CURRICULUM VITAE

Dr. Mikhail (Misha) Zolotov

School of Earth and Space Exploration, Arizona State University
Tempe, AZ 85287-1404
tel. (480) 965-4739; fax. (480) 965-8960; E-mail: zolotov@asu.edu

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 honor), 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

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-Investigator (Co-I), NASA Solar System Workings grant, 2024-2027
Co-Investigator (Co-I), NASA Solar System Workings grant, 2023-2026
Co-I, DAVINCI NASA Discovery-class mission to Venus, 2022-2024
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-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, 18-th Russian-American Working Meeting on Planetology (Vernadsky-Brown Micro-symposium), Moscow, 1993

Head, Counsel 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

Invited 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

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 a part of a three-week summer course)

Advising, supervision, advisory committees

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

Co-chair of the Ph.D. examination committee at ASU (Amy McAdam, 2008). Thesis is titled: "*Martian weathering processes: Terrestrial analogs and theoretical modeling studies*".

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 – present); Ethan Edmans (2022 – present); Nuri Park (2022 – present).

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

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: 78 (+ 1 preprint, +2 in review)
Other reviewed and non-refereed publications: >190

Citation indices

h-index: 40 (Google Scholar); *h-index* since 2019: 27 (Google Scholar)
h10 index: 79 (Google Scholar); *h10* index since 2019: 52 (Google Scholar)

IN REVIEW

81. Mogul R., **Zolotov M. Yu.**, Way M. J., Limaye S. S. Evidence of heterogeneously composed aerosols in Pioneer Venus mass spectra. *J. Geophys. Res. Planets*, 2024JE008582.

80. Kempf S., et al. (2024) SUDA: A SUrface Dust Analyser for compositional mapping of the Galilean moon Europa. *Space Science Reviews* 220. Revision submitted.

PREPRINTS

79. **Zolotov M.** (2024) Sulfur on Venus: Atmospheric, Surface, and Interior Processes. In: D. Harlov and G. Pokrovsky (Eds.), *The Role of Sulfur in Planetary Processes: from Atmospheres to Cores*. Springer Geochemistry. Preprint arXiv:2409.13256. https://doi.org/10.48550/arXiv.2409.13256

PUBLISHED

78. 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

77. 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

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* 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, **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, **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., **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.

42. McAdam*, A. C., **Zolotov, M. Yu.**, Mironenko, M. V., and Sharp, T. G. (2008) Formation of Silica by Low-Temperature Acid Alteration of Martian Rocks. *Journal of Geophysical Research [Planets]* 113, E08003, doi:10.1029/2007JE003056.

41. McAdam*, A. C., **Zolotov, M. Yu.**, Leshin, L. A., and Sharp, T. G. (2008) Preferential Low-pH Dissolution of Pyroxene in Plagioclase-Pyroxene Mixtures: Implications for Martian Surface Materials. *Icarus* 196, 90–96.

40. **Zolotov, M. Yu.** (2007) An oceanic composition on early and today's Enceladus. *Geophysical Research Letters* 34, L23203, doi: 1029/2007GLG031234.

39. **Zolotov, M. Yu.**, and Mironenko, M. V. (2007) Timing of acid weathering on Mars: A Kinetic-Thermodynamic Assessment. *Journal of Geophysical Research [Planets]* 112, E07006, doi:10.1029/2006JE002882.

38. **Zolotov, M. Yu.** (2007) Solid Planet - Atmosphere Interactions. *Treatise on Geophysics*. Schubert G. (ed.), Volume 10, pp. 349–370, Oxford: Elsevier Ltd. doi:10.1016/B978-044452748-6/00181-4.

37. **Zolotov, M. Yu.,** Mironenko, M. V., and Shock, E. L. (2006) Thermodynamic Constraints on Fayalite Formation on Parent Bodies of Chondrites. *Meteoritics and Planetary Science* **41**(11), 1775–1796.

36. Owen, T. C., Niemann, H., Atreya, S., and **Zolotov, M. Y.** (2006) Between Heaven and Earth: The Exploration of Titan. *Faraday Discussions* **133**, 387–391.

35. Seewald, J., **Zolotov, M. Yu.**, and McCollom, T. (2006) Experimental Investigation of Carbon Speciation under Hydrothermal Conditions. *Geochimica et Cosmochimica Acta* **70**, 446–460.

