

## MINUTES OF COMMISSION I

General Coal and Organic Petrology

72<sup>nd</sup> ICCP Meeting – Prague, Netherlands, 23<sup>rd</sup> September 2021

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### **Opening remarks**

The session of Commission I started at 9:30 on Thursday September 23<sup>rd</sup> and was attended by 40 members (30 on-line and 10 in person). Stavros first congratulated Dragana for her re-election as Secretary of Com I as well as Nils Keno Lünsdorf for standing in the elections, and he further mentioned that it is important that the new generation is willing to be involved in the official affairs of the ICCP. General description of the COMMISSION I and the active Working Groups and an outline of the programme were given by the Chair of Commission. Due to the Covid 19 Pandemia the activities of several WGs were limited and hence only progress within the Single Coal Accreditation Program, ISO standard and Raman Spectroscopy Working Groups, as well as in QUEMSCAN and Distinguishing Features Editorial Groups, will be presented.

### **Temporal Variations in Coal WG – Lopo Vasconcelos**

This WG is not active anymore, but Lopo is constantly updating the database with new data, which now reaches in total 17,256 maceral data entries from 81 countries and territories (23 “Gondwana” and 58 “North Atlantic” countries/territories). ICCP Members are encouraged to use the Database that is loaded on the ICCP webpage (<http://www.iccop.org/workinggroup/temporal-variation-of-coals/>) and/or to add any new data that become available by contacting either Lopo or Com I Chair/Secretary.

Commission’s I sessions included a Microscope Session, as well as presentations of the following WG’s:

- SCAP - Single Coal Accreditation Program,
- ISO Standard,
- Distinguishing Features of Macerals Editorial Group,

- Standardization Working Group,
- QUEMSCAN Editorial Group,
- Raman Spectroscopy WG.

Apologies for not attending were received by Petra David, Peter Crosdale.

### **Single Coal Accreditation Program – Kimon Christanis**

Kimon presented the activities, the results, and challenges of the 2020 SCAP round. The 2020 SCAP exercise was announced in February 2020. The deadline for registration of participants and invoicing was planned for April 30<sup>th</sup>, as well as fee payments and delivery of samples at the end of August 2020. The deadline for result submission was planned for October 14<sup>th</sup> and assessment sheets for the end of December 2020. Unfortunately, due to the conditions caused by the Covid 19 pandemic, many participants could not receive their sample sets on time, although they have been sent registered. Sample sets were sent until November from Greece and Germany. Until closing of the round (February 28<sup>th</sup>, 2021) thirteen participants could not reply in time (four participants had not received the samples, and nine could not have access to laboratories). For these participants only, a supplementary round was organized and the new deadline for result submission was set on 28<sup>th</sup> of September 2021. The participants had to measure the following parameters:

- Vitritinite random reflectance (VR) according to ISO 7404-5, measured on collotelinitite (ICCP, 1998).
- Vitritinite content (VC) according to ISO 7404-3.

In total 105 analysts were initially registered for the 2020 SCAP from 59 laboratories located in 27 countries; 101 analysts corresponded further, from whom 54 were ICCP members. The breakdown in continuation *versus* new entries is 79 to 22, respectively. The geographic distribution of the participants was: America 29% (South America 10%, North America 19%), Oceania 27%, Europe 26%, Asia 15%, and Africa 3%.

Kimon pointed some remarks and asked participants to pay attention during registration, entering data into excel sheet and counting VC. Kimon highly acknowledged the contribution of the following persons: the current chair of the ASC, Magdalena Misz-Kennan for her continuous support and valuable contribution in the exercise; members of ASC Deolinda Flores, Jolanta Kus, Paddy Ranasinghe, Małgorzata Wojtaszek-Kalaitzidi, Stavros Kalaitzidis

and João Graciano Mendonça Filho; the Honorary Treasurer Peter Crosdale for handling the SCAP finances; Jolanta Kus for delivering the samples to America and Africa, Deolinda Flores and Álvaro Figueira for the database; Gisela & Gerd Bieg, Iwona Jelonek for sample supply; all the SCAP participants; MSc students Konstantis Perleros, George Droukas & Apostolos Papanikolopoulos for assistance in preparing the sample sets, sending the samples and the certificates.

Regarding the samples databank, since only bulk samples will be distributed, **members who can supply suitable bulk, single coal samples** (2-3 kg, vitrinite-rich, low ash coal with reflectance between 0.5 to 1.8% R<sub>r</sub>, even higher), **have to contact Kimon: [christan@upatras.gr](mailto:christan@upatras.gr)**.

After short discussion Commission I thanked Kimon and Magda for their great work on the final checks and evaluation of the accreditation data. It was a successful exercise despite the Covid 19 situation.

Commission I thanked Kimon for all his efforts in convening the SCAP.

#### **ISO Standard – Walter Pickel**

Walter Pickel presented the status of the ISO standard WG and some modified texts that will be circulated to the national committees. Walter pointed that Part 1 and 4 of ISO 7407 were updated in 2017-18, while recent modifications were conducted for Parts 2 (Sample Preparation), 3 (Maceral Group Analysis) and 5 (Vitrinite Reflectance) following the technical developments in microscopes. Changes in Part 2 were related to polishing abrasives for the final polishing stage, while in Part 3 changes deal mainly with technical update on the microscopes used. Part 5 is updated with technical characteristics of LEDs as a light source and of high-resolution cameras in addition to photomultiplier.

Commission I thanked Walter for their efforts in discussing the ISO Standard.

#### **Distinguishing Features of Macerals EG – Walter Pickel**

Walter Pickel continued with the progress of the EG on Distinguishing Features and presented the aim and concept of the preliminary work conducted in the WG. The questionnaire sent by Walter will be circulated soon to interested members to collect suggestions, which will be edited and added to a compilation. A draft version will be presented at the next ICCP meeting.

Commission I thanked Walter for his efforts in this Editorial Group.

### **Standardization WG – Walter Pickel**

Walter Pickel showed a short description of the Standardization WG in a chronological order. He pointed out than most working groups run their own round robin exercises and expressed concern for the future of this WG. Aldo, he posted the question if the Standardization WG still should be active, closed or stay dormant until the need for it arises again. Regardless of the answer, Walter plans to summarize all RIC exercises from 1992 till now in one comprehensive summary.

Commission I would like to thank Walter for his presentation.

### **QEMSCAN Editorial Group - Sandra Rodrigues & Joan Esterle**

Sandra Rodrigues presented the status of the draft manuscript: “Quantitative Evaluation of Minerals by Scanning Electron Microscopy (QEMSCAN)” by Sandra Rodrigues, Joan Esterle, Rogério Kwitko-Ribeiro, Leonardo Salazar, and Patricio Jaime. QEMSCAN is a fully automated microanalysis system that allows quantitative chemical analysis of materials and generation of high-resolution mineral maps and images as well as porosity structure. It can be applied in coal studies, particularly for mineral matter. A draft version of the manuscript was sent to late Prof. Colin Ward for review in 2015. During the followed discussion it was proposed and accepted to update the text according to reviewer suggestions and to add description and uses of similar techniques like: Mineral Liberation Analyser (MLA) and Tescan Integrated Mineral Analyses (TIMA).

After short discussion Commission I thanked Sandra and Joan for convening this very interesting EG.

### **Raman Spectroscopy – Nils Keno Lünsdorf**

Nils Keno Lünsdorf presented the activities of the Raman Spectroscopy WG and the results of the first Round-Robin Exercise. After introduction Keno pointed out the importance of applying Raman spectroscopy in Geosciences, but also the absence of standardized procedures for the thermal maturity estimation of organic matter. Eight samples of marls and marly shales of different maturity were distributed to 16 laboratories for Round-Robin exercises. Each laboratory prepared polished blocks from raw material to measure the Raman spectrum of

vitrinite or vitrinite-like particles, as well as kerogen concentrate glass slide according to proposed procedure. Each laboratory should report raw spectral data, reduced data and order of maturity, details on the data reduction, details on the sample preparation and details on the Raman system. Results were sent from six laboratories, while two have not completed the exercise yet. Comparing data between laboratories Keno tried to find the reason for the discrepancy in the results. As possible reasons for the discrepancies Keno concluded to: a) sample heterogeneity, b) insufficient enrichment of  $C_{org}$  in kerogen concentrate after acid treatment, c) fluorescing particles (unsuitable for measurements), and d) intensity correction of spectral data, especially for luminescent samples. According to all relevant data, some suggestions for reduced scatter were proposed by Keno. During the discussion the importance of this work became evident, and several ideas by Bruno, George, Stavros, Paul and Jolanta were proposed to simplify the work, add coal vitrinite-rich samples and to reach more evident conclusions.

Anyone interested in participating in the new exercise may contact Keno ([kluensd@gwdg.de](mailto:kluensd@gwdg.de)).

Commission I would like to thank and congratulates Keno for his dedication conducting the first Raman Spectroscopy round robin exercises and for convening this Working Group. Also, we would like to thank the WG participants for their efforts in exercises.

### **Correlation of MMR and MRR WG - Ashok Singh**

Ashok Singh proposed a new WG under Commission I, dealing with determination of Multiplication factors for evaluating Mean Maximum Reflectance (MMR) value from Mean Random Reflectance (MRR) value of Vitrinite and their correlation. The objective of the proposed WG group would be to evaluate the multiplication factors among MMR and MRR for different rank of coals – ranging from sub-bituminous, high volatile, medium volatile to low volatile bituminous coal. The proposed plan included preparation of coal samples of different rank, from R: 0.40 to 1.80% and distribution to the interested analysts for determination of MMR and MRR values of different rank of coals will evaluate separately in reflectance range. Correlation curves will be plotted for each mentioned reflectance range and multiplication factors will be suggested after statistical analyses. However, after the discussion Ashok will revise the proposal, and will be discussed during the meeting in India.

## **Microscopy session**

During the microscope session on Tuesday 21<sup>st</sup> the participants had the chance to observe lignite and environmental samples and discuss the variability of the particles particularly in the latter ones. Commission I would like to thank Ivana Sýkorová and her team, as well as the Czech Academy of Sciences, Institute of Rock Structure and Mechanics, Prague, for providing an equipment for the Microscope sessions.

## **Closing Remarks**

Stavros Kalaitzidis and Dragana Životić closed the Session of Commission I.

Commission I would like to thank the conveners and all the members and participants of the WGs for their dedication and efforts to the scopes of ICCP.

ICCP Members were also reminded that the following Commission I Services are available for the Organic Petrography Community:

**Single Coal Accreditation Program, SCAP** – Kimon Christanis ([christan@upatras.gr](mailto:christan@upatras.gr)).

**Reflectance Standard Checking:** The service to check standards against the *ICCP Reflectance Standard* continues to be available from Dave Pearson, Walter Pickel and Gerd Bieg (USD 50; and free of charge for ICCP members).

As per final remarks Commission I would like to encourage ICCP members to visit the webpage. A lot of data and information from the WGs has been uploaded <http://www.iccop.org/commissions/commission-i/>. The conveners of the various WGs are encouraged to check and regularly update the web material.

Commission I would like to thank the conveners for their dedication and efforts to run the WGs and encourage ICCP members to participate in Commissions Exercises.

At the end, Commission I would like to thank Ivana Sýkorová and her team and all the participants of the sessions for their active participation resulting in well organised and productive Meeting.