

Stratigraphy and Chronology

International Focus Group on Tephrochronology and Volcanism (INTAV)

Project leader: David J. Lowe (School of Science, University of Waikato, New Zealand)

News from INTAV 2018

Author: David J. Lowe¹

¹School of Science, University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand (d.lowe@waikato.ac.nz)

INTAV, the International Focus Group on Tephrochronology and Volcanism, an IFG within the Stratigraphy and Chronology Commission (SACCOM), has been busy. Recent news, events, and other information are provided on our [Facebook site](#) and the [INTAV website](#). We also operate an email service to members through [JSCMail-TEPHRA](#). Please join us to find out what's happening in the world of tephrochronology and to engage with our global tephra community.

Report on INTAV tephra workshop, Portland, USA, 19th August 2017

INTAV ran a workshop entitled "Best practices in tephra collection, analysis, and reporting – leading toward better tephra databases", on Saturday 19 August, 2017, in Portland, Oregon, USA. The one-day workshop followed the IAVCEI conference "Fostering Integrative Studies of Volcanism" in Portland the preceding week.

The workshop, held at the Hilton Hotel in Portland, was directed towards Objective 5, "Databases", of the INTAV project "EXTending TephRAS as a global geoscientific research tool stratigraphically, spatially, analytically, and temporally" (EXTRAS). Objective 5 aims to develop regional and ultimately global databases of high-quality mineral, geochemical, and other data (stratigraphic, chronologic, spatial) for tephra and cryptotephra deposits.

The workshop conveners (who provided most of the notes below) were: Kristi Wallace (U.S. Geological Survey/Alaska Volcano Observatory,

kwallace@usgs.gov), Steve Kuehn (Concord University, sckuehn@concord.edu), Marcus Bursik (University of Buffalo, mib@buffalo.edu), Andrei Kurbatov (University of Maine, akurbatov@maine.edu)

The workshop's central purpose was to continue efforts to bring disparate tephra researchers together, highlight commonalities, and discuss ways to work together, share data and list major research goals that a collaborative system may help to address. The workshop thus deliberately included a broad representation of scientists and students who work with tephra. A total of 50 volcanologists, tephrochronologists, archaeologists, geochronologists, paleoclimatologists, paleoecologists, paleolimnologists, glaciologists, petrologists, Quaternary scientists and data managers attended from 13 countries (Fig. 7). One aspect of the meeting that came across very strongly was the great enthusiasm for tephra studies that was evident from the many Ph.D. (14) and postdoctoral fellows (7) present. All these early career researchers (ECRs), including several from countries with low GDP, were supported at the workshop to some extent by an INQUA grant (SACCOM 1710P) for 'Skills Enhancement' made to INTAV with the help of SACCOM president Mauro Coltorti. Seven ECRs (6 PhD students, 3 female and 3 male, with 2 from low GDP countries; and one postdoctoral fellow) were awarded travel grants (Fig. 8). This enthusiasm and growth was extremely pleasing, and helps meet objective 6, "Capability", of the EXRAS project, namely to foster and support the development of the emerging generation of tephrochronologists.

The workshop ran as a series of invited short talks (around 10 in total) interspersed with discussion sessions throughout the day. The talks are available



Fig. 7. Participants engrossed in the tephra workshop.



Fig. 8. Some of the ECRs funded to help enable their attendance at the workshop. Seven of these grateful people were provided with INTAV travel grants of \$500 USD each.

on the [Vhub website](#). Vhub is an online resource for collaboration in volcanology research (including tephrochronology) and risk mitigation to enable collaboration across geographic and economic boundaries.

All workshop participants reconfirmed a strong commitment toward standardization of tephra field/core data collection, processing, storage and distribution. The community feels that such an interdisciplinary effort will help to advance and to solve future emerging research problems in tephra studies. Although major discussion focused on geochemical analysis, correlation, and data reporting, there was a mutual understanding that other datasets will benefit from improved interdisciplinary compatibility. Best-practice checklists and templates for minimum required data are already being developed.