34. **Zolotov**, **M**. **Yu**., and Shock, E. L. (2005) Formation of Jarosite-bearing Deposits through Aqueous Oxidation of Pyrite at Meridiani Planum, Mars. *Geophysical Research Letters* **32**, No. 21, L21203, doi: 10.1029/2005 GL024253.

33. **Zolotov**, **M**. **Y**., and Shock, E. L. (2004) A Model for Low-Temperature Biogeochemistry of Sulfur, Carbon, and Iron on Europa. *J. Geophysical Research [Planets]* 109, E06003, doi: 10.1029/2003JE002194.

32. Kargel, J. S., Carlson, R. W., Davies, A. G., Fegley, B., Gillespie, A., Greeley, R., Howell, R. R. Jessup, K. L., Kamp, L., Keszthelyi, L. P., Lopes, R. M., MacIntyre, T.J., Marchis, F., McEwen, A. S., Milazzo, M., Perry, J., Radebaugh, J., Schaefer, L., Schmerr, N., Smythe, D. W., Spencer, J. R., Williams, D. A., Zhang, J., and **Zolotov, M. Yu.** (2003) Extreme Volcanism on Io: Latest Insights at the End of Galileo Era. *Eos, Transactions, Amer. Geophysical Union*, **84**, No. 33, 113, 318.

31. **Zolotov**, **M**. **Y**., and Shock, E. L. (2003) Energy for Biologic Sulfate Reduction in a Hydrothermally Formed Ocean on Europa. *Journal of Geophysical Research, [Planets]* **108**, E4, 5022, doi: 10.1029/2002JE001966.

30. Moses, J. I., **Zolotov**, **M**. **Yu**., and Fegley, B., Jr. (2002) Alkali and Chlorine Photochemistry in a Volcanically Driven Atmosphere on Io. *Icarus* **156**, 107–135.

29. Moses, J. I., **Zolotov**, **M**. **Yu**., and Fegley, B., Jr. (2002) Photochemistry of a Volcanically Driven Atmosphere on Io: Sulfur and Oxygen Species from a Pele-type Eruption. *Icarus* **156**, 76–106.

28. **Zolotov**, **M**. **Yu**., and Shock, E. L. (2001) Composition and Stability of Salts on the Surface of Europa and their Oceanic Origin. *Journal of Geophysical Research, [Planets]* **106**, 32815–32828.

27. **Zolotov, M**. **Yu**., and Shock, E. L. (2001) Stability of Condensed Hydrocarbons in the Solar Nebula. *Icarus* **150**, 323–337.

26. Fegley, B., Jr., and **Zolotov**, **M**. **Yu**. (2000) Chemistry of Sodium, Potassium and Chlorine in Volcanic Gases on Io. *Icarus* **148**, 193–210.

25. Shock, E. L., Amend J. P., and **Zolotov**, **M. Y.** (2000) The Early Earth vs. the Origin of Life. In *Origin of the Earth and Moon* (R. Canup and K. Righter, Eds.), pp. 527-543, Univ. of Arizona Press, Tucson.

24. **Zolotov**, **M**. **Yu**., and Fegley, B., Jr. (2000) Eruption Conditions of Pele Volcano on Io Inferred from Chemistry of its Volcanic Plume. *Geophysical Research Letters* **27**, 2789–2792.

23. **Zolotov**, **M**. **Yu**., and Shock, E. L. (2000) An Abiotic Origin for Hydrocarbons in the Allan Hills 84001 Martian Meteorite Through Cooling of Magmatic and Impact-Generated Gases. *Meteoritics and Planetary Science* **35**, 629–638.

22. **Zolotov**, **M**. **Yu**., and Shock, E. L. (2000) A Thermodynamic Assessment of the Potential Synthesis of Condensed Hydrocarbons during Cooling and Dilution of Volcanic Gases. *Journal of Geophysical Research, [Solid Earth]* **105,** 539–559.

21. **Zolotov, M**. **Yu**., and Fegley, B., Jr. (1999) The Oxidation State of Volcanic Gases and Interior of Io. *Icarus* **141,** 40–52.

20. **Zolotov**, **M**., and Shock, E. (1999) Abiotic Synthesis of Polycyclic Aromatic Hydrocarbons on Mars. *Journal of Geophysical Research, [Planets]* **104,** 14033–14049.

