



Demi-journée Scientifique et Technique - 18 octobre 2019

Histoire et Géotechnique

Le TC 301

Groupe de Travail de la SIMSG
pour la conservation des Monuments et Sites Historiques

Jean-David VERNHES (UniLaSalle)

Le TC301 au sein de la SIMSG

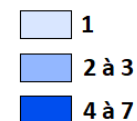
ISSMGE TCs	TC Official Name	TC#	# Memb. *	Fr Memb. *	
Fundamentals	1 Laboratory Stress Strain Strength Testing of Geomaterials	TC101	60	1	
	2 Ground Property Characterization from In-Situ Tests	TC102	64	3	
	3 Numerical Methods	TC103	74	2	
	4 Physical Modelling in Geotechnics	TC104	74	3	
	5 Geo-Mechanics from Micro to Macro	TC105	65	2	
	6 Unsaturated Soils	TC106	67	3	
	7 Laterites and Lateritic Soils	TC107	17	1	
Applications	8 Geotechnical Aspects of Dykes and Levees and Shore Protection	TC201	38	1	
	9 Transportation Geotechnics	TC202	73	4	
	10 Earthquake Geotechnical Engineering and Associated Problems	TC203	106	4	
	11 Underground Construction in Soft Ground	TC204	65	3	
	12 Safety and Serviceability in Geotechnical Design	TC205	40	1	
	13 Interactive Geotechnical Design	TC206	26	1	
	14 Soil-Structure Interaction and Retaining Walls	TC207	71	3	
	15 Slope Stability in Engineering Practice	TC208	59	0	
	16 Offshore Geotechnics	TC209	73	4	
	17 Embankment Dams	TC210	49	1	
	18 Ground Improvement	TC211	91	6	
	19 Deep Foundations	TC212	81	2	
	20 Scour and Erosion	TC213	33	2	
	21 Environmental Geotechnics	TC215	58	2	
	22 Frost Geotechnics	TC216	21	0	
	23 Land Reclamation	TC217	23	0	
	24 Reinforced Fill Structures	TC218	42	1	
	25 System Performance of Geotechnical Structures	TC219	13	0	
	26 Field Monitoring in Geomechanics	TC220	20	2	
Impact on Society	27 Preservation of Monuments and Historic Sites	TC301	37	2	
	28 Forensic Geotechnical Engineering	TC302	39	0	
	29 Coastal and River Disaster Mitigation and Rehabilitation	TC303	27	0	
	30 Engineering Practice of Risk Assessment and Management	TC304	82	2	
	31 Geotechnical Infrastructure for Megacities and New Capitals	TC305	34	1	
	32 Geo-engineering Education	TC306	34	1	
	33 Sustainability in Geotechnical Engineering	TC307	36	1	
	34 Energy Geotechnics	TC308	65	3	
	35 Machine Learning and Big Data	TC309	48	6	

* Chiffres d'après <https://www.issmge.org/committees/technical-committees/> au 13/10/2019

Au plan international, le TC301 est-il représentatif ?

TC301, 2019

Membres N+C



	Pays	# Membres TC301	# MH UNESCO CULTURELS Intra-frontières	Ratio "MH/TC"
1	Italie	7	46	6,6
2	Espagne	2	40	20,0
3	Allemagne	1	38	38,0
4	France	2	36	18,0
5	Inde	2	29	14,5
6	Mexique	1	27	27,0
7	Royaume-Uni	5	26	5,2
8	Iran	1	22	22,0
9	Japon	3	18	6,0
10	Grèce	4	16	4,0
11	Russie	2	16	8,0
12	Turquie	1	16	16,0
13	Corée du Sud	2	13	6,5
14	Pays-Bas	1	9	9,0
15	Finlande	1	5	5,0
16	Albanie	1	2	2,0
17	Hong Kong	1	0	0,0
			359	
			41%	

