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News

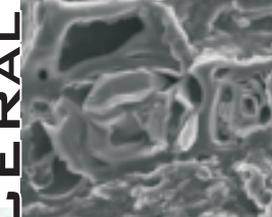
No 52 April 2011

COKE



Reflectance
fluorescence

Kerogen



Char

Small birds, such as canaries, were used by coal mine rescue teams to detect the presence of carbon monoxide. If the bird collapsed, the rescue team retreated and the bird would be revived using the oxygen cylinder on top of the cage. In this case, the bird was released, having done its duty.

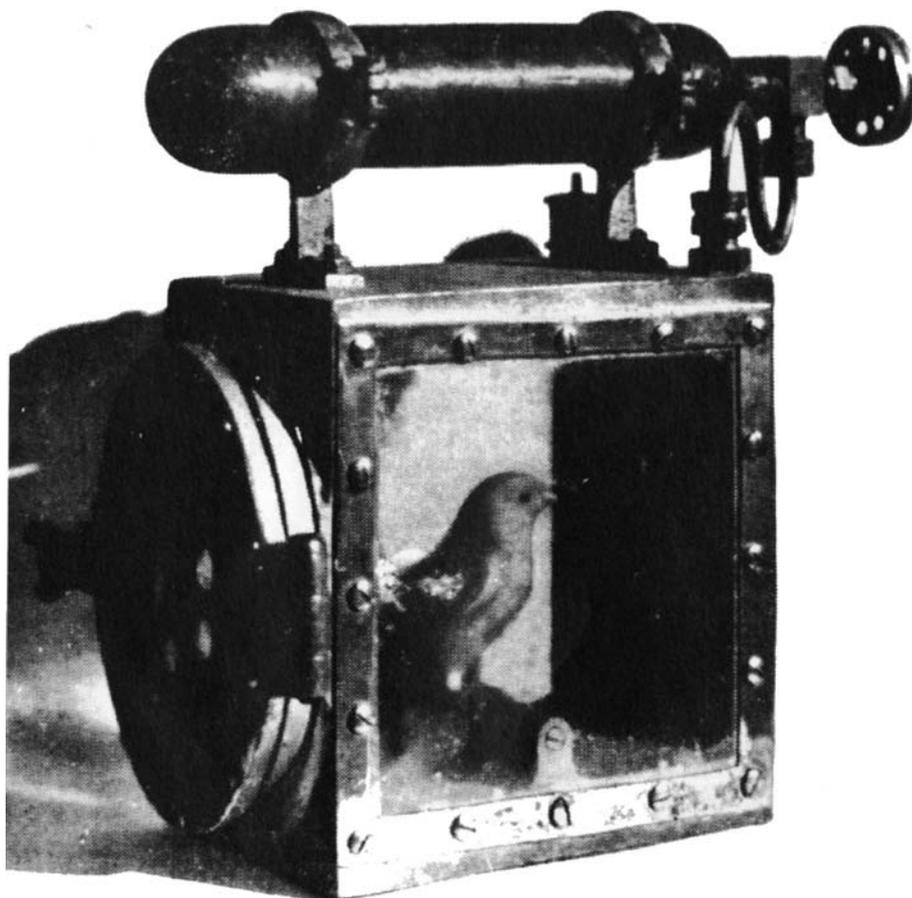


Photo from Hargraves, A. J. (ed.) (1993) History of Coal Mining in Australia. Monograph Series No. 21. The Australasian Institute of Mining and Metallurgy, Parkville, Victoria. 251 pp. Additional information N. Crosdale, pers. comm.

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From the Editor

The beginning of 2011 has been an unhappy one for many ICCP members. Natural disasters have befallen many countries to which our members belong, and even the cities in which they live: earthquakes in New Zealand and Japan, along with consequent tsunami; flooding in Australia and Brazil. All associated with significant loss of life. Our thoughts are with those who have been affected.

Looking forward, it will be a busy year for the ICCP. Important decisions are to be made with respect to the registration of ICCP; voting is to be held on a number key positions within Council. At the time of writing, the voting about ICCP registration will have closed. This is one of the most important issues to be decided in many years for ICCP. I trust that as many eligible members as possible have cast their vote. I always find it most peculiar that only around 50 to 60% of eligible members tend to vote on any matter. Part of my perspective comes from the fact that voting in elections is compulsory in Australia - the only way of ensuring that everybody has their say! A most curious concept that in a democracy your right to not vote is taken away. However, such a system means that nobody can complain about the end result - all have had their say in the matter. For this reason I strongly urge members to exercise their right to vote.

Peter

From the President

Dear colleagues,

As mentioned by the General Secretary, this year will be again an important one for ICCP, since the decision on the ICCP status will be taken and the elections for President and Vice President are upcoming.

Two ICCP courses are planned for this year, one in Johannesburg, South Africa in May and one in Porto, Portugal in September. There are already about 20 registrations for both courses and it seems that there is sufficient interest in ICCP courses, which I think is very important for our future. A lot of dedication and enthusiasm is required by all those involved in planning, organising and teaching and I would like to thank the organisers and teachers very much.

I am also glad to inform you that after some time the Thiessen Award Committee is in place again. The Committee (in alphabetical order) consists of Alan Cook, Jack Crelling, Alan Davis, Claus Diessel, and Geoff Taylor. Nominations for the Thiessen Award 2011 can be made. Since the election of the Chair of the Thiessen Award Committee is still ongoing, members can send nominations to the General Secretary. More detailed information on the deadline and procedure is given elsewhere in this issue of the Newsletter.

With best wishes
Petra David
ICCP President

From the General Secretary

The year 2011 is a year of important decisions within the ICCP as you have surely read in the minutes of the Belgrade Meeting in the last issue of the ICCP News. Two issues are currently being decided which involve the Full members of the ICCP: the question of registration and the selection of officers for the position of President and Vice-President. Regarding ICCP Registration voting papers were sent out in August 2005 to all ICCP members to investigate if members favour the registration of the organisation in principle. The results showed that ICCP membership strongly supported the formal registration. As registration requires a modification of statutes the question has been put again to the Full members together with

Institutional Members of ICCP



<http://www.tatasteel.com>

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various jurisdictions to select (Australia, Canada and Spain). The deadline for receiving votes was April 15th. Right after this date the elections for ICCP President and Vice-President will take place. Candidates have been already requested to submit a brief summary of their Curriculum Vitae and a document expressing their vision of the position to be covered. We expect to initiate the election process in May so that we can have elected candidates for the next meeting in Porto.

I would like to take this opportunity to encourage participation in the elections.

Thanks to all of you for your support

Best Regards

Angeles G. Borrego

ICCP General secretary

mailto:angeles@incar.csic.es



General view of Porto downtown

Some Images of Porto



Douro River and D. Luís metallic bridge engineered by Théophile Seyrig a Gustave Eiffel disciple



Casa da Música which is one of the most prominent cultural institutions in Porto dedicated to the promotion and diffusion of the music

Know Your Coal Petrologist #45



This is the 1998 Porto Meeting group photo - how many of the 55 persons can you recognise? Answers page 19.

63rd Annual Meeting of the International Committee for Coal and Organic Petrology (ICCP) September 10-16, 2011, Porto, Portugal

Organized by: Department of Geosciences, Environment and Spatial Planning,
Faculty of Sciences of the University of Porto

The 63rd Annual Meeting of the International Committee for Coal and Organic Petrology hosted by the University of Porto will be held in Porto, Portugal, in September 10-16, 2011. The meeting venue is:

Department of Geosciences, Environment and Spatial Planning,
Faculty of Sciences of the University of Porto
Rua do Campo Alegre, 687
4169-007 PORTO
PORTUGAL

Invitation

The President of the International Committee for Coal and Organic Petrology (ICCP) Dr. Petra David and the Department of Geosciences, Environment and Spatial Planning, Faculty of Sciences of the University of Porto have the honour to invite all ICCP members and interested colleagues to the 63rd Annual Meeting of the ICCP in Porto, Portugal.