19. **Zolotov**, **M**. **Yu**., Fegley, B., Jr., and Lodders, K. (1999) Stability of Micas on the Surface of Venus. *Planetary and Space Science* **47,** 245–260.

18. **Zolotov**, **M**. **Yu**., and Fegley, B., Jr. (1998) Volcanic Origin of Disulfur Monoxide (S_2O) on Io. *Icarus* **133,** 293–297.

17. **Zolotov**, **M**. **Yu**., and Fegley, B., Jr. (1998) Volcanic Production of Sulfur Monoxide (SO) on Io. *Icarus* **132,** 431–434.

16. **Zolotov**, **M**. **Yu**., Fegley, B., Jr., and Lodders, K. (1997) Hydrous Silicates and Water on Venus. *Icarus* **130,** 475–494.

15. Fegley, B., Jr., **Zolotov**, **M**. **Yu**., and Lodders, K. (1997) The oxidation state of the lower atmosphere and surface of Venus. *Icarus* **125,** 416–439.

14. **Zolotov**, **M**. **Yu**. (1996) A Model for the Thermal Equilibrium of the Surface Venusian Atmosphere. *Geochemistry International* **33,** No. 10, 80–100.

13. Komada, N., Moecher, D. P., Westrum, E., Jr., Hemingway, B. S., **Zolotov**, **M**. **Yu**., Semenov, Yu. V., and Khodakovsky I. L. (1996) Thermodynamic Properties of Scapolites ranging from 10 K to 1000 K. *J. Chemical Thermodynamics* **28,** 941–973.

12. Komada, N., Westrum, E., Jr., Hemingway, B. S., **Zolotov**, **M**. **Yu**., Semenov, Yu. V., Khodakovsky, I. L., and Anovitz, L. M. (1995) Thermodynamic Properties of Sodalite at Temperatures from 15 K to 1000 K. *J. Chemical Thermodynamics* **27,** 1119–1132.

11. Surkov, Yu. A., Moskaleva, L. P., **Zolotov**, **M**. **Yu**., Kharykova, V. P., Manvelyan, O. S., Smirnov, G. G., and Golovin, A. V. (1994) Phobos-2 Data on Martian Surface Geochemistry. *Geochemistry International* **31,** No. 10, 50–58.

10. **Zolotov**, **M**. **Yu**., and Volkov, V. P. (1992) Chemical Processes on the Planetary Surface. In *Venus Geology, Geochemistry and Geophysics*. (V. L. Barsukov *et al*., Eds.), Univ. of Arizona Press, Tucson, 177–199.

9. Gooding, J. L., Arvidson, R. E., and **Zolotov**, **M**. **Yu**. (1992) Physical and Chemical Weathering. In *Mars*, (H. Kieffer, B. Jakosky, C. Snyder, and M. Matthews, Eds.), Univ. of Arizona Press, Tucson, 626-651.

8. **Zolotov**, **M**. **Yu.**, and Khodakovsky, I. L. (1989) Chemical Weathering. In *Planet Venus: Atmosphere, Surface, Interior Structure*, (V. L. Barsukov, and V. P. Volkov, Eds.), Nauka, Moscow, 262–278, (in Russian).

7. Sidorov, Yu. I., and **M**. **Yu**. **Zolotov** (1989) *Rocks and Soil of the Martian Surface*. Nauka: Russian Academy of Sciences, Moscow, 224 pp. (book in Russian with English summary and table of contents).

6. **Zolotov**, **M**. **Yu**. (1989) Chemical Weathering on Venus and Mars: Similarities and Differences. In Space chemistry and comparative planetology; International Geological Congress, Session, 28th, Washington, DC, July 9-19, 1989, Reports (A90-22785 08-91). Moscow, Izdatel'stvo Nauka, p. 71-80. (in Russian). https://ui.adsabs.harvard.edu/abs/1989sccp.book...71Z/abstract

5. Volkov, V. P., **Zolotov**, **M. Yu.**, and Khodakovsky, I. L. (1986) Lithospheric-Atmospheric Interaction on Venus. In *Chemistry and Physics of Terrestrial Planets*, (S. Saxena, Ed.), Springer-Verlag, New York, e.a., 136–190.