	Pays	# Membres TC301	# MH UNESCO CULTURELS Intra-frontières
1	Chine	0	36
2	Portugal	0	15
3	Pologne	0	13
4	Tchéquie	0	13
5	Brésil	0	13
6	Suède	0	12
7	USA	0	11
8	Belgique	0	10
			123
			14%

Fond de carte : Daniel DALET
Habillage : JD VERNHES, oct. 2019

#	Type	Full Name	Country
1	Chair	Renato Lancellotta	Italy
2	Secretary	Alessandro Flora	Italy
3	Nominated by TC Chair	Giovanni Calabresi	Italy
4	Nominated by TC Chair	Carlo Viggiani	Italy
5	Nominated by TC Chair	Efraim Ovando Shelley	Mexico
6	Nominated by TC Chair	John Burland	United Kingdom
7	Nominated Member	Merita Guri	Albania
8	Nominated Member	Kari Avellan	Finland
9	Nominated Member	Jean-David VERNHES	France
10	Nominated Member	Jean LAUNAY	France
11	Nominated Member	Ivo Herle	Germany
12	Nominated Member	Harry Saroglou	Greece
13	Nominated Member	Dimitrios Eglezos	Greece
14	Nominated Member	Patrick Yong	Hong Kong SAR
15	Nominated Member	I.V. Anirudhan	India
16	Nominated Member	K. Muthukkumaran	India
17	Nominated Member	Masoud Makarchian	Iran
18	Nominated Member	Michele Jamiolkowski	Italy
19	Nominated Member	Guido Gottardi	Italy
20	Nominated Member	Mamoru Mimura	Japan
21	Nominated Member	Chikaosa Tanimoto	Japan
22	Nominated Member	V. Ulitsky	Russia
23	Nominated Member	M.B. LISYUK	Russia
24	Nominated Member	Antonio Jaramillo	Spain
25	Nominated Member	Pilar Rodríguez Monteverde	Spain
26	Nominated Member	Jamie Standing	United Kingdom
27	Nominated Member	Will Howlett	United Kingdom
28	Corresponding Member	Anargyros Alexandris	Greece
29	Corresponding Member	Christos Tsatsanifos	Greece
30	Corresponding Member	Daniele Spizzichino	Italy
31	Corresponding Member	Yoshinori Iwasaki	Japan
32	Corresponding Member	John Lambert	Netherlands
33	Corresponding Member	Heon-Joon PARK	South Korea
34	Corresponding Member	Dong-Soo Kim	South Korea
35	Corresponding Member	Orhan Inanir	Turkey
36	Corresponding Member	Charles Augarde	United Kingdom
37	Corresponding Member	Stephan Jefferis	United Kingdom

Membres du TC301 en 2019

Renato LANCELOTTO, Former Professor, POLITO, Italy ; TC301 chairman (2013) ; RIG

Carlo VIGGIANI, Emeritus Professor, University of Naples, Italy ; past chairman of the "TC301" (1995-2013)



Carlo Viggiani

John BURLAND, Emeritus Professor, Imperial College, UK ; "solution designer for the Tower of Pisa stabilisation in 2003"

Jean LAUNAY, ancien Président du CFMS (2002-2006), part. restauration Angkor (conf. 2004)



Chikaosa TANIMOTO, Emeritus Professor, Osaka University, Japan ; "the guy who saved the Great Sphinx in Giza in 1992"