The **University of Porto** is celebrating its one hundredth birthday, it has been formally founded on 22nd March 1911, immediately after the Portuguese Republic was established. The roots of the institution, however, are dated back to 1762, when the Nautical Class was created by D. José I. This school, along with subsequent schools which were created, (Sketching and Drawing Class, created in 1779; Royal Academy of Maritime and Trade Affairs, in 1803; Polytechnic Academy, in 1837) were to be responsible for training students in Porto over the course of the eighteenth and nineteenth centuries, providing a response to the need for qualified staff in the fields of naval affairs, trade, industry and the arts.

The University of Porto is currently the largest educational and research institution in Portugal. Close to 31,000 students, 2,300 teachers and researchers along with 1,700 administrative staff attend its 15 schools and 69 scientific research units, spread across 3 university campuses located in the city of Porto.

It is a pleasure to welcome the ICCP Annual

Meeting in the University of Porto in its one hundredth birthday.

Looking forward to seeing you in Porto!



Department of Geosciences, Environment and Spatial Planning, Faculty of Sciences of the University of Porto



Department of Geosciences, Environment and Spatial Planning, Faculty of Sciences of the University of Porto

Programme and Registration

The Programme for this meeting includes the reporting activities carried out during the year by the various Working Groups of the three Commissions, a one-day Symposium on "New Trends in Coal Science", and a one and half day field trip entitled "The Lower Jurassic of the west



Department of Geosciences, Environment and Spatial Planning, Faculty of Sciences of the University of Porto

coast of Portugal: Stratigraphy, geological heritage and organic matter record".

It is expected that the exchange of knowledge and experience on the field of Coal and Organic Petrology and/or the establishment of new personal relationships among ICCP members and guests are the main aims of this international meeting.

The 63rd ICCP Annual Meeting registration form can be found online at www.iccop.org/index.php?id=131 as well as in this newsletter. Please fill the registration form and return to 63ICCP@fc.up.pt

Registration deadline: May 31, 2011.

Call for Abstracts

The one-day Symposium theme focuses on "**New Trends in Coal Science**" will take place on the 16th September. Submissions of Abstracts for oral and poster presentation should be sent via email to 63ICCP@fc.up.pt indicating whether an Oral or Poster presentation is preferred.

The **layout for the preparation of the abstracts is available in the ICCP webpage** at the following link: www.iccop.org/index.php?id=131 A volume containing all the abstracts accepted to the Symposium will be printed and provided to all participants at registration.

Deadline for Abstracts submission: May 31, 2011.

After review and notification of acceptance, authors will also be invited to submit their papers for a special issue of the International Journal of Coal Geology. The deadline for submission of the full

papers is 15th January 2012.

Information for presenters

Oral presentations:

Presentations are limited to 20 minutes per talk (15 minutes presentation with 5 minutes question period).

Presentation must be created on powerpoint (or compatible program). Please bring presentations on a memory USB key or on CD.

Poster presentations:

Poster maximum size is A0 (portrait).

Field trip

A one and half day field trip on "**The Lower Jurassic of the west coast of Portugal: Stratigraphy, geological heritage and organic matter record**" will take place, in conjunction with the pre-ICCP Training Course, in the 10-11 September; it means that it is a pre-ICCP meeting excursion.

The field trip will be conducted by Luis Duarte and Ricardo Silva (Coimbra University), and João Graciano (Federal University of Rio de Janeiro).

1st day, 10th September - after lunch

Porto - Óbidos (sightseeing visit) - Peniche (dinner and overnight stay at Praia Grande Hotel).

2nd day, 11th September

Morning (3/4 hours): Visit to the Peniche peninsula where it is framed in one of the most emblematic places of the Portuguese coast, the most complete sequence of the Lower Jurassic of the Lusitanian Basin can be observed. The Lower Jurassic of Peniche is materialized by a succession of carbonates of marine origin, illustrating organic-rich hemiplagic facies (black shales) and turbidite deposits. The Pliensbachian succession (Vale das Fontes Formation) of Peniche has been the most studied area of the Lusitanian Basin for potential hydrocarbon generation. In addition, the Lower Jurassic of Peniche is an international reference, because it is the only candidate to the Pliensbachian-Toarcian stratotype, still presenting great arguments on the oceanic anoxic event from the lower Toarcian.

Nazaré (lunch)

Afternoon (2h): Visit to the Jurassic Calcareous cliffs of S. Pedro de Moel. Being the depocenter of

the Lusitanian Basin, this sector of the basin shows the thickest succession of marl-limestone rich in organic matter, involving the Sinemurian (Água de Madeiros Formation) and Pliensbachian (Vale das Fontes Formation). This sequence has a set of other sedimentary geology structures, as unique examples of fossilized marine invertebrates.

VERY IMPORTANT. As Peniche is a popular touristic city in Portugal and September is high season, places for the field trip will be limited to the number of room available at Praia Grande Hotel. The confirmation of the rooms has to be made till the end of May. **After 1st June the organization cannot guarantee the field trip participation.**

Travel information

Francisco Sá Carneiro Airport (OPO) is about 15km from Campo Alegre/Boavista area. After arrival at the Francisco Sá Carneiro Airport, Porto may be reached by:

Taxi - just outside the Airport building - rate about 25 Euros (10 to 20 min travel);

Metro - just outside the Airport building till Casa da Música stop (1.50 Euros and 20 min travel) + taxi to hotel (less than 10 Euros) or walking to some of the hotels (10 min walk to Faculty of Science).

How to buy Metro tickets. These are called ANDANTE, and are similar to credit cards; they were thought to be recharged:

From and to Airport, buy your ANDANTE and choose Z4 option; to travel inside Porto reformat your ANDANTE as Z2 (1 Euro each travel) and pay the number of travels you want (more information at www.metroporto.pt); or,

BUS - Outside the airport you also have buses to the centre of Porto, ask before buying if your airplane ticket includes the bus ticket. You may leave the bus at a nearest bus stop of your hotel or catch another bus, taxi, or metro from the centre of Porto. ANDANTE can also be used in the buses.

Campo Alegre area has also a public transport network (bus and subway) that will facilitate travelling to several parts of the city.

TAP Portugal is the Official Carrier of the 63rd ICCP Annual Meeting. Participants who make their flight booking and buy their ticket exclusively through TAP Portugal's website (www.flytap.com)

advantage from ticket price reduction. The discounts offered are the following: 10% in economy class; 20% in business class.

The code **IT11TPCG26** has been given to this event and must be mentioned when making the booking in order to benefit from the discount.

All the information is available in the ICCP webpage. In case of questions, please contact TAP Portugal by the following email: congressos@tap.pt.

Accommodation

Campo Alegre area has a set of hotels ranging in quality from 3 to 5 stars. Hotels from the "HF Hotéis Fénix" Chain (www.hfhotels.com) are recommended as they provide accommodation for participants at special rates. Hotels near the Faculty of Sciences are Ipanema Park Hotel (5 stars - 75 Euros Twin/Single), Ipanema Porto Hotel (4 stars - 70 Euros Twin/Single); Fénix Porto Hotel (4 stars - 70 Euros Twin/Single) and Tuela Porto Hotel (3 stars - 65 Euros Twin/Single). These hotels are at a walking distance from the ICCP meeting venue. Participants must make their own reservations directly online via www.hfhotels.com/porto/iccp.

