CURRICULUM VITAE

Dr. Mikhail (Misha) Zolotov

School of Earth and Space Exploration, Arizona State University
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Research: Geochemistry of volatile elements (H, O, C, N, S, Cl, Na, and K) and species (e.g., water, H_2, sulfates, carbon oxides, organic compounds) on terrestrial planets, early asteroids, moons of giant planets, and habitable zone exoplanets. Oxidation-reduction and acid-base reactions, mineral formation, and rock alteration.

Education: Candidate of Sciences (a Ph.D. analog) in geology/mineralogy, Vernadsky Institute of Geochemistry and Analytical Chemistry, USSR Academy of Sciences, Moscow, 1989 (degree conferred in 1990)

Diploma in geology/geochemistry (with honors), Lomonosov Moscow State University, Moscow, USSR, 1982

Employment: 2006 – present: Research Professor (2011-present), Associate Research Professor (2006-2011), School of Earth and Space Exploration, Arizona State University

2002 – 2006: Faculty Research Associate, Department of Geological Sciences, Arizona State University

1997 – 2002: Senior Research Scientist, Department of Earth and Planetary Sciences, Washington University in St. Louis, Missouri

1985 – 1998: Senior Research Scientist (1992 – 1998), Junior Research Scientist (1985 – 1992), Vernadsky Institute of Geochemistry and Analytical Chemistry, USSR/Russian Academy of Sciences, Moscow.

Visiting Appointments: September 1996 – December 1996:
Visiting Scientist, Department of Earth and Planetary Sciences, Washington University in St. Louis, Missouri

February 1996 – May 1996:
Visiting Scientist, Department of Earth and Planetary Physics, University of Tokyo, Japan

November 1992 – March 1993:
Visiting Scientist, Department of Geological Sciences, Arizona State University, Tempe, Arizona

Specific research interests:

- Gas-water-mineral type chemical interactions on Venus, Mars, Mercury, icy and rocky moons, and parent bodies of chondrites (asteroids)
- Formation and chemical evolution of oceans on icy moons
- Chemical weathering of rocks on Venus and Mars
- Oxidation states of planetary surfaces, asteroids, and icy satellites
- Geochemistry of planetary volcanic gases and hydrothermal systems
- Inorganic-organic reactions in the solar system
- Habitability of solar system bodies
- Interior structure, composition, and evolution of dwarf planet Ceres
- Gas-water-rock interactions on exoplanets

Grants and fellowships

Co-I, DAVINCI NASA Discovery-class mission to Venus grant, 2023-present
Co-I, NASA, MAss SPectrometer for Planetary EXploration/Europa (MASPEX), Europa Clipper mission grant, 2015-present
Co-I, NASA, Radar for Europa Assessment and Sounding: Ocean to Near-surface (REASON) grant, Europa Clipper mission, 2015-present
Co-I, NASA, SUrface Dust Mass Analyzer (SUDA), Europa Clipper mission, 2016-present
Co-Investigator (Co-I), NASA Solar System Workings grant, 2024-2027
Co-Investigator (Co-I), NASA Solar System Workings grant, 2023-2026
Principal Investigator (PI), NASA Solar System Workings grant, 2019-23
PI, NASA Solar System Workings grant, 2019-2024
PI, NASA Habitable Worlds grant, 2018-2024
PI, NASA Cosmochemistry grant, 2014-2019
PI, NASA Mars Fundamental Research grant, 2013-2016
PI, NASA Planetary Geology/Geophysics grant, 2011-2015
PI, NASA Outer Planets Research grant, 2010-2014
PI, NASA Cosmochemistry grant, 2010-2014
PI, NASA Planetary Geology/Geophysics grant, 2008-2012
PI, NASA Mars Fundamental Research grant, 2007-2012
PI, NASA Cosmochemistry grant, 2007-2010
PI, NSF Planetary Astronomy research grant, 2005-2009
PI, NASA Outer Planets Research grant, 2005-2008
PI, NASA Mars Fundamental Research grant, 2006
PI, NASA Origins of Solar System grant, 2004-2007
PI, Russian Foundation for Basic Research grant, 1994
Japan Society for the Promotion of Science (JSPS) research fellowship, 1996
NASA Space Grant at ASU (for mentoring undergraduate interns), 2005-2006
Co-PI, NATO Research Collaborative grant, 1996
Co-PI, Arizona State University – Vernadsky Institute sub-grant, 1992-1993
Co-I, NASA Exoplanet System Science (NexSS) grant, 2015-2021
Co-I, NASA Outer Planets Research grant, 2010-2014
Co-I, NASA Astrobiology Institute grant, 2009-2015
Co-I, NASA Exobiology and Evolutionary Biology grant, 2005-2008
Co-I, NASA Exobiology grant, 2002-2005
Co-I, International Science Foundation grant, 1993-1994
Co-I, Arizona State University – Vernadsky Institute Science Contract, 1992-1993

