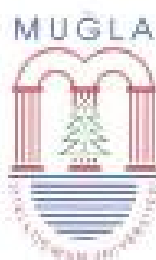


8th

International Symposium on 13-17 Eastern Mediterranean Geology

OCTOBER Muğla Sıtkı Koçman University – Turkey

2014



abstract book

Organizing Committee

Honorary President

Prof. Dr. Mansur HARMANDAR (Rector of Muğla Sıtkı Koçman University)

President

Prof. Dr. Fikret KAÇAROĞLU (Head of the Geological Engineering Dept.)

Secretary

Prof. Dr. Murat GÖL (MSKU)

Assistant Secretaries

Asst. Prof. Dr. Murat Ersen AKSOY (MSKU)

Asst. Prof. Dr. Sena AKÇER (MSKU)

Asst. Prof. Dr. Özgür AVŞAR (MSKU)

MSc. St. Ali ALUÇ (MSKU)

Treasurer

Asst. Prof. Dr. Murat Ersen AKSOY (MSKU)

Social Affairs

Asst. Prof. Dr. Sena AKÇER (MSKU)

Members

Prof. Dr. Ergun KARACAN (MSKU)

Prof. Dr. İikay KUŞCU (MSKU)

Prof. Dr. Alastair H.F. ROBERTSON (The University of Edinburgh)

Prof. Dr. Ulvi Can ÜNLÜGENÇ (CU)

Prof. Dr. Mehmet Cihat ALÇIÇEK (PAU)

Assoc. Prof. Dr. Gonca KUŞCU (MSKU)

Assoc. Prof. Dr. Domenica LIOTTA (The University of Bari)

Assoc. Prof. Dr. Semih GÜRSU (MSKU)

Asst. Prof. Dr. Bedri KURTULUŞ (MSKU)

Asst. Prof. Dr. Ahmet ÖZBEK (KSU)

Res. Spec. Özlem YILMAZ (MSKU)

Res. Asst. Taner KORKMAZ (MSKU)

Res. Asst. Bora ÖN (MSKU)

Res. Asst. Erde BİLİR (MSKU)

Res. Asst. Esra ÇETİN (ITU & IPGS)

Res. Asst. Mehmet ÇAM (MSKU)

Res. Asst. Göksu USLULAR (MSKU)

Res. Asst. Örkun TÜRE (MSKU)

Res. Asst. Tümay Katakçı KOCA (DEU)

Scientific Committee

- Assoc. Prof. Dr. Naki AKÇAR – University of Bern
Prof. Dr. Serdar AKYÜZ – Istanbul Technical University
Prof. Dr. Mehmet Cihat ALÇIÇEK – Pamukkale University
Prof. Dr. Ercan ALDANMAZ – Kocaeli University
Prof. Dr. Serdar BAYARI – Hacettepe University
Prof. Dr. Erdin BOZKURT – Middle East Technical University
Prof. Dr. Namık ÇAĞATAY – Istanbul Technical University
Assoc. Prof. Dr. Ziyadin ÇAKIR – Istanbul Technical University
Prof. Dr. Mehmet EKMEKÇİ – Hacettepe University
Prof. Dr. Samih ERGİNTAV – Boğaziçi University
Assoc. Prof. Dr. Nicolas FLIPO – Mines Paris Tech
Prof. Dr. M. Cemal GÖNCÜGÖLÜ – Middle East Technical University
Prof. Dr. Naci GÖRÜR – Istanbul Technical University
Prof. Dr. Nilgün GÜLEÇ – Middle East Technical University
Prof. Dr. Kemal GÜRBÜZ – Çukurova University
Prof. Dr. Cahit HELVACI – Dokuz Eylül University
Prof. Dr. Selim İNAN – Mersin University
Prof. Dr. Remzi KARAGÜZEL – Istanbul Technical University
Prof. Dr. Ali İhsan KARAYİĞİT – Hacettepe University
Prof. Dr. Tanju KAYA – Ege University
Prof. Dr. Nurettin KAYMAKÇI – Middle East Technical University
Prof. Dr. İlkay KUŞCU – Muğla Sıtkı Koçman University
Prof. Dr. David LENTZ – University of New Brunswick
Prof. Dr. Jörg LUTERBACHER – Justus-Liebig-University Gießen
Prof. Dr. Petar MARCHEV – Bulgarian Academy of Sciences
Prof. Dr. Mustapha MEGHRACUI – Strasbourg University
Prof. Dr. Robert MORITZ – University of Geneva
Prof. Dr. Mohammed Rashad Hassan MOUFTI – King Abdulaziz University
Dr. Karoly NEMETH – Massey University
Prof. Dr. Roland OBERHANSLI – University of Potsdam
Prof. Dr. Sefer ÖRÇEN – Yüzüncü Yıl University
Assoc. Prof. Dr. Tolga OYMAN – Dokuz Eylül University
Prof. Dr. Sacit ÖZER – Dokuz Eylül University
Prof. Dr. Osman PARLAK – Çukurova University
Prof. Dr. Mahmut PARLAKTUNA – Middle East Technical University
Prof. Dr. Sypros PAVLIDIS – Aristotle University of Thessaloniki
Prof. Dr. Georgia PE-PIPER – St. Mary's University
Prof. Dr. Mountaz RAZACK – Poitiers University
Prof. Dr. Klaus REICHERTER RWTH – Aachen University
Prof. Dr. Neil ROBERTS – Plymouth University
Prof. Dr. Alastair H.F. ROBERTSON – The University of Edinburgh
Prof. Dr. Mehmet SAKINÇ – Istanbul Technical University
Dr. Ioan SEGHEDI – Romanian Academy
Prof. Dr. Şevket ŞEN – National Museum of Natural History
Prof. Dr. A.M. Celal ŞENGÖR – Istanbul Technical University
Prof. Dr. Şakir ŞİMŞEK – Hacettepe University
Prof. Dr. Stathis STIROS – Patras University
Prof. Dr. Lutfi SÜZEN – Middle East Technical University
Prof. Dr. Gültekin TARCAN – Dokuz Eylül University
Prof. Dr. Tamer TOPAL – Middle East Technical University
Prof. Dr. Asuman GÖNAL TÜRKMENDÖĞLÜ – Middle East Technical University
Prof. Dr. Reşat ULUSAY – Hacettepe University
Prof. Dr. Ulvi Can ÜNLÖGENÇ – Çukurova University
Prof. Dr. Mahir YARDAR – Istanbul Technical University
Prof. Dr. Donna L. WHITNEY – University of Minnesota
Prof. Dr. Hasan YAZICIGİL – Middle East Technical University
Assoc. Prof. Dr. Özcan YİĞİT – Çanakkale 18 Mart University
Assoc. Prof. Dr. İsmail Ömer YILMAZ – Middle East Technical University