Hotel reservations must be made as soon as possible as September is high season in Portugal.

The Seminário de Vilar, Casa Diocesana (Rua Arcediago Van Zeller, 50, 4050-621 Porto, about 15 minutes walking) offers accommodation at cheaper prices (40-60 Euros). Reservations must be made directly via email: info@seminariodevilar.pt.

If you plan to attend the conference and you have disability-related needs, please contact Bruno Valentim at bvvalent@fc.up.pt.

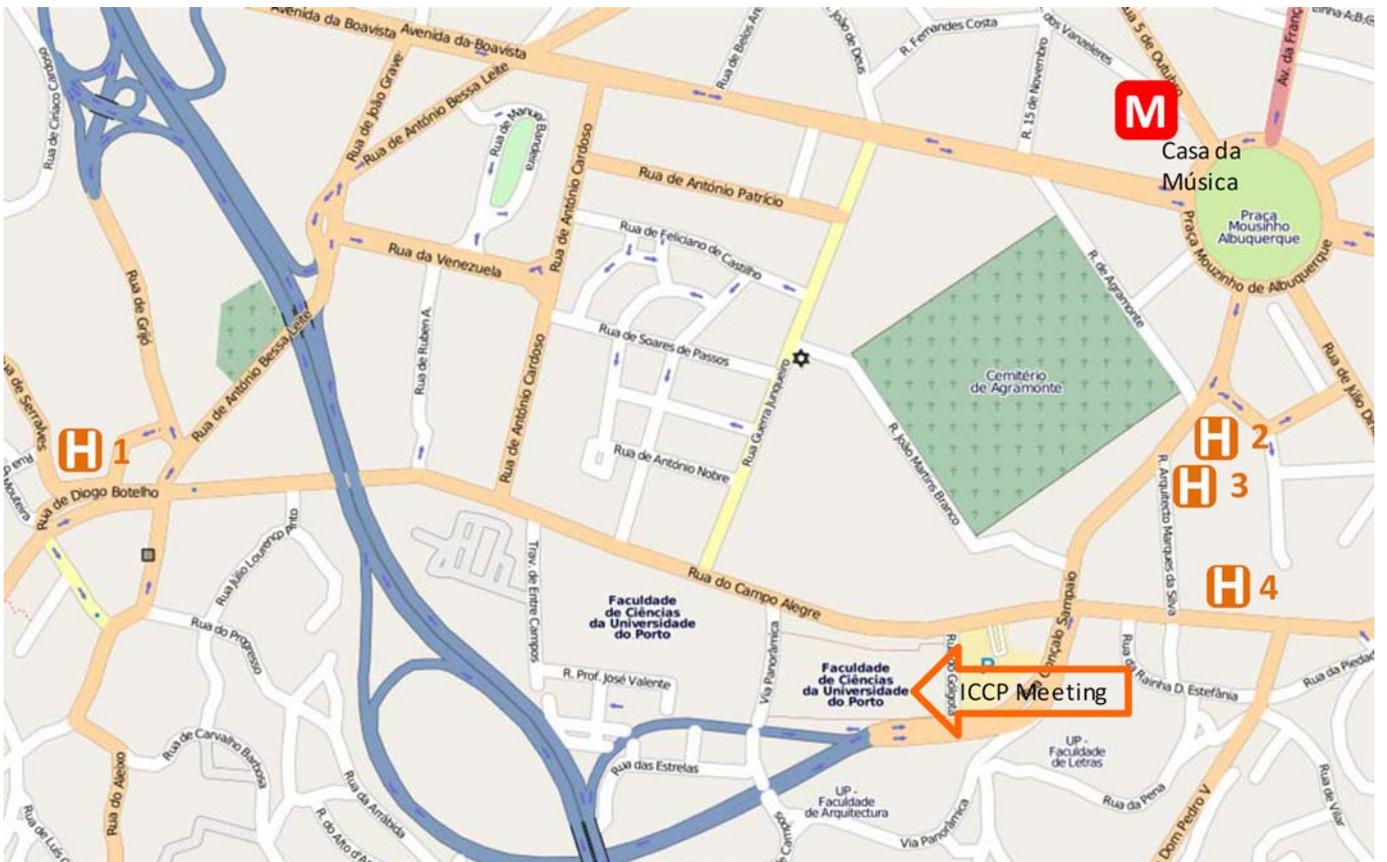
Information - ICCP website

All the information is regularly updated in the ICCP webpage at <http://www.iccop.org/index.php?id=131>. This link contains the most up to date information on technical programmes, field trip, accommodation, transport, registration form, abstract submission and all aspects pertaining to the meeting.

For further details or inquiries do not hesitate to contact Deolinda Flores, Manuela Marques or Bruno Valentim mailing to 63ICCP@fc.up.pt.

Meeting Schedule

Time	Saturday 10-Sep	Sunday 11-Sep	Monday 12-Sep	Tuesday 13-Sep	Wednesday 14-Sep	Thursday 15-Sep	Friday 16-Sep		
8.30-9.00	Council Meeting	Field trip	Registration	Commission Meeting	Commission Meeting	Commission Meeting			
9.00 - 9.30			Welcome & General Assembly						
9.30 - 10.00					Coffee Break	Coffee Break	Coffee Break	Coffee Break	Symposium
10.00 - 10.30									
10.30 - 11.00					General Assembly				
11.00 - 11.30									
11.30 - 12.00									
12.00 - 12.30									
12.30 - 13.00									
13.00 - 13.30	<i>Lunch break</i>		<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>	<i>Lunch break</i>		
13.30 - 14.00	Field trip	Vinho Verde Ice-Break Party							
14.00 - 14.30			Commission Meeting	Commission Meeting	Commission Meeting	Closing Plenary Session	Symposium		
14.30 - 15.00									
15.00 - 15.30									
15.30 - 16.00									
16.00 - 16.30			Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break		
16.30 - 17.00									
17.00 - 17.30						Closing Plenary Session	Symposium		
17.30 - 18.00									
18.00 - 18.30									
18.30 - 19.00									
19.00 - 19.30					Council Meeting	Evening Conference Dinner			
19.30 - 20.00									
20.00 - 20.30									
20.30 - 21.00									
21.00 - 21.30									



ICCP meeting venue, HF hotels location and Casa da Música metro stop (M). H1 - Ipanema Park Hotel (5 stars); H2 - Fénix Porto Hotel (4 stars); H3 - Tuela Porto Hotel (3 stars); H4 - Ipanema Porto Hotel (4 stars).

**63rd Annual Meeting of the International Committee
 for Coal and Organic Petrology - ICCP**

September 10-16, 2011, Porto, Portugal

Faculdade de Ciências, Universidade do Porto

REGISTRATION FORM

First Name Family Name
 Address
 Postal Code/City Country
 Phone
 Fax
 E-mail
 Institution

Ms Mr Prof Dr Student
 ICCP Member ICCP Non-member

Accompanying person(s): Nº Name(s)

I will submit an abstract for: Oral presentation Poster presentation

Title

Author(s)

Fees	Participant	Accompanying person(s)
Registration fee	<input type="text"/>	
Conference Dinner	<input type="text"/>	<input type="text"/>
Field trip *	<input type="text"/>	<input type="text"/>
Total fees	<input type="text"/>	<input type="text"/>
	TOTAL	<input type="text"/>

ICCP Members :	
Before May 31, 2011	180 €
After May 31, 2011	220 €
ICCP Non-Members	220 €
Students	100 €
Conference Dinner	50 €
Field trip	180 €

* I want share the Praia Grande Hotel (Peniche) room with

Dietary requirements

Other requirements

Date (dd-mm-yyyy)

