

Seventh international workshop on the Mars atmosphere: Modelling and observations

Paris, June 14-17 2022

Oral Sessions Program

[Access to the PDF version](#)

Oral presentations are 10 minutes long (questions not included)

Monday, June 13, 2022

Monday, 18:00:20:00: Welcome reception at the top of the **Zamansky tower** at Sorbonne University (the tallest building in the area: great view over Paris...), Place Jussieu, a few meters from the Workshop venue.

Tuesday, June 14, 2017

Registration: 8:15 - 9:00

Tuesday, 9:00- 10:30:

- Welcoming remarks.

STATUS REPORTS: MODELS & MISSIONS

Chair: Sandrine Guerlet

- [Update and Status of the Mars Climate Modeling Center at Nasa Ames Research Center.](#)
M. A. Kahre, R. J. Wilson, A. S. Brecht, R. M. Haberle, C.E. Harman, R. A. Urata, A. Kling, K. E. Steakley, C. M. Batterson, V. Hartwick, L. Gkouvelis, T. Bertrand
- [Challenges in Mars Climate Modelling with the LMD Mars Global Climate Model, Now Called the Mars “Planetary Climate Model” \(PCM\).](#)
F. Forget, E. Millour, A. Bierjon, A. Delavois, S. Fan, L. Lange, J. Liu, C. Mathe, J. Naar, T. Pierron, R. Vandemeulebrouck, A. Spiga, L. Montabone, J-Y Chaufray, F. Lefèvre, A. Määttänen, F. Montmessin, L. Rossi, M. Vals, F. Gonzalez-Galindo, M.-A. Lopez-Valverde, M. J. Wolff, R. Young, S. R. Lewis, P.-L. Read, and the Mars PCM development teams
- [The Mars Climate Database, Version 6.1](#)
E. Millour, F. Forget, A. Spiga, T. Pierron, A. Bierjon, L. Montabone, M. Vals, F. Lefèvre, F. Montmessin, J.-Y. Chaufray, M. A. López-Valverde, F. González-Galindo, S. R. Lewis, P. L. Read, M.-C. Desjean, F. Cipriani and the MCD development team.
- [Overview and status update of the GEM-Mars GCM at BIRA-IASB.](#)
L. Neary, F. Daerden
- [Emirates Mars Mission \(EMM\) – Hope Probe – Science And Status.](#)
H. Almatroushi, J. Deighan, G. Holsclaw, C. S. Edwards, H. AlMazmi, N. Al Mheiri, M. Alshamsi, E. Altunaiji, K. Badri, D. Brain, M. Chaffin, P. R. Christensen, S. England, M. Fillingim, F. Forget, S. Jain, B. Jakosky, A. Jones, R. Lillis, F. Lootah, J. Luhmann, M. D. Smith, M. Yousuf, C. Gebhardt, R. Young,

10:30 -11:00: Coffee break

Tuesday, 11:00 - 12:30:

Chair: Mariam Yousuf

- [Mars Express and Trace Gas Orbiter - Status, Science Highlights, Plans.](#)
C.F. Wilson, D.V. Titov, P. Martin, A. Cardesinmoinelo, D. Frew, J. Carter, M. Giuranna, M Holmstrom, F. Montmessin, R. Orosei, M Pätzold, T Roatsch, A. Sanchez-Lavega, O. Korablev, I. Mitrofanov, N. Thomas, A.-C. Vandaele
- [Mars Science with MAVEN: the next three years](#)
Shannon Curry and MAVEN team