4. Sidorov, Yu. I. and **Zolotov**, **M**. **Yu.** (1986) Weathering of Martian Surface Rocks. In *Chemistry and Physics of Terrestrial Planets*, (S. Saxena, Ed.), Springer-Verlag, New York, e.a., 191–223.

3. Barsukov, V. L., Borunov, S. P., Volkov, V. P., Dorofeeva V. A., **Zolotov**, **M**. **Yu**., Parot'kin, C. V., Semenov, Yu. V., Shapkin, A. I., Sidorov, Yu. I. and Khodakovsky, I. L. (1986) Mineral Composition of Venus soil at Venera 13, Venera 14 and Vega 2 Landing Sites According to Thermodynamic Calculations. *Doklady Akademii Nauk USSR, Earth Science Sections* **287,** (2), 415–417, (in Russian)

   English translation: Mineral composition of the venusian regolith at the Venera-13, Venera-14 and Vega-2 landing sites, as estimated from thermodynamic calculations. Transactions (Doklady) of the USSR Academy of Sciences. Earth Science Sections 287:154–157

2. **Zolotov**, **M**. **Yu**. (1986) Geochemical Structure of Major Layering of the Ioko-Dovyren Dunite-Troctholite-Gabbro-Norite Intrusion (Northern Baikal Region). *Reg. Geol. Nek. Raionov SSSR* **7,** Moscow University, 18–23, (in Russian).

1. **Zolotov**, **M**. **Yu**. (1983) Distribution of Copper, Zinc, Nickel, Chromium, Titanium, and Silver in Rocks of the Large Tolbachik Fracture Eruption 1975-76 (Kamchatka [USSR]). *Reg. Geol. Nek. Raionov SSSR* **6,** Moscow University, 63–67, (in Russian).

Some other publications:

190. Mogul R., **Zolotov M. Yu**., Way M. J., Limaye (2024) Signs of heterogeneously composed aerosols in Pioneer Venus Mass Spectra. Venus Science Conference (Venus-SC 2024), held at PRL, India, Sept. 23 and 24, 2024.
189. **Zolotov M. Yu.,** Mogul R. M., Petkowski J. J., Horst S., Getty S. A., Arney G., Garvin J. B. (2024) Is there any ammonia present in Venus atmosphere? *Lunar and Planetary Science Conf.* 55, 2505. https://www.hou.usra.edu/meetings/lpsc2024/pdf/2505.pdf
188. Santos A. R., Gilmore M. S., Tu V. **Zolotov M. Yu**., Breitenfeld L. B. (2024) A sample-bases approach to constrain oxygen fugacity in a Venus weathering experiment at the Glenn Extreme Environment Rig. *Lunar and Planetary Science Conf.* 55, 2534. https://www.hou.usra.edu/meetings/lpsc2024/pdf/2534.pdf
187. Waite J. H. et al. (2024) The Europa Clipper MASPEX Investigation. EGU General Assembly 2024. EGU24-6809.
186. Mogul R., **Zolotov M. Y.**, Way M. J., Limaye S. S., Avice G. (2023). Reassessing Venus' Vertical Profiles for SO_2, N_2, and H_2O using Pioneer Venus Mass Spectra. *Venus as a System Conference*. Lunar and Planetary Institute Contribution 2891, #8040. https://www.hou.usra.edu/meetings/venussystem2023/pdf/8040.pdf
185. Ogliore R. C., Lopes R. M. C., Hofmann A. E., Turner N. J., Bolton S. J., de Kleer K. R. et al. (2023). The science case for Io sample return. *54th Lunar and Planet. Sci. Conf*., abstract 1326.
184. Santos A. R., Gilmore M. S., **Zolotov M. Yu**., Tu V. (2023). Constraining oxygen and sulfur fugacity in Venus weathering experiments in the Glenn Extreme Environment Rig**.** *Lunar and Planetary Science* 54, 2909.
183. Becker T. M., **Zolotov M. Yu**., Gupipati M. S., Soderblom J. M., McGrath M. A., Henderson B. L., and the Europa Clipper Composition Working Group (2023). The Europa Clipper Mission: Planned investigations of the composition of an icy world. *54th Lunar and Planet. Sci. Conf*., Abstract 2819.
182. **Zolotov M. Yu**., Mogul, R., Limaye, S. S., Way, M. J., Garvin J. B. (2023). Venus cloud composition suggested from the Pioneer Venus Large Probe neutral mass spectrometer data. *54th Lunar and Planet. Sci. Conf*., abstract 2880.
181. Sephton, M. A., Freeman, L., Hays, L., Thiessen, F., Benison, K., Dworkin, J., Glamoclija, M., Gough, R., Onofri, S., Peterson, R., Quinn, R., Russell, S., Stueeken, E., Velbel, M., **Zolotov, M.** (2022) *Thresholds of Temperature and Time for Mars Sample Return* (a report requested by the *Mars Sample Return* program). Submitted to NASA, March 6, 2022.\
180. **Zolotov M. Yu.**, Garvin J. B., and the DAVINCI science team. (2022) The DAVINCI mission. *The 13th Moscow Solar System Symposium* 13M-S3, 320-321, Space Research Institute, Moscow.
179. **Zolotov M. Yu.**, T. Nakamura, T., Zolensky, M. E., et al. (2022) Aqueous alteration on the Ryugu parent body constrained by chemical equilibrium models. *53rd Lunar and Planet. Sci. Conf*., abstract 2189.
178. Nakamura T., et al. (2022) Early history of Ryugu's parent asteroid: Evidence from return samples. *53rd Lunar and Planet. Sci. Conf*., abstract 1753.
176. **Zolotov, M. Yu.** and Liu, Y. (2021). Lunar volcanic gases and condensates: Chemical equilibria in the H-C-O-S-F-Cl-Na-K system. *AGU Fall Meeting*, abstract P41C-07.
175. Nakamura T. et al. (2021) Initial analysis of "stone" size Ryugu samples: current status. Hayabusa Symposium. Virtual meeting, November 16-17, 2021. https://curation.isas.jaxa.jp/symposium/2021/index.html
174. Yoda, M., Y. Sekine, K. Fukushi, T. Kitajima, B. Gankhurel, D. Davaasuren, T. Gerelmaa, S. Ganbat, D. Shoji, Y. Takahashi, **M. Zolotov** (2021) Salt partitioning on freezing closed-basin lakes in Mongolia: Implications for subsurface brine reservoirs on icy bodies in the Solar system. *Goldschmidt Conference*, Lyon, France, 4 - 9 July 2021, abstract 6158.
173. **Zolotov, M. Yu.** (2021) Iron salts and oxides in the history of the surface-atmosphere-cloud system on Venus. *52nd Lunar and Planet. Sci. Conf*., abstract 2615.
172. **Zolotov, M. Yu.** (2020) Very organic-rich bodies in the inner and outer solar system. *Goldschmidt Conference*. Abstract 2020003156.
171. **Zolotov, M. Yu.** and Garvin, J. B. (2020) Phosphorous-bearing compounds and atmosphere-surface chemical interactions on Venus. *AGU Fall Meeting*, abstract P091-0004.
170. **Zolotov, M. Yu.** (2020) Silica-normative mineralogy and abundant oxygen-rich organic matter in dust of comets 1P and 67P. *51st Lunar and Planet. Sci. Conf*., abstract 1260.
169. **Zolotov, M. Yu.** (2020) Water-CO_2-basalt interactions on terrestrial planets and exoplanets. *Exoplanets in our Backyard: Solar System and Exoplanet Synergies on Planetary Formation, Evolution, and Habitability*. LPI meeting, February 5-7, 2020. Abstract 3062.