Yoshinori IWASAKI ; focus on the Angkor temples

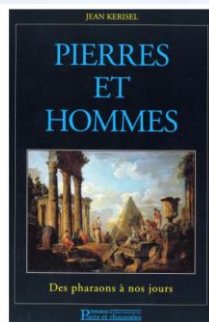
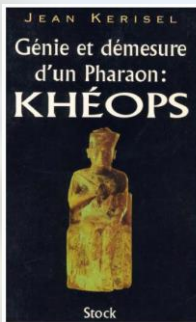
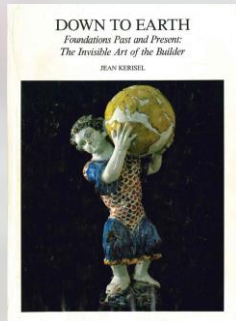
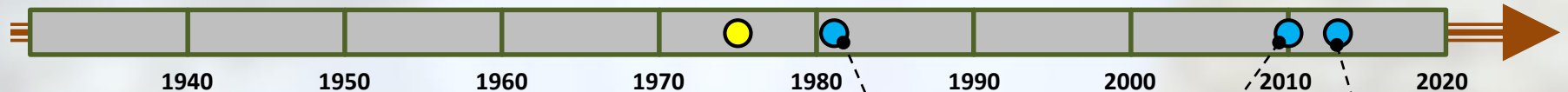
Jean KERISEL et le “TC301”



- In 1975, Jean Kerisel was designated as the XV Rankine Lecturer, and he selected the topic of “Old structures in relation to soil conditions”.

ISSMGE 2017 Kerisel Lecture, Introductive address by Pr. Renato Lancellotta

JK Pdt. CFMS	JK Pdt. SIMSG	JK Pdt. TC19	Croce (It.)	Jappelli (It.)	Viggiani (It.)	Lancellotta (It.)
1969- 1973	1973- 1977	1981- 1984	1985- 1989	1990- 1994	1995- 2013	2013- ...



1981.
Lancement
du **TC19**
Sponsor :
Société
Géotechnique
Italienne

2010. Le
TC19 est
renommé
TC301

2013. Première
Conférence Kerisel
à la CIMSG

Kerisel, J. 1975 Old Structures in relation to soil conditions. *Géotechnique*, 25, 433-483

Kerisel, J. 1985 The history of geotechnical engineering up until 1700. Golden Jub. Book, XI Conf. ISSMFE, San Francisco, Balkema, Rotterdam, 1985.

Kerisel, J. 1987 Down to earth: foundations past and present: the invisible art of the builder. Balkema, Rotterdam

Kerisel, J. 1997 Geotechnical problems in the Egypt of Pharaohs. Proc. Int. Symposium Geotechnical Engineering for the Preservation of Monuments and Historic Sites. 33-40 C. Viggiani ed. A.A.. Balkema, Rotterdam

Kerisel J. 2004 Pierres et hommes des Pharaons à nos jours. Presses de l'E.N.P.C., Paris

A quoi sert le TC301 ?

TC OBJECTIVES :

- Objective 1 - **Disseminate** and develop **knowledge** and **practice** within the TC's subject area to the membership of the ISSMGE.
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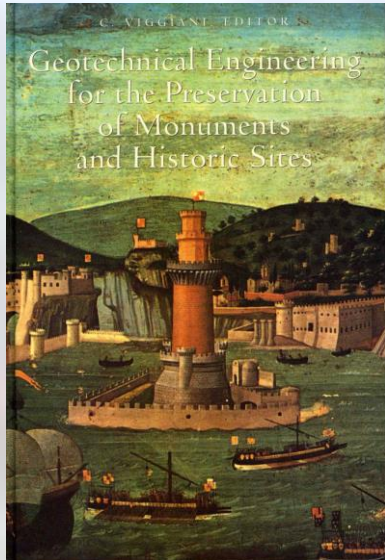
GUIDELINES FOR THE ISSMGE TECHNICAL COMMITTEES AND ISSMGE HONOUR LECTURES (version February 2015, Approved by the ISSMGE Board Feb 24, 2015)

“Since it has been agreed in many occasions that it is **difficult to write recommendations or guidelines on the preservation of monuments** (i.e. each monument is an “unicum”), the idea of **collecting exemplary case histories** seems the most effective way to spread information (...).”