The Geological Strength Index Evaluations and Classification of Sandstone and Claystone Alternations

Ahmet Özbek¹, Murat Güllü²

¹ Kahramanmaraş Sutcu Imam University, Department of Geological Engineering, 46100, Avcılar Campus, Kahramanmaraş - Turkey (ozbeka@ksu.edu.tr)

² Muğla Sıtkı Koçman University, Department of Geological Engineering, 48000, Kotaklı Campus, Muğla - Turkey

Alternations different grain-sized clastics in discrete beds with various thickness and variable ratio supply the heterogeneity of the clastic sedimentary rock mass. Determinations of the geotechnical properties of this type of the clastic sedimentary rock are one of the tackling subjects of the rock mechanics. Recently Geological Strength Index (GSI; Marinos and Hoek; 2001) is using for the determinations of the strength characteristics of these rock. Visual interpretation is widely used for the determination of GSI. The sandstone and claystone ratio and internal deformation can be used in classification of these sedimentary rocks and GSI value determination. Kahramanmaraş Foreland Basin contains Miocene deep sea sediments including sandstone and claystone alternation with varying ratio. Seven rock classes are separated in this region based sandstone claystone ratio (S/C) and internal structures. These are A: $R > 10$; B: $1 < R \leq 10$; C: $R = 1/1$; D: $1/3 \leq R < 1$; E: $1/10 \leq R < 1/3$ and F: tectonically deformed; G: $R < 1/10$. Four different class are determined based on rock classes and discontinuity surface conditions (A-B, $GSI > 40$; C, $35 \leq GSI \leq 40$; D-E, $25 \leq GSI < 35$; F-G, $GSI < 25$). The high sand content of the A and B classes gives high GSI value and strength parameters. The Block Punch Strength Index (BPI) is used for the determination of strength of rock. These values vary between 4.72-12.09 MPa. However, sandstone strength is higher than the sandstone and claystone ratios. Thus decreasing ratio obtaining from the rock heterogeneity applied to σ_u values. The revised σ_u values vary between 13.61 and 55.54 MPa.

Keywords: GSI, Heterogeneity, Sedimentary rock masses, Sandstone-Claystone alternation

Determination of Liquefaction Potential of the Tarsus Plain (Mersin-Adana)

Can AKBULUT¹, Caneyt GÖLER¹, Murat CAMUZCUOĞLU², Aydın ALPTEKİN¹

¹Mersin University, Turkey

In this study, it was aimed to determine soil liquefaction potential of the Tarsus Plain (Mersin-Adana) which covers an area of about 625 km². In August 2012, grain size distribution analyses were made on soil samples collected from 33 different locations in the region. Characteristic values (mean grain size, the amount of fines, uniformity coefficient and plasticity index) that are used to evaluate liquefiable soils were determined. Results of these analyses have shown that soils from the area are in SM (silty sand) and SC (clayey sand) groups according to the Unified Soil Classification System (USCS). In the study area, static groundwater levels range between 3.00-4.05 m. Furthermore, results of the grain size distribution analyses from the study area were compared to the particle size ranges of soils from different areas that are known to liquefy as a result of different earthquake events. The obtained results have shown that the study area has a significant risk of liquefaction.

Keywords: Liquefaction potential, grain size distribution analysis, Tarsus Plain, Adana.