

MINUTES OF COMMISSION I

General Coal and Organic Petrology

74th ICCP and 39th TSOP Meeting – Patras, Greece, 17-24th September 2023

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Secretary: Dragana Životić, dragana.zivotic@rgf.bg.ac.rs

Opening remarks

The sessions of Commission I started at 14:30 on Monday September 18th and was attended by 25 members. The Secretary of Commission gave general description of COMMISSION I with existing Working Groups, active, finalized-inactive, citation of publications under Commission I and outlined the programme for the COMMISSION I. Progress within the Single Coal Accreditation Program, Radiolytic alteration of the organic matter in coal and rocks enriched in radioactive minerals WG, ISO standard, Classification and Terminology of Zooclasts in old sediments WG, Xylite-rich Lithotype Classification and Investigation fluorescing void filling substances WG, were planned to be presented.

Commission's I sessions included a slide show and Microscope Session, as well as presentations of the following WG's:

- SCAP - Single Coal Accreditation Program,
- Radiolytic alteration of the organic matter in coal and rocks enriched in radioactive minerals WG,
- ISO Standard Working Group,
- Investigation fluorescing void filling substances Working Group,
- Classification and Terminology of Zooclasts in old sediments Working Group,
- Xylite-rich Lithotype Classification Working Group.

Apologies for not attending were received by Antonis Bouzinos.

Single Coal Accreditation Program – Kimon Christanis

Kimon Christanis presented first steps, start and development of SCAP, which this year has completed a 30-year-long history. Later, Kimon showed, activities, results, and challenges of the 2022 exercise.

It was during the 1986 ICCP Annual Meeting in Doncaster (UK), when Dr. A. Harold V. Smith proposed starting a coal accreditation exercise. Harold considered two parameters, namely vitrinite random reflectance (VR) and vitrinite content (VC), being mature enough to constitute the basis of an Accreditation Program. The procedure was established during the 1988 Meeting in Aachen (Germany) and the first exercises were conducted by Dr. Reinhold Kutzner in 1993 and 1994. From 1996-2005 the exercises were run by Aivars Depers, whereas since 2005 Kimon became the organizer. In total, 17 exercises have been conducted from 1996 till today (14 regular rounds plus 3 supplementary rounds in 2003, 2008 and 2021). The exercises were performed on 35 different coals from deposits in Australia, Germany, Mozambique, Poland, Venezuela and USA. More details of the historical development of SCAP and other ICCP Accreditation Programs are available on on webpage: <https://www.iccop.org/accreditation/historical-development-of-iccp-accreditation-programs/>.

The 2022 SCAP exercise was announced in March 2022 and participants have electronically registered *via* the ICCP webpage. The dispatch of invoices, samples and instructions has finished in August 2022. As the first sample sets sent to participants in Colombia and Indonesia were not delivered, new sample sets were firstly sent to Joan Esterle and Jolanta Kus, respectively, asking to forward. The exercise was carried out on bulk samples: beginners received six and continuing participants two bulk coal samples. The deadline for result submission was planned for November to December 2022 but extended till January 2023. Around 270 samples were totally dispatched. The participants had to measure the following parameters:

- Vitrinite random reflectance (VR) according to ISO 7404-5 and
- Vitrinite content (VC) according to ISO 7404-3.

For the 2022 SCAP exercise 100 analysts were registered, but only 94 submitted results, from whom 44 were ICCP members, from 69 laboratories located in 25 countries. The breakdown in continuation *versus* new entries is 83% vs. 17%, respectively. The geographic distribution of the participants was as follows: from America 32% (South America 12%, North America 20%), Oceania 25%, Europe 24%, Asia 14%, and Africa 5%.

The organizer of the 2022 SCAP exercise highly acknowledged the contribution of all the members of the Accreditation Sub-Committee, particularly the current chair Magdalena Misch-Kennan, the Honorary Treasurer Joan Esterle, Jolanta Kus and BGR's post office, as well as Joan Esterle, for delivering the samples to Indonesia and Colombia, Deolinda Flores and Álvaro Figueira, for maintaining the database, Małgorzata Wojtaszek-Kalaitzidi for sample supply, postgraduate students Costadis and all the participants. 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_r, even higher), have to contact Kimon: christan@upatras.gr.

The SCAP organizer asked all future participants to: 1) carefully fill in the registration form; 2) write the VC counts, instead of the percentages, in the Excel spreadsheets; 3) pay attention on separating decimal points either with dot or coma, because a mixed use in the same sheet leads the database to confusion; 4) not change the name of the automatically generated excel sheets they receive for reporting the results.

After short discussion Commission I thanked Kimon and Magda for their great work on the organising 2022 SCAP exercise.

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

Radiolytic alteration of the organic matter in coal and rocks enriched in radioactive minerals WG – Tatiana Larikova and Ivana Sýkorová

Tatiana Larikova presented the summarized results of the first Round Robin Exercise of the **Radiolytic alteration of the organic matter WG**, determining the textures of radiolytically altered fossil organic matter, including lignite, bituminous coal, fossil resin, and bitumen, presented on 96 marked areas on 39 images. The aims of the WG are: petrographical identification and definition of microscopical textures of radiolytic alteration of organic matter and determining basic types of the bright aureoles around radioactive minerals: halos, bright zones and others. According to that, the preliminary classification of radiolytically altered textures of organic matter containing 14 proposed levels was suggested. After the evaluation of the first RR exercise, it was concluded that the textures in coal, and fossil resins were identified with less difficulty and more certainty than those in bitumen. Moreover, there were difficulties in the identification the radiolytic alteration in bitumen. The difficulties in identification of textures found in the studied U-bearing bitumen were: 1) variability and great complexity of the altered textures; 2) local mineralization of the altered organic matter; 3) very

subjective point of view on descriptive parameters revealed during the RR WG exercise. Tatiana and Ivana for the next exercise proposed changes in the classification levels, and simplification of description of irregular morphology of radiolytic alteration in bitumen.

During the discussion the participants congratulated the conveners on the results of the first RR exercise, and pointed out that statistical evaluation is very difficult, and number of categories (levels) should be reduced. Therefore, it was suggested that the next 2024 exercise will be concentrated only on coal and shales.

Conveners would like to include the textures from other localities and encourage all participants to provide their examples of the radiolytically altered samples. Members interested in participating in the activities of this WG please contact Tatiana (larikova@irsm.cas.cz) and Ivana (sykorova@irsm.cas.cz).

Commission I thank Tatiana and Ivana for her initiative and efforts in this Working Group.

ISO standard WG – Angeles Borrego

Angeles Borrego gave a historical review of the Methods for the petrographic analysis of coals ISO - **ISO standard WG** and presented conclusions from ISO Meeting 2023 and future activities in revision on Methods for the petrographic analysis of coals ISO - ISO 7404. The revision of the standards was on hold after Walter's passing. A new Chair of the ISO Committee has been appointed, Lauren Williamson and the five related to ICCP standards shall be revised. Angeles pointed out that precision and bias from SCAP and CBAP should be considered in the updates of ISO 7404 – Part 3, and Part 5. The ICCP send feedback on a proposal from Kazakhstan delegation to establish the level of oxidation of a coal using petrographic methods. Rich Pearson also gave brief explanation of revision of ISO 7404 standard. Angeles pointed out that on ICCP Meeting in Oviedo (2024) all the issues related to changes of ISO 7404 standard shall be addressed. During the discussion participants pointed that all new method and equipment should be added in standard.

Commission I would like to thank Angeles for her fantastic efforts in this WG.

Classification and Terminology of Zooclasts in old sediments WG – Thomas Gentzis and Xiaowei Zheng

Thomas Gentzis presented the scope of the **Classification and Terminology of Zooclasts in old sediments WG** and proposing three types of graptolite fractions. He showed

photomicrographs prepared for the next exercise and proposed the future activities within Commission I and the cooperation with the **Reflectance and Terminology of Zooclasts in old sediments WG** within Commission II. The aim of both working groups is to standardize the terminology and the geological application of graptolite reflectance within ICCP. Anyone interested in participating in the new exercise may contact Thomas (thomas.gentzis@corelab.com) and Xiaowei (zhengxiaowei@geo.au.dk).

After a short discussion Commission I thanked Thomas and Xiaowei for their efforts and dedication on this WG.

Xylite-rich Lithotype Classification WG – Ioannis Oikonomopoulos

Ioannis Oikonomopoulos presented the overview of the **Xylite-rich Lithotype Classification WG** exercises with the proposed definitions as well as the problematic issues during last two years. Next steps in the activities of the WG will be discussions on particular definitions between participants and ICCP members; distribution of a map of xylite-dominated deposits in Eastern Europe – Asia, including the age; photomicrographs of woody materials, and a classification to the existing nomenclature should be uploaded to the ICCP database; distribution of photomicrographs and/or actual pellets (to the participants) for macro and micro scale description. Ioannis explained the reasons why the current WG cannot be further coordinated only by him and proposed continuation of WG with Konstantinos Peleros as co-convenor. Konstantinos is a young scientist, member of ICCP and interested in contributing to the WG.

During the discussion participants supported Ioannis proposal. Members interested in participating in the activities of this WG please contact Ioannis (ioikonomopoulos@helpe.gr).

Commission I would like to thank Ioannis for his initiative and efforts in this Working Group.

Proposals for New Working Groups

Investigation of fluorescing void filling substances – Peter Crosdale

Peter Crosdale proposed to establish a new WG to investigate fluorescing void filling substances. He presented some examples and problems and proposed the following program:

- 1) To examine samples in fluorescence and white light mode without oil and take photos of exact spots;
- 2) Extract any bitumen into organic solvent (dichloromethane or other solvents)

for about 3 minutes; 3) Rinse the sample with isopropyl alcohol; 4) Re-examine exact location in fluorescence mode, 5) Re-examine exact location in standard white light mode in oil; 6) Perform SEM examination if possible. Peter could not lead the WG but could supply samples. Anyone interested in participating in the new exercise may contact Peter (peter.crosdale@energyrc.com.au).

After a short discussion Commission I thanks Peter for his efforts in this WG and in general for his dedication to the ICCP tasks.

Microscopy session

The Microscopy Session took place on Friday the 22nd of September. The new semi-automated Hilgers System, the new capabilities of which were demonstrated by Britta Hilgers, was used for the session. The participants had the chance to discuss on the petrographical features of environmental samples presented by George Siavalas, showing fresh plant material, unburnt or thermally affected coal particles, coke and char textures, from fluvial sediments and soils near lignite mines of Greece. Magdalena Zielinska presented coaly layers and shales from the Carpathian Belt, with beautiful liptinites resulting in a vivid discussion between the participants. At the end, Konstantinos Perleros and Stavros Kalaitzidis, presented peat blocks of variable gelification/maturation degrees from a deep Philippi profile, with pre-textinite, epiderminite and other macerals, refreshing our memories on the Peat-Petrography WG nomenclature proposed for the upcoming classification.

Commission I would like to thank Britta Hilgers for her great help sponsoring the microscope facilities, and all participants providing samples and contributing to the fruitful discussions.

Closing Remarks

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

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.

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).

Reflectance Standard Checking: The service to check standards against the *ICCP Reflectance Standard* continues to be available from Richard Pearson (50€ for non-members and free for ICCP members) and from Evelyn Bieg (only 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 convenors of the various WGs are encouraged to check and regularly update the web material.

At the end, Commission I would like to express gratitude to Kimon, Stavros and their team, as well as all participants of the sessions for their active participation resulting in well organised and productive Meeting.

We hope to see you in Oviedo next year.