DEPARTMENT FÜR GEO- UND UMWELTWISSENSCHAFTEN
EARTH AND ENVIRONMENTAL SCIENCES
LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN
Direktor
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Prof. Setsuya Nakada, Chair

IAVCEI Nominations Committee

12 January 2019

Re: IAVCEI Presidential Election 2019

Dear Prof. Nakada, dear members of the IAVCEI nominations committee:

I herewith nominate Prof. Michael BURTON as a candidate for the 2019 IAVCEI Presidential election.

I nominate Mike Burton for a number of reasons which I believe pertinent to a highly efficient and effective leadership of IAVCEI in the coming 4 years.

I have four grounds for recommending Mike Burton.

Firstly, Mike Burton is a scholar of the first order in volcanology and the fields surrounding and adjacent to it. His academic record speaks for itself and his scientific output, both in terms of quality and quantity leaves nothing to be desired. He is for his generation one of the world´s most accomplished volcanologists and he is on a clear trajectory to remain so as he navigates the career stage of senior scientist. His receipt of the highly prestigious ERC Grant is a further testimony to his reputation.

Secondly, Mike Burton is one of the most well-known volcanologists of his generation and enjoys a worldwide reputation in the field of geochemical monitoring. This recognition is reflected in the fact that he holds the full

professorship as Chair of Volcanology at the University of Manchester. This is one of the few chairs of volcanology in the UK, a country with tremendous academic output and standing and one which has contributed to volcanology very substantially in the past 25 years.

Thirdly, Mike Burton has served for many years as the President of the Division of Geochemistry, Mineralogy, Petrology and **Volcanology** of the European Geosciences Union. When I created that division at the birth of the EGU, I knew that leading such a division would always require a very broad view of what are considerable ranges of approach involved in those disciplines. Mike Burton has lived up to be an extraordinary leader of the GMPV division of the EGU. He has served the community with relentless energy and with great tolerance for the opinions and priorities of others. He has demonstrated clearly that he has what it takes to handle an international and multidisciplinary group of scientists to their mutual benefit, time and time again.

Fourthly, I know from several conversations with Mike Burton that he has thought his candidacy through and through. He is brimming with ideas to implement in IAVCEI. He brings experience from academia, from civil protection, from volcano monitoring and from science politics together in a way which is rare for someone of his youth.

Finally, the personality and communications skills of Mike Burton are also extraordinary. He will make a tremendous representative of IAVCEI, speaking on behalf of all of us in an engaging and convincing way.

I hope to have convinced you of my enthusiasm for a candidacy of Mike Burton and ask the Nominations committee to let him stand for election as **President of the International Association of Volcanology and Chemistry of the Earth´s Interior**.

Included with this nomination package are all of the necessary documents including:

1) a letter of nomination from the principal nominator, clearly stating the nominating position.
2) a short statement of acceptance from the candidate
3) a short resume outlining the candidate's position, research interests, and activities related to IAVCEI
4) one-page curriculum vitae of the candidate including key research publications
5) letters of support from three seconders (F. Sigmundsson; B. Houghton; P. Papale)

Yours sincerely,

Prof. Dr. Dr. (h c mult) Donald Bruce Dingwell MAE FRSC BVK ACATECH ML FAAAS

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Canada First Research Excellence Fund Selection Board

American Geophysical Union Development Board

Member - European Academies Scientific Advisory Council (EASAC)

Vice-President
Academia Europaea

3rd Secretary General
European Research Council (ERC)

Past-President
European Geosciences Union (EGU)

ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA

Pisa, 11 January 2019

Letter of support for the nomination of Prof. Mike Burton as President of IAVCEI

With this letter I want to support the candidature of Prof. Mike Burton as the next President of IAVCEI. I know Mike since when he joined INGV nearly 20 years ago, and have been witnessing his impressive growth both as a scientist and as a coordinator of science. I introduced him into the European Geosciences Union by offering him the position of Secretary of Volcanology, at the time when I was President of the GMPV Division; and he was so dedicated and brilliant to become himself GMPV President a few years later, a role that he still plays with full success. That involves important and delicate issues inside the EGU Council, which manages a union with >10,000 members, millions of euros financial breakdown, a yearly General Assembly with >13,000 participants, a top level international publishing activity in science, and a rich variety of additional activities in support of science. There is no doubt that such a demanding role contributed to create and reinforce the skills needed for running an important association like IAVCEI. In addition, the EGU/GMPV community largely overlaps with the one under IAVCEI, therefore, Mike's leading role and capabilities in organizing and managing an international organization of volcano scientists are already known to and recognized by the IAVCEI community.

Mike spent 15 years at INGV, a number of which at the Etnean Observatory in Catania where he was responsible of gas geochemistry monitoring and modeling. In that role, he continuously interacted with various multidisciplinary groups of scientists in order to draw consistent pictures of the volcano status and its potential evolution. That provided him with vast knowledge and understanding of the many different and complementary disciplines involved in volcano science, and with full appreciation of the social relevance of volcanology. Continuous interaction with Civil Protection officials during frequent volcanic crises largely introduced him to the many issues related to communication between scientists and institutions as well as the civil society, and more generally, to the issues related to the public role of scientists, a theme that is constantly increasing in relevance both at IAVCEI meetings and within the work of the IAVCEI Commissions.

As a scientist, Mike has been extremely active and successful. His interests started from the geochemistry of volcanic gases to expand towards the dynamics of magma ascent and eruption, particularly during his years at INGV in Pisa and continuing with his current professorship in Manchester. He has conducted research on volcanoes in Italy, Iceland, Chile, Indonesia, Central America, Africa, islands in the Pacific and Indian Oceans, etc., and has developed new methods and new instrumentation to solve specific problems in volcano monitoring and in the analysis of the volcanic products. Mike's success is further testified by a prestigious EU-ERC Consolidator Grant to study the global carbon dioxide cycle. His publication record is simply exceptional for a scientist of his age.

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In summary, Mike is part of the restricted pool of scientists who combine exceptional science with strong coordination and managing skills. He has demonstrated solid commitment and optimum abilities whenever involved in responsibility roles, as well as a clear attitude to interact friendly and openly at any level. I know him as a person who listens to others and thinks carefully before making decisions. Definitely, I can hardly think of a better candidate for IAVCEI President, and I expect that with Mike's guide and leadership IAVCEI will experiment further growth and recognition as the international home for volcano science and volcano scientists.

Sincerely

Paolo Papale

Paolo Papale
Director of Research

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norden
Nordic Volcanological Center

UNIVERSITY OF ICELAND

Reykjavik, Iceland, 14 January 2019

From: Freysteinn Sigmundsson
Nordic Volcanological Center, Institute of Earth Sciences, University of Iceland.
Email: fs@hi.is

To: IAVCEI

Re: Nomination of Mike Burton as a candidate for IAVCEI president

It is a pleasure to write a letter in support of Mike Burton's nomination as a candidate for IAVCEI president. Mike is an *outstanding* candidate for this post, given his excellence in volcano science, leadership skills, and previous positions of trust in international organizations

As a researcher, Mike has made very important contributions, in particular in the field of volcano gas chemistry. He has proven successful in developing new important ideas and concepts, witnessed e.g. by successful ERC grants. His scientific work has been absolutely superb and represents a true dedication to the field of volcanology. Insights gained from his research continue to inspire.

Few years ago Mike moved to a new position at University of Manchester. This move and his build-up of an important and highly active research team there in a short time as a good testimony of his leadership skills.

Mike has already been unselfish in contributing the volcanological community by serving in positions of trust, including being the president of the Geochemistry, Mineralogy, Petrology and Volcanology Division of the European Geosciences Union from 2015 to 2019 and his associated serving on the EGU Council. Through that work he has been exposed to all the different aspects to volcanology, as well as strategic work in an internal geoscience body, experience I consider really important. During recent years volcanology within EGU and at EGU Vienna meetings have continued to grow, embracing all the different aspects of volcanology.

