

27th International Meeting on Organic Geochemistry

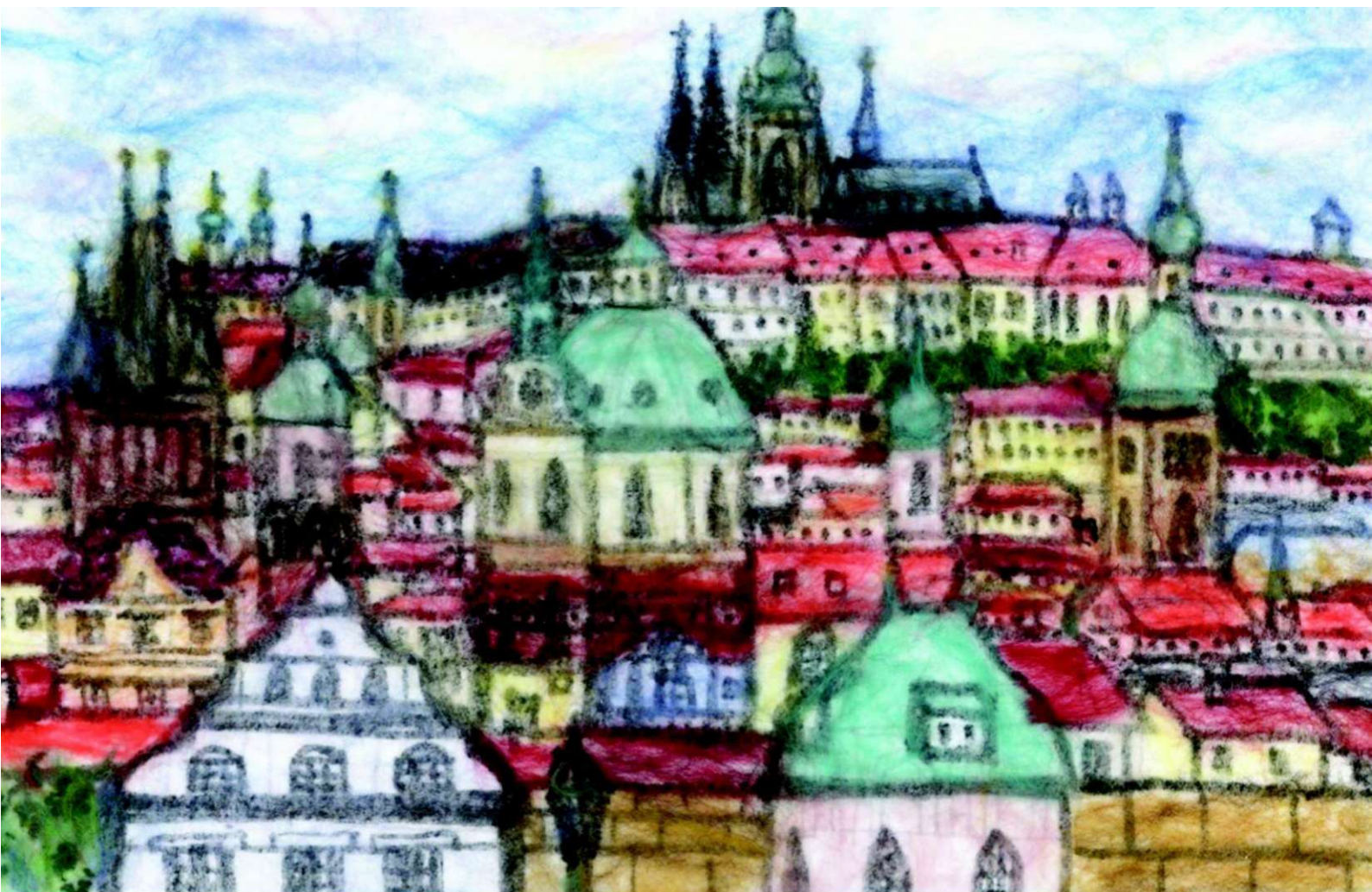


IMOG 2015 Prague

Prague, September 13 - 18, 2015

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Sessions - Orals and Posters

The abstracts are arranged in topical sessions encoded in the following way:

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C - Orals - Biogeochemistry and Paleoenvironment

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D02 - Generation, Expulsion and Migration

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D04 - Gas geochemistry

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E11 - Paleoclimate and Paleoenvironment

E12 - Analytical methods

In each session the abstracts are sorted and numbered alphabetically by the first author.

