

COST Action TU1202
Impact of climate change on engineered slopes for infrastructure



4th WG2 Meeting
 Lisbon, Portugal
 14 & 15 October 2014

In attendance: Nichos Michas, Chris Wooff (CW), Joel Smethurst (JAS), Razvan Gheorghe, David Gunn, Alister Smith (AS), Sebastian Uhlemann (SU), Daisy Lucas, Sarah Springman, Stephanie Glendinning, Paul Hughes (PH), Anna Miskowska

Apologies received: Neil Dixon, David Hughes, Paul Callender

Minutes of WG2 sessions, 14 October 2014

1. Sections 1, 2 and 3 of SOTA Review paper

JAS introduced the session, and described the current state of the SOTA Review. JAS has drafted Sections 1, 2 and 3, and there is a clear structure/plan for the remainder of the Review paper. JAS invited comments on existing text and plans for later sections.

Sarah Springman made a number of comments on the words written so far, suggesting that the Review should include a mention to the observational method, and adaptation of existing instrumentation for different soil types. Sarah described a number of the recent experiences with instrumentation at ETH, including use of Mesurand in-place inclinometer systems. Suggested a number of recent ETH papers for incorporation into the review, including a recently submitted a journal paper on early warning systems.

Chris Wooff (CW) has written some text for incorporation into parts 2, 3 and 4 of the Review Paper. Chris talked about performance vs safety, and what constituted a failure (e.g. is rough ride a failure?). From the Network Rail (NR) experience, he suggested that decisions on slopes can be very difficult to make. NR have protocols on alarm levels. Reliability of instrumentation for alarm systems important, and a current problem.

JAS explained that Table 1 required addition of case histories, as references to possible uses of instrumentation. JAS to circulate Table 1 and ask all to add case histories.

JAS

2. Section 4 of SOTA Review paper, and decision making and communication

There was some discussion on incorporation of 'decision making and

<p>communication' into the SOTA Review. Decision making and communication is quite firmly in the description for WG2 in the MoU, but there is not strong experience of this aspect amongst group members. It was generally agreed that decision making would have to be a fairly 'light' part, with the SOTA Review playing to the group's strengths. It was decided however that Sections 2 and 3 needed to more firmly introduce decision making and communication aspects. JAS to work on Sections 2 and 3 to add a bit more on monitoring data, recording, storage, analysis and decision making.</p> <p>For Section 4, it was decided that it would be best to put novel instrumentation technology into a table. Alister Smith (AS) volunteered an existing table describing instrumentation that he had started to draw up as part of other work. AS agreed to send table of instrumentation to Sebastian Uhlemann (SU) to add BGS ERT, and then send on to JAS to circulate more widely.</p>	<p>JAS</p> <p>AS and SU to add to table and send to JAS</p> <p>JAS to circulate (note: now in draft SOTA paper)</p>
<p>WG2 session, 15 October 2014</p> <p><u>3. Actions on SOTA review, and thinking beyond SOTA review completion</u></p> <p>Summary of actions for SOTA review:</p> <ul style="list-style-type: none"> • Section 1: JAS to add a paragraph on climate change, and consider addition of dams and levees (in consultation with PH). • Section 2: JAS to circulate Table 1 next week, and everyone to feed back by end of November • Section 3: JAS to add material on data handling and analysis, and decision making. • Section 4: AS, SU and JAS to start Table 2 containing novel instrumentation technologies. CW to discuss Section 4 with Paul Callender. • Section 5: JAS to look at bits written by CW. <p>Short paper formats. These have been discussed by the group before, and there was again a feeling that these may be quite a good thing to have, for potential publication on the webpages. There was some discussion about whether WG3 were doing something similar. <i>Note: Tom Dijkstra has suggested that short case histories could be written up as a photo feature (pictures + 1000 words) for submission to QJEGH with the SOTA Review.</i></p> <p>Final year of Action. Should there be more cross cutting outputs (across WG's) from later stages of the Action? JAS explained that the current plan was to meet with WG3 in Zurich in April, with aim of starting to think about these.</p> <p>STSM's. There are still several ideas for these, but none have yet been worked up as full proposals. <i>Note: the WG did not send anyone on STSM in</i></p>	<p>JAS, CW</p> <p>All to note</p>