Volcanology is steadily evolving field, with advanced technology becoming more and more important for various observations in volcanology, spanning precise measurements both on the scale of individual atoms through satellite monitoring of the whole Earth. Mike has been involved in studies using a breath of techniques to improve our understanding of volcanoes. Therefore I feel he has research experience to understand well the importance of different types of research in volcanology, and is likely to serve all the broad IAVCEI community well.

Through his expertise and previous work, Mike is there very likely to have a good sense of what is important for the volcanological community in coming years, and for understanding the present challenges volcanology is facing. Therefore, *Mike Burton is exceptionally well qualified to become the next IAVCEI president.*

Sincerely yours,

Freysteinn Sigmundsson

Dr. Freysteinn Sigmundsson
Research Professor
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9 January 2019

The Chair,
IAVCEI 2019 Election Committee

Letter of Support: Mike Burton

Dear Professor Nakada

I am delighted to write this letter of support for the nomination of Mike Burton to the position of IAVCEI President. I have known Mike for much of his career, in the field, at workshops and meetings, but have not published research with him. Below I address his qualifications for the post under four headings:

1) An influential, fair and balanced leader

Mike has an outstanding reputation for balance and fairness in his professional life. He has worked extensively in large multidisciplinary, international research teams, increasingly playing the leadership role. He instinctively looks for solutions that are based on consensus rather than confrontation. For this reason he is an outstanding choice to lead, moderate, and coordinate our association.

2) A truly outstanding researcher

Michael has the highest possible academic standing. His 5100 citations and H-index of 41 are exceptional amongst his age-group peers. He plays key roles in a large and highly interdisciplinary school with strong ties to cutting-edge observatories, and guides and mentors a significant number of early- and mid-career colleagues and students.

Importantly, he also represents a key sub-disciplines, magmatic volatiles, which has been arguably under-served in the leadership of the association in the past.

3) A powerful practical vision for IAVCEI

A major focus of Mike's vision for IAVCEI is building the link between academia and observatory scientists. He is ideally positioned for this role in that his career has divided neatly between a long period spent as an observatory researcher with INGV, and his current post as professor of volcanology at a category 1 research university. One focused pragmatic path to this

objective is his outline for the observatory fellowship exchanges between academia and observatories.

Mike also places a strong emphasis on *Cities on Volcanoes* as a flagship for IAVCEI, which I find very fitting.

4) Significance experience in the funding and operation of our science

The two terms spent as the President of the Geochemistry, Mineralogy, Petrology and Volcanology Division of the European Geosciences Union are an ideal background for someone taking on the leadership of IAVCEI. Mike has also played the role of science advisor for wo governments (UK and Italy) gives him a broad understanding of the volcanological community cross much of our constituency. Through administering his large EC grant is also familiar with working across complex fiscal systems.

Yours sincerely,

Bruce Houghton, Thorarinsson Medalist, FRSNZ
Gordon A. Macdonald Professor of Volcanology

Resume of Mike Burton

Chair in Volcanology, School of Earth and Environmental Science, University of Manchester, UK

Candidate's Position

I am Chair in Volcanology at the University of Manchester, UK, a position I've held since March 2015. Previously I was Senior Researcher at INGV Pisa, Italy (2008-2015) and INGV Catania, Italy (2003-2008). My current roles include Head of Geoscience Research Group, where I coordinate 15 permanent academics and help define and build the strategic strengths of our School. This has been successful, and we are hiring two new ECR academics in the coming months in the areas of Petrology and Volcanology. This will help to further establish Manchester as one of the leading Petrology/Volcanology groups in the UK.

I lead a major £3.5m UK NERC-funded research project called DisEqm (2016-2021) focussed on quantifying the kinetics of crystallisation in basaltic melts using HPHT x-ray tomography and state of the art numerical modelling the dynamics of basaltic magmas. I belong to the EUROVOLC EU H2020 project which aims to transfer scientific advances to the volcano observatory context and vice versa. We have recently been awarded further NERC funding to exploit TROPOMI satellite data to study explosive volcanism and its impacts. My directly funded research team consists of one senior research fellow, three PDRAs and five PhD students, working on Plinian basaltic eruptions, lunar volatiles, ground-based remote sensing of volcanic gases and satellite retrievals of SO_2 flux time series. I maintain very close links with INGV Pisa and INGV Catania and PhD students are co-supervised with scientists from both offices. I also maintain close collaborations with volcano observatories on Montserrat and Reunion and the Japanese volcanic gas monitoring community.

As President of the Geochemistry, Mineralogy, Petrology and Volcanology Division of the European Geosciences Union (2015-2019) I serve on EGU Council, making strategic policy decisions to ensure the long-term future of EGU members and the Union, and organise the scientific officer and ECS teams for the division, where we run a blog. One of the key activities is coordinating the program of the EGU General Assembly, where GMPV division handles more than 700 abstracts, making it about 60% of the size of the IAVCEI Scientific Assembly.

I sit on the Volcanology Scientific Advisory Committee (SAC) for the UK Foreign Office, where the SAC's primary activity is the assessment of the state of Soufriere Hills Volcano, Montserrat, and assessment of the performance of the Montserrat Volcano Observatory.

I'm involved in review of projects for NERC and STFC in UK, ERC, Singapore Research Agency, ANR France, German Research Agency, and NSF in USA, as well as scientific reviews in journals Nature, EPSL, JVGR etc.

Research Interests

My fundamental research focus is measuring and interpreting magmatic degassing, but as this is the result of processes starting with mantle melting all the way through to the surface, I study geochemistry, petrology and rock mechanics as well, all with a view to unravelling the processes controlling degassing. This work includes assessment of global volcanic degassing, particularly CO2 and CO2, and their climate implications. I am heavily involved in the development of new gas monitoring techniques, and work closely with volcano observatories with a view to refining the techniques to maximise their utility for volcano monitoring. My work with EGU and in my highly interdisciplinary School, means I work with a very broad range of scientific disciplines.

Curriculum Vitae

Professor Mike Burton, Chair in Volcanology

School of Earth and Environmental Sciences, The University of Manchester

Appointments

March 2015-present	Chair in Volcanology at the School of Earth and Environmental Sciences, University of Manchester
October 2008-March 2015	Permanent senior researcher with INGV-Pisa, Italy;
2002-October 2008	Permanent senior researcher with INGV-Catania, Italy;
2000-2002	Researcher with INGV-Catania, Italy.
1998-2000	PDRA in the Dept. of Geography, University of Cambridge.

Academic Qualifications

1999	PhD in Atmospheric Chemistry, University of Cambridge
1993	BSc Chemical Physics, 2i, University of Sussex

Current Role: As a senior member of faculty in the School of Earth and Environment at the University of Manchester I lead the Geoscience Group of 15 permanent academic staff, in addition to leading my own research team of 3 PDRAs, 5 PhDs, 1 senior research fellow. Key elements of this leadership role include maximising opportunities for REF outputs, to maintain and improve REF performance, and to encourage and stimulate research proposal submission and success. I serve in the School Senior Leadership Team, defining School strategies and objectives. Recognised as University of Manchester Researcher of the Year, 2017.

Publications to November 2018: 95 ISI papers, 4 book chapters. Google Scholar: h-factor:41, citations: 5063. https://scholar.google.co.uk/citations?user=t2hw7E4AAAAJ&hl=en

Key Publications:

Burton, M., Allard, P., Mure, F. and La Spina, A., 2007. Magmatic gas composition reveals the source depth of slug-driven Strombolian explosive activity. Science, 317(5835): 227-230.

Burton, M.R., Mader, H.M. and Polacci, M., 2007. The role of gas percolation in quiescent degassing of persistently active basaltic volcanoes. EPSL, 264(1-2): 46-60.

Burton, M.R., Prata, F. and Platt, U., 2015. Volcanological applications of SO2 cameras. JVGR, 300: 2-6.

La Spina, G., Burton, M., Vitturi, M.D. and Arzilli, F., 2016. Role of syn-eruptive plagioclase disequilibrium crystallization in basaltic magma ascent dynamics. Nature Communications, 7.

Pardini, F., Burton, M., Arzilli, F., La Spina, G. and Polacci, M., 2018. SO2 emissions, plume heights and magmatic processes inferred from satellite data: The 2015 Calbuco eruptions. JVGR, 361: 12-24.

Queisser, M., Burton, M., Allan, G.R. and Chiarugi, A., 2017. Portable laser spectrometer for airborne and ground-based remote sensing of geological CO2. Opt. Letts, 42(14): 2782-2785.

Polacci, M., Arzilli, F., La Spina, G., Le Gall, N., Cai, B., Hartley, M.E., Di Genova, D., Vo, N.T., Nonni, S., Atwood, R.C., Llewellin, E.W., Lee, P.D. and Burton, M.R., 2018. Crystallisation in basaltic magmas revealed via in situ 4D synchrotron X-ray microtomography. Scientific Reports, 8.

Previous and current research grants:

2019-2023	V-PLUS NERC project, TROPOMI data analysis, **£500k**
2018-2021	EUROVOLC Project, Horizon 2020, **150 keuro**
2017-2018	ERC Proof of Concept grant CarbSens **150 keuro**
2016-2021	NERC Project DisEqm, PI, **£3.5M**
2012-2018	ERC project 'Quantifying the global volcanic CO2 cycle', PI, size € 1.72M **£1.45M**

International research coordination roles

President of the Geochemistry, Mineralogy, Petrology and Volcanology division of the European Geosciences Union from 2014, responsible for coordination of approximately 1000 abstracts in 25 sessions, leadership of the GMPV science officer team and participation on the EGU Council, which makes policy decisions affecting EGU's future.

I am honoured to be nominated for the role of President of IAVCEI and humbly accept the nomination. I sincerely thank Don Dingwell for the nomination and his outstanding work for IAVCEI over the previous years, particularly in providing a solid financial and structural foundation for IAVCEI.

Throughout my career I have seen how IAVCEI performs a unique role, linking the communities affected by volcanic hazards with the academic community, primarily through the Cities on Volcanoes meetings, providing a focus to specific disciplines through the commissions and providing a world-class meeting every 4 years with the IAVCEI general assembly. IAVCEI is also the volcanology community's link to the much wider geological community of IUGG, and this provides important benefits by encouraging interdisciplinary research.

It is essential for any research community that there is positive leadership, and a clear mandate for that leadership. I hope that by participating in the election for IAVCEI President it will strengthen the mandate of the elected President.

A key factor in any leadership is to encourage fairness, and a focus on gender balance in Commissions and IAVCEI committees and all other activities will guide our decisions.

If I were elected one of my main areas of focus would be in stimulating ever greater connections between volcano observatories and research-focussed teams. Worldwide volcano observatories are a unique feature of the volcanological community and provide key essential support to local populations. They also face many challenges, and IAVCEI can and does play an essential role in linking different observatory and research communities for mutual gain. We will develop a new IAVCEI volcano observatory fellowship program to facilitate academic visits between volcano observatories and universities/research institutes and vice-versa, with the aim of providing more efficient transfer of cutting-edge research into observatories, and provide the unique experience of working in a volcano observatory to more researchers.

The Commissions are a fundamental element of the life of IAVCEI, and we will focus in particular on encouraging Early Career Researcher participation in their activity and discussing with each Commission throughout the mandate how best they can serve their respective communities.

The flagship IAVCEI meetings of Cities on Volcanoes and Scientific Assembly are key meetings in our calendars and have been very successfully run in previous years. This will be a continued focus, bringing some experience from the EGU role I hold as president of the GMPV division, and highlighting the importance of a bottom-up structure.

There is a very rich and exciting future for IAVCEI, it would be a great honour to contribute to this future.