TC301 Meeting in Edinburgh, 14 September 2015, Minutes of the meeting (Renato Lancellotta)

TC's First International Symposium : 1996

Proceedings of the International
Symposium on Geotechnical
Engineering for the Preservation
of Monuments and Historic
Sites, Napoli, 3-4 October 1996

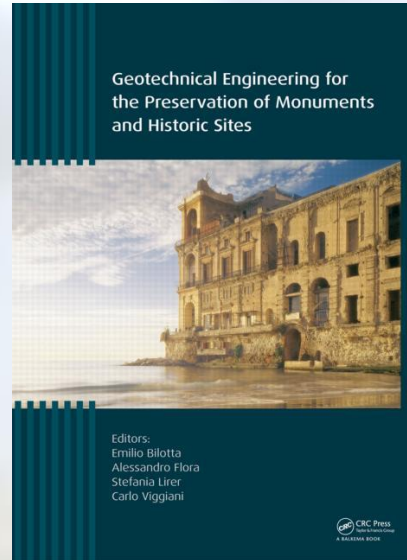


Edited by Carlo Viggiani,
1996

[1 opening address, 2 special
lectures - including Kerisel on
Kheops - and 97 contributions
from all over the world]

TC's Second International Symposium : 2013

Proceedings of the International
Symposium on Geotechnical
Engineering for the Preservation
of Monuments and Historic
Sites, Napoli, 30-31 May 2013

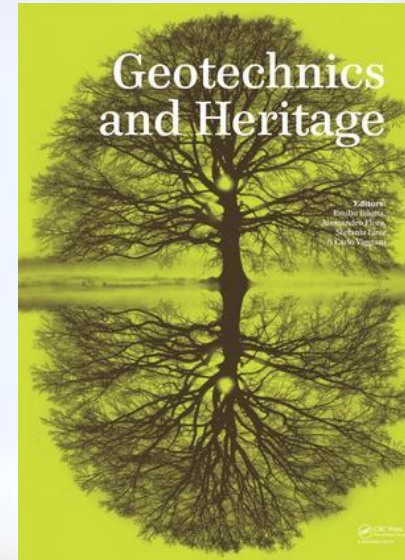


Edited by Emilio Bilotta,
Alessandro Flora, Stefania
Lirer, Carlo Viggiani, CRC
Press, 1st Ed. May 2013

[1 opening address, 4 special
lectures and 82 contributions
from all over the world]

Diffusion de connaissance et d'expériences

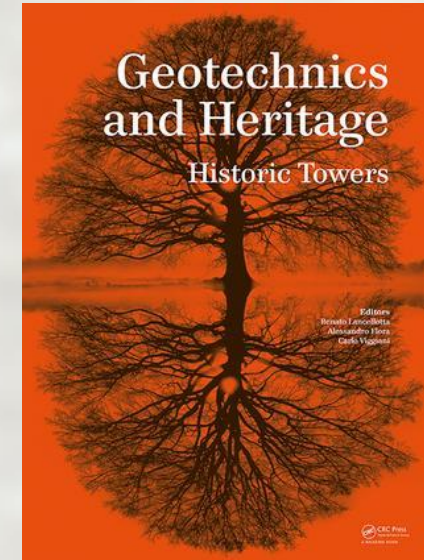
"A summary of the
TC 301 activities"



Edited by Emilio Bilotta,
Alessandro Flora, Stefania
Lirer, Carlo Viggiani, CRC
Press, 1st Ed. June 2013

[12 articles]

"A summary of the
TC 301 activities"



Edited by Renato
Lancellotta, Alessandro
Flora, Carlo Viggiani, CRC
Press, 1st Ed. 2017

[12 articles]

Project **2019 sq.** : Book Series on
"Built Heritage and Geotechnics"