SURFACE METEOROLOGY AND BOUNDARY LAYER

- [Overview of Near-Surface Atmospheric Processes at Jezero from Meda Observations.](#)
M. de la Torre Juárez, J.A Rodríguez-Manfredi, G. Martínez, C.E. Newman, M.T. Lemmon, R. Hueso, A. Manguira, L.K. Tamppari, A. Sánchez-Lavega, V. Apéstigue et al.
- [The Dynamic Atmospheric and Aeolian Environment of Jezero Crater, Mars.](#)
C. E. Newman, R. Hueso, M. T. Lemmon, A. Manguira, A. Vicente-Retortillo, V. Apestigue, G. Martinez Martinez, D. Toledo Carrasco, R. Sullivan, K. Herkenhoff, M. De La Torre Juarez, M. I. Richardson, A. Stott, N. Murdoch, A. Sanchez-Lavega, M. Wolff, I. Arruego Rodriguez, E. Sebastian, S. Navarro, J. Gomez-Elvira, L. Tamppari, D. Viudez-Moreiras, J. Pla-Garcia
- [Wind Direction Record of Aerosols Observed by the Mars Science Laboratory.](#)
C. L. Campbell, J. L. Kloos, C. L. Smith, D. Ellison, C. Hayes, A. C. Innanen, J. E. Moores.
- [Vortex and Dust Devil Activity on Jezero Crater from Mars2020/MEDA Data and Physical Characterization of Selected Events.](#)
R. Hueso, A. Manguira, A. Sánchez-Lavega, C. E. Newman, M. Lemmon, T. del Río-Gaztelurrutia, M. Richardson, V. Apestigue, D. Toledo, A. Vicente-Retortillo, M. de la Torre-Juarez, J. A. Rodríguez-Manfredi, L. K. Tamppari, I. Arruego, N. Murdoch, G. Martinez, S. Navarro, J. GómezElvira, M. Baker, R. Lorenz, J. Pla-García, A.M. Harri, M. Hieta, M. Genzer, J. Polkko, I. Jaakonaho, T. Mäkinen, A. Stott, D. Mimoun, B. Chide, E. Sebastian, D. Viudez-Moreiras, D. Banfield, A. Lepinette-Malvite

12:30 - 14:00: Lunch break

Tuesday, 14:00 - 15:30:

Chair: John Moores

SURFACE METEOROLOGY AND BOUNDARY LAYER (Continued)

- [Nocturnal Turbulence at Jezero Driven by the Onset of a Low-level Jet as Determined from MRAMS Modeling and MEDA Measurements.](#)
J. Pla-García, A. Manguira, S. Rafkin, R. Hueso, A. Sánchez-Lavega, M. de la Torre, D. Viúdez-Moreiras, C. Newman, T. Bertrand, Teresa del Río, N. Murdoch, G. Martínez, H. Savijarvi, B. Chide, M. Richardson, J.A. Rodríguez-Manfredi
- [The SEISMIC NOISE Discography: Atmospheric Hits with the Insight Mission.](#)
A. Spiga, with the InSight Atmospheres Science Team Group
- [Martian Wind Sensing with Seismometers and Microphones.](#)
A. E. Stott, N. Murdoch, R. F. Garcia, M. Gillier, D. Mimoun, A. Spiga, R. Lorenz, D. Banfield, T. Bertrand, B. Chide, A. Chavez, M. De La Torre Juarez, R. Hueso, G. Martinez, L. Mora Sotomayor, A. Manguira, S. Navarro, C. Newman, P. Pillieri, J. Pla-Garcia, J. A. Rodriguez-Manfredi, A. Sanchez-Lavega, D. Viudez Moreiras, N. Williams, S. Maurice, R. C. Wiens, P. Lognonné
- [Studying Martian Turbulence Using High Frequency Pressure Fluctuations Observed by Insight and Perseverance.](#)
N. Murdoch, A.E. Stott, A. Spiga, O. Temel, A. Chatain, T. Bertrand, S. Maurice, B. Chide, C. Newman, D. Banfield, J. Pla-Garcia, R. Garcia, M. Gillier, M. De La Torre Juarez, A. Chavez, A. Manguira, R. Hueso, A. Sanchez Lavega, G. Martinez, L. Lange, J. Rodriguez-Manfredi, R. Wiens, P. Lognonné, D. Mimoun

ATMOSPHERIC TEMPERATURES AND DYNAMICS

- [The Emirates Mars Infrared Spectrometer \(EMIRS\) Overview and Surface Results.](#)
C. S. Edwards, P. R. Christensen, M. D. Smith, C. A. Wolfe, C. Haberle, S. Atwood, K. Badri, M. Wolff, M. M. Osterloo, E. Al Tunaiji, N. Al Mheiri, M. Yousuf, S. Anwar, N. Smith, K. Saboi, and the EMIRS Team
- [An Overview of the Mars Atmospheric State as Observed by EMIRS.](#)
Michael D. Smith, K. Badri, E. Al Tunaiji, S. A. Atwood, C. S. Edwards, N. Smith, C. Wolfe, M. J. Wolff, P. R. Christensen, S. Anwar

15:30 - 16:00: Tea break

Tuesday, 16:00 - 17:30:

Chair: Hiromu Nakagawa

- [Migrating Thermal Tides in the Martian Atmosphere during Aphelion Season Observed by EMM/EMIRS.](#)
S. Fan, F. Forget, S. Guerlet, A. Bierjon, J. Liu, E. Millour, M. D. Smith, K. M. Badri, H. R. Al Matroushi, UAE, S. A. Atwood, J. Deighan, R. M. B. Young, C. S. Edwards, P. R. Christensen
- [Atmospheric Data Assimilation with the Emirates Mars Mission.](#)
R. M. B. Young, M. Aljaberi, E. Millour, F. Forget, C. S. Edwards, N. M. Smith, M. D. Smith, S. Anwar, P. R. Christensen, M. J. Wolff.
- [MACDA II: A New Reanalysis for the Martian Atmosphere Using Vertically-Resolved Dust Opacity Observations.](#)
P. L. Read, A. Vaeleanu, Ruan Tao, L. Montabone, S. R. Lewis, R. M. B. Young
- [Modeling Studies of Dust/Gas Non-Thermal Equilibrium in the Martian Atmosphere.](#)
R.M. Haberle, M.A. Kahre, T. Bertrand, V.L. Hartwick, R.J. Wilson, M. J. Wolff, C. Batterson
- [First Attempt to Retrieve a Mars Atmospheric Wind Map from Earth, Using VLT/UVES During the 2018 Global Dust Storm](#)
P. Machado, H. Valido, G. Gilli, A. Cardesin-Moinelo, F. Brasil, J. E. Silva
- [Mars Atmospheric Thermal Structure During the 1st Year of TGO Solar Occultation Measurements.](#)
M. A. Lopez-Valverde, B. Funke, A. Brines, A. Modak, A. Stolzenbach, F. Gonzalez-Galindo, B. Hill, J. J. Lopez-Moreno, I. Thomas, L. Trompet, J. Erwin, S. Aoki, G. Villanueva, G. Liuzzi, F. Forget, G. Bellucci, M. Patel, B. Ristic, F. Daerden, A-C. Vandaele

17:30 – 20h: Posters & Snack session # 1: First authors whose last name begins with [A-J]

Wednesday, June 15, 2022

Wednesday, 09:00- 10:30:

Chair: Gabriella Gilli

ATMOSPHERIC DYNAMICS AND TEMPERATURES (Continued)

- [Mesospheric Carbon Dioxide and Temperature Retrievals From NOMAD-SO Onboard TGO.](#)
L. Trompet, A.C. Vandaele, I. Thomas, S. Aoki, F. Daerden, J. Erwin, Z. Flimon, A. Mahieux, L. Neary, S. Robert, G. Villanueva, G. Liuzzi, M.A. Lopez-Valverde, A. Brines, J. J. Lopez-Moreno, G. Bellucci, M. R. Patel
- [Thermal Structure and Water Climatology of the Martian Middle-Upper Atmosphere from ACS/TGO Spectroscopy.](#)
D. A. Belyaev, J. Alday, F. Montmessin, F. Lefvire, A. Fedorova, O. Korablev, A. Trokhimovskiy, A. Patrakeevev, K. S. Olsen
- [Diurnal Variations in the Martian Atmosphere from Enhanced MAVEN/IUVS Stellar Occultation Dataset.](#)
S. Gupta, N. M. Schneider, S. K. Jain, J. Deighan, R. V. Yelle, F. Jiang, L. Verdier, A. S. Braude, F. Montmessin

- [Improved Climatologies of Lower and Middle Atmospheric Gravity Wave Activity at Mars.](#)
N.G. Heavens, A. Pankine, , J.M. Battalio, C.J. Wright, D.M. Kass, A. Kleinboehl, S. Piqueux, J.T. Schofield
- [New Parameterization of Non-Orographic Gravity Wave Scheme for LMD Mars GCM and its Impacts on the Upper Atmosphere.](#)
J. Liu, E. Millour, F. Forget, F. Lott, A. Bierjon, A. Martinez, S. Lebonnois, the LMD-MGCM Team, and G. Gilli
- [Gravity Waves and Their Effects During Quiet Times and Dust Storms.](#)
A. S. Medvedev, E. Yi•it, E. D. Starichenko, D. S. Shaposhnikov, T. Kuroda, P. Hartogh

10:30 - 11:00 : Coffee break

Wednesday, 11:00 - 12:30:

Chair: Tanguy Bertrand

- [A Network of Surface Pressure Observations Constrain Aerosol Forcing In Mars Climate Models.](#)
R. J. Wilson

DUST AND DUST STORMS

- [Comparison of Eolian Dust Composition at Gale and Jezero.](#)
J. Lasue, P. Y. Meslin, A. Cousin, O. Forni, O. Gasnault, S. Maurice, P. Pilleri, W. Rapin, R. Anderson, P. Beck, S. M. Clegg, P. Gasda, R.C. Wiens, E. Dehouck, J. Frydenvang, E. Hausrath, S. Le Mouélic and the SuperCam team
- [A Global Study of Martian Atmospheric Dust with the Near-Infrared Imaging Spectrometer OMEGA/Mars Express.](#)
Y. Leseigneur and M. Vincendon
- [The Diurnal and Seasonal Variation of Dust Aerosol as Observed by EMIRS.](#)
Khalid Badri, M. D. Smith, C. S. Edwards, E. Altunaiji, P. R. Christensen, and the EMIRS Team.
- [Retrievals of Atmospheric Aerosols in High Aerosol Conditions from Mars Climate Sounder Mid- and Far Infrared Limb Measurements.](#)
A. Kleinböhl, D. M. Kass, S. Piqueux, S. Suzuki
- [Composition and Size of Martian Aerosols as Seen by NOMAD-SO during MY34 &35.](#)
A. Stolzenbach, M.-A. Lopez Valverde, A. Brines, A. Modak, B. Funke, F. Gonzalez-Galindo, I. Thomas, G. Liuzzi, G. Villanueva, M. Luginin, S. Aoki.

12:30 - 14:00: Lunch break

Wednesday, 14:00 - 15:30:

Chair: Alvaro Vicente-Retortillo

DUST AND DUST STORMS (continued)

- [Observations of the Mars Year 35 E \(Early\) Large-Scale Regional Dust Event.](#)
D. M. Kass, A. Kleinböhl, J. Shirley, B. A. Cantor, N. G. Heavens
- [The B Regional Dust Storm in the New NASA AMES Mars GCM.](#)
C.M.L. Batterson, M.A.Kahre, A.F.C. Bridger, R.J.Wilson, R.A.Urata
- [Relating Dust Storm Morphology to Wave Dynamics.](#)
J. M. Battalio
- [Frequency of Dust Storms in the Western Arcadia Planitia: Comparison with Reanalysis Data.](#)
K. Ogohara

WATER VAPOR : WHERE DOES IT GO?

- [Relative Humidity and Vapor Amount at Jezero Crater.](#)
L. K. Tamppari, G. Martínez, J. A. Rodríguez-Manfredi, M. de la Torre-Juárez, M. Hieta, J. Polkko, I. Jaakonaho, M. Genzer, A.-M. Harri, T. McConnochie, F. Montmessin, M. Smith, M. Wolff, E. Fischer, P. Conrad, F. Gómez, M.-P. Zorzano, D. Viudez-Moreiras, P. Patel, M. Lemmon and the MEDA Team
- [Seasonal Vertical Water Vapor Distribution at the Phoenix Landing Site.](#)
C. W.S. Leung, L. Tamppari, D. Kass, M. Smith, G. Martínez, E. Fischer

15:30 - 16:00 : Tea break

Wednesday, 16:00 - 17:45

Chair: Sonal Jain

- [Water Vapor on Mars: a Refined Climatology and Near-surface Concentration Enabled by Synergistic Retrievals.](#)
E. W. Knutsen, F. Montmessin, L. Verdier, G. Lacombe, F. Lefèvre, S. Ferron, M. Giuranna, P. Wolkenberg, A. Fedorova, A. Trokhimovskiy, O. Korablev
- [Water Vapor Vertical Distribution During Perihelion Season of Martian Years 34 and 35 Observed with NOMAD-SO.](#)
A. Brines, M. A. López-Valverde, A. Stolzenbach, A. Modak, B. Funke, F. G. Galindo, J.J. Lopez-Moreno, S. Aoki, G.L. Villanueva, G. Liuzzi, I.R. Thomas, J.T. Erwin, F. Daerden, L. Trompet, B. Ristic, A.C. Vandaele, U. Grabowski, F. Forget, M.R. Patel, G. Bellucci
- [Global Vertical Distribution of Water Vapor on Mars: Results from 2 Mars Years of ExoMars-TGO/NOMAD Science Operations.](#)
S. Aoki, A. C. Vandaele, F. Daerden, I. R. Thomas, L. Trompet, J. T. Erwin, L. Neary, S. Robert, A. Piccialli, B. Ristic, G. L. Villanueva, G. Liuzzi, M. D. Smith, M. A. Lopez-Valverde, A. Brines, J. J. Lopez-Moreno, R. T. Clancy, N. Yoshida, J. A. Holmes, M. R. Patel, J. Whiteway, G. Bellucci
- [Global 4-D Investigation of Water During the Mars Year 34 Dusty Season from a Multi-Spacecraft Assimilation.](#)
J. A. Holmes, S. R. Lewis, M. R. Patel, J. Alday, S. Aoki, G. Liuzzi, G. L. Villanueva, M. M. J. Crismani, A. A. Fedorova, O. Korablev, K. S. Olsen, D. M. Kass, A. C. Vandaele
- [Martian Dust Storms and Gravity Waves: Disentangling Water Transport to the Upper Atmosphere.](#)
D. S. Shaposhnikov, A. S. Medvedev, A. V. Rodin E. Yi• it, P. Hartogh

HDO AND THE ESCAPE OF H AND D

- [Modeling the HDO Cycle with a Global Climate Model During the MY34 « Dusty » Season.](#)
M. Vals, L. Rossi, F. Montmessin, F. Lefèvre, F. Gonzalez-Galindo, A. Fedorova, M. Luginin, F. Forget, E. Millour, O. Korablev, A. Trokhimovskiy, A. Shakun, A. Bierjon, L. Montabone.
- [Simulating Atmospheric Chemistry and D/H during the 2018 Global Dust Storm on Mars](#)
F. Daerden, L. Neary, M. J. Wolff, R. T. Clancy, , F. Lefèvre, G. L. Villanueva, G. Liuzzi, J. A. Whiteway, L. Trompet, J. Erwin, S. Viscardy, A. Piccialli, Y. Willame, C. Depiesse, I. R. Thomas, B. Ristic, J. P. Mason, M. R. Patel, G. Bellucci, J.-J. Lopez-Moreno, A. C. Vandaele

17:45: End of session

19:45-23h: Conference Dinner on the boat "La Patache" cruising on the Seine River (included in the registration fee).

Thursday, June 16, 2022

Thursday, 9:00- 10:30:

Chair: Eryn Cangi

HDO AND THE ESCAPE OF H AND D (Continued)

- [Observations of H and D Densities and Escape Fluxes from the Upper Atmosphere of Mars with the MAVEN. IUVS Echelle Channel](#)
J.T. Clarke, M. Mayyasi, D. Bhattacharyya, J-Y Chaufray, and the MAVEN IUVS team
- [Transport and Escape of Water: Toward a More Complete Interpretation with TGO NOMAD and MAVEN NGIMS.](#)
S. W. Stone, G. L. Villanueva, G. Liuzzi, M. Benna, P. R. Mahaffy, M. K. Elrod, R. V. Yelle
- [Reappraising the Production and Transfer of Hydrogen to the Upper Atmosphere at Times of Elevated Water Vapor.](#)
F. Montmessin, D. A. Belyaev, F. Lefèvre, J. Alday, M. Vals, A. A. Fedorova, O. I. Korablev, A. V. Trokhimovskiy, M. S. Chaffin, N. M. Schneider
- [Simulation of the H Escape Variability with a Global Climate Model.](#)
F. Gonzalez-Galindo, J.-Y. Chaufray, G. Gilli, A. Brines, M.A. Lopez-Valverde, F. Lefevre, M. Vals, F. Montmessin, L. Rossi, F. Forget, E. Millour
- [Hot H Escape at Mars: an Assessment of the Importance of Photochemical H Loss Mechanisms.](#)
B. S. Gregory, M. S. Chaffin, R. D. Elliott, H. Gröller, J. Deighan, E. M. Cangi
- [Fully-Coupled Photochemical Modeling of the Deuterated Ionosphere and Non-Thermal Escape of D.](#)
E. M. Cangi, M. S. Chaffin, J. Deighan, B. Gregory, R. V. Yelle

10:30 - 11:00: Coffee break

Thursday, 11:00 - 12:30:

Chair: Kyle Connour

WATER CLOUDS AND GROUND ICE

- [Diurnal Variations in the Aphelion Cloud Belt as Observed by the Emirates Exploration Imager \(EXI\).](#)
M. J. Wolff, M. Smith, F. Forget, S. Atwood, A. R. Jones, M.M. Osterloo, R. Shuping, M. Al Shamsi, C. Jeppesen, C. Fisher
- [The Diurnal and Seasonal Variation of Water Ice Clouds as Observed by EMIRS.](#)
S. A. Atwood, M. D. Smith, K. Badri, C. S. Edwards, N. Smith, P. R. Christensen, S. Anwar, M. J. Wolff, F. Forget, M. R. El-Maarry
- [Seasonal Variations of Orographic Clouds on Mars with MRO/MARCI Observations and the LMD Mars Global Climate Model.](#)
A. M. Fernando, M. J. Wolff, F. Forget
- [1.5 Martian Years of Monitoring of the Martian Water Ice Clouds with TGO/ACS-MIR.](#)
A. Stcherbinine, Flagstaff, AZ, F. Montmessin, M. Vincendon, M. J. Wolff, M. Vals, C. S. Edwards, A. Trokhimovskiy, O. Korablev, A. Fedorova, M. Luginin, G. Lacombe, L. Baggio, A. Braude
- [Atmosphere-Surface Interactions Relating to Ice-Rich Landforms in Lyot Crater, Mars..](#)
L.-A. Foley, S. R. Lewis, M. R. Balme, J. Holmes

- [Observed Seasonal Variations of Hydrogen Abundance in the Shallow Subsurface of Martian Tropics and Implications for Water Cycle.](#)

M. A. Kreslavsky

12:30 - 14:00: Lunch break

Thursday, 14:00 - 15:30:

Chair: Igor Aleinov

POLAR PROCESSES AND CO₂ ICE

- [Water Transport in the Martian Northern Winter Polar Atmosphere.](#)
D. J. McCleese, H. E. Gillespie, A. Kleinböhl, D. M. Kass, S. J. Greybush, R. J. Wilson
- [Atmospheric CO₂ Depletion near the Surface in the Martian Polar Regions.](#)
S. Piqueux, P.O. Hayne, A. Kleinböhl, D.M. Kass, M. Schreier, D.J. McCleese, J.T. Schofield, J.H. Shirley, N. Heavens, M. I. Richardson
- [Seasonal and Interannual Variability in CO₂ Snowfall within the Martian North Polar Vortex.](#)
N. R. Alsaedi, P. O. Hayne, V. Conception
- [Global Troposphere-to-Mesosphere Modelling of Martian CO₂ Ice Clouds.](#)
A. Määttänen, C. Mathé, J. Audouard, C. Listowski, E. Millour, F. Forget, F. Gonzalez-Galindo, L. Falletti, D. Bardet, L. Teinturier, M. Vals, A. Spiga, F. Montmessin
- [Modeling CO₂ Clouds Convection in the Martian Polar Nights with Large-Eddy Simulations.](#)
V. Caillé, A. Spiga, A. Määttänen, C. Mathé, L. Falletti
- [Interannual Variations In the Retreat of the Northern Seasonal Cap of Mars Using Computer Vision.](#)
P. J. Acharya, I. B. Smith, W. Calvin.

15:30 - 16:00: Tea break

Thursday, 16:00 - 17:30:

Chair: Thomas Gautier

TRACE GASES AND PHOTOCHEMISTRY

- [Variability in Martian CO as Observed by NOMAD-SO from First Year of TGO Operation.](#)
A. Modak, M. A. López-Valverde, A. Brines, A. Stolzenbach, B. Funke, F. González-Galindo, S. Aoki, I. Thomas, G. Liuzzi, G. Villanueva, J. Erwin, J. J. Lopez-Moreno, N. Yoshida, U. Grabowski, F. Forget, F. Daerden, B. Ristic, G. Bellucci, M. Patel, L. Trompet, A. C. Vandaele
- [Climatology of CO and O₂ on Mars Based on Two Martian Years of ACS TGO Occultation Measurements.](#)
*A. A. Fedorova, A. Trokhimovskiy, O. Korablev, D.A. Belyaev, N. Ignatiev, **F. Lefèvre**, F. Montmessin, K. S. Olsen, J. Alday, F. Forget, A. Lomakin, A. Patrakev*
- [Unexplained Oxygen Variability: New Results on Molecular Oxygen in the Lower Martian Atmosphere from Chemcam and Supercam Passive Sky Observations.](#)
T. H. McConnochie, M. G. Trainer, M. D. Smith, S. D. Guzewich, H. B. Franz, C. E. Newman, D. Y. Lo, S. Atreya, J. E. Moores, H. M. Sapers, M. T. Lemmon, M. J. Wolff, F. Montmessin, E. W. Knutsen, T. Fouchet, T. Bertrand, Lesia, O. Gasnault, J. Lasue, O. Forni, P. Pilleri, S. Maurice, C. Leggett Iv, R. T. Newell, D. Venhaus, N. Lanza, R. C. Wiens, M. Hecht, M.-P. Zorzano, A. Khayat, F. Lefèvre, F. Daerden, A. Fedorova, A. Trokhimovskiy
- [Total Column Ozone Climatology From MY34 to MY36 From Measurements by the NOMAD-UVIS Spectrometer.](#)
J.P. Mason, M.R. Patel, J.A. Holmes, P. Streeter, J. Alday, M. Brown, G. Sellers, C. Marriner, S.R Lewis, Milton Keynes, M.J. Wolff, Y. Willame, C. Depiesse, B. Ristic, I. Thomas, F. Daerden, A.C. Vandaele, J.-J. Lopez-Moreno, G. Bellucci

- [Relationship Between the Ozone and Water Vapour Vertical Profiles on Mars Observed by NOMAD-TGO.](#)
A. Piccialli, A. C. Vandaele, S. Aoki, F. Daerden, Y. Willame, C. Depiesse, L. Trompet, L. Neary, S. Viscardy, J. Erwin, I. R. Thomas, B. Ristic, J.P. Mason, M.R. Patel, A. Khayat, M. Wolff, G. Bellucci, J.-J. Lopez-Moreno
- [Impacts of Heterogeneous Chemistry on Vertical Profiles of Martian Ozone.](#)
M. A. J. Brown, M. R. Patel, S. R. Lewis, J. A. Holmes, G. J. Sellers, P. M. Streeter, A. Bennaceur, G. L. Villanueva, G. Liuzzi, A. C. Vandaele

17:30: End of session

17:30 – 20h: Posters & Snack session # 2: First authors whose last name begins with [K-Z]

Friday, June 17, 2022

Friday, 9:00- 10:30

Chair: Giuliano Liuzzi

TRACE GASES AND PHOTOCHEMISTRY (Continued)

- [The Vertical Structure of Trace Gases in the Atmosphere of Mars Revealed by ACS on EXOMARS TGO.](#)
Kevin S. Olsen, P. G. J. Irwin, A. Fedorova, A. Trokhimovskiy, O. Korablev, M. Luginin, D. Belyaev, A. Patrakeev, A. Shakun, F. Lefevre, F. Montmessin, L. Baggio, J. Alday, F. Forget, E. Millour, A. Bierjon, L. Montabone
- [4D HCl Transport in the Martian Atmosphere with Comparisons to TGO Observations.](#)
K. Rajendran, S.R.Lewis, P.M. Streeter, J.A. Holmes, M. R. Patel
- [Localization of Methane Signals in Gale Crater.](#)
M.A. Mischna, Y. Luo, J. Li, D. Adams, Y.L. Yung, J. Lin, B. Fasoli

AIRGLOWS AND AURORAE

- [Seasonal and Diurnal Variation in the Vertical Structure of the Martian Nitric Oxide Nightglow Layer.](#)
Z. Milby, N. M. Schneider, S. K. Jain, K. Connour, F. González-Galindo, F. Lefèvre, F. Forget, J.-C. Gérard
- [Mars Oxygen Green Line Dayglow from NOMAD/UVIS and Model Comparison.](#)
L. Soret, J.-C. Gérard, L. Gkouvelis, S. Aoki, B. Hubert, and the NOMAD/UVIS team
- [The Martian Oxygen Red Line Airglow: Observations with NOMAD/UVIS and Modeling.](#)
J.-C. Gérard, L. Soret, L. Gkouvelis, S. Aoki and the NOMAD/UVIS Team

10:30 - 11:00: Coffee break

Friday, 11:00 - 12:30

Chair: Krishnapassad Chirakkil

- [Emirates Mars Ultraviolet Spectrometer's Observation of Argon in the Martian Thermosphere.](#)
F. Lootah, J. Deighan, M. Fillingim, H. Almatroushi, S. Jain, M. Chaffin, G. Holsclaw, J. S. Evans, J. Correira, R. Lillis, H. Almazmi, S. England
- [First Global Images of Mars FUV Discrete Aurora from the Emirates Mars Mission EMUS Instrument.](#)
R. J. Lillis, J. Deighan, S. Jain, G. Holsclaw, M. Chaffin, M. Fillingim, K. Chirakkil, S. England, D. A. Brain, H. Al Matroushi, F. Lootah, H. Al-Mazmi, S. Xu, X. Fang, N. Schneider, J. S. Halekas, S. Ruhunusiri, J. Espley
- [MAVEN/IUVS Nadir Observations of Discrete Aurora on Mars: Insights into Regional Local Time Control and Magnetic Reconnection.](#)
B. J. Johnston, N.M. Schneider, S. K. Jain, Z. Milby, G. DiBraccio, J.-C. Gérard, L. Soret, Z. Girazian, T. Weber, S. Ruhunusiri

- [Patchy Proton Aurora at Mars: First Images, Multiple Morphologies, and Three Newly Observed Formation Mechanisms.](#)
M. Chaffin, C. Fowler, J. Deighan, S. Jain, G. Holsclaw, A. Hughes, R. Ramstad, Y. Dong, D. Brain, H. AlMazmi, S. England, M. Fillingim, R. Lillis, F. Lootah, K. Chirakkil, S. Raghuram, J. McFadden, J. Halekas, J. Espley, N. Schneider, H. R. Al Matroushi

MARS PAST CLIMATES

THE HISTORY OF WATER AND ATMOSPHERIC EVOLUTION

- [The History and Inventory of Water on Mars.](#)
B. M. Jakosky and L. J. Hallis
- [The Atmospheric Evolution of Mars Indicated by C, N, Ar, and H Isotopes.](#)
R. Hu, T. B. Thomas, E. L. Scheller, D. J. Adams, B. L. Ehlmann, Y. L. Yung

12:30 - 14:00: Lunch break

Friday, 14:00 - 15:30

Chair: Joseph Naar

EARLY MARS

- [The Effects of CO₂ Clouds on the Thermal Structure of the Early Mars Atmosphere.](#)
K. E. Steakley, Moffett Field, M. A. Kahre, R. M. Haberle.
- [Constraining the Warming Effect of High-Altitude Water Ice Clouds on Early Mars in a 3D Moist General Circulation Model with a Simplified Cloud Microphysical Scheme.](#)
F. Ding, R. Wordsworth, K. Loftus, K. Steakley, M. Kahre, R. Haberle
- [Warming Early Mars With a Dense Atmosphere of CO₂ and H₂: a Review of Recent Numerical and Experimental Advances.](#)
M. Turbet, F. Forget, J.M. Hartmann, H. Tran, W. Fakhardji, D. Mondelain, C. Boulet, O. Pirali,
- [Early Mars: Reconciling Climate and Geochemistry.](#)
R. Wordsworth, A. H. Knoll, J. Hurowitz, M. Baum, B. Ehlmann, J. Head, K. Steakley and F. Ding
- [When Did Mars Become Bipolar?: An Analysis of the Key Factors in the Late Noachian-Amazonian Climate Transition from an Altitude-Dominant Temperature Distribution \(ADD\) to a Latitude-Dominant Distribution \(LDD\).](#)
J. W. Head, R. D. Wordsworth, J. L. Fastook
- [Circumpolar Ocean Stability on Mars 3 Gy Ago.](#)
F. Schmidt, F. Costard, S. Bouley, A. Sejourné, M. Way, I. Aleinov

15:30 - 16:00 : Tea break

Friday, 16:00 - 17:45

RECENT MARS

- [Climate Simulations of Mars at Low Obliquity.](#)
L. Lange, F. Forget, R. Vandemeulebrouck, E. Millour, A. Spiga, A. Bierjon, A. Delavois, J. Naar
- [The Martian Dust Cycle at Different Orbits and Obliquities.](#)
V. L. Hartwick, R. M. Haberle, M. A. Kahre, R. J. Wilson
- [Milankovitch Forcing of Equilibrium Ground-Ice on Mars.](#)
O. Aharonson, E. Vos, N. Schorghofer, F. Forget

- [Climatological Controls On The Chemical Stratigraphy of The Martian Polar Layer Deposits.](#)
E. Vos, O. Aharonson, N. Schol^lRghofer, F. Forget, E. Millour, L. Rossi, M. Vals, F. Montmessin

FUTURE OBSERVATIONS

- [An Overview of Mars Observation Planned by the Martian Moons Exploration \(MMX\).](#)
*T. Imamura, **K. Ogohara**, H.Nakagawa, S. Aoki, T. Kouyama, K. Masunaga, T. Usui, N. Terada, M. Imai, MMX Mars System Sub-Science Team*
- [The Case and Approach for Continuous, Simultaneous, Global Mars Weather Monitoring from Orbit.](#)
L. Montabone, N. G. Heavens, A. Pankine, M. Wolff, A. Cardesin-Moinelo, B. Geiger, F. Forget, S. Guerlet, E. Millour, A. Spiga, S. D. Guzewich, M. D. Smith, O. Karatekin, B. Ritter et al.
- [Planning for a Mars Long-Lived Weather Network.](#)
D. M. Paardekooper, C. E. Parfitt, A. G. McSweeney, D. P. Brandao, A. J. Ball, H. Svedhem, M. Khan, S. Vijendran

18:00 End of meeting