

# **Second EAGE Workshop on Unmanned Aerial Vehicles 2021**

Online  
15 - 16 November 2021

ISBN: 978-1-7138-4104-3

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2021) by the European Association of Geoscientists & Engineers (EAGE)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact by the European Association of Geoscientists & Engineers (EAGE)  
at the address below.

European Association of Geoscientists & Engineers (EAGE)  
PO Box 59  
3990 DB Houten  
The Netherlands

Phone: +31 88 995 5055  
Fax: +31 30 634 3524

[eage@eage.org](mailto:eage@eage.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## **SESSION ONE: RESOURCE EXPLORATION AND PRODUCTION**

HYPERSPECTRAL IMAGING WITH UAVS FOR MINERAL EXPLORATION.....	1
<i>R. Booyesen, S. Lorenz, M. Kirsch, R. Jackisch, R. Zimmermann, R. Gloaguen</i>	
WORLD’S FIRST FIXED WING UAV GRAVITY DATA COLLECTION FLIGHT. LESS COST & LESS CARBON.....	4
<i>G. Grover, R. Forsberg, T.E. Jensen, F. Muller, M. Hoss, T. Bourne, O. Wright</i>	
UAV-BASED 3D OUTCROP MODELING: STRATIGRAPHIC MAPPING OF A SEISMIC SCALE JURASSIC OOLITIC RAMP, AMELLAGO CLIFF, MOROCCO.....	7
<i>A. Bordenave, E. Dujoncquoy, R. Bourillot, J. Kenter, J. Champagne, P. Daguinos</i>	

## **SESSION TWO PART I: SURFACE MAPPING AND MONITORING**

THE JOURNEY OF THE FLARE TIP INSPECTION USING RPAS IN THE PDO.....	10
<i>N. Bulushi</i>	
HYPERSPECTRAL MINERAL MAPPING OF CLIFFS USING A UAV MOUNTED HYSPEX MJOLNIR VNIR-SWIR SENSOR .....	13
<i>S. Thiele, S. Lorenz, Z. Bnoulkacem, M. Kirsch, R. Gloaguen</i>	
SEMI-UNIVERSIAL GEO-CRACK DETECTION BY MACHINE-LEARNING .....	16
<i>Y. Shi, M. Ballesio, K. Johansen, D. Trentman, Y. Huang, M.F. McCabe, R. Bruhn, G. Schuster</i>	
AN EXAMPLE OF UAS HYPERSPECTRAL AND MAGNETIC DATA INTEGRATION FOR MINERAL EXPLORATION IN RIOTINTO, SPAIN.....	20
<i>Y. Madriz, S. Lorenz, M. Kirsch, R. De La Rosa, R. Zimmermann, C. Contreras, R. Gloaguen</i>	

## **SESSION TWO PART II: SURFACE MAPPING AND MONITORING**

DIGITAL OUTCROP VISUALIZATION AND LOW-ALTITUDE DRONE PHOTOGRAMMETRY .....	23
<i>N. Smith</i>	
COMPARISON OF TOPOGRAPHIC SURVEY USING RPAS AND RTK-GPS .....	25
<i>N. Bulushi</i>	
TETHERED UNMANNED AERIAL VEHICLES USED FOR WIDE AREA, LAND SEISMIC NODAL QC .....	27
<i>A. Selvakumar, Y.C. El-Taha, L. Kindness</i>	
INTEGRATED UAV MONITORING WORKFLOW FOR NATURAL HAZARDS.....	30
<i>B. Dupuy, A. Romdhane, A. Tobiesen, A. Grover, A. Einbu</i>	
AI-BASED FLARE STACK INTEGRITY INSPECTIONS USING AERIAL DRONES.....	33
<i>S. Potiris</i>	

THE SVALBOX CONCEPT: AN ARCTIC GEOSCIENTIFIC PORTAL ..... 37  
*K. Senger*

BATHYMETRIC SURVES WITH A UAV AND A MOUNTED SENSOR..... 40  
*A. Dobrovolskiy*

**Author Index**