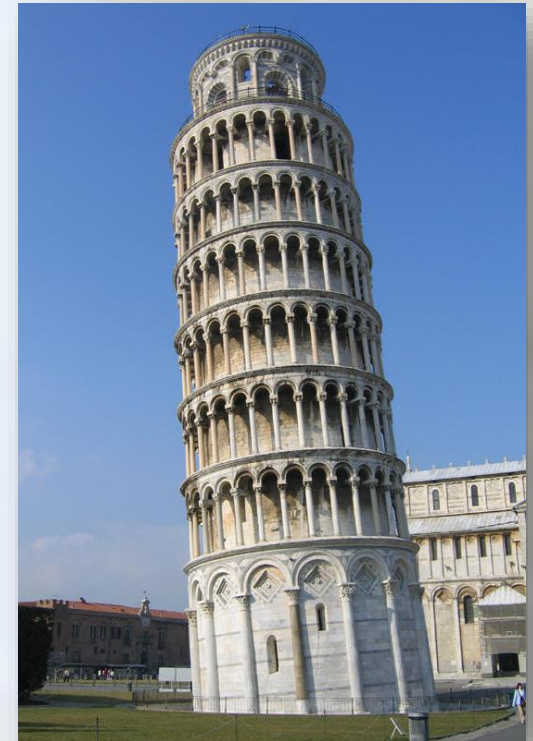
Quel est le rayon d'action du TC301 ?

*« Un monument historique est un immeuble ou un objet mobilier recevant un statut juridique particulier destiné à le protéger, du fait de son **intérêt historique, artistique, architectural mais aussi technique ou scientifique.** »*

www.culture.gouv.fr/Sites-thematiques/Monuments-historiques-Sites-patrimoniaux-remarquables/Presentation/Les-monuments-historiques

*« Les notions de rareté, d'exemplarité, d'**authenticité et d'intégrité** des biens sont notamment prises en compte. »*

<https://www.culture.gouv.fr/Aides-demarches/Protections-labels-et-appellations/Protection-au-titre-des-Monuments-historiques>



L'exemple fétiche de la Tour de Pise

*“Until the early 1990s, the concept that the conservation of a monument involves also saving its construction components, **even those that are not visible**, had not yet gained ground”*

G. Calabresi, Le rôle des ingénieurs géotechniciens dans la sauvegarde des monuments et des sites historiques. Conférence Kérisel, Actes de la 18e Conférence Internationale de Mécanique des Sols et de Géotechnique, Paris, 2013

