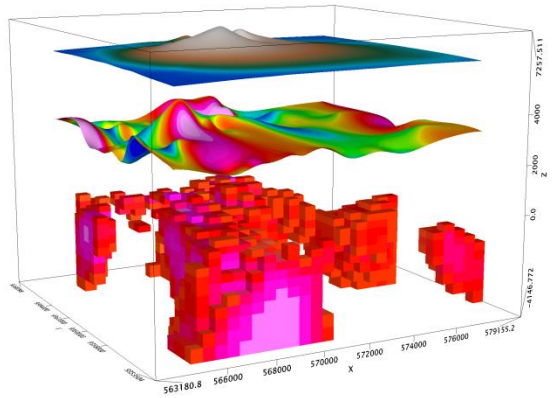

Figure 10: The Susceptibility model from the inversion of the reduction to pole residual anomaly with the highest susceptibility value in the Rajabasa Mountain region.

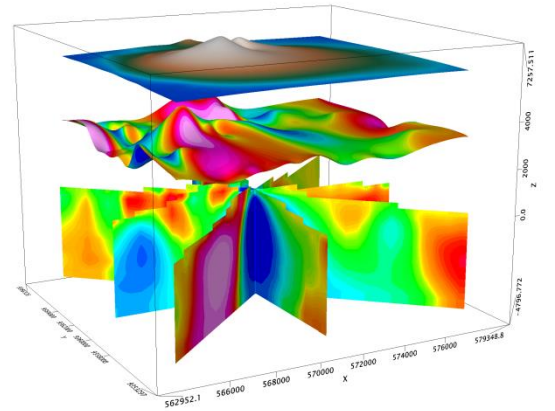

Figure 11: The Susceptibility sections model from the inversion of the reduction to pole residual anomaly in the Rajabasa Mountain region.

Based on the 3D section model (*Figure 11)*, it can be seen that the high susceptibility value is formed from rocks produced by the intrusion process because it has a geometry that extends from beneath the surface of the earth and then widens when rising to the surface of the earth.

The appearance of the manifestation or crater on Mount Rajabasa is caused by a fairly large fault, so the hydrothermal fluid can come out to the surface through the formed fault field (Rasimeng, 2008). This can be seen with the emergence of manifestations with the northwest-southeast relative direction, namely the manifestation of the Way Sulfur-dry sulfur field-the crater of the peak of Rajabasa-manifestation Simpur. Based on the geological map of the Rajabasa Mountain region consisting of volcanic rocks in the form of lava and breccia, pleistocene volcanic rock in the form of andesite lava and breccia and andesite in the form of andesite lava rock (Mango, et al, 1993).

So if it is correlated with the magnetic field anomaly that is reduced to the pole, there is a correlation with the magnetic anomaly response caused by the rock below the surface.

CONCLUSION

Based on the results of vertical electrical sounding and magnetic method data processing, the results of vertical electrical sounding analysis indicate that capillary rocks are characterized by low resistivity values (10 - 60 μm) and geothermal reservoirs that are characterized by high resistivity values (> 210 μm). Based on qualitative analysis of magnetic field data from the reduction to pole process at Mount Rajabasa, we can estimate the existence of geothermal reservoirs in the Northeast to Southwest modeling area and also in the study area. Based on 3D modeling, where the susceptibility value generated by the rock response below the surface is in the value range of 0.0022 cgs (103 SI) to 0.289 cgs (103 SI). The subsurface rock geometry is formed by intrusive rocks with basal andesitic lithology and rocks with a combination of tuff and breccia which are used as reservoirs in geothermal systems

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