You may use search tools to find the names and titles of the abstracts.

C29 - H.M. Talbot, J. Bischoff, M.E. Collinson, R.D. Pancost:
Remarkable preservation of polyfunctionalised hopanoids in the Eocene Cobham lignite (UK)

C30 - B.E. van Dongen, R.B. Sparkes, A. Dogrul Selver, J. Bischoff, O. Gustafsson, I.P. Semiletov, J.E. Vonk, R.G.M. Spencer, H.M. Talbot:
Using Microbial Biomarker Signature from Permafrost Environments as Markers for Terrestrial Transport Across the East Siberian Arctic Shelf

C31 - A. Vinçon-Laugier, V. Grossi, M. Pacton, C. Cravo-Laureau:
Influence of growth substrate on the ether lipid composition of mesophilic anaerobic bacteria

C32 - Y. Weber, E. Hopmans, J.S. Sinninghe-Damste, C.J. Schubert, M. Simona, M.F. Lehmann, H. Niemann:
Aquatic in situ production of branched GDGTs in lakes: Water column distribution and stable isotopic composition of novel isomers

D - POSTER SESSIONS - Petroleum Geochemistry

D01 - Poster session - Petroleum systems

D0101 - Tesfamariam B. Abay, Dag A. Karlsen, Jon H. Pedersen, Snorre Olaussen, Kristian Backer-Owe:

Petroleum geochemistry of the Agardhfjellet Formation and the Effect of Weathering on Organic Matter: A comparison of outcrop- and fresh deep core-samples concerning TOC, Rock-Eval, GC-FID and GC-MS data

D0102 - Hussain Akbar, Rita Andriany, Awatif Al-Khamesh:
The mysteries of Triple Source Rock in Kuwait

D0103 - Salem AlAli, Awatif AlKhamiss:
A review of Kuwait's petroleum systems integrating petroleum geochemistry and basin modeling

D0104 - Kauthar M. Al-Hadhrami, Mohammed Al-Ghammari, Cees van der Land, Martin Jones:
Oil Families and their potential sources in the Natih and 'Tuwaiq' petroleum systems of NW Oman

D0105 - Rita Andriany, Awatif Al-Khamiss, Mubarak Al-Hajeri: The viscous oil of the youngest petroleum system in Kuwait - From WHERE?

D0106 - Bahman K. Fatma, Abdullah H. Fowzia, Alimi H.:
Organic Geochemical and Petrographical Study of Lower Cretaceous Makhul Formation Source Rocks in Kuwait

D0108 - Anis Belhaj Mohamed, Moncef Saidi, Mohamed Soussi:
Geochemistry of Paleozoic Source Rocks from the Chotts Basin, Southern Tunisia

D0415 - Qi Wang, Huayao Zou, Fang Hao:

Origin analysis of natural gas in Bohai Sea, Bohai Bay Basin, China: insights from chemical and isotopic compositions

D05 - Poster session - Reservoir geochemistry

D0501 - Beatriz Angulo, Frank Cabrera, Jose Centeno, Ramon Montero, Eyleen Rivero:
Acetate in formation waters at the Southeast of the Maracaibo Basin

D0502 - Barry Bennett:

A geochemical evaluation of the variable oil quality encountered in the Orcutt reservoir, California, USA

D0503 - Chunfang Cai, Lei Xiang, Wenxiang He, Yuyang Yuan, Chunming Zhang:

Origins of the Permian to Triassic solid bitumen in NE Sichuan basin: constraints from aryl isoprenoids and C and S isotopes

D0503b - L. Calderon, E. Mejia-Ospino, R. Cabanzo, M. R Sanchez:

Characterization of the polar fraction of crudes biodegraded from Llanos basin, Colombia by Electro spray Ionization Mass Spectroscopy-Ion Trap (ESI-MS/IT)Bruis

D0504 - Ian Cutler, Kjell Urdal, Bine Nyjordet, Lene-Katrin Austnes:

How reproducible can GC-MS biomarker data be?

