

2ND WORKSHOP ON THE IMPACT OF THE HUNGA ERUPTION
22-24 APRIL 2024 – PARIS, FRANCE

Monday, April 22, 2024

08:30 - 10:00 @ Amphithéâtre Jean Jaurès + [visio link](#)

Plume evolution in 1st month after, explosivity, waves & past eruptions

Chaired by Elizabeth Asher

08:30 › *Did steam drive the giant 15 January 2022 plume from Hunga Volcano, Tonga?* – Larry Mastin (U.S. Geological Survey, Cascades Volcano Observatory)

08:45 › *Sulfur budget of the 2022 Hunga eruption: new insights from UV retrievals of mid-stratospheric aerosols* – Simon Carn (Michigan Technological University)

09:00 › *TROPOMI UV retrievals of mid-stratospheric aerosols from the 2022 Hunga eruption* – Nickolay A. Krotkov (NASA Goddard Space Flight Center)

09:15 › *Hunga Lamb wave propagation properties illustrated through numerical modelling and GOES-R observations* – Ákos Horváth (Meteorological Institute, Universität Hamburg, Hamburg)

09:30 › *The fast conversion of sulfate aerosols in the Hunga plume as seen from satellites* – Bernard Legras (Laboratoire de Météorologie Dynamique (LMD) – IPSL)

09:45 › *Stratospheric ozone depletion inside the volcanic plume shortly after the 2022 Hunga Tonga eruption* – Yunqian Zhu (CIRES/NOAA CSL)

10:00 - 10:30 Coffee break @ Espace Curie

10:30 - 12:00 @ Amphithéâtre Jean Jaurès + [visio link](#)

Volcanic cloud progression & hemispheric dispersion (water vapour & aerosol)

Chaired by Simon Carn

10:30 › *Vertical separation and meridional transport of the Hunga water vapor and aerosol plumes* – Elizabeth Asher (CIRES/NOAA Global Monitoring Laboratory, Boulder)

10:45 › *Tracking the Uncommon Optical and Microphysical Properties of the Hunga Aerosols* – Alexandre Baron (Cooperative Institute for Research in Environmental Sciences, NOAA Chemical Sciences Laboratory)

11:00 › *Growth and global persistence of stratospheric sulfate aerosols from the 2022 Hunga Tonga–Hunga Ha'apai volcanic eruption* – Marie Boichu (CNRS/Univ. Lille)

11:15 › *GEOS Chemistry Climate Model Simulations of the Volcanic Cloud Dispersion from the January 2022 Hunga Eruption* – Peter Colarco (NASA Goddard Space Flight Center)

11:30 › *Global transport and evolution of the Hunga sulfates and water from satellite and ground-based observations: a 2-year aftermath* – Sergey Khaykin (STRATO – LATMOS)

11:45 › *Interactive and microphysical simulations of the stratospheric aerosol layer: Global size distribution variation after moderate volcanic enhancement* – Graham Mann (School of Earth & Environment, University of Leeds, National Centre for Atmospheric Science, University of Leeds)

12:00 - 13:30 Lunch @ Garden or Lobby (24 Lhomond)

13:30 - 15:00 @ Amphithéâtre Jean Jaurès
Posters session – see list below

15:00 - 15:30 Coffee break @ Espace Curie

15:30 - 17:00 @ Amphithéâtre Jean Jaurès + [visio link](#)
Volcanic cloud progression & hemispheric dispersion (water vapour & aerosol)
Chaired by Sergey Khaykin

15:30 › *Results from the BraVo campaign* – Jean-Paul Vernier (National Institute of Aerospace, Hampton)

15:45 › *Investigating biases in limb measurements after the Hunga eruption: OSIRIS, OMPS, and SAGE* – Adam Bourassa (University of Saskatchewan - Landon Rieger, University of Saskatchewan)

16:00 › *Umbrella cloud characteristics and fall deposit size of the January 15, 2022 eruption of Hunga Volcano* – Kristen Fauria (Vanderbilt University)

16:15 › *Microphysical evolution and global transport of the stratospheric aerosol plume, based on in situ observations* – Corinna Kloss (Forschungszentrum Jülich GmbH, Laboratoire de Physique et Chimie de l'Environnement et de l'Espace)

16:30 › *Long-term tracking and analysis of the stratospheric sulfate aerosol plume of the 2022 Hunga eruption* – Clair Duchamp (Laboratoire de Météorologie Dynamique – IPSL)

16:45 › *The Hunga eruption and the future of stratospheric water vapor* – Luis Millan (Jet Propulsion Laboratory)

Tuesday, April 23, 2024

08:30 - 10:00 @ Amphithéâtre Jean Jaurès + [visio link](#)
Effect on stratospheric cooling, dynamics and transport
Chaired by Michelle Santee

08:30 › *Hunga eruption induced changes to the stratospheric mid-latitude and tropical circulation* – Lawrence Coy (NASA Goddard Space Flight Center)

08:45 › *Observed Impacts of the Hunga Eruption on Stratospheric Temperature* – Matthias Stocker (Wegener Center for Climate and Global Change)

09:00 › *Stratospheric impacts of the Hunga H₂O and aerosol perturbations and QBO* – Eric Fleming (NASA Goddard Space Flight Center, Science Systems and Applications, Inc., Lanham)

09:15 › *Hunga Tonga impacts on atmospheric circulation and transport, and their links with ozone and surface climate - HTHH-MOC preliminary insights* – Ewa Bednarz (Cooperative Institute for Research in Environmental Sciences, NOAA Chemical Sciences Laboratory)

09:30 › *Disturbing the Middle Stratospheric Balance: The Enduring Impact of Hunga Tonga-Hunga Ha'apai volcanic eruption* – Ghouse Basha (National Atmospheric Research Laboratory, Tirupati)

09:45 › *Long-term temperature impacts of Hunga in the stratosphere and above* – William Randel (National Center for Atmospheric Research)

10:00 - 10:30 Coffee break @ Espace Curie

10:30 - 12:00 @ Amphithéâtre Jean Jaurès + [visio link](#)
Effects on ozone, OH, and stratospheric chemistry
Chaired by Yunqian Zhu

10:30 › *Stratospheric chlorine processing after the unprecedented Hunga Tonga eruption* – Jun Zhang (NSF National Center for Atmospheric Research - Peidong Wang, Massachusetts Institute of Technology)

10:45 › *Effects of the Hunga Tonga eruption on stratospheric chemistry in 2022 and 2023 as simulated by EMAC* – Christoph Bruehl (MPI for Chemistry, Mainz)

11:00 › *The Influence of Stratospheric Hydration from the Hunga Eruption on Chemical Processing in the Stratospheric Winter Polar Vortices* – Michelle Santee (Jet Propulsion Laboratory)

11:15 › *Impact of Hunga Tonga-Hunga Ha'apai water vapour on polar vortex dehydration and ozone depletion: Antarctic 2023 and Arctic 2024* – Xin Zhou (School of Atmospheric Sciences, Chengdu University of Information Technology, School of Earth and Environment, University of Leeds)

11:30 › *Impact of the Hunga Tong-Hunga Ha'apai eruption on the Polar Stratospheric Clouds observed by the lidar observatory at Concordia station* – Marcellinus Snels (Institute of Atmospheric Sciences and Climate)

11:45 › *Observing and Projecting the Lasting Fate of the Hunga Eruption on Atmospheric Water Vapor and Hydroxyl Radical* – Luke Oman (NASA Goddard Space Flight Center)

12:00 - 13:30 Lunch @ Garden or Lobby (24 Lhomond)

13:30 - 14:00 @ Amphithéâtre Jean Jaurès + [visio link](#)
Effect on upper stratosphere to thermosphere and upper BDC branch
Chaired by Mark Schoeberl

13:30 › *Transport of the Hunga Tonga - Hunga Ha'apai H₂O anomaly through the mesosphere – comparing observation with modeling* – Sandra Wallis (University of Greifswald)

13:45 › *Potential Impact of the HTHH Volcanic Eruption on Future PMCs* – Wandu Yu (Lawrence Livermore National Laboratory)

14:00 - 15:00 @ Amphithéâtre Jean Jaurès + [visio link](#)
Radiative effects, surface cooling & fate of the stratospheric water vapour
Chaired by Lawrence Coy

14:00 › *What is the instantaneous and adjusted radiative forcing of the Hunga eruption, and why is the Hunga eruption more effective in producing stratospheric aerosol optical depth than the volcanic injections just over the tropopause layer?* – Georgiy Stenchikov (King Abdullah University of Science and Technology, Saudi Arabia)

14:15 › *Evolution of the Climate Forcing During the Two Years after the Hunga Tonga-Hunga Ha'apai Eruption* – Mark Schoeberl (STC)

14:30 › *The radiative impact of the 2022 Hunga Tonga-Hunga Ha'apai stratospheric eruption: a 2-year perspective* – Pasquale Sellitto (Laboratoire Interuniversitaire des Systèmes Météorologiques (LISA) – IPSL)

14:45 › *Radiative effect of the increase in stratospheric water vapour from the Honga-Tonga eruption* – Gunnar Myhre (CICERO)



15:00 - 15:30 Coffee break @ Espace Curie

15:30 - 17:00 @ Amphithéâtre Jean Jaurès
Modelling meeting & Posters session – see list below

19:00 - 22:00

Dinner @ LA BARGE DU CROUS DE PARIS
Quai François Mauriac
Port de la Gare – Paris 13e

Wednesday, April 24, 2024

09:00 - 12:00 @ Amphithéâtre Jean Jaurès and @ Bâtiment Erasme
Open group meetings for report chapters

12:00 - 13:30 Lunch @ Garden or Lobby (24 Lhomond)

13:30 - 16:00 @ Salle Claude Froidevaux
Report lead and co-lead authors meeting

VIDEOCONFERENCING LINK

Scientific committee: Yunqian Zhu (LASP & CIRES/NOAA, USA), Graham Mann (University of Leeds), Paul A. Newman (NASA Goddard, USA), William Randel (NCAR, USA), Sergey Khaykin (LATMOS-IPSL), Bernard Legras (LMD-IPSL), Aurélien Podglajen (LMD-IPSL), Pasquale Sellitto (LISA-IPSL)

Local committee: Kadija Aouni (ENS), Clair Duchamp (LMD/IPSL), Bernard Legras (LMD/IPSL), Hélène Rouby (ENS)

We thank APARC, the ENS-PSL and IPSL for financial and technical support.

List of POSTERS

@ Amphithéâtre Jean Jaurès

Plume evolution in 1st month after, explosivity, waves & past eruptions

- 41 – *Characteristics of the Hunga Volcano eruption plume based on rapid response measurements* – Paul Walter (St. Edward's University)
- 42 – *Diabatic heating rates and early dispersion of the stratospheric plume from the 2022 Hunga eruption* – Aurélien Podglajen (Laboratoire de Météorologie Dynamique – LMD)
- 43 – *Hunga-Tonga volcanic ash's circumnavigation as observed by Aeolus using L2A Aerosol Product* – Dimitri Trapon (Leibniz Institute for Tropospheric Research)
- 44 – *Observations of the Hunga Tonga-Hunga Ha'apai eruption clouds with Infrared Spectrometers* – Isabelle A. Taylor (COMET, Atmospheric, Oceanic and Planetary Physics, University of Oxford)
- 45 – *Simulation of the water vapor and ash transport in the first week after Hunga Tonga Ha'apai eruption* – Ali Hoshyaripour (KIT)
- 46 – *Stratospheric heating rates in young volcanic plumes from Hunga-like eruptions: a sensitivity study* – Duc Dung Tran (Laboratoire de Météorologie Dynamique – LMD)
- 47 – *Using convection-resolving simulations to study plume dynamics and the early plume evolution of the Hunga Tonga-Hunga Ha'apai eruption* – Julia Bruckert (Karlsruhe Institute of Technology, Institute of Meteorology and Climate Research - Troposphere Research)
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Volcanic cloud progression & hemispheric dispersion (water vapour & aerosol)

- 48 – *Impact of the 2022 Hunga Tonga Volcano on Global Middle Atmosphere Water Vapour and Introduction to Swiss H2O Hub* – Alistair Bell (University of Bern, Institute of Applied Physics, Bern, Oeschger Centre for Climate Change Research)
- 49 – *Microphysical model simulations of formation and spatiotemporal evolution of meteoric-sulfuric particles in the stratospheric aerosol layer* – Masaru Yoshioka (School of Earth & Environment, University of Leeds)
- 50 – *OMPS-LP Aerosol extinction coefficients and their applicability in GloSSAC* – Mahesh Kovilakam (ADNET Inc/NASA)
- 51 – *Retrieval and Evaluation of Aerosol Extinction Coefficients from OMPS-LP measurements after the Hunga Tonga eruption* – Christine Pohl (Institute of Environmental Studies, University of Bremen)

52 – *Stratospheric aerosol and trace gas observations by the Stratospheric Aerosol and Gas Experiment (SAGE) in the aftermath of the 2022 Hunga Tonga - Hunga Ha'apai eruption* – David Flittner (NASA Langley Research Center)

53 – *The Ongoing Journey of the 2022 Hunga Tonga-Hunga Ha'apai Aerosol Plume* – Ghassan Taha (Morgan State University, GSFC Earth Sciences Division)

Effect on stratospheric cooling, dynamics and transport

54 – *Impacts of the Hunga Tonga-Hunga Ha'apai eruption simulated with SOCOLv4 ESM* – Timofei Sukhodolov (Physikalisch-Meteorologisches Observatorium Davos/World Radiation Center)

55 – *Influence of the Hunga Tonga -Hunga Ha'apai eruption on the stratospheric transport in ground-based observations and models using nitrous oxide* – Daniele Minganti (Royal Belgian Institute for Space Aeronomy)

Effects on ozone, OH, and stratospheric chemistry

56 – *Contrasting stratospheric chlorine processes on volcanic and wildfire aerosols* – Peidong Wang (MIT)

57 – *The chemical effect of increased water vapor from the Hunga Tonga-Hunga Ha'apai eruption on the Antarctic ozone hole* – Ingo Wohltmann (Alfred Wegener Institute for Polar and Marine Research)

Radiative effects, surface cooling & fate of the stratospheric water vapour

58 – *A quantification of the radiative forcing of Hunga eruption* – Yi Huang (McGill University)

59 – *ENSO response to the Hunga-Tonga eruption in the HTHH-MOC-EXP1 multi-model ensemble* – Davide Zanchettin (University Ca' Foscari of Venezia, Dept. Environmental Sciences, Informatics and Statistics & Stergios Misios, Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing, National Observatory of Athens, Research Centre for Atmospheric Physics and Climatology, Academy of Athens)

60 – *Retrieving radiative properties of stratospheric aerosols from satellite measurements* – Andrin Jörmann (Physikalisch-Meteorologisches Observatorium Davos/World Radiation Center PMOD/WRC, Institute for Atmospheric and Climate Science)

61 – *The simulated climate impacts of the Hunga Tonga-Hunga Ha'apai eruption in WACCM6-MAM* – Zhihong Zhuo (Department of Geosciences, University of Oslo)

2nd workshop on the impact of the Hunga eruption

22-24 April 2024 – Paris, France
École normale supérieure - PSL – 24 rue Lhomond, Paris 5

Entrance at the main gate
24 rue Lhomond - Paris 5
if necessary ring at « Accueil 24 »

Talks & posters sessions
Coffee breaks
in the **bâtiment Jaurès**
access through the garden
behind the lodge

Lunck breaks
in **the garden** or in the lobby
depending on the weather

Tuesday's dinner at
La Barge du CROUS de Paris
Quai François Mauriac
Port de la Gare, 75013 Paris

Wednesday sessions
in the **Erasme building**
straight ahead when
entering the lobby