→ **Éléments géotechniques d'un MH = appendices fonctionnel ?**

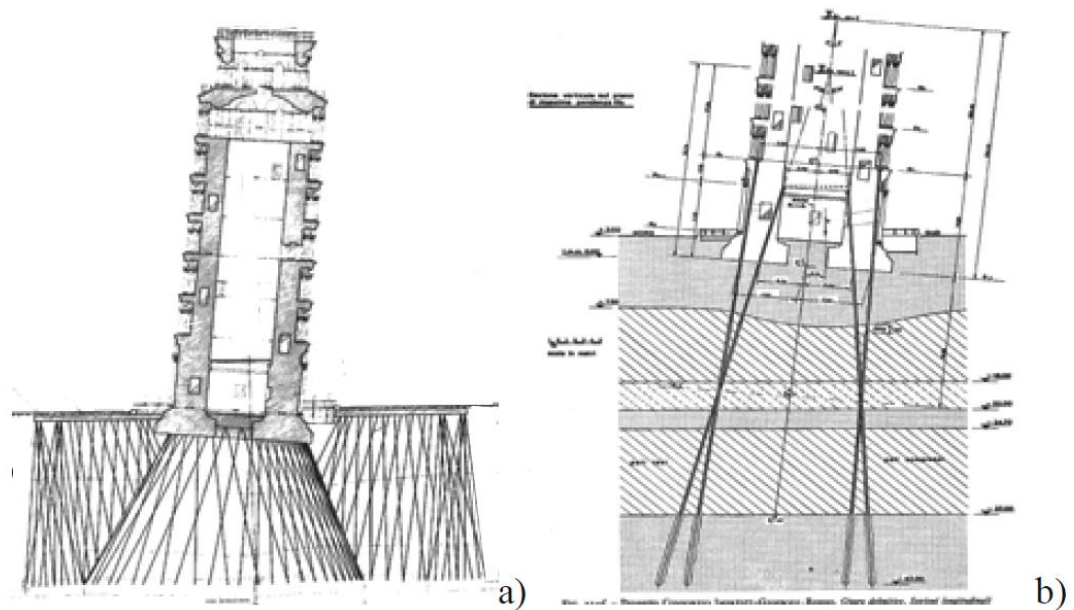


Figure 5. Some of the intervention measures proposed to save the Tower of Pisa at the 1973 call for projects (Burland et al. 2013): a) Fondedile proposal; b) Impredit-Gambogi-Rodio proposal.

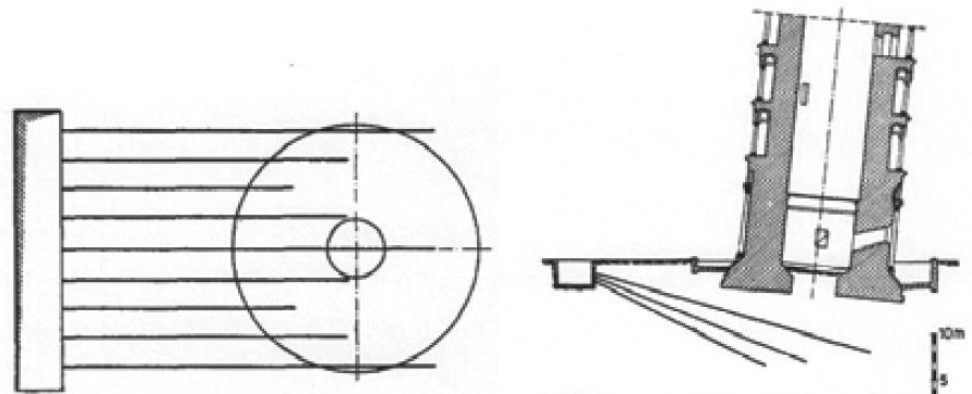


Figure 4. Layout of the underexcavation proposed by Terracina (1962).

CHARTES *ICOMOS** sur la conservation et la restauration des monuments et des sites

* Conseil International des Monuments et des Sites, ONU

- **Venise, 1964**

« CHARTE DE VENISE »

Article 10. Lorsque les techniques traditionnelles se révèlent inadéquates, **la consolidation d'un monument peut être assurée en faisant appel à toutes les techniques modernes** de conservation et de construction (...).

- Nara (Jp), 1994

« CHARTE DE CRACOVIE »

« Particular attention is required to improve our **knowledge of traditional materials and techniques**, and their appropriate continuation in the context of modern society, being in themselves **important components** of cultural heritage. »

- **Cracovie, 2000**

Extrait cité par **A. FLORA**, Rapport général du TC 301 Monuments, sites historiques et études de cas. Actes du 18e CIMS (Delage, P. et al., dir.), Paris 2013.

ISO13822:2010 - HERITAGE STRUCTURES

Authenticity was defined in the Venice Charter of 1964 as **heritage composed from original material, original position, original design as well as original procedure**. (Annex I, Note 1)

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<https://www.culture.gouv.fr/Aides-demarches/Protections-labels-et-appellations/Protection-au-titre-des-Monuments-historiques>



→ Un ouvrage géotechnique, strictement fonctionnel, peut-il être un élément de Patrimoine ? Critères ?

*“...there are still examples of uncritical confidence in modern technology which leads to the replacement of previous structures with new ones, **which only preserves an iconic appearance of the original monument**”*

J. Burland, et al., Book series on Built Heritage and Geotechnics, presentation of the Project, 14.09.2018

Conclusion

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