The need for transparent data access across disciplines is a more complicated issue, one that may require a new generation of computer-based research tools. These tools should be integrated into a more complex system that is designed to assist users with solving problems for the particular research area (domain specific), while allowing data streams and tools to be interconnected into a larger framework that is flexible by design to adapt to emerging interdisciplinary problems.

Some specific anticipated products of the workshop include (1) publication of a consensus paper to draw attention to the demand, and to develop a plan for creating comparable datasets

across disciplines, (2) continuing to develop multiple open access products, for example, best practice checklists, data collection and processing templates with minimum sets of required data, and (3) collation of already built tools/code/software for data processing. Work on these outputs is currently underway.

Future directions

1. Translate checklists into templates – distribute initially by including as supplements to proposed papers.
2. Earthchem and Geochron have templates for different communities that can be adapted – we could work with Earthchem to develop a geochemical template that is specific to tephra.
3. Build on our current collection of known databases.
4. Begin to collate links to analysis tools into one place; work on motivations for linking proximal and distal datasets.

INQUA–INTAV International Field Conference and Workshop on Tephrochronology: Crossing New Frontiers – Tephra Hunt in Transylvania, 24–29 June, 2018.

Planning is well advanced for the inter-INQUA international field conference and workshop on tephrochronology, “Crossing New Frontiers: Tephra Hunt in Transylvania, 24–29 June, 2018”, which is being held at the Resort ‘Cheile Gradistei’ Fundata in the village of Moieciu de Sus in Transylvania, Romania. Easily accessed from Bucharest, and 35 km from the medieval city of Braşov, the venue is just a few kilometres from Bran (Dracula’s) castle, with views over the Bucegi and Piatra Craiului Mountains in the Southern Carpathians (Fig. 9).



Fig. 9. Spectacular landscape and the venue for the tephra meeting of the Resort ‘Cheile Gradistei’ Fundata in the village of Moieciu de Sus in Transylvania, Romania.

The second circular has all the information needed regarding registration, venue, accommodation, travel, programme, social events, and field trips. It is hosted by [Bayreuth University](http://www.bayreuth-university.de). Although abstracts are closed, there is still time to register and participate in this meeting. As at early May, more than 90 participants were registered.

Daniel Veres (Romanian Academy and Babes-Bolyai University, Cluj, Romania), is convening the meeting and is chairing the local organizing committee that includes volcanologists and loess specialists from Romania, Germany, Hungary, and Serbia, along with INTAV’s executive members. For queries about the conference please contact Daniel at dsveres@gmail.com or intavromania2018@gmail.com. For queries regarding the online registration (etc) contact Ulrich Hambach (University of Bayreuth, Germany) at ulrich.hambach@uni-bayreuth.de.

The venue is close to several late Quaternary volcanic centres and the loess fields of the Danube-Black Sea area, where tephra has played an important role in providing a chronology for these sequences (Fig. 10). Interestingly, both the terms ‘rhyolite’ and dacite’ derived from volcanic deposits in this part of Romania and some of the world’s earliest work on loess and paleosols was published in 1726 by Marsigli, an Italian who mapped the Middle-Lower Danube area. Another feature of Transylvania and adjacent areas is the leadership shown in medieval mining technology and early geological exploration.

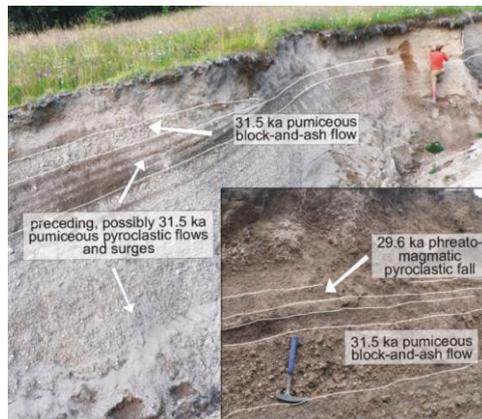


Fig. 10. Tephra deposits from eruptions of Ciomadul volcano during last 31.5 ka, and intervening (now buried) soils (from Karatson et al. 2017).