<p><i>2014, and I haven't received any proposals thus far for 2015. There is a budget for this which needs spending, and if anyone wants to go on an STSM this year, then please do discuss proposals with me.</i></p>	All to note.
<p>Next workshop</p> <p>WG2 workshop to be held in Zurich with MG meeting in April 2015. <i>Note: date now agreed of Friday 24 April 2015.</i></p>	

Joel Smethurst 26/03/2015

Appendix 1: Current list of participants in WG2 – updated 27 March 2015

Participant	Affiliation	Email	Country	Research
Brencic, Mihael	Department of Geology	mihael.brencic@geo.ntf.uni-lj.si	Slovenia	Slope monitoring Landslide hazard Climate change
Callender, Paul	McFarland Associates, Queens University Belfast	paul.callender@mcfassoc.com	United Kingdom	Application of instrumentation
Dixon, Neil	Loughborough University	N.Dixon@lboro.ac.uk	United Kingdom	Monitored slopes Acoustic monitoring
Gheorghe, Razvan		Razvan_25_ageo@yahoo.com	Romania	Slope engineering
Grandjean, Gilles	BGRM	g.grandjean@brgm.fr	France	Geophysics. Monitored slopes including long datasets
Gunn, David	British Geological Survey	dgu@bgs.ac.uk	United Kingdom	Resistivity monitoring Asset management
Hughes, David	Queens University Belfast	d.hughes@qub.ac.uk	United Kingdom	Monitored slopes Embankments on peat Laser scanning
Hughes, Paul	Newcastle University	paul.hughes@ncl.ac.uk	United Kingdom	BIONICS embankment Laser Scanning Wireless systems
Länsivaara, Tim	TUT	tim.lansivaara@tut.fi	Finland	Full scale testing Limit equilibrium Eurocodes
Lenart, Stanislav	Slovenian National Building and Civil Engineering Institute (ZAG)	Stanislav.lenart@zag.se	Slovenia	Slope and dam monitoring
Libric, Lovorka	University of Zagreb	llibric@grad.hr	Croatia	Resistivity measurements

Participant	Affiliation	Email	Country	Research
Lofroth, Hjordis	Swedish Geotechnical Institute	hjordis.lofroth@swedgeo.se	Sweden	Monitoring, TC431
Lu, Chi Wei	Research Centre for Advanced Engineering Construction	cwlu@nkfust.edu.tw	Taiwan	Landslide monitoring
Lucas, Daisy	ETH Zurich	Daisy.lucas@igt.baug.ethz.ch	Switzerland	Field instrumentation for monitored slopes
Mafti, Raluca	Geological Institute of Romania	mafteir@yahoo.com	Romania	Geo-hazards and mapping
Michas, Nichos	Athens University	michas@tee.gr	Greece	Rockfalls and rock hazards
Anna Miskowska	Warsaw University		Poland	
Neata, Gheorghe		office@geo-serv.ro	Romania	
O'Kelly, Brendan	Trinity College Dublin	bokelly@tcd.ie	Ireland	Monitoring and pile stabilisation of slopes
Saroglou, Harry	NTU Athens	saroglou@central.ntua.gr; c.saroglou@imperial.ac.uk	Greece	Monitored slopes Optical fibres
Smethurst, Joel	University of Southampton	J.A.Smethurst@soton.ac.uk	United Kingdom	Monitored slopes Instrument development
Smith, Alister	Loughborough University	A.Smith10@lboro.ac.uk	United Kingdom	Monitored slopes Acoustic monitoring
Springman, Sarah	ETH Zurich	sarah.springman@igt.baug.ethz.ch	Switzerland	Monitored sites Full-scale testing Centrifuge modelling Prevention measures
Uhlemann, Sebastian	British Geological Survey	suhl@bgs.ac.uk	United Kingdom	Monitored slopes ERT techniques
Van Esch, John	Deltares	John.vanesch@deltares.nl	Netherlands	Monitoring of engineered slopes
Wooff, Chris	Network Rail	Chris.Woof@networkrail.co.uk	United Kingdom	Large number of monitored sites Site repair Alarm levels