D0505 - Ronghui Fang, Meijun Li, T.-G. Wang:

Oil filling pathways in the Tuoputai region of the Tarim Basin, NW China based on the distribution of dibenzothiophenes and benzo[b]naphthothiophenes

D0506 - Maria F. Garcia-Mayoral, Rosario Rodriguez, Jorge Navarro, Alexis Medina, Jorg Grimmer:

Geochemical study of oils and source rocks from an oil field in Llanos Basin, Colombia

D0507 - Hou Dujie, Xu Ting, Xu Huiyuan, Wu Jiang, Xu Fa, Cao Bin, Chen Xiaodong:

The comparison study between coal-derived hydrocarbons with mudstone-derived hydrocarbons in Xihu Depression, East China Sea Shelf basin

D0508 - Malgorzata Kania, Wojciech Bielen, Marek Janiga, Maria Kierat, Irena Matyasik:

Correlation between the lithofacies, amount and molecular composition of gases from the cores degassing process (desorbed and residual gas)

D0509 - Sumei Li, Quan Shi, Alon Amrani, Xiongqi Pang, Baoshou Zhang, Ward Said-Ahmad, Sun Hao:

Distinguish TSR by FT-ICR MS combined with carbon/sulfur isotopic analysis for condensate oils in the Tarim Basin, China

D0510 - Daniel Finken, Ralf Littke, Layth Sahib, Christoph Schuth, Philipp Weniger:

Geochemical characterization of crude oils from Kirkuk and Qaiyarah area, Northern Iraq

D0511 - Wenhui Liu, Guang Hu, Tenger Borjigin, Jie Wang, Xiaomin Xie, Longfei Lu: Hydrocarbon generating organism assemblages and their impacts on the carbon isotopic composition of the Early Paleozoic source rocks in the Tarim basin

D0512 - Raymond Michels, Frederic Lannuzel, Roda Bounaceur, Valerie Burkle-Vitzthum, Paul-Marie Marquaire:

Quantitative modelling of the effects of pressure on hydrocarbon cracking kinetics in experimental and petroleum reservoir conditions

D0513 - Irina Panfilova, Raymond Michels, Roda Bounaceur, Valerie Burkle-Vitzthum, Marion Serres, Jamilyam Ismailova, Paul-Marie Marquaire:

Thermal stability of hydrocarbons in geological reservoir: coupling chemical kinetics and transport in porous media models

D0514 - Nana Mu, Stefanie Poetz, Hans-Martin Schulz:

Organic-inorganic interactions at oil-water transition zones in Tertiary siliciclastic reservoirs (Norwegian continental margin): baseline data for studies along an API gravity gradient

D0515 - Rustam Z Mukhametshin, Svetlana A Punanova:

Non-Conventional Hydrocarbons in the Territories of Tatarstan (ID 494)

D0516 - Jose A. Perez Ortiz, Luis Lopez Lopez, Esaul Gutierrez Mejia:

Influence of water in the kerogen and impact in a hydrocarbon producing basin

D0517 - Mihail Ya. Shpirt, Svetlana A. Punanova:

Radioactive Elements of Solid Fossil Fuels

D0518 - Darwin A. Rakotoalimanana, Françoise Behar, Roda Bounaceur, Paul-Marie

Marquaire: Thermal stability of High Pressure/High Temperature (HP/HT) oils: Pyrolysis of naphthenes

D0519 - Noemi Esquinas, Marcos Escobar, Erika Lorenzo, Gonzalo Marquez, Jose Luis R. Gallego:

Compositional variations in crude oils from the Misoa B6 reservoir in the La Ceiba Field (Trujillo State, Lake Maracaibo Basin, northwestern Venezuela)

D0520 - Binbin Xi, Weijun Shi, Hong Jiang, Jie Wang:

The evidence of CH₄ and H₂S-bearing inclusions for identifying thermochemical sulphate reduction (TSR) in gas filling history of Sichuan Basin, South China

D0521 - Musbah Abduljalil M. Faraj, Tatjana Solevic Knudsen, Hans Peter Nytoft, Branimir Jovancevic:

Organic geochemical characteristics of crude oils from the Intisar oil field (East Sirte Basin, Libya)

D0522 - Tatjana Solevic Knudsen, Hans Peter Nytoft, Ksenija Stojanovic, Dejan Markovic:

Organic geochemistry of crude oils from the Rusanda oil field (SE Pannonian Basin, Serbia)

D0523 - Jhaisson A. Vasquez, Frank C. Cabrera, Beatriz C. Angulo, Ana K. Faraco:

Reservoir Compartmentalization in La Ceiba Oilfield, Western Venezuelan Basin

Non-Conventional Hydrocarbons in the Territories of Tatarstan

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The term *natural bitumen* used in this paper refers to viscous, viscoplastic, and solid bitumens, which cannot be extracted by methods commonly used in oil production. For the most part, this is a disregarded reserve of hydrocarbon resources.

Our studies with the generalization of the results of other works demonstrated (Kayukova et al., 1998; Mukhametshin, Punanova, 2012) that the samples of bitumen from the Permian deposits of the region are the products of the supergene transformation of oils with high sulfur contents (2.8-5.9%) to different degrees with variations in oil, tar, and asphaltene contents from 24.8 to 69.4, from 19.4 to 48, and from 6.0 to 62%, respectively, that is, from superviscous oils to the viscoplastic asphalts of viscosity to 440 Pas or higher and solid asphaltites. Naphthides even within each particular bitumenbearing complex are characterized by various physicochemical properties and component compositions in spite of a comparatively narrow range of depths.

The temperature factor, which is +6-+8°C in the sandstone beds of the Ufa layer plays an important role in the accumulation of naphthides with a specific composition; because of this, the segregation of oil components and the solidification of paraffin in the pore space of collectors were observed.

This phenomenon was supported by the data of a comparative analysis of the properties of petroleum bitumens obtained from boreholes and extracts separated from the reservoir rocks of the Ufa layer: the former were characterized by the predominance of isoprenoid alkanes up to the complete absence of paraffin structures, whereas the latter were characterized by the AI type petroleum containing alkanes and normal and isoprenoid hydrocarbons in oils. According to Ashirov (Ashirov, 1962), a similar phenomenon was also observed in the Sadkinskoe deposit (northeastern board of the Buzuluk depression): E.K. Frolova found the occurrence of paraffin and ozocerite in Lower Permian dolomite cavities. Next, Ashirov noted that the precipitation of paraffin in the Lower Permian deposits is related to the rise of deep oils into the zone of lower temperatures, which caused its crystallization.

In the zone of hypergenesis, not only the physicochemical properties of naphthides and their hydrocarbon composition but also the concentrations of trace elements changed under the action of the above processes. Because of the loss of light fractions, the absolute concentrations of the elements bound to tar-asphaltene components (V, Ni, Co, Mo, Cr, Cu, etc.) in naphthides considerably increased. Furthermore, the heteroatomic tar-asphaltene components of naphthides, which contact with low-mineralized stratal water in the zone of hypergenesis, are capable of sorbing trace elements with variable valence such as V, Fe, and U. Not only an increase in the absolute concentrations of trace elements in naphthides but also a change in the ratio between metal concentrations are the process characteristics of hypergenesis approved with petroleum from the oil fields of many regions. As a result of experimental studies on the interaction of oils with low-mineralized water (Punanova, Chakhmakhev, 1992), the washout of some elements (Zn) from oils and the absorption of other elements by oils as a result of active chemisorption from contacting water were found (the concentrations of newly formed V and Fe increased by a factor of 1.3-12). The V content of oils increased especially intensely in the presence of hydrogen sulfide and elemental sulfur. As a result of these conversions, as a rule, the Zn/Co ratio in hypergenically changed oils considerably decreased, whereas the V/Ni ratio noticeably increased. The V and Ni contents of natural bitumen from Permian layers are very high (Permskie bitumy Tatarii, 1976). The maximum average concentrations of V and Ni were found in bitumens from Lower Permian deposits (V = 910 g/t and Ni = 177 g/t).

Thus, the geological development of particular tectonic elements in the Ural-Volga Region is responsible for the specific mechanisms of oil conversion into natural bitumen, which is reflected in their composition and properties.

References

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