Professional activities and service; university service

Co-Lead of the *Science Goals* subgroup, *Ocean Worlds Working Group* (OWWG) (2023 – present)

Member of the *Dean's Faculty Advisory Council* at ASU (2022 – 2024)

Co-Chair of the *Composition Working Group*, *Europa Clipper* NASA mission (2020 – 2023)

Member of the Graduate Committee (SESE/ASU), 2018 – 2020, 2022 – present

Member of the Publication Committee, *The Meteoritical Society* (2021 – 2023)

Member of the *Temperature-Time Tiger Team* to prepare *Thresholds of Temperature and Time for Mars Sample Return*" (a report requested by the NASA Mars Sample Return program, 2022)

Member, science proposal review panels for NASA *Discovery*, *Emerging Worlds*, *Cosmochemistry*, *Habitable Worlds*, *Solar System Workings*, *Astrobiology Institute*, *Mars Fundamental Research*, *Planetary Geology and Geophysics*, *Outer Planets Research*, and *a non-specified NASA program* (2023).

Reviewer of funding research proposals for the *NASA Cosmochemistry*, *Emerging Worlds*, *Origins of the Solar Systems*, *Habitable Worlds*, *Solar System Workings*, *Exobiology*, *Mars Fundamental Research*, *Mars 2020 Participating Scientists*, *Mars Data Analysis*, *Cassini Data Analysis*, *Outer Planets Research*, *a non-specified NASA program to study outer solar system*, *Planetary Geology and Geophysics*, *Exobiology and Evolutionary Biology* programs, *NASA Postdoctoral Program*, *NASA Earth and Space Science Fellowship*, *NASA Astrobiology Institute*, *NASA Astrobiology Institute Director's Discretionary Fund*, *NASA Glenn Research center*, *National Science Foundation*, *The Petroleum Research Fund of the American Chemical Society*, *European Research Council, Executive Agency, French National Research Agency, Swiss National Science Foundation*, *ETH Zurich Research Commission*, and *UKRI Future Leaders Fellowships.*

Manuscript reviewer for *Science*, *Science Advances*, *Nature*, *Nature Geoscience*, *Nature Astronomy*, *Nature Communications*, *Nature Scientific Reports*, *Proc. Natl. Acad. Sci. USA*, *Geochimica et Cosmochimica Acta*, *J. of Geophysical Research: Planets*, *Meteoritics and Planetary Science*, *Earth and Planetary Science Letters*, *Icarus*, *Geophysical Research Letters*, *Planetary Science Journal*, *American Mineralogist*, *Astrophysical Journal, Astrophysical Journal Letters*, *Acta Astronautica*, *Chemical Geology*, *Computers and Geosciences*, *Astrobiology*, *Space Science Reviews, Reviews in Mineralogy and Geochemistry, Advances in Space Science*, *Solar System Research*, *Earth and Planetary Science*, *Origins of Life and Evolution of Biospheres*, *Deep Sea Research*, *Remote Sensing*, and *Oxford Research Encyclopedia of Planetary Science*.

Organizer of the *Topics in Mineralogy of the Solar System* (with Steven Ruff) at ASU/SESE. 2006 – 2007, 2011)

Organizer of the *Martian Mineralogy* (with Paul Niles) seminar series at the Department of Geology, ASU, 2004 – 2005

Deputy director of the *Laboratory of Comparative Planetology and Meteoritics* at the Vernadsky Institute, Russian Academy of Sciences, Moscow (1991 – 1996)

Organizing committee member for the *Workshop on Modeling Martian Hydrous Environments*, 2009

Member of an international group "*Active Enceladus*" sponsored by the International Space Science Institute (ISSI), Bern, Switzerland (2009 – 2012).