Please return this form to 63ICCP@fc.up.pt
 All fees must be paid in cash at the meeting upon registration



"A ribeira", Porto view from Douro left margin



Calcareous cliffs of the Sinemurian (Lower Jurassic) at S. Pedro de Moel



Óbidos is located on a hilltop, encircled by a fortified Middle Ages wall



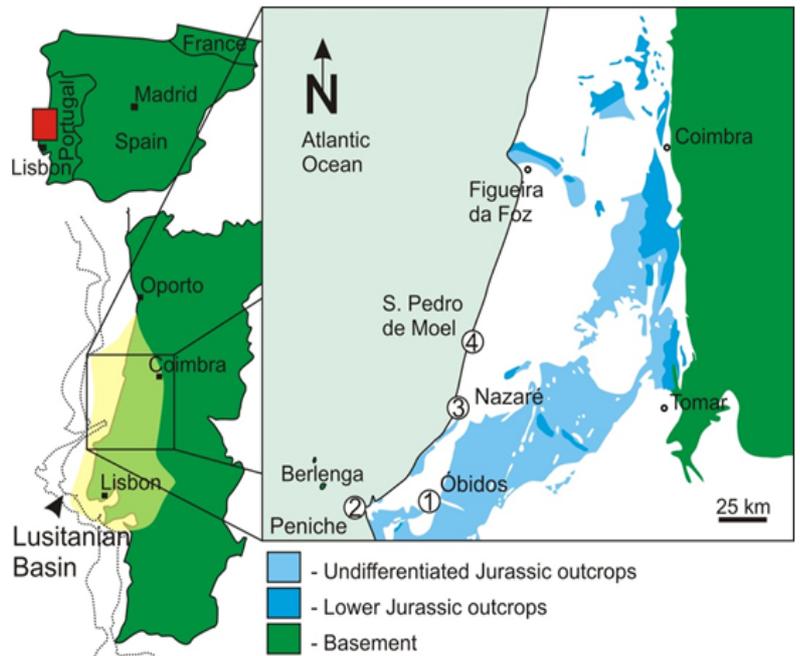
General overview of Nazaré from Sítio



Óbidos remains a well-preserved example of mediaeval architecture



Vale das Fontes Formation, Lower Jurassic, Peniche



Simplified geological map showing Lusitanian Basin Jurassic outcrops and the cartographic distribution of Lower Jurassic carbonate sequences. The numbers 1 to 4 refer to the main stops of the field trip

Membership Matters

please update your contact details

member updates

Please note the new contact details for the following members:

petra.david@wintershall.com

nader_edris@science.helwan.edu.eg

welcome to ICCP

Dr Laura McParland (A 1, 2)

CSIRO Petroleum

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Australia

Ph. +61-2-9490-8645

Mailto:laura.mcparland@csiro.au



Laura completed her Ph.D. on “utilising quantified reflectance values to determine temperature and processes of formation for human produced archaeological charcoal” in early 2010 and has published an number of peer reviewed papers on this topic, both during her studies and subsequently. She has been working with the organic petrology group at the CSIRO since March 2010, mainly carrying out studies on coal characterisation with respect to gas prospectivity, organic petrology related to biochar classification and thermal maturity of petroleum source rocks.

Dr. Ángeles Gómez Borrego

ICCP General Secretary

Instituto Nacional del Carbón, CSIC

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33080 Oviedo

SPAIN

mailto:angeles@incar.csic.es

In Memoriam

Dr. H. B. Lo (Hoom-Bin Lo) passed away on February 9, 2011. Dr Lo was a member of ICCP during the 1990's. He was the very first organic petrographer at Exxon Production Research Company and the first one there to do reflectance on dispersed organic matter for oil and gas exploration research. He made substantial efforts to develop correction factors for vitrinite reflectance in the presence of lamalginite as well as attempting to combine RockEval data with vitrinite reflectance to arrive at correction factors.

A full obituary can be found at <http://obits.dignitymemorial.com/dignity-memorial/obituary.aspx?n=Hoom-Bin-Lo&lc=2673&pid=148521316&mid=4554575>

Russ Dutcher passed away on February 17, 2011. He had a long and distinguished career in coal science. Russ was not a member of ICCP. A memorial can be found in the March 2011 TSOP Newsletter.

ICCP Awards and Calls for Nominations

ICCP offers a number of awards to recognise outstanding achievements in coal and organic petrology at various stages of career development. Awards available and a brief summary are given below. Full details on the nature of the award, its terms and conditions and how to apply can be found on the ICCP home page at <http://www.iccop.org> or by contacting the chair of the award committee (see inside front cover). For details of procedures and nominations, contact:

Dr. Ángeles Gómez Borrego

ICCP General Secretary

Instituto Nacional del Carbón, CSIC

Apartado 73

33080 Oviedo, SPAIN

Ph. +34-98-511 9090 Fax +34-98-529 7662

Email : mailto:angeles@incar.csic.es

Thiessen Medal

This is the highest award offered by ICCP. It recognises a lifetime of achievement and

ICCP Services

outstanding contributions in the fields of coal and organic petrology. The award consists of a bronze medal. The award committee consists of the five most recent medalists. Awards are made from time to time but applications are called for every 2 years.

Nominations called for in 2011 close on May 31st. Until the chair of the committee is decided, nominations should be addressed to the Chair of the Thiessen Medal Committee, Care of ICCP General Secretary.

Organic Petrology Award

The Organic Petrology Award recognises outstanding contributions by coal and organic petrologists at an intermediate stage of their career. It is limited to applicants under 50 years of age. The award consists of a bronze medal and a certificate. Awards are made from time to time but applications are called for every 2 years.

The award committee currently consists of the Thiessen Medal Committee as a transitional arrangement. Eventually, the award committee will consist of the five most recent recipients.

No nominations will be called for in 2011.

ICCP Training Courses

Dear ICCP Member

As you know, ICCP is organizing for 2011 two training courses, one in "Coal Petrology with a Gondwana Flavour" and the other on "Dispersed Organic Matter".

The first will be held in Johannesburg, South Africa (9-13 May) and the second in Porto, Portugal (7-9 September, with post-course excursion prior to the Annual ICCP Meeting).

We would like to inform you that we have still places available and that interested people must contact the Courses' coordinator and Vice-President of the ICCP, Lopo Vasconcelos (lopovasconcelos@gmail.com).

To see details of the two courses and of accommodation, transport etc, please visit the ICCP website at:

Johannesburg

<http://iccop.org/index.php?id=126>

Porto

<http://iccop.org/index.php?id=142>

★ ICCP Reflectance Standard

Check the calibration of your reflectance standard against the ICCP standard!

For more information contact

Dr. Walter Pickel:

Director - Organic Petrology

Coal & Organic Petrology Services Pty Ltd

P.O. Box 174

Sans Souci, NSW 2229

Australia

Ph: +61-2-9524 0403 / Fax +61-2-9526 7083

mailto:walter.pickel@organicpetrology.com

Also available through

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David E. Pearson & Associates Ltd.