Programme, field trips

The conference will start on Sunday 24 June (icebreaker) then run from Monday 25 June to Thursday 28 June with a mix of oral and poster papers, keynote presentations, workshops, a public lecture, and social and cultural events. A one-day field trip, “Persani volcanic field”, will take place on Tuesday 26 June, and a three-day post conference field trip, “Late Quaternary Carpathian volcanism and Lower Danube palaeoclimate: implications for establishing an integrated tephrostratigraphic framework”, will run from Friday 29 June to Sunday 1 July, finishing in Bucharest. Costs for all these trips as well as accommodation and registration and so on are very reasonable; students have discounted rates for most events (see second circular).

The general scientific sessions, guided by wide-ranging themes from EXTRAS, are building around the expertise of our invited keynote speakers. These include (but are not limited to):

- Past, present and future directions of classical tephrochronology
- Characterising and correlating tephras: improved and new methods
- The integration of multiple disciplines in discerning climatic impacts of volcanism
- The revolution continues: distal and ultradistal cryptotephra dispersal, deposition, and detection
- The interplay of physical volcanology, tephrochronology, and petrology in understanding volcanoes
- The ‘number’ challenges in tephrochronology and volcanology: age modeling, databases and statistics

Keynote speakers

- John Westgate (tephrochronology, geochemistry) University of Toronto, Canada
- Sabine Wulf (tephrochronology, luminescence dating) University of Portsmouth, UK
- Michael Sigl (sulphate records in ice cores, volcanic impacts on climate) Paul Scherrer Institute, Switzerland
- David Karátson (physical volcanology, remote sensing) Eötvös Lorand University, Hungary
- Caroline Bouvet de la Maisonneuve (volcanology, petrology and tephrochronology) Nanyang Technological University, Earth Observatory of Singapore
- Maarten Blaauw (radiocarbon, age-modelling) Queen’s University Belfast, N. Ireland, UK
- Vera Ponomareva (volcanology, tephrochronology) Institute of Volcanology and Seismology, Petropavlovsk-Kamchatsky, Russia

Acknowledgements

INQUA and SACCOM president Mauro Coltorti are gratefully thanked for a grant of €4600 (1710P) to INTAV, announced in late March. It has been used to support ~20 ECRs and students to attend the conference. The LOC and the INTAV executive acknowledge and appreciate administrative and logistical support from the Romanian Academy – Cluj-Napoca Branch, Institute of Speleology, Romanian Academy, and BayCEER, University of Bayreuth, Germany. Additional financial support has been kindly provided by Babes-Bolyai University, Cluj-Napoca, Romania, through the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme ERC-2015-STG (grant agreement No [678106]; PI: A. Timar-Gabor) and Department of Physical Geography, Eötvös Lorand University, Budapest, Hungary (PI: D. Karátson).

Reference

Karatson, D., Veres, D., Wulf, S., Gertisser, R., Magyari, E., Bormann, M. 2017. The youngest volcanic eruptions in east-central Europe – new finds from the Ciomadul lava dome complex, East Carpathians, Romania. *Geology Today* 33, 62–67.

LoessFest2018

23 – 29 September 2018

Volgograd, Russia

The conference is jointly organised by the INQUA Loess Focus Group and Ponto-Caspian Stratigraphy and Geochronology Focus Group. The aim is to bring the international communities together to solve a number of contentious issues involving stratigraphy, geochronology, geological history, archaeology, and climate change in loess regions. Loessfest2018 will also focus on the observation of geological characteristics of Quaternary sections in Lower Volga valley, describing the eventful palaeogeographical history of the region and loess-paleosol formation in an area under an active transgressive-regressive regime of the Caspian Sea and fluctuations of Volga River.

Registration deadline: 31 May
Financial support deadline: 30 June
www.loessfest2018.ru