Member of science/technology implementation teams for an instrument proposal for the European Space Agency JUICE mission (2012), for three instrument proposals for future NASA Europa mission (2014), and for NASA Discovery (2010, 2015, 2019) and New Frontiers mission (2009, 2017) proposals.

Organizer, 18th Vernadsky-Brown Micro-symposium (Russian-American Working Meeting on Planetology), Moscow, 1993

Head, Council of Junior Scientists at the Vernadsky Institute, Moscow, 1988 – 1989

Organizing committee member, *The First All-Soviet Union Symposium on Thermodynamics in Geology*, Suzdal', USSR, March 1985

Professional societies:

Meteoritical Society
American Geophysical Union

Some Presentations and Lectures

Venus Experiments Workshop, Wesleyan University, June 2023

Venus geochemistry/petrology panel. Decadal Survey in Planetary Sciences, 2021

First Aqua-planetology symposium, ELSI, Tokyo, 2019

4th Tokyo Area Planetary Sciences meeting, *National Observatory of Japan*, Tokyo, 2019

Internal structure of carbonaceous chondrite parent bodies and their link with primitive asteroids. Villefranche Sur Mer, France, June 2-4, 2014

5th International Congress on the Science and Technology of Steelmaking, Dresden, Germany, 2012 (invited talk on Mercury's melts and a public lecture)

European Planetary Science Congress and the DPS meeting, 2011

American Geophysical Union Fall Meetings, 1996, 2005a, 2005b, 2010, 2011

Active Enceladus, International Space Science Institute workshop, Bern, 2010

Colloquium talk, School of Earth and Space Exploration, ASU, 2010

Colloquium talk, Washington University in St. Louis, 2009

The Enigma of Enceladus, International Workshop, Leicester, UK, 2009

Workshop on Modeling Martian Hydrous Environments, Houston, 2009

Evolution of Small Ice-Silicate Bodies in the Solar System, Winthrop, WA, 2009

Lunar and Planetary Institute, Houston, 2006

Planetary Science Institute, Tucson, 2006

AGU Chapman Conf. on Venus as a Terrestrial Planet, Key Largo, FL, 2006

Moscow State University, Russia, 2004

Marine Biological Laboratory at Woods Hole, Massachusetts, 2001

University of Washington, Seattle, 2000

St. Louis Astronomical Society, 2000

University of Tokyo, Department of Earth and Planetary Physics, 1996

Experimental Mineralogy, Petrology, and Geochemistry, Moscow, 1994

Institute of Raumsimulation (DLR), Cologne, Germany, 1992

USSR Mineralogical Society Annual Meeting, Leningrad, 1988

Other Oral Presentations

Lunar and Planetary Science Conferences, Houston, TX, 1999-2007, 2010, 2011, 2014, 2015, 2018, 2019, 2023, 2025

Annual Meetings of the Meteoritical Society, 2003, 2004, 2005, 2008, 2013, 2015, 2018

American Geophysical Union Fall meetings, 1996, 1998, 2002, 2004, 2005, 2009, 2010, 2011, 2019, 2021

Astrobiology Science Conferences, 2000, 2006, 2010

Joint European Planetary Science Congress and the DPS meeting, 2011

Goldschmidt Conference, Prague, 2011

The Moscow Solar System Symposium, Space Science Institute (IKI) 2013, 2022

40th COSPAR Assembly, Moscow, 2014

Active Enceladus, International Space Science Institute, *Bern*, *2010*

Workshop on Venus Geochemistry: Progress, *Prospects*, *and New Missions*, 2009

Workshop on Ices, Oceans, and Fire: Satellites of the Outer Solar System, 2007

Enceladus Focus Group Meeting II, 2007

Europa Focus Group Meeting V, 2006

Oxygen in Asteroids and Meteorites, 2005

Second Conference on Early Mars, 2004

Origin of Earth and Moon, 1998

Scientific Conference for Mars Exploration, Bad Honnef, Germany, 1992

Intl. Workshop: Engineering Model of Mars Environment, Hungary, 1990

Fourth International Conference on Mars, 1989

Vernadsky-Brown Microsymposia on Comparative Planetology, 1986-1989, 1991, 1995, 2002

Department of Geological Sciences/SESE, Arizona State Univ., 1990, 2004-2006, 2010

Department Earth and Planetary Sci., Washington University in St. Louis., 1997, 1999, 2000, 2002, 2009

