



# Ninth International Symposium on Field Measurements in Geomechanics

9–11 September 2015 | Sydney, New South Wales | Australia



**EDITOR** Phil Dight

# **FMGM 2015**

## **Proceedings of the Ninth International Symposium on Field Measurements in Geomechanics**

**9–11 September 2015, Sydney, Australia**

*Editor*

**Phil Dight**

Australian Centre for Geomechanics, Australia



CSIRO | The University of Western Australia | Joint Venture

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# Australian Centre for Geomechanics

The Australian Centre for Geomechanics was formally established in 1992 as a University of Western Australia research centre in order to promote research excellence and continuing education in geomechanics, with particular emphasis on its application to the mineral and energy extraction sections of Australia's resource industry.

The Australian Centre for Geomechanics is an unincorporated Joint Venture involving:

- CSIRO Earth Science and Resource Engineering
- The University of Western Australia — School of Civil, Environmental and Mining Engineering

The Centre draws together its staff knowledge and experiences with the expertise within the two groups forming the Centre and facilitates a multi-disciplinary approach to research and education in geomechanics. Research undertaken by the ACG attracts both national and global support and the outcomes of the projects are utilised to promote safer mining and environmental geomechanics practices, operating efficiencies and to meeting community expectations for sustainable mining practices.

With the guidance of strong industry representation on the Board of Management, and close collaboration with senior representatives of the mining industry, research, training and further education activities are tailored directly to the needs of industry. The ACG Board expects the Australian Centre for Geomechanics to be the focal point for industry on geomechanics issues and to address the needs of industry through a collaborative interdisciplinary approach.



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# Preface

FMGM is an acronym derived from the name of a series of international symposia entitled Field Measurements in Geomechanics.

Why instrumentation? It is an essential key along with observational techniques to manage project performance — if you cannot measure it you cannot manage it.

The symposia's origins are in Zürich, where Professor Emeritus Kovári recognised the lack of knowledge practicing engineers and geologists had with instrumentation and how to interpret the results. These symposia deal, broadly, with the use of instrumentation by civil engineers, geotechnical engineers, mining engineers, engineering geologists and geophysicists to measure the properties of soil deposits and geological formations and/or to quantify the performance and behaviour of manmade structures and other engineering works by taking physical measurements.

The applications include dams, foundations of structures, tunnels and other underground openings, embankments, natural slopes, land reclamation, mining facilities, repositories for industrial or nuclear waste, offshore structures and field testing to determine soil and rock properties.

There were 32 sponsors who supported this symposium and contributed to its success.

FMGM symposia:

1983: Zürich, Switzerland (Professor Emeritus Kalman Kovári)

1987: Kobe, Japan (Professor Emeritus Shun Sakurai)

1991: Oslo, Norway (Dr Elmo DiBiagio)

1995: Bergamo, Italy (Dr.Ing. Giorgio Pezzetti)

1999: Singapore (Professor Colin F Leung)

2003: Oslo, Norway (Dr Elmo DiBiagio)

2007: Boston, USA (Dr W Allen Marr)

2011: Berlin, Germany (Dr.-Ing. Jörg Gattermann)

2015: Sydney, Australia (Professor Phil Dight and Mark Fowler)

## **Professor Phil Dight**

Professor of Geotechnical Engineering, Australian Centre for Geomechanics

Co-chair

Ninth International Symposium on Field Measurements in Geomechanics



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