168. **Zolotov, M. Yu.** (2019) Geochemistry and mineralogy of aqueous interactions on early Venus. *AGU Fall Meeting*, abstract P53A-09.
167. **Zolotov, M. Yu.** (2019) Abundance, composition and fate of organic matter in Ceres' interior. *Astrobiology Science Conference, Seattle, June 2019.* Abstract 481063.
166. **Zolotov, M. Yu.** (2019) Ceres' shape agrees with an organic-rich interior structure. *50th Lunar and Planet. Sci. Conf.*, Abstract 3063.
165. **Zolotov, M. Yu.,** N. B. Zolotova, S. J. Romaniello (2018) Water extracts from Murchison CM2 chondrite: Trace metals and major ions. *81th Annual Meeting of the Meteoritical Society*, Abstract 6340.
164. McKinnon, W.B., Waite, J. H., Glein, C. R., Vance, S. D., **Zolotov, M. Y.** (2018) Ocean-Rock Interactions on Europa and Enceladus: Origin and Compositional Perspectives. *Ocean Worlds*, 2018.
163. **Zolotov, M. Yu.** (2018) What affects the oceanic composition on Europa? *49th Lunar and Planet. Sci. Conf.*, Abstract 2872.
162. **Zolotov, M. Yu.** (2018) Dawn data agree with a compressed undifferentiated Ceres. *49th Lunar and Planet. Sci. Conf.*, Abstract 1341.
161. **Zolotov, M. Yu.,** and M. V. Mironenko (2017) Bright salts on Ceres: Aqueous accumulation and airborne emplacement. *48th Lunar and Planet. Sci. Conf.*, abstract 1241.
160. Glaze LS, Garvin JB, Robertson B, et al. (2017) DAVINCI: Deep atmosphere Venus investigation of noble gases, chemistry, and imaging. Aerospace Conference, 2017 IEEE, 1-5. Doi: 10.1109/AERO.2017.7943923.
159. Glein, C. R., **M. Y. Zolotov**, S. D. Vance, E. L. Shock, and F. Postberg (2016) The geochemistry of Enceladus's ocean on the eve of the end of Cassini mission. *Enceladus and the Icy Moons of Saturn*, Abstract 3042.
158. McKinnon, W. B., J. H. Waite, Jr., O. Mousis, J. I. Lunine, and **M. Yu. Zolotov** (2016) Composition of Enceladus: Origin and evolution. *Enceladus and the Icy Moons of Saturn*, Abstract 3011.
157. **Zolotov, M. Yu.** (2016) Formation of sulfates on parent bodies of carbonaceous chondrites, Ceres, Europa, and other icy bodies. *47th Lunar and Planet. Sci. Conf.*, Abstract 1778. https://www.hou.usra.edu/meetings/lpsc2016/pdf/1778.pdf
156. Glaze L. S., J. B. Garvin, N. M. Johnson, D. Atkinson, S. Atreya, J. Blacksberg, W. Brinckerhoff B. Campbell, D. Crisp, F. Forget, M. Gilmore, D. Grinspoon, N. Izenberg, P. R. Mahaffy, W. Kiefer, R. Lorenz, A. A. Pavlov, M. Ravine, M. G. Trainer, C. Webster, K. Zahnle, and **M. Zolotov** (2016) DAVINCI: Deep atmosphere Venus investigation of noble gases, chemistry, and imaging. *47th Lunar and Planet. Sci. Conf.*, Abstract 1560.
155. **Zolotov, M. Yu.** (2015) What solutions caused Noachian weathering on Mars? *AGU Fall Meeting*, Abstract P33A-2118.
154. **Zolotov, M. Yu.** (2015) Physical chemistry of impact-generated fluids and bright spots on Ceres. *Meteoritics and Planetary Science*, 50, Suppl., Meeting abstract 5384.
153. **Zolotov, M. Yu.**, Morlok A., and Libourel G. (2015) Microchemical environments of aqueous alteration in CR chondrites: Chemical equilibrium models. *46th Lunar and Planet. Sci. Conf.* Abstract 1470.
152. **Zolotov, M. Yu.** and Mironenko, M. V. (2015) Metasomatism on early Ceres: A global rock alteration and fluid transfer. *46th Lunar and Planet. Sci. Conf.* Abstract 1466.
151. **Zolotov, M. Yu.** (2014). Composition and oxidation state of an ocean on Europa. *40th COSPAR Scientific Assembly*. Held 2-10 August 2014, in Moscow, Russia, Abstract B0.3-26-14.
150. **Zolotov, M. Yu.**, and Mironenko, M. V. (2014). Massive sulfate deposits on Mars could be remobilized Noachian salts. *45th Lunar and Planet. Sci. Conf.* Abstract 2876.
149. **Zolotov, M. Yu.** and Postberg, F. (2014). Can nano-phase silica originate from chondritic fluids? The application to Enceladus' SiO_2 particles. *45th Lunar and Planet. Sci. Conf.* Abstract 2496.
148. Garvin, J.B., Glaze, L.S., Flores, A., et al. (2013) The case for a deep-atmospheric *in situ* mission to address the highest priority Decadal Survey questions for Venus. *AGU Fall Meeting*, Abstract P41D-1953.
147. **Zolotov, M. Yu.,** (2013) An impact origin for surface minerals on Ceres. *AGU Fall Meeting*, Abstract P23A-1751.
146. **Zolotov, M. Yu**., and Mironenko, M. V. (2013) Chemistry and timing of formation of Martian phyllosilicates and salts. *The 4th Moscow Solar System Symposium*, October 14-18, 2013, Space Research Institute, Moscow. Abstract.
145. **Zolotov, M. Yu.,** and Mironenko, M. V. (2013) On the formation of brucite and cronstedtite on Ceres. *76th Annual Meeting of the Meteoritical Society*, Abstract 5345.