Vernadsky Institute, Moscow, 1984, 1987, 1988, 1989, 1990, 1994, 1998

Woods Hole Oceanographic Institution, Marine Chemistry & Geochemistry, 2000

Brown University, Planetary Geology Group, 2000

Teaching

- *Planetary Geochemistry*, Arizona State University, 2015, 2019
- *Oceans and the Atmosphere*, Washington University in St. Louis, 2001, 2002
- *Planetary Materials*, Shandong University, Weihai campus, China, 2016 (one-week class as part of a three-week summer course)

Advising, supervision, advisory committees

Advising graduate students at ASU: Lev Spivak-Birndorf at ASU, 2008-2010 (supervised research), Christopher Glein at ASU, 2006-2010 (co-adviser), Amy McAdam, 2005-2008 (co-adviser), Eliana Perlman (2024 - present)

Co-chair of the Ph.D. examination committee at ASU (Amy McAdam, 2008).

Member of the Ph.D. examination committees at ASU: James Ashley (2010), Christopher Glein (2012), Simon Porter (2013), Jinping Hu (2016), Divya Peddinti (2017), Travis Gabriel (2019), Emerson Speyerer (2023)

Member of the Ph.D. technical review committees at ASU: Amy McAdam (2007, co-chair), James Ashley (2009), Christopher Glein (2011), Simon Porter (2013), Divya Peddinti (2016), Travis Gabriel (2019), Emerson Speyerer (2022), Eamonn Needham (2023)

Chair of the Candidacy Examination committees at SESE/ASU: Travis Gabriel (2017), Sierra Ferguson (2018), John Christoph (2018), Emerson Speyerer (2020), Eamonn Needham (2021), Ashley Herbst (4/2022, 10/2022)

Member of the Candidacy Examination committees at SESE/ASU: Christopher Glein (2007), Lev Spivak-Birndorf (2009), Simon Porter (2009), Divya Peddinti (2012), Nikhil Monga (2012), Nuri Park (2022), Ethan Edmans (2023)

Graduate student advisory committee member: Melissa Bunte (2010); Divya Peddinti (2011–2017); Travis Gabriel (2014–2019); Sierra Ferguson (2018); John Christoph (2018); Kevin Hubbard (2019); Emerson Speyerer (2020–2023); Asley Herbst (2022–2023); Eamon Needham (2021–2024); Ethan Edmans (2022–present); Nuri Park (2022–present); Eliana Perlman (2024 - present); Brandi Daddario (2025 - present); Guangpu Yi (2025 - present)

Senior thesis reader/co-advisor (Alex Mastrean, ASU SESE/Barrett Honors College, 2015)

ASU Barrett College student science advisor: Megan Hummel (2025 - present)

Mentoring undergraduate students at ASU/SESE: Aaron Thero (2025 - present), Karman Oskouie (2025- present)

Undergraduate student adviser, ASU/SESE, 2008

Advising undergraduate researchers/workers

Michelle Krieg, Arizona State University, 2005-2006
Oleg Suleimenov, Lomonosov Moscow State University, 1984-1985

Publications

Peer-reviewed publications: 84 (+1 in review)
Other reviewed and non-refereed publications: >197

Citation indices *h-index*: 43 (Google Scholar); *h-index* since 2020: 28 (Google Scholar)
h10 index: 82 (Google Scholar); *h10* index since 2020: 55 (Google Scholar)
https://scholar.google.com/citations?hl=en&user=5YGXpo0AAAAJ

IN REVIEW

85. Santos A. R., **Zolotov M. Yu.**, Gilmore M. S., C. Motil C., Phillips K., Tu. V. (2025) Coupled mineral and gas chemistry in a 60-day Venus weathering experiment at the Glenn Extreme Environments Rig (GEER). *J. Geophys. Res. Planets*, submitted 9/2025, preprint, https://essopenarchive.org/doi/full/10.22541/essoar.176192580.02738873

PUBLISHED, accepted, and 'in press'

84. **Zolotov M.** (2025) Sulfur on Venus: Atmospheric, Surface, and Interior Processes. In: D. Harlov and G. Pokrovski (Eds.), *The Role of Sulfur in Planetary Processes: From Cores to Atmospheres.* Springer Geochemistry, to be published 12/2025. Preprint, https://doi.org/10.48550/arXiv.2409.13256

83. Gilmore, M. et al. (2025) Overview of the MMT 60-day GEER experiment on geologic samples at Venus surface conditions. *J. Geophys. Res. Planets*, DOI: 10.1029/2025JE009237. Preprint, e3fcb1865201f8b2c53824be6f0ab8f8.pdf

82. Mogul R., **Zolotov M. Yu.**, Way M. J., Limaye S. S. (2025) Re-analysis of Pioneer Venus data: Water, iron sulfate, and sulfuric acid are major components in Venus' aerosols. *J. Geophys. Res. Planets* 130, e2024JE008582. https://doi.org/10.1029/2024JE008582

81. Filiberto F., **Zolotov M. Yu**., Kohler E., et al. (2025) Assessing the evidence for active volcanism on Venus: Current limitations and prospects for future investigations. *Geochemistry*, 126316. https://doi.org/10.1016/j.chemer.2025.126316

80. Roth L., et al. (2025) Plume activity on Europa: Current knowledge and search strategy for Europa Clipper. *Planetary Science Journal*, 6:182. https://doi.org/10.3847/PSJ/adea6a

79. Kempf S., et al. (2025) SUDA: A SUrface Dust Analyser for compositional mapping of the Galilean moon Europa. *Space Science Reviews* 221, 10. https://doi.org/10.1007/s11214-025-01134-0

78. Becker T. M., **Zolotov M. Yu.**, Gudipati, M. S., Soderblom J.M., McGrath M. et al. (2024) Exploring the composition of Europa with the upcoming Europa Clipper mission. *Space Science Reviews* 220, 49. https://doi.org/10.1007/s11214-024-01069-y

77. Blankenship D. D., Moussessian A., Chapin E., Young D. A., Patterson G. W., et al. (2024) Radar for Europa Assessment and Sounding: Ocean to Near-surface (REASON). *Space Science Reviews* 220, 51. https://doi.org/10.1007/s11214-024-01072-3

76. Pappalardo R. T., Buratti B. J., Korth H., Senske D. A., Blaney D. L., et al. (2024) Science overview of the Europa Clipper Mission. *Space Science Reviews* 220, 40. https://doi.org/10.1007/s11214-024-01070-5

75. Stephton M., Freeman K., Hays L., Thiessen F., Benison K., Carrier B., Dworkin JP, Glamoclija M., Gough R., Onofri S., Peterson R., Quinn R., Russell S. Stüeken E. E., Velbel M., **Zolotov M.** (2024) Thresholds of temperature and time for Mars Sample Return: Final report of The Mars

Sample Return Temperature-time Tiger Team. *Astrobiology* 24(5), 443–488. https://doi.org/10.1089/ast.2023.0098

74. Wilson C., Marcq E., Gillmann C., Widemann T., Korablev O., Müller N., Lefèvre M., Rimmer P. B., Séverine R., **Zolotov M. Yu.** (2024) Possible effects of volcanic eruptions on the modern atmosphere of Venus. *Space Science Reviews* 220, 31. https://doi.org/10.1007/s11214-024-01054-5

73. Waite J. H., J. L. Burch, T. G. Brockwell, D. T. Young, G. P. Miller, S. C. Persyn, J. M. Stone, P. Wilson IV, K. E. Miller, C. R. Glein, R. S. Perryman, M.A. McGrath, S. J. Bolton, W. B. McKinnon, O. Mousis, M. A. Sephton, E. L. Shock, M. Choukroun, B. D. Teolis, D. Y. Wyrick, **M. Y. Zolotov**, C. Ray, A. L. Magoncelli, R. R. Raffanti, R. L. Thorpe, A. Bouquet, T.L. Salter, K.J. Robinson, C. Urdiales, Y.D. Tyler, G .J. Dirks, C. R. Beebe, D. A. Fugett, J. A. Alexander, J. J. Hanley, Z. A. Moorhead-Rosenberg, K. A. Franke, K. S. Pickens, R. J. Focia, B. A. Magee, P. J. Hoeper, D. P. Aaron, S. L. Thompson, K. B. Persson, R. C. Blasé, G. F. Dunn, R. L. Killough, A. De Los Santos, R. J. Rickerson, O. H. W. Siegmund (2024) MASPEX-Europa: The Europa Clipper neutral gas mass spectrometer investigation. *Space Science Reviews* 220, 30. https://doi.org/10.1007/s11214-024-01061-6

72. Vance S. D., Craft, K. L., Shock, E. et al. (2023) Investigating Europa's habitability with Europa Clipper. *Space Science Reviews* 219, 81. https://doi.org/10.1007/s11214-023-01025-2

71. **Zolotov M. Yu.** (2023) Phosphate discovery hints at chemistry and origin of Enceladus. *Nature* (News and Views) 618, 459–460. https://doi.org/10.1038/d41586-023-01886-1

70. Nakamura T., Matsumoto M., Amano K., Enokido Y., Zolensky M. E., Mikouchi T., Genda, H., Tanaka S., **Zolotov M. Y.,** et al. (2022) Formation and evolution of carbonaceous asteroid Ryugu: Direct evidence from returned samples. *Science* 379, eabn8671. https://doi.org/10.1126/science.abn8671

69. Gillmann C., M. J. Way G. Avice D. Breuer, G. J. Golabek, D. Höning, J. Krissansen-Totton, H. Lammer, A-C. Plesa, M. Persson, J. G. O'Rourke, A. Salvador, M. Scherf, and **M. Y. Zolotov** (2022) The long-term evolution of the atmosphere of Venus: processes and feedback mechanisms. *Space Science Reviews* 218, 56. https://doi.org/10.1007/s11214-022-00924-0

68. Garvin J. B., S. A. Getty, G. N. Arney, N. M. Johnson, E. Kohler, K. O. Schwe, M. Sekerak, A. Bartels, R. S. Saylor, V. E. Elliott, C. S. Goodloe, M. B. Garrison, V. Cottin, N. Izenberg, R. Lorenz, C. A. Malespin, M. Ravine, C. R. Webster, D. H. Atkinson, S. Aslam, S. Atreya, B. J. Bos, W. B. Brinckerhoff, B. Campbell, D. Crisp, J. R. Filiberto, F. Forget, M. Gilmore, N. Gorius, D. Grinspoon, A. E. Hofmann, S. R. Kane, W. Kiefer, S. Lebonnois, P. R. Mahaffy, A. Pavlov, M. Trainer, K. J. Zahnle, and **M. Zolotov** (2022) Revealing the Mysteries of Venus: The DAVINCI Mission. *The Planetary Science Journal* 3, 117. https://doi.org/10.3847/PSJ/ac63c2

67. Yoda, M., Sekine, Y., Fukushi, K., Kitajima, T., Gankhurel, B., Davaadorj Davaasuren, D., Gerelmaa, T., Ganbat, S., Shoji, D., **Zolotov, M. Yu.**, and Takahashi, Y. (2021) Field investigations of chemical partitioning and aqueous chemistry of freezing closed-basin lakes in Mongolia as analogs of subsurface brines on icy bodies. *J. Geophys. Res. Planets* 126, e2021JE006972. https://doi.org/10.1029/2021JE006972

66. Glaser, D. M., H. E. Hartnett, S. J. Desch, C. T. Unterborn, A. Anbar, S. Buessecker, T. Fisher, S. Glaser, S. R Kane, C. M. Lisse, C. Millsaps, S. Neuer, J. G. O'Rourke, N. Santos, S. I. Walker, **M.**

Zolotov (2020) Detectability of life using oxygen on pelagic planets and water worlds. *The Astrophysical Journal* 893, 163. https://iopscience.iop.org/article/10.3847/1538-4357/ab822d/pdf

65. Glein C. R., and **Zolotov M. Y.** (2020) Hydrogen, hydrocarbons, and habitability across the solar system. *Elements* 16, 47–52.

64. **Zolotov M. Yu.** (2020) The composition and structure of Ceres' interior. *Icarus* 335, 113404. https://doi.org/10.1016/j.icarus.2019.113404

63. **Zolotov M.** (2019) Chemical weathering on Venus. In *Oxford Research Encyclopedia of Planetary Science*. Oxford University Press. http://dx.doi.org/10.1093/acrefore/9780190647926.013.146.

62. **Zolotov M. Yu.** (2018) Gas-solid interactions on Venus and other solar system bodies. *Reviews in Mineralogy and Geochemistry* 84, 351–392.

61. McKinnon W. B., Waite, J. H., Mousis, O., Lunine J. I., **Zolotov M.** (2018) The mysterious origin of Enceladus: A compositional perspective. In: *Enceladus and the Icy Moons of Saturn*, ed. by P. M. Schenk et al., University of Arizona Press, Tucson, pp. 17–38.

60. Zolotov M. Yu. (2017) Aqueous origins of bright salt deposits on Ceres. *Icarus* 296, 289–304.

59. Jogo K., Nakamura T., Ito M., Wakita S., **Zolotov M. Yu.**, Messenger S. R. (2017) Mn-Cr ages and formation conditions of fayalite in CV3 carbonaceous chondrites: Constraints on the accretion ages of chondritic asteroids. *Geochim. Cosmochim. Acta* 199, 58–74.

58. **Zolotov M.** (2016) Planetary Science: Salty Ceres. *Nature Geoscience* 9, 476–477.

57. **Zolotov M. Yu.,** Mironenko M. V. (2016) Chemical models for martian weathering profiles: Insights into formation of layered phyllosilicate and sulfate deposits. *Icarus* 275, 203–220. http://dx.doi.org/10.1016/j.icarus.2016.04.011

56. Evans, L. G., Peplowski, P. N., McCubbin, F. M., McCoy, T. J., Nittler, L. R., **Zolotov, M. Yu.**, Ebel, D. S., Lawrence, D. J., Starr, R. D., Weider, S. Z., and Solomon, S. C. (2015) Chlorine on the surface of Mercury: MESSENGER gamma-ray measurements and implications for the planet's formation and evolution. *Icarus* 257, 417–427.

55. **Zolotov M. Yu.** (2015) Solid Surface - Atmosphere Interactions. *Treatise on Geophysics*, *Second edition*, Schubert G. (ed.), vol. 10, *Physics of Terrestrial Planets and Moons*, pp. 411–427.

54. **Zolotov M. Yu.** (2014) Formation of brucite and cronstedtite-bearing mineral assemblages on Ceres. *Icarus* 228, 13–26.

53. **Zolotov, M. Yu.**, Sprague, A., Hauck, S., II, Nittler, L., Solomon, S., and Weider, S. (2013) The redox state, FeO content, and origin of sulfur-rich magmas on Mercury. *J. Geophysical Research*: *Planets* 118, 138–146.

52. Lehner S. W., Petaev M. I., **Zolotov M. Yu.**, Buseck P. R. (2013) Formation of niningerite by silicate sulfidation in EH3 enstatite chondrites *Geochim. Cosmochim. Acta* 101, 34–56.

51. **Zolotov, M. Yu.** (2012) Aqueous fluid composition in CI chondritic materials: Chemical equilibrium assessments in closed systems. *Icarus* 220, 713–729.

50. Mironenko M. V., **Zolotov M. Yu.** (2012) Equilibrium-kinetic model for water-rock interactions in closed systems. *Geochemistry International* 50, 1-7.

49. **Zolotov M. Yu.** (2011) On the chemistry of mantle and magmatic volatiles on Mercury. *Icarus* 212, 24–41.

48. Sohl, F., Choukroun, M., Kargel, J., Kimura, J., Pappalardo R., Vance, S., and **Zolotov, M.** (2010) Subsurface Water Oceans on Icy Satellites: Composition and Exchange Processes. *Space Science Reviews* 153, 285–510.

47. **Zolotov, M. Yu.**, and Kargel, J. S. (2009) On the Composition of Europa's Icy Shell, Ocean and Underlying Rocks. In *Europa* (R. Pappalardo, W. B. McKinnon, and K. Khurana, Eds.). University of Arizona Press, Tucson, 431–457.

46. **Zolotov, M. Yu.** (2009) On the composition and differentiation of Ceres. *Icarus* 204, 183–193.

45. Jogo, K., Nakamura, T., Noguchi, T., **Zolotov, M. Yu.** (2009) Fayalite in the Vigarano CV3 Carbonaceous Chondrite: Occurrences, Formation Age and Conditions. *Earth and Planetary Science Letters* 227, 320–328.

44. Niles*, P. B., **Zolotov, M. Yu.**, and Leshin, L. (2009) Insights into the Formation of Fe- and Mg-rich Aqueous Solutions on Early Mars Provided by the ALH 84001 Carbonates. *Earth and Planetary Science Letters* 226, 122–130.

43. Glein*, C. R., **Zolotov, M. Yu.**, and Shock, E. L. (2008) Oxidation state of hydrothermal fluids on early Enceladus. *Icarus* 197, 157–163.

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