



LABORATÓRIO NACIONAL
DE ENGENHARIA CIVIL

measuring the changes



13th FIG Symposium on Deformation
Measurement and Analysis



4th IAG Symposium on Geodesy for Geotechnical
and Structural Engineering

second circular

LNEC, LISBON, PORTUGAL
2008 May 12-15



measuring the changes

Invitation

The recent catastrophic disasters such as the collapse of highway overpasses in Montreal; failures of levees and bridges in New Orleans; collapses of roofs of large civil structures in Germany, Poland, and Russia; land slides in California, Pakistan, and the Philippines; and rock failures and continued loss of lives in deep coal mines in China have dramatically increased the importance, and demand, for fully automated, continuous, and reliable deformation monitoring in the civil engineering, mining, and energy sectors.

In addition there is a strong trend to incorporating deformation systems into new structures from the very beginning, driven by concerns for whole-of-life structural health monitoring. Automation, multi-sensor integration, continuous data collection, integrated analysis and physical interpretation, and enhanced accuracy and reliability are the key developments in new monitoring systems.

These issues are the subject of studies of two international working groups: FIG Working Group 6.1 (Deformation Measurements) and IAG Sub-commission 4.2 (Applications of Geodesy in Engineering). This conference is the second joint meeting of the two groups under the theme "Measuring the Changes", combining the 13th FIG Symposium on Deformation Measurements and Analysis with the 4th IAG Symposium on Geodesy for Geotechnical and Structural Engineering.

Scientists, engineers, educators, public authorities, and other professionals are invited to attend this international event in order to share their experience in the monitoring and mitigation of structural and ground deformations in engineering and geoscience projects.

Prof. Adam Chrzanowski
Chair of FIG Working Group 6.1

Prof. Chris Rizos
IAG Sub-Commission 4.2

Important dates

2007-11-02	Deadline for submission of abstract
2007-12-03	Notification of paper acceptance
2008-01-31	End of early registration
2008-03-21	Deadline for submission of full-paper manuscript
2008-03-31	Third circular (program)

Symposium topics

The Symposium Measuring the Changes brings together the 13th FIG Symposium on Deformation Measurement and Analysis and the 4th IAG Symposium on Geodesy for Geotechnical and Structural Engineering. In this Symposium, we wish to bring scientists, engineers, educators, public authorities, and other professionals who are interested in fields such as

- ⦿ Monitoring Static and Dynamic Deformations of Engineering and Geotechnical Structures
- ⦿ Geometrical and Deterministic Modeling of Deformations
- ⦿ Interdisciplinary Approaches to the Design and Analysis of Deformation Measurements
- ⦿ Improvements to Monitoring Instrumentation and Techniques
- ⦿ Multi-Sensor systems
- ⦿ Automation of Monitoring and Warning Systems
- ⦿ Applications in Geotechnical and Structural Engineering
- ⦿ Applications in Geosciences at Local and Regional Scales
- ⦿ Education, Training and Mobility
- ⦿ Activities of FIG WG6.1 and IAG SC4.2

Technical Exhibition

A technical exhibition will be open to companies for presentation of their products/expertise and/or services related to the Symposium themes. A scheme of the exhibition area with exhibition modules and fees is available at the Symposium website. For additional information please contact the Secretariat:



“Measuring the Changes” Organizing Committee
c/o LNEC

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1700-066 Lisbon, Portugal

measuringchanges@lnec.pt

Tel.: + 351 21 844 34 83, Fax : + 351 21 844 30 14

<http://measuringchanges.lnec.pt>



Symposium venue

The Symposium will be held in Lisbon, Portugal, a historical capital, a potpourri of unusual character and charm. There you can find an amalgam of 800 years of cultural influences mingled with modern trends and life style, creating intricate and spectacular contrasts. Spread across seven hills always opening a window towards the majestic Tagus river, richly captivating, Lisbon invites you.



Lisboa offers a wide variety of options to the visitor, including beaches, countryside, mountains and areas of historical interest only a few kilometers away from the city centre. Lisboa is a city rich in traditions and full of historical sites. It is also a modern city known for the hospitality of its people and has a reputation as an important tourist center offering an unforgettable variety of attractions from the green hills of Monsanto to fine food and lively night life.

Lisbon is known as the white city, thanks to its unique luminosity. The light, the atmosphere and the climate offer marvelous walks all over the city. It has a beauty that extends beyond the monuments that can be experienced in the streets that is embraced with all the senses. Although it was at the castle that everything began, historical sites can be found throughout the city. With a thousand



years of history, Lisbon is full of monuments of great importance, that reflect some of the key moments in the Portugal's history. Capital of the Empire, the peak of Lisbon's wealth was during the Age of Discovery, which guaranteed its heritage of a rare beauty.



Tourist information at <http://www.visitlisboa.com/>

The Symposium is organized by the Laboratório Nacional de Engenharia Civil (LNEC, National Laboratory for Civil Engineering). LNEC is a public institution of science and technology, which is subject to the Ministry for Public Works, Transports and Housing, covering the broad field of civil engineering.

LNEC combines, in one institute, all fields of civil engineering, in particular the areas of public works, housing, urban planning, hydraulics, water resources and environmental protection. LNEC

is also involved in improving building products and processes. These activities are carried out either as programmed research or as contracted projects, and are linked and coordinated in medium-term research plans. Other aspects of LNEC activities deal with quality assurance and safety of public works. The Laboratory has a distinguished record of achievements in the 60 years of its existence, and it continues efforts to improve.

Hotels & Sightseeing Tours

Top Atlântico DMC has select several hotels in Lisbon, ranging from 3 to 5 stars. Here we present two of them, both at “Campo Pequeno” area. “Campo Pequeno” stays within a walking distance from LNEC, but you can also find several buses that run from LNEC to Campo Pequeno and beyond (namely the city centre).

In this area nothing grabs your attention quite so suddenly as the city’s circular, redbrick, Moorish-style bullring, an over-the-top structure built in 1892 with small cupolas atop its four main towers. Under the building you can find a new a shopping mall with restaurants, cinemas, and a supermarket.



Holiday Inn

Rua LAURA ALVES 9
1069-169 LISBON

Ideally situated in the new financial centre of the city, the Hotel Holiday Inn Lisbon Continental is located just 15 minutes from Lisbon International Airport and a short walk from Campo Pequeno metro station. Each of its 220 spacious rooms and suites (including various executive and non-smoking rooms) is fully equipped with cable TV, video channels, high speed internet, mini-bar and trouser press. Besides indoor parking for 140 vehicles, onsite facilities include Wi-Fi access, gift and jewellery shops, a modern boutique, sophisticated bars and a restaurant offering a wide variety of local and international specialties.



VIP Executive

*** ZURIQUE

Rua IVONE SILVA 18
1050-124 LISBON

The Hotel VIP Zurich has 252 modern rooms, from which 4 are suites and 2 are designed to accommodate handicaps. The decoration in all rooms is comfortable and functional, for business and leisure stays. The hotel has a private parking area. The restaurant O Infante offers a wide variety of tastes of the traditional Portuguese and international cuisine. The self-service is advisable to the economic fares’ groups. You may also enjoy the leisure areas such as the nice and comfortable bar and the outdoors swimming pool.



Hotel	Categ.	Price (breakfast included)	
		Single	Double
Sheraton Lisboa Hotel & spa	*****	€ 280	€ 300
Holiday Inn Lisboa Continental	****	€ 105	€ 120
Holiday Inn Lisboa	****	€ 105	€ 120
Radisson SAS	****	€ 105	€ 120
Lutécia	****	€ 69	€ 75
Vip Executive Zurich	***	€ 68	€ 75
Vip Inn Berna	***	€ 61	€ 68
Roma	***	€ 57	€ 66



The following are only examples of tours that can be compiled for participants or accompanying persons. Top Atlântico has other unforgettable tours that can be tailor made to suit anyone's interest.

Tour	Price
1 Lisbon Tour half day	€ 33
2 Sintra / Estoril / Cabo da Roca half day	€ 54
3 Óbidos / Nazaré / Fátima full day (lunch included)	€ 84
4 Évora (Operates only on Saturdays) full day (lunch included)	€ 79



Lisbon



Sintra



Óbidos



Évora



You'll find the HOTEL & TOURS BOOKING FORM at Symposium website.

Cancellation Policy

All bookings must be fully prepaid. Requests received without payment may be not considered. Upon payment a confirmation letter/fax will be sent. Cancellations received before March 28th 2008 will be refunded after the congress, minus € 25,00 administrative fees. After this date no refunds will be made.

All approved refunds will be processed and issued until 60 days after the Congress.

For all matters related to Accommodation, and other Touristic Services, you may contact the Official Travel Agency:



Top Atlântico DMC
Congress Department
Att: Mr. Vitor Alves
Av. Dom João II, Lote 1.16.1 – 1990-083 Lisboa
Phone (+351) 218 925 405 | Fax : (+ 351) 218 925 406
e-mail: lisboa.congress@topatlantico.pt

Travel Information

PLANE

TAP Portugal was nominated the Official Carrier of the Symposium Measuring the Changes. TAP Portugal has agreed with the Organizing Committee to offer a discount to the participants who make their flight booking and buy their ticket exclusively through TAP Portugal's website.



The discounts offered are the following: - 10% in economy class; - 20% in business class.

The code IT8TPCG11 has been given to this event and must be mentioned when making the booking in order to benefit from the discount.

To make the booking, the participant should follow these steps:

- enter the website www.flytap.com and select the dates and cities of choice;
- make a normal booking;
- insert the event code in the Congress Code Box. Example

Congress Code: (If you are travelling to participate in a Congress, insert here your Congress Code)

In case of questions, please contact TAP Portugal by the following email: congressos@tap.pt

Important Information

- The discount applicable to this congress is only valid for online bookings made through TAP Portugal's web-site www.flytap.com and with payment by credit card. The ticket will always be an electronic ticket, except in cases of destinations where the electronic ticket is not possible.
- Bookings made previously by travel agencies or at our desks are not eligible for this discount.
- The final price shown at the end of the booking is the public fare available and applicable to the selected flights and dates, including taxes. The event discount does not appear on the online booking; it will be applied, only at issuing moment, over the fare available, excluding all taxes related to the voyage.
- The discount only applies to TAP operated flights. Bookings on code-share flights operated by other airlines are not permitted. Code-share flights are identified on online bookings with the message "Code-share". Example: TP6701 (Code-share).
- The discount is not accumulative with fares for resident / student / child / infant /senior, etc.
- The discount applies to round trip journeys from any TAP destination to Portugal (Lisbon, Faro and Oporto).
- The booking can be made at any time. The travel dates must be comprehended in the period of 10 days before / 10 days after the congress dates (from May 02nd to May 25th 2008).
- The discount is also extended to the participants accompanying persons.
- The conditions and restrictions regarding changes and refunds are those of the applicable fare. Please check the fare details before ending your booking.



TRAIN

Timetables, news and other information about Portuguese Railways, CP, at www.cp.pt



In LISBON

In Lisbon city you can travel using bus, subway or taxis. In the old areas of the city, where the terrain is slopy, the best is to use trams, funiculars or the “Santa Justa” lift.



To help you plan the best route in Lisbon area visit www.transporlis.sapo.pt

In this website, in journeys to or from LNEC, choose “stops” write “LNEC” and, after click “Search”, choose “lisboa (av. brasil) Inec – RL”. Example

path finder


1 Select the region for your departure point. All


streets route stops towns

Departure Point

LNEC Search

lisboa (av brasil) Inec - RL
Inec - Carris

From “Campo Pequeno” area to LNEC the best bus is number 83,a bus from . This bus also goes to the airport.

The nearest metro station is “Alvalade”, north hall, in “Green Line / Linha Verde”. The entrance of the stations are identified by the Metro Lisbon’s subway company flag .

More information at the Symposium website: measuringchanges.lnec.pt

Technical Tour

On Tuesday, May 15th, there will be a technical visit to the Multipurpose Alqueva Project. Alqueva is a village in the Alentejo region ■, that gives the name to a huge project in the Guadiana river that intends to create a complex infrastructure ■ which includes several dams, hydroelectric power production, and irrigation systems. The complex of the Alqueva Dam was projected to bring a solution to the problem of this area, since it is the driest and hottest region in Portugal, and it will create the biggest artificial lake in Europe, in terms of surface area.

Program

8:00 – Departure from Lisbon (LNEC Campus)

8:00 to 10:30 – Trip to Alqueva

11:00 to 13:00 – Visit to the Alqueva concrete dam

13:00 to 15:00 – Lunch

15:00 to 16:30 – Visit to the Álamos embankment dam

16:30 to 19:00 – Return to Lisbon



Álamos Dam

Alqueva Dam

Social Events

Monday, May 12th – Ice Breaker Party

Tuesday, May 13th – Dinner

More details will be announced later, in the Symposium website. Those who have pre-registered will receive information by email.



Registration

Registration Fees

There are three types of registration: full, student (both for four days) or one day.

The registration fee includes:

	Full Delegate /Student	One day
admission to the Symposium sessions, poster programme (Wednesday, May 14 th) and technical exhibition	✓	✓
the list of participants	✓	✓
the book of abstracts	✓	
the full set of papers on a CD-rom	✓	
lunch	✓	✓
coffee break	✓	✓
invitation to the ice breaker party (Monday, May 12 th)	✓	
technical visit (Tuesday, May 15 th)	✓	

The lunches will be served near LNEC's Congress Center, except the one on Tuesday, May 15th, that will be served near Alqueva Dam.

Symposium participants and accompanying persons will also be able to enjoy an unforgettable experience dining on Tuesday, May 13th. The cost of this event is not included in the registration fee. Further information will be made available as soon as possible in the website and in this circular.

	Early registration (ends on 2008/01/31)	Late registration
Full Delegate	€ 370	€ 410
Full Time Student*	€ 200	€ 220
One day	€ 150	€ 150

* It is necessary to present a valid student card or equivalent.

Methods of payment

- Check: to FUNDCIC (only for attendees having a bank account in Portugal)
- Bank transfer:
- Credit Card: Visa, Master Card or American Express

The registration form will be available at the Symposium website

Cancellation and Refunds

Administrative costs (25%) will be charged for cancellations of registrations before the 1st of April 2008. Thereafter, 75% of the registration fee will be invoiced. In this case the book of abstracts will be sent to the registered person. Alternatively a replacement person may be indicated at no extra cost (please advise with his/her name).

Cancellations must be made by a signed form (letter or fax).

Internet

During the Symposium all participants will have access to LNEC's wireless network in the Congress Center area.

Grants

The Local Organizing Committee, IAG, FIG and the sponsors are working together to offer a limited number of financial assistance grants to support participation at the Symposium Measuring the Changes. An application for a grant can only be made by those who have submitted one or more abstracts to the scientific program. Financial assistance funds are limited. Most awards will be for the registration fee only. It is unlikely that full support will be possible. The deadline for grant applications is the same as for the submission of abstracts: November 2, 2007.

More Information will be available at the Symposium website.

Papers

Symposium proceedings will be included in a CDrom. A book of abstracts will also be available. Both will be included in the full participant's package.

Submission of papers is invited on all of the proposed topics. Authors should submit the abstract (one page) to the conference secretariat before the 2nd of November 2007. The authors will be notified of the acceptance of paper acceptance until the 3rd of December 2007. Deadline for submission of full-paper manuscript will be 18th of February 2008 (the template is available at the Symposium website).

Abstracts should clearly state the objectives, results and conclusions of the work undertaken. They should contain the author's names and affiliation's and the mailing and email address of the corresponding author and, in addition, the preference for oral or poster presentation. For the abstract preparation authors must use the template available at the website and send it by email to the conference secretariat (measuringchanges@lnec.pt).

The abstracts will be reviewed by the scientific committee and recommended for oral or poster presentation.

Only papers with one author registered will be included in the Symposium proceedings and in the book of abstracts.

The official language of the Symposium is English.



Scientific Committee

João Casaca (Chairman)	Portugal
Luísa Bastos	Portugal
Fritz Brunner	Austria
Xiaoli Ding	Hong Kong
Svend Johansen	Denmark
Gyula Mentes	Hungary
Witold Proszynski	Poland
Gethin Roberts	United Kingdom
Stathis Stiros	Greece
Dorota Brzezinska	USA
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Alojz Kopacik	Slovakia
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Maria João Henriques President, mjoao@lnec.pt	National Laboratory for Civil Engineering
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José Nuno Lima	National Laboratory for Civil Engineering
João Agria Torres	Portuguese Section of the International Unions of Astronomy and Geodesy and Geophysics
Manuela Vasconcelos	Portuguese Geographic Institute

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More up-to-date information at <http://measuringchanges.lnec.pt>

Measuring the Changes is a joint Symposium of FIG and IAG



Organized by LNEC



**LABORATÓRIO NACIONAL
DE ENGENHARIA CIVIL**

In cooperation with

Ordem dos Engenheiros

**Portuguese Section of the International Unions
of Astronomy and Geodesy and Geophysics**

Fundo para o Desenvolvimento das Ciências da Construção