4277 Houlihan Place

Victoria, British Columbia V8N

Canada

Ph:+1-250 477 2548 / Fax:+1-250 477 4775

mailto:dpearson@coalpetrography.com

and

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Germany

Ph. +49-2364-6285

mailto:mikro-un@t-online.de

★ Accreditation Programs

- Maceral Group Analysis of Coals
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Phone +30-2610-99 7568
Fax+30-2610-99 1900
mailto:christan@upatras.gr

- Vitrinite Reflectance of Coals
convenor: Dr Kimon Christanis

- Coal Blend Analysis
convenor: Dr Isabel Suárez-Ruiz
Instituto Nacional del Carbón - CSIC
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● **Vitrinite Reflectance of Dispersed Organic Matter**

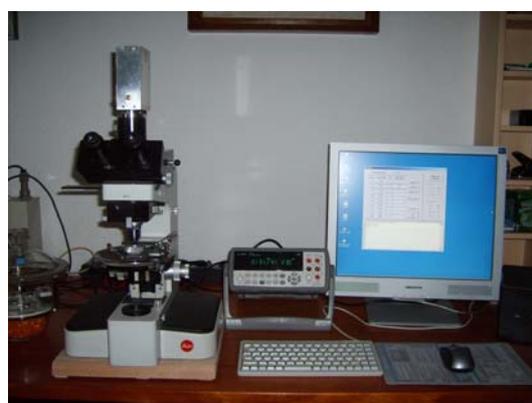
convenor: Dr Alan Cook
7 Dallas St
Keiraville
NSW 2500, AUSTRALIA
Phone +61-2-42 299 843 Fax +61-2 4229 9624
mailto:alanccook@ozemail.com.au

A third option particularly for Europe based countries is now Gerd Bieg (gbieg@t-online.com). All offer free calibration for ICCP members and calibration for a fee for non ICCP members.

Gerd is using a system that comprises a Leitz Orthoplan microscope, fitted with a measuring head containing highly sensitive diodes, a digital voltmeter, computer and a program for the measuring procedure (Fig. 1). It was purpose built by Carl Hilgers. For calibration the standards spinel, sapphire, YAG, GGG, C-Z (Cubic-Zirconia) diamond, are used, all recently re-calibrated with the "ICCP's master standard" YAG of 0.900 % reflectance provided by Walter Pickel.

Amendment to the Reflectance Standard Report of Commission I

Commission I would like to amend the information, reported in the ICCP News vol. 51, p.15 that an ICCP Standard for calibration will be available in Germany. ICCP standards will continue to be available in Australia (Walter Pickel, walter.pickel@organicpetrology.com) and Canada (David Pearson, dpearson@coalpetrography.com).



Final Report on Application of Reflectance for Estimation of Structural Order Working Group (Structural WG) 2002 - 2010

(Presented at the 62nd Meeting of the International Committee for Coal and Organic Petrology (ICCP), 26 September - 2 October 2010, Belgrade, Serbia)

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Introduction

The aim of the activity of Structural WG was to study the possibility of application of various reflectance parameters for the determination of structural order of coal or carbonaceous materials.

Theoretical background consists in foundation that reflectance values of coal or carbonaceous materials correspond with their internal structure. Structural order, in turn, can be well illustrated by the three-dimensional ellipsoid - the Reflectance Indicating Surface (RIS). According to Kilby method, the main axes of the RIS: R_{MAX} , R_{INT} , R_{MIN} could be determined graphically from Kilby's cross-plot, on the base of measurements of apparent R'_{max} and R'_{min} values of non-oriented coal grains

(Kilby, 1988, 1991). In a consequence, more complex reflectance parameters describing internal structure of coal or carbonaceous materials could be calculated (Kilby, 1988, 1991, Duber *et al.*, 2000).

Activities of the Structural WG

Round Robin exercises consisted of the changes of reflectance parameters of high rank meta-anthracite (Svierdlovski, DONBASS, Ukraine) during its thermal treatment from room temperature to 2000°C. Petrographic composition of studied anthracite was: Vitrinite - 94.9 vol. %; Inertinite - vol. 4.9 %; Liptinite - vol. 0%, Mineral Matter - vol. 0.2 % and $R_{max} = 6.79$ %.

SV anthracite ($0.8 < z < 1.2$ mm diameter of grains) was heated in an inert atmosphere (N_2), at atmospheric pressure, with a heating rate of 5°C per minute. In the final temperatures samples were kept for 1 hour and then cooled in inert atmosphere.

Three stages of Round Robin exercise were conducted:

- **I stage** - 2003; involved 4 temperatures (25°C, 450°C, 700°C and 950°C) and 7 participants.
- **II stage** - 2008 and 2010 - involved 3 temperatures (1400°C, 1700°C and 2000°C) and 5 participants.
- **III stage** - 2009 - involved 3 temperatures (1500°C, 1600°C and 1650°C) and 7 participants.

Table 1. Participants of the Structural WG and their contribution

No.	Participant	Analysis
1.	Sławomira Pusz	convener
2.	Diego Alvarez	R'_{max} and R'_{min}
3.	Vivien du Cann	R'_{max} and R'_{min}
4.	Ángeles Gómez-Borrego	R'_{max} and R'_{min}
5.	Wolfgang Kalkreuth	R'_{max} and R'_{min}
6.	Joanna Komorek	R'_{max} and R'_{min}
7.	Jolanta Kus	R'_{max} and R'_{min}
8.	Barbara Kwiecińska	R'_{max} and R'_{min}
9.	Manuela Marques	R'_{max} and R'_{min}
10.	Magdalena Misz	R'_{max} and R'_{min}
11.	Rafa. Morga	R'_{max} and R'_{min}
12.	Sandra Rodrigues	R'_{max} and R'_{min}

13. Isabel Suárez-Ruiz	R'_{max} and R'_{min} , XRD
14. Ignacio Camean	XRD
15. Stanisław Duber	TEM
16. Łukasz Smędowski	TEM

Every participant received 3 to 4 samples in every RR stage and measured apparent maximum (R'_{max}) and minimum (R'_{min}) reflectance values for minimum 200 points per sample.

Several reflectance parameters i.e., RIS axes (R_{MAX} , R_{INT} , R_{MIN}), anisotropy parameters (R_{bi} and R_{am}) and heterogeneity coefficient H_{10} were calculated based on the results of measurements delivered by participants. Next, these reflectance parameters were compared with the results of structural study of the same samples by XRD (made by I. Suárez-Ruiz and I. Camean from INCAR, Spain) and TEM (made by S. Duber and Ł. Smędowski from Silesian University, Poland) methods.

Comparative analyses of the results of maximum and minimum reflectance measurements and calculated reflectance parameters of every participant were made to estimate the precision of measurements and the scatter of calculated parameters and to answer, whether and how the reflectance measurements could be used to evaluation of the structure of coal or carbonaceous material.

Results and discussion

This analysis showed that the measurement data of all stages of RR exercise were scattered, but quite reasonably. Unsigned multiple of the standard deviation (UMSD) values, were mostly below 1.5, which is the threshold established for accreditation (and roughly correspond to the 80% of normal distribution). Signed multiple of the standard deviation (SMSD), showed that the number of positive and negative deviations are quite similar with little predominance of positive ones. The number of UMSD values higher than 1.5 does not increases with the temperature (Fig.1). Thus, it is probably not connected with structural transformation of samples studied. Moreover, most of UMSD > 1.5 seem to be the effects of systematic errors, which could be caused by wrong calibration of the microscope, using not proper reflectance standard, etc.

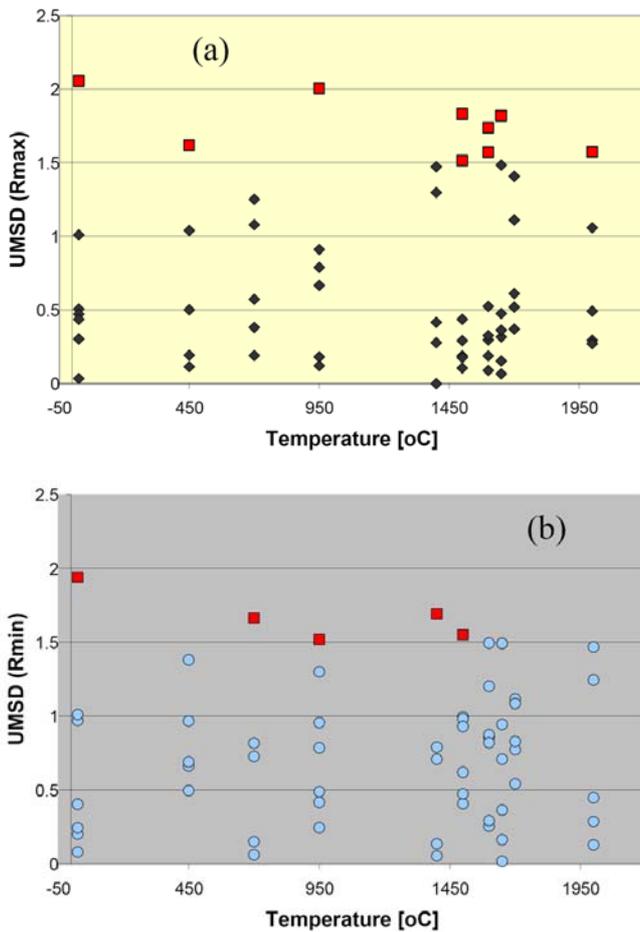


Fig.1 UMSD values of R_{max} (a) and R_{min} (b) measurements. Red square = UMSD > 1.5

Coefficient of variation ($CV = \text{st.dv.} * 100 / \text{mean}$) of R'_{max} and R'_{min} in various temperature of treatment indicates that increasing standard deviation of R'_{max} and R'_{min} is not only attributable to the increase in reflectance values but also to the increase in the heterogeneity of the parameter measured. Hence, the higher the temperature of treatment, the higher the CV values reflected increasing scatter of measurements. This increase is not linear. Between 1400°C to 1700°C, there is a drastic rearrangement in structural order, which only slightly increases the R'_{max} but drastically decreases the R'_{min} parameter. Thus, CV of R'_{max} changes insignificantly, whereas the CV of R'_{min} increases rapidly from 1400°C to 1700°C. The CV increase below 1400°C and above 1700°C is negligible (Tab. 2, Fig.2).

Table 2. Mean R'_{max} and R'_{min} values (%) and coefficient of variation (CV) of R'_{max} and R'_{min} of SV anthracite in various temperature of treatment

Sample	mean R'_{max}	CV (R'_{max})	mean R'_{min}	CV (Rmin)
SVraw	6.90	6.23	4.51	29.86
SV450	6.97	6.99	4.49	30.10
SV700	7.04	5.51	4.71	28.54
SV950	8.65	6.67	5.67	31.11
SV1400	10.46	6.60	6.85	37.11
SV1500	10.22	8.69	6.48	43.11
SV1600	10.32	7.89	6.69	42.97
SV1650	10.34	9.47	6.64	43.64
SV1700	11.88	11.95	1.95	135.59
SV2000	11.87	12.96	2.48	130.36

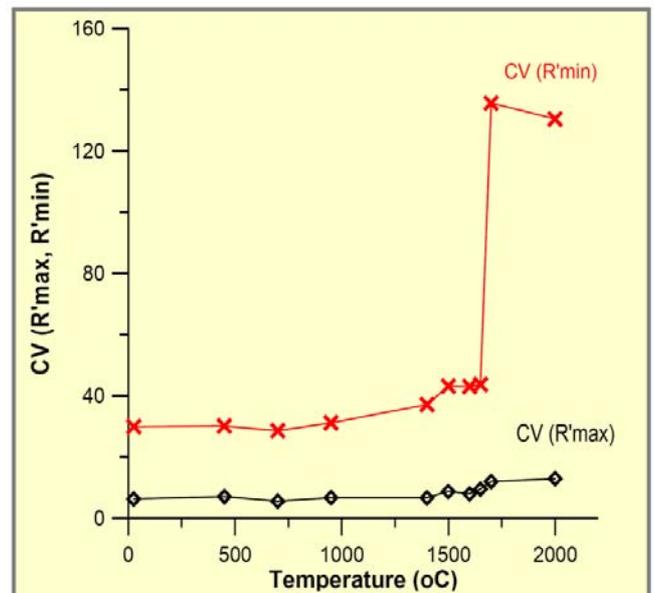


Fig.2 Changes of CV of R'_{max} and R'_{min} values according to the temperature

Parameters calculated on the base of reflectance measurements i.e., RIS axes R_{MAX} and R_{MIN} , anisotropy parameters: R_{bi} and R_{am} and heterogeneity coefficient H_{10} exhibited UMSD values generally below <1.5. The AUMSD (mean unsigned multiple of standard deviation of individual participant) values of calculated parameters of every participant are lower than 1.5 and most of them are below 1.0. The values of calculated parameters change according to the

temperature in different way, which depends on what aspect of the structure they represent. However, the dispersion of the results in individual group is quite stable and increases clearly only in the temperature range 1500-1650°C.

Reflectance parameters used in our work were compared with the results of XRD and TEM studies. Regarding TEM results, they confirmed

qualitatively structural transformations of our anthracite determined by reflectance parameters.

XRD parameters: L_a , L_c and d_{002} changed subtly up to the temperature 1400°C. Then, for the range of temperatures 1500°C - 1650°C they little increased (in case of L_a and L_c parameters) or decreased (in case of d_{002} parameter) and changed rapidly in the temperature 1700°C.

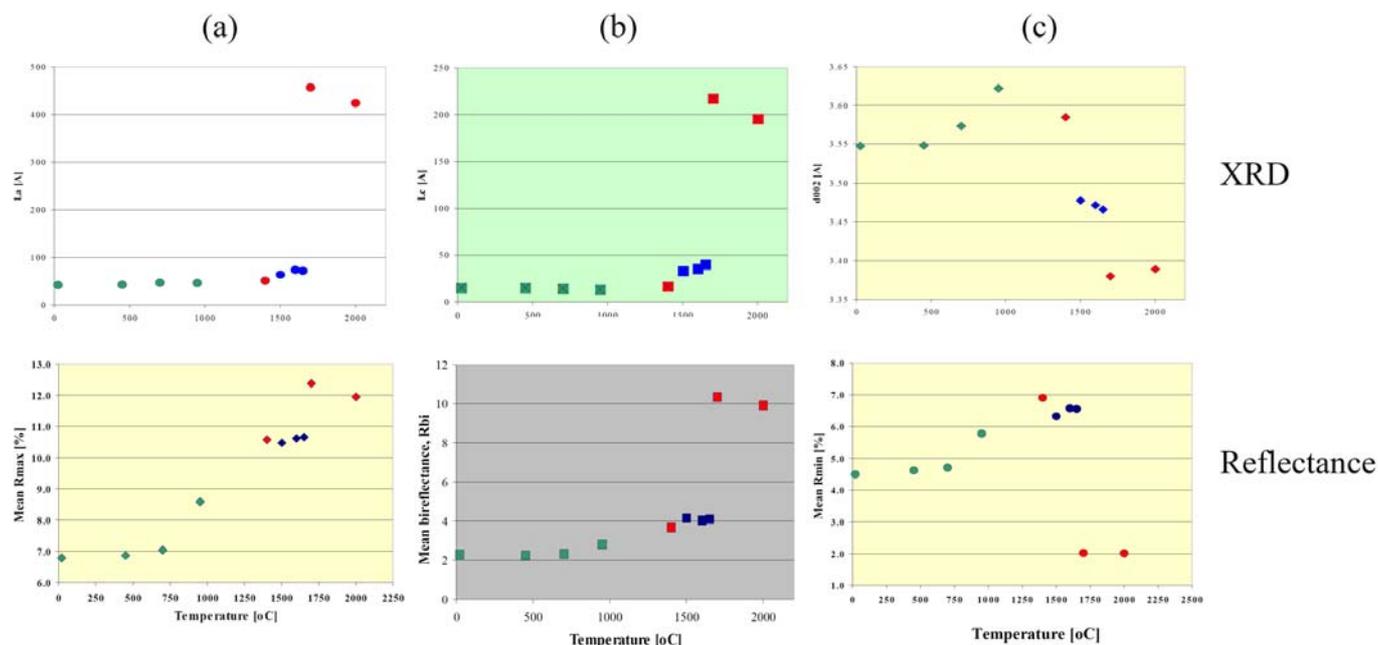


Fig.3 The changes of XRD and reflectance parameters; (a) L_a and R_{max} , (b) L_c and R_{bi} , (c) d_{002} and R_{min} according to the temperatures

The mean R_{max} and maximum RIS axis well correspond to the L_a parameter (Fig.3a). The trends of changes of all these parameters are similar. However, up to the temperature 1650°C, R_{max} and R_{MAX} increase stronger than L_a parameter. This is the effect, from one side, of lateral development of graphene layers (also well reflected by L_a parameter) and, from the other side, of arrangement of small organic layers along the preferential direction. Anisotropy parameters R_{bi} and R_{am} well correlate with L_c parameter (representing the dimensions of stacks of organic layers along Z axis). Their courses of changes look alike, even more than in the case of R_{max} and L_a parameters (Fig.3b). d_{002} parameter corresponded well to mean R_{min} and R_{MIN} . However, in the range of temperatures 1400-1650°C, when d_{002} values decrease significantly, reflectance parameters decrease only slightly (Fig.3c). This discordance

could appear, because d_{002} parameter reflects interlayer spacing in graphene stacks, whereas R_{min} and R_{MIN} express interlayer spacing in stacks, as well as spatial orientation of stacks due to preferential direction. Finally, R_{min} and R_{MIN} decrease distinctly in the moment when interlayer spacing and arrangement of stacks along the preferential planes reach the proper degree.

Hence, it seems, that in some cases reflectance parameters could be more sensitive indicators of structural transformations of coal or carbonaceous materials than XRD parameter, besides, that they give quite different information about the structure.

Heterogeneity coefficient H_{10} does not correlate with any XRD parameters. However, it turned out to be very sensitive indicator showing the changes of structural heterogeneity of coal or carbonaceous samples.

Conclusions

1. Precision of measurements of R'_{\max} and R'_{\min} values is good. The values of UMSD (unsigned multiple standard deviation) are mostly below 1.5 (the threshold established for accreditation and roughly correspond to the 80% of normal distribution) and AUMSD below 1.0. Most of UMSD values above >1.5 seems to be the effect of systematic errors, which could be easier eliminate than random errors.
2. Calculated reflectance parameters: maximum and minimum RIS axes, anisotropy parameters R_{bi} and R_{am} and heterogeneity coefficient H_{10} scatter reasonably. Their UMSD for individual participants are mostly below 1.5. The AUMSD values are lower than 1.5 and most of them are below 1.0.
3. Reflectance parameters studied in our RR exercise well illustrate transformation of the structure of anthracite during heating and the precision of measurements of R'_{\max} and R'_{\min} values is enough to compare the results from various laboratories. However, taking into account that three participants (from 12) achieved worse accuracy of measurements, it is necessary to look more deeply into individual results.

4. Considering few or more samples, these examined reflectance parameters allow to notice the difference between the structures of particular samples. However, on the base of current investigations, it could be difficult to determine the degree of structural ordering of single specimen.

References

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- Kilby, W.E., (1991) Vitrinite reflectance measurement - some technique enhancements and relationships. *Int. J. Coal Geol.* **19**, 201-218.
- Duber, S., Pusz, S., Kwieci.ska, B.K., Rouzaud, J-N., (2000) On the optically biaxial character and heterogeneity of anthracites. *Int. J. Coal Geol.* **44**, 227-250.

**DEADLINE FOR NEXT
ICCP NEWS :
8TH JULY 2011**

The Society for Organic Petrology
28th Annual Meeting
Theme: 21st Century Energy Resources and Petroleum Systems
July 31- August 4 - Halifax, Nova Scotia, Canada



TSOP is an international society for scientists and engineers involved with coal petrology, kerogen petrology, organic chemistry and related disciplines

ANNUAL MEETING ANNOUNCEMENT AND CALL FOR PAPERS

Halifax, Nova Scotia, Canada
World Trade and Convention Center

July 31 - August 4, 2011

Conference Theme:

Energy Resources and Petroleum Systems in the 21st Century

Short Course: Geochemistry, maturation, and petroleum system modelling related to shale gas resource evaluation

Field trip to Joggins Fossil Cliffs and shale gas evaluation in the Elgin and Moncton subbasins

TECHNICAL PROGRAM AND ABSTRACTS, GENERAL INQUIRIES AND REGISTRATION
Prasanta Mukhopadhyay or Mike Avery
muki@global-geoenergy.com mavery@nrcan.gc.ca

ABSTRACT SUBMISSION DEADLINE: APRIL 30, 2011

Meeting and abstract submission details:

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TSOP: www.tsop.org

TSOP student research grant
(deadline May 16, 2010)

Conference Report

National Conference *cum* Workshop
on

Geological and Technological Facets of CBM,
Shale Gas, Energy Resources and CO₂
Sequestration

19-20 November 2010

Department of Applied Geology

Indian School of Mines, Dhanbad-826004, India

CS*E***CS2010**



Two-day National Conference cum Workshop on "Geological and Technological Facets of CBM, Shale Gas, Energy Resources and CO₂ Sequestration (CSECS2010) was convened at Indian School of Mines, Dhanbad during 19-20 November 2010. Thirty nine (39) scientific papers were presented in this National Conference cum Workshop. The major topics of discussion of this conference includes coal bed methane, shale gas, petroleum generation and expulsion, oil and natural gas, petroleum system gas hydrates, underground coal gasification, coal system, carbon dioxide sequestration and other environmental aspects. Honourable Minister of State for Power, Government of India, Sri Bharatsinh Solanki Ji had sent a message and wished grand success for the conference cum workshop.

There was a separate a separate Brainstorming Workshop Discussion Session on Shale Gas. It was pointed out shale gas may be another significant unconventional energy resource to solve energy crisis. Prof. J.Thurow and Dr. B.Thusu from UCL, UK had contributed positively in the discussion on shale gas. The Shale heterogeneity and its bearing on gas potential and the role of technology in shale gas exploration were exemplified by Mr.Rabi Mishra, KDMIPE, ONGC, India and Dr. James Bristow, General Manager, Schlumberger Asia, Mumbai respectively. Prof. Atul K.Varma discussed "Geological and petrographical Investigations for shale gas Exploration - case studies from South Karanpura, Raniganj and Godavari Valley Basins".

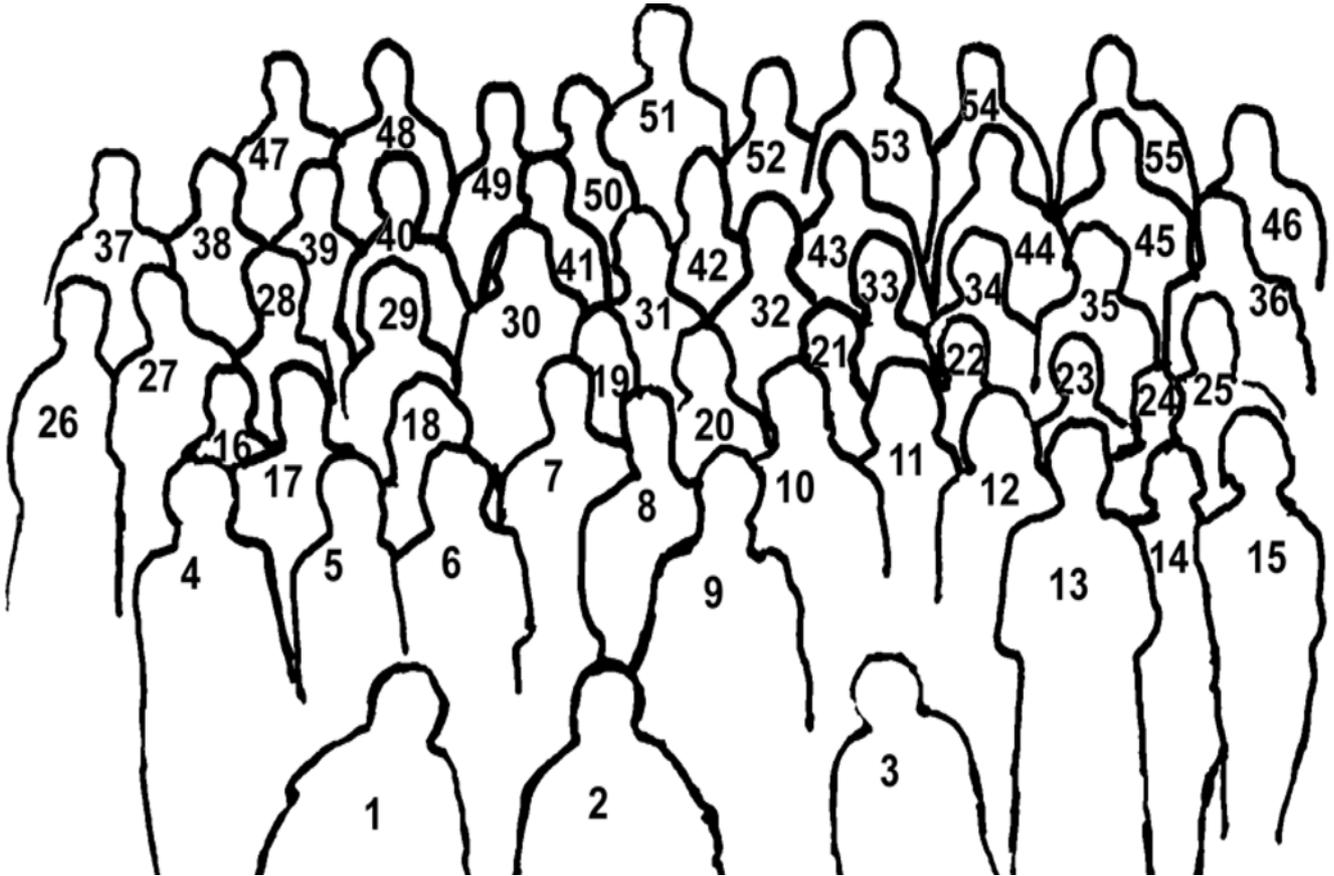
The conference was successful in providing a platform for scientists, academicians, industry

personnel, policy makers, consultants and instrument manufacturers for deliberations on the developments of understanding the geological and technological aspects of CBM, shale gas energy resources and CO₂ sequestration. These discussions may also help in disseminating information for reviewing the fossil fuel and energy policy of the country. The conference cum workshop had fruitful discussions to augment state -of -the-art technology in an assortment of exploration strategies, exploitation and utilization of CBM, shale gas and other energy resources with environmental protection. The Technical Committee has divided this conference in six major broad areas viz. Coal and Coal Bed Methane, Shale Gas, Petroleum and Gas Hydrate Systems, Carbon dioxide sequestration and environmental aspects, Technological Aspects and Miscellaneous aspects.

The organisations participated in this CSECS2010 are Department of Science and Technology (Govt. of India); Ministry of Earth Sciences (Govt. of India); Cairn India; Tata Steel; Oil India Limited; Council of Scientific Industrial Research(CSIR); Geological Survey of India, Kolkatta; Keshava Deva Malaviya Institute of Petroleum Exploration (KDMIPE), Dehradun; Frontier Basins Research; ONGC, Dehradun; Indian Oil Corporation Limited, Mumbai; Bharat Petroleum; Neyveli Lignite Corporation Ltd, Neyveli; Central Institute of Mining and Fuel Research(CIMFR), Dhanbad; Schlumberger Asia Services; National Geophysical Research Institute, Hyderabad; University College London, UK; Reliance India Limited; HLS Asia Limited; IIT Kharagpur; IIT Bombay; IIT Roorkee; Banaras Hindu University, Varanasi; Pandit Deendayal Petroleum University (PDPU), Gandhinagar; Birbal Sahni Institute of Palaeobotany, Lucknow; Birsa Institute of Technology, Sindri; Wadia Institute of Himalayan Geology, Dehradun; Ranchi University, Ranchi; Vinoba Bhave University, Hazaribag; St. Xaviers College, Ranchi; Indian School of Mines, Dhanbad; etc. More than 100 Delegates from India and abroad participated in this conference cum workshop. The Proceeding Volume entitled "Geological and Technological Facets of CBM, Shale Gas, Energy Resources and CO₂ Sequestration (CSECS2010) was published by Allied Publisher, New Delhi and a Souvenir was released.

Prof. Atul K. Varma
Convener, CSECS2010

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WHAT'S HAPPENING

9 - 12 May 2011

World of Coal Ash, Denver, Colorado, USA.

<http://www.worldofcoalah.org/>

July 2011

TSOP Annual Meeting, Halifax, Canada.

<http://www.tsop.org/annmtg.htm>

24 - 29 July 2011

Carbon 2011, Shanghai, China.

<http://www.americancarbonsociety.org/calendar.html>

11-16 September 2011

63rd ICCP Meeting, Porto, Portugal.

<mailto:dflores@fc.up.pt>

9-13 October 2011

International Conference for Coal Science and Technology (ICCS&T) 2011, Oviedo, Spain.
<http://www.iccst.info>

Planned Future ICCP Meetings

2012 Beijing, P.R. China (joint TSOP)
2013 Sosnowiek, Poland
2014 open for applications
2015 Tete, Mozambique

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ICCP / TSOP member - **20€**(including postage)
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★ *International Handbook of Coal Petrography, supplement to the 2nd edition*, second print (in English) 1985 - **24€**

★ *International Handbook of Coal Petrography, 2nd supplement to the 2nd edition* (in English) 1986 - **8€**

★ *International Handbook of Coal Petrography, 3rd supplement to the 2nd edition* (in English) 1993 - **16€**

Prices do not include shipping unless stated or cost of money transfer.

Atlas of Anthropogenic Particles

A digital atlas of anthropogenic particles largely derived from fossil fuel sources. The atlas contains 543 images grouped by source and by site of occurrence. For details, see ICCP News No. 39, November 2006 pp 55 - 56.

Cost: **16€**including postage

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A CD and set of 4 polished grain mounts to be used as training material for learning about the appearance of dispersed vitrinite in rocks and about the measurement of its reflectance. Only a limited number of grain mounts are available. CDs can be purchased separately. For details, see ICCP News No. 39, November 2006 pp 53 - 54.

Cost:

CD + polished sample set **40€**including postage (ICCP / TSOP member)

CD + polished sample set **120€**including postage (non-members)

CD only **16€**

ICCP Training kit for spectral fluorescence measurements in Dispersed Organic Matter

The set contains two polished blocks with samples from Posidonia and Irati shales and the excel sheet with the results of the round robin exercises performed on these samples.

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