144. **Zolotov, M. Yu.** (2013) Strong oxidants are needed to form sulfates in CM chondrites. *Meteoritics and Planetary Science*, 48, Suppl., A393.

143. Briois, C. *et al*. (2013) Dust OrbiTrap Sensor (DOTS) for in-situ analysis of airless planetary bodies. *LPSC* 44th, Abstract 2888.

142. **Zolotov, M.** (2012) Sulphur-Rich Silicate Melts on the Fe-rich Planet Mercury: Insights from Industrial Slags. *5th International Congress on the Science and Technology of Steelmaking*, Dresden, Oct. 1-3, 2012, Paper ID: 1329.

141. Sternovsky, Z. *et al.* (2012) Dust Mass Spectrometer for Compositional Mapping of the Galilean Moons. *American Astronomical Society, DPS meeting* #44, #112.18

140. Niles, P. B. *et al*. (2012) Multiple Smaller Missions as a Direct Pathway to Mars Sample Return. Concepts and Approaches for Mars Exploration, held June 12–14, 2012 in Houston, Texas. LPI Contribution No. 1679, id.4234

139. **Zolotov, M. Yu.,** and Mironenko, M. V. (2011). Evaluating Origins and Fate of Martian Phyllosilicates with Water-Rock Interaction Models. Abstract presented at 2011 Fall Meeting, AGU, San Francisco, Calif.

138. **Zolotov, M. Yu.,** Sprague, A. L., Nittler, L. R., Weider, S. Z., Starr, R. D., Evans, L. G., Boynton, W. V., Goldsten, J. O., Hauck, S.A., and Solomon, S. C. (2011). Implications of the MESSENGER discovery of high sulfur abundance on the surface of Mercury. AGU Fall Meeting, San Francisco, Calif.

137. **Zolotov, M. Yu.,** Tobie, G., Postberg, F., Magee, B., Waite, J. H., and Esposito, L. (2011). Chemical and Phase Composition of Enceladus: Insights from Cassini Observations. European Planetary Science Congress and DPS(AAS) meeting. October 2-7, 2011, Nantes, France, abstract EPSC-DPS-1330.

136. Waite, J. H., Magee, B., Brockwell, T., **Zolotov, M. Yu.**, Teolis, B., Lewis, W. S., and the INMS Team (2011). Enceladus' Plume Composition. *European Planetary Science Congress and DPS(AAS) meeting*. October 2-7, 2011, Nantes, France, abstract EPSC-DPS-61.

135. Mironenko, M.V., **Zolotov, M. Yu.** (2011). A Kinetic-Thermodynamic Model for Irreversible Water-Rock Interactions: Approaches and a Program Implementation. *1st Russian-Swiss Seminar «Methods for modeling of geochemical processes: algorithms, data prediction, experimental validation, and relevant applications»*, IGEM RAS, Moscow, May 17−20, 2011, abstract.

134. **Zolotov, M. Yu.,** and Mironenko, M. V. (2011) Chemical Models for Formation of Clay-Rich Layered Rocks in the Mawrth Vallis Region, Mars. *Goldschmidt conference*, abstract publ. in the Mineralogical Journal.

133. **Zolotov, M. Yu.** (2011). Fluid Chemistry of Aqueous Alteration of CI-type Chondritic Materials: Thermodynamic Assessment. *42nd Lunar and Planet. Sci*. [CD-ROM], abstract 1988.

132. Petaev, M. I., Lehner, S. W. **Zolotov, M. Yu.**, and Buseck, P.R. (2011) The Origin of Niningerite in EH3 Silica-bearing Chondrules: