

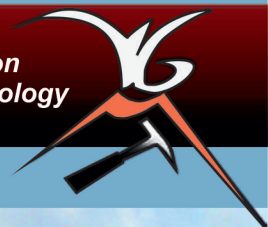
4th International Volcano Geology Workshop



IAVCEI

International Association of Volcanology
and Chemistry of the Earth's Interior

Commission
on Volcano Geology



Eastern Transylvania, Romania

October 8-14, 2017

“Challenges of mapping in poorly-exposed volcanic areas”

A number of questions arise to be addressed during workshop:

- whether, to what extent and how the lithostratigraphic approach is applicable in poorly-exposed and/or extinct/old volcanic areas;
- which kind of map units – petrographic, lithological, facies, etc. – should be defined and used during different stages of mapping activities;
- what is the significance of “formation”, as the basic lithostratigraphic unit, and how can it be objectively defined, recognized and mapped in poorly-exposed volcanic areas;
- whether and how the volcanic facies concept can be involved and integrated with the lithostratigraphic approach in mapping activities in poorly-exposed areas;
- how and to what extent morphological features can be used in defining and separating map units in old volcanic areas still preserving such features;
- whether and how geophysical information can be used and integrated in the definition of map units in poorly-exposed volcanic areas.

LOCAL ORGANIZING COMMITTEE:

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Organisers & Sponsorship



*Institute of Geodynamics
Sabba S. Stefanescu*



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SECOND CIRCULAR

Organization

The Workshop is organized under the auspices of the IAVCEI Commission on Volcano Geology. Other IAVCEI Commissions – Commission of Monogenetic Volcanism and Commission on Volcano Heritage - are also supporting the event.

The local host organizing institution is the “Sabba S. Ștefănescu” Institute of Geodynamics, Romanian Academy, Bucharest.

Sponsorship

- IAVCEI
- SGR (Societatea Geologica a Romaniei)
- SNAM (Societatea Nationala a Apelor Minerale)
- IGR (Geological Institute of Romania)
- Decatlon

Workshop Concept

Geologists in many countries all around the world share the common problem of performing fieldwork and mapping in areas with dense vegetation/soil cover and, implicitly, poor exposure of the bedrocks. Central and Eastern Europe is one of such regions where most volcanic areas coincide with heavily forested mountains. However, geological maps still have to be realized in such conditions.

The main target of our Workshop is to cope with the challenge of mapping in poorly-exposed volcanic areas, to discuss, illustrate and make progress in mapping approaches and methodology. Previous Volcano Geology workshops (i.e. Madeira and Sicily/Aeolian Islands) were held in active/recent volcanic areas, where eruptive products are largely exposed and available to direct visual observation and sampling. The participants learned how the lithostratigraphic concept and methodology can successfully be applied in mapping in those areas. Even so, some aspects of that

approach (the “synthemic/UBU approach”), essentially based on identification, ranking and mapping of discontinuities in the volcanic successions, have been questioned by a few participants. If there is a whole spectrum of exposure conditions – i.e., from almost continuous exposure to almost no exposure – the field conditions met in Central/Eastern European countries – are closer to the no-exposure end-member of that spectrum. It seems inevitable that in such circumstances the lithostratigraphic approach and methodology – successful in well-exposed areas – has to be adapted and/or completed with new perspectives and methodologies. One significant issue, for instance, is the fact that in poorly-exposed areas discontinuities between synthemic units identified in outcrops are absent or, at most, accidental, so their correlation and ranking extremely difficult, hence they cannot be used as objective features to systematize and order lithostratigraphic entities such as synthems, subsynthems, etc. Rather, discontinuities will eventually emerge at the end of the mapping process, as interpreted features, while processing all fieldwork information.

Too, our workshop intends to shift the volcano mapping topic’s target area from active/recent volcanoes to older extinct volcanoes, e.g., of Miocene to Pleistocene age in our case, which still preserve meaningful topographic features to be taken into account while mapping and interpreting fieldwork information.

An alternative or complementary approach in defining map units in volcanic areas is that emerging from the volcanic facies concept which helps systematizing volcanological information in function of dispersal areas of volcanic products with respect to their sources. Defining the spatial position of a certain formation of volcanic rocks or of a volcanic sequence with respect to their source area(s) is a crucial step not only in order to understand volcanic structures/edifices and evolution, but is also extremely useful in mineral exploration and other practical activities.

In the light of the discussion sketched above, a number of questions arise to be addressed during our workshop, such as (but not restricted to):

- whether, to what extent and how the lithostratigraphic approach is applicable in poorly-exposed and/or extinct/old volcanic areas;
- which kind of map units – petrographic, lithological, facies, etc. – should be defined and used during different stages of mapping activities;
- what is the significance of “formation”, as the basic lithostratigraphic unit, and how can it be objectively defined, recognized and mapped in poorly-exposed volcanic areas (for instance, may one define a “formation” based on occurrence in one single outcrop?)
- whether and how the volcanic facies concept can be involved and integrated with the lithostratigraphic approach in mapping activities in poorly-exposed areas;
- how and to what extent morphological features can be used in defining and separating map units in old volcanic areas still preserving such features;
- whether and how geophysical information can be used and integrated in the definition of map units in poorly-exposed volcanic areas.

Workshop format

Following the Sicily/Aeolian Islands 3rd Volcano Geology Workshop as a successful model, we propose our workshop to be a fieldtrip-based one. It will include the following activities:

- one day of presentations consisting of:
 - o presentation of the geology, volcanology, structure and evolution of the Neogene-Quaternary Călimani-Gurghiu-Harghita volcanic range, the actual target area of the workshop, by local volcanologists;
 - o invited/offered talks related to the main topic of the workshop; we expect and strongly encourage colleagues from all around the world having expertise in mapping in poorly-exposed volcanic areas, to offer a talk voluntarily and share their own experience in that matter;
 - o poster session with presentations related to the workshop's main topic, but other volcano geology-related contributions are also welcome;
- 5 days of field-trip activities, dedicated to particular segments of the Neogene Călimani-Gurghiu-Harghita volcanic range, from south to north, from younger to older: Perșani, South Harghita, North Harghita, Gurghiu and Călimani ;
- the workshop will include:
 - o morning to early afternoon visits of outcrops,
 - o late-afternoon early-evening discussions on the topics revealed by the field-trip observations of the day, and
 - o a final discussion related to the IAVCEI Volcano Geology Commission issues and the Commission's future activities.

Participants

Registration deadline finished on May 31, 2017. The number of 40 participants is registered, including the local organizers.

Registration

On-site payment in cash upon arrival will be accepted from people whose attendance was firmly confirmed and documented by flight-ticket payment. In these cases registration without bank-transfer payment is accepted.

The registration fee will include: transfer from the arrival airports to the first-night accommodation place, daily transport during the fieldtrip, accommodation for 6 nights in double or (very limited) single rooms, including breakfast, box-lunches for each fieldtrip day and dinner (excepting the 7th, departure day), including the farewell party, and transfer to the departure airports, as well as

Workshop materials (fieldguide and related items). Accommodation costs before October 8th and after October 13th are not included in the workshop Registration fee.

The amount of the registration fee is subject of early vs. late registration and double/single hotel room occupancy:

Early Registration

- **EUR 380** for double room occupancy
- **EUR 520** for single room occupancy

Late Registration

- **EUR 480** for double room occupancy
- **EUR 620** for single room occupancy.

Discount IAVCEI grants will be offered for a few young students, PhD students and researchers belonging from developing countries. Please note that single occupancy will be guaranteed for only a limited number of participants (most probably less than required).

Cancellation Policy

After 31st of August reimbursement will not be possible in any circumstance, including Force Majeure.

Scientific session

One day (the 4th day) will be dedicated to a Scientific session including:

- Presentation of the geology and volcanology of the Neogene-Quaternary Călimani-Gurghiu-Harghita volcanic range by the Organizers (Ioan Seghedi, Alexandru Szakács)
- Invited keynote lectures (Károly Németh, Tamara Carley, Jan Mrlina)
- Poster session
- Discussions on the major workshop topics and on the subjects of the presented talks and posters

ABSTRACTS

There are a number of 15 accepted abstracts. We hope to publish them in a journal of Geological Institute of Romania, along a Workshop guide.

Venue

There are many flights (including low-cost companies) from various European Airports to Bucharest and to Cluj-Napoca (Transylvania). We recommend arrival to these airports.

The participants arriving by aircraft will be picked up by bus/car from:

- Henry Coandă International Airport Bucharest,
- Avram Iancu International Airport Cluj-Napoca.

Two minibuses will start from the airport in Bucharest and another car from the Cluj-Napoca airport and will take the participants to the first-night accommodation place. The departure from Bucharest will be at 10 o'clock (airport). We expect to arrive around 2 o'clock at Rupea castle, the first point to be visited.

Participants willing to attend by using other transport means – (e.g., cars) – are asked to synchronize their arrival times, if possible.

Weather

Sunshine is quite common at the beginning of October, but the evenings may be cool. It is advisable to be equipped for the short walks and bring a sweater and a raincoat.

Insurance and liability

The Organizing Committee accepts no responsibility and cannot be held liable for accidents, illness, loss of life or loss of property incurred by participants or partners while in transit to and from the Workshop or during the Workshop and their stay in Romania.

Deadlines

We expect details of arrival for all the participants no later than 15th of September.

Workshop schedule

Day 1 (October 8th): Arrival and transfer to Băile Tuşnad (O'Zone Hotel)

- 10.00-AM: Departure from Bucharest (meeting point in the Otopeni Airport);
- 10.00-2.00 PM (4 hours): Travel by bus Bucharest- Braşov-Rupea (ca. 250 km);
- 2.00-3.00 visit of Rupea castle built up on a huge debris-avalanche block, dated at 6.8

Ma and box lunch;

- 3.30-5.00 PM: visiting quarries in the Perşani alkali basaltic monogenetic volcanic field on the Bogata valley;
- 5.00-7.00 PM: Bogata Valley-Băile Tuşnad;
- 7.00-7.30 PM: check in O'Zone Hotel, Băile Tuşnad;
- 8.00-9.00 PM: Welcome speech and dinner (O'Zone Hotel, Băile Tuşnad).

Day 2 (October 9th): field-trip in the South Harghita Mts. visiting Ciomadul volcano and its environs

- 8.00-8.30 AM: breakfast (O'Zone Hotel, Băile Tuşnad);
- 8.30-10.00 AM: introduction to the Călimani-Gurghiu-Harghita volcanic range;
(Conference room in the O'Zone Hotel, Băile Tuşnad);
- 10.00-10.45AM: travel Băile Tuşnad- Ciomadul craters saddle (stop 2.1);
- 10.45-11.00AM: short introduction on Ciomadul volcano;
- 11.00-12.15AM: visit at the N-Mohoş swamp outcrop with explosive products of both Mohoş (phreatomagmatic) and Sf. Ana craters (plinian) (stop 2.2)– 20' + 20' easy walk + 35' site visit and discussions;
- 12.15-1.15 PM: visit the Sf. Ana crater including an easy walk around the crater lake (stop 2.3);
- 1.15-2.00 PM: stop at the Köves Ponk dome viewing point, discussing its age and box lunch (stop 2.4);
- 2.00-3.30 PM: visiting spectacular post-volcanic features at Balványos (stop 2.5);
- 3.30-4.30: travel to, and visiting a road-side outcrop on the way back from Balványos

to Băile Tuşnad (debris flow and pyroclastic flow deposits of Ciomadul volcano (stop 2.6);

- 4.30-6.30 PM: Travel to Băile Homorod via Băile Tuşnad and Miercurea Ciuc (ca. 90 km);

- 6.30-7.00 PM: check in Lobogó Panzió, Băile Homorod;

- 7.30-8.30 PM: dinner.

Day 3 (October 10th): field-trip in the North Harghita Mts. - with focus on Vârghiş volcano – and southern Gurghiu Mts.

- 8.00-8.30 AM: breakfast (Lobogó Panzió, Băile Homorod);

- 8.30-9.45 AM: travel and visit pre-debris-avalanche lavas (ca 5.4 Ma) along the Vârghiş valley at Selters active quarry (partly on poor quality dirty road) (stop 3.1);

- 9.45-10.15: stop at Căpâlniţa viewing point with a panoramic view on the Vârghiş volcano as seen from the SW (stop 3.2);

- 10.15- 11.00 AM: travel Căpâlniţa – Brădeşti - Ivo valley outcrop;

- 11.00-11.30 AM: visit Ivo valley outcrop in block-and-ash-flow deposits of the Vârghiş volcano (stop 3.3);

- 11.30-12.15 AM: travel to the Harghita Mădăraş ski resort area;

- 12.15AM-1.30 PM: panoramic view on the sector-collapse depression of the Vârghiş volcano; outcrop of pre-collapse lavas (stop 3.4); box lunch (alternative);

- 1.30-2.00 PM: travel to the Zetea dam; box lunch (alternative);

- 2.00-2.30: visiting outcrops of debris avalanche deposits at the Zetea dam; walking across the dam with panoramic view on the Southern part of the Gurghiu Mts. (stop 3.5);

- 2.30-3.15 PM: travel to the Liban Pass and visiting a quarry with lavas of the Ostorosş volcano (stop 3.6);

- 3.15- 4.00 PM: travel to and visiting the Chilieni quarry with panoramic view on the northernmost Harghita volcanoes, on the Gheorgheni Basin and on the fold-and thrust belt of the East Carpathians (stop 3.7);

- 4.00-4.20: travel toward Bucin Pass: stop at a point between Joseni and Borzont villages with panoramic view on the Gurghiu Mts. (stop 3.8);
- 4.20-4.50: travel to and visiting a small quarry (before Bucin Pass) in Seaca-Tătarca lavas (stop 3.9);
- 4.50-7.15 PM: travel to Reghin via Bucin Pass, Praid, Sovata;
- 7.15-7.40: check-in Marion hotel in Reghin;
- 8.00-9.00 PM; dinner (Marion hotel, Reghin).

Day 4 (October 11th): Scientific session (Marion hotel, Reghin)

- 8.00-8.30 AM: Breakfast (Marion hotel, Reghin);
- 9.00-10.00 AM: Formal registration of participants;
- 10.00-13.00 AM: Invited talks;
- 1.00-2.00 PM: Lunch;
- 3.00-6.00 PM: Offered talks and Poster session;
- 6.00-7.00 PM: Discussions;
- 7.00-8.00 PM: Dinner.

Day 5 (October 12): field-trip along the Mureș gorges with focus on interfingering volcanoclastic sequences originating from Călimani and Gurghiu volcanic centers

- 7.30-8.00 AM: Breakfast (Marion hotel, Reghin);
- 8.15-9.45 AM: travel From Reghin to the Toplița ski resort area;
- 9.45-10.45 AM: panoramic view on the Călimani Mts. (as seen from the South) and on the northernmost occurrence areas of the Fâncel-Lăpușna (Gurghiu Mts.) volcanoclastic deposits; short explanation of the features seen from the viewing point (stop 5.1);
- 10.45-11.15 AM: Visiting outcrop of Sărmaș basalts in contact with post-debris avalanche Calimani volcanoclastic deposits (stop 5.2);
- 11.15- 12.30 AM: travel to and visiting outcrops of reworked products of the FâncelLăpușna formation (Gurghiu Mts.) near Toplița (stop 5.3);

- 12.30 -12.45 AM: travel to Ciobotani;
- 12.45 AM – 1.15 PM: visit of outcrop exposing debris flow deposits of the Fâncel-Lăpușna formation (Observation: direct access to the outcrop is a bit difficult) (stop 5.4);
- 1.15-2.00 PM: travel to Lunca Bradului bridge (across Mures valley);
- 2.00-2.30 PM: Visiting outcrop of primary Fâncel-Lăpușna block-and-ash-flow deposits at the Lunca Bradului bridge (stop 5.5);
- 2.30-3.30 PM: travel to Sălard (5'), box lunch and viewing outcrops in a thick sequence of Rusca-Tihu basaltic andesite block-and-ash-flow deposits (stop 5.6);
- 3.30- 6.30 PM: travel to the Răstolița dam and visiting a thick sequence of outcropping post-debris-avalanche Rusca-Tihu formation volcanoclastics and lavas (stop 5.7);
- 6.30-7.00 PM: travel to the next outcrop (Răstolița, road branching to Iod);
- 7.00-7.20: short visit of an outcrop with debris avalanche deposit of Rusca-Tihu volcano at Răstolița (Iod road branch) (stop 5.8);
- 7.20-8.00 PM: travel to Reghin;
- 8.30-9.15 PM: dinner (Marion hotel, Reghin).

Day 6 (October 13th): fieldtrip in the Northern Călimani Mts. and Bârgău Mts. area (AM) and final informal discussions (PM)

- 8.00-8.30 AM: Breakfast (Marion hotel, Reghin);
- 8.45-11.00 AM: Travel to Colibița dam via Bistrița-Prundu Bârgăului
- 11.00- 11.45 AM: visiting outcrops of Rusca-Tihu debris avalanche deposits near the Colibița dam (stop 6.1);
- 11.45-12.05 AM: travel to the “great sill” quarry at Colibița;
- 12.05-12.45 AM: visiting the “great sill” at the Colibița quarry (stop 6.2);
- 12.45 AM-1.15 PM: travel to the Mureșenii Bârgăului (village exit) sills on the main Bistrița-Vatra Dornei road;

- 1.15-2.00 PM: visiting roadside outcrops of pre-volcanic sills intruded in flysch deposits; box lunch (stop 6.3);
- 2.00-2.45 PM: travel to Tihuța Pass and viewing the beautiful landscape of the “Subvolcanic zone” of Bârgău and Țibleș Mts.; arrival to the Dracula Castle Hotel;
- 2.45-3.15 PM: check-in Dracula Castle Hotel;
- 4.00- 7.00 PM: informal round-table discussions on the future activities of the IAVCEI Commission on Volcano Geology; proposals for the next VG Workshop;
- 8.00-11.00 PM: farewell dinner with “Dracula show”.

Day 7 (October 14th): Departure

- 7.00-7.30 AM: breakfast (Dracula Castle Hotel)
- 7.30 AM-5.30/6.30 PM: travel to Bucharest Otopeni Airport (ca. 10-11 hours’ drive by bus depending on traffic and weather)
- 8.00-12.00/12.30 AM: travel to Cluj-Napoca Airport (ca. 4-4.5 hours drive by car)

A detailed workshop itinerary on two maps is given. The left map is showing the Geological map of Romania (1:200.000) with a detailed map for the second day (after Szakács et al., 2016) and the right one is a Google map.

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Workshop Website:

<http://www.geodin.ro/4th-international-volcano-geology-workshop/>

Please follow this webpage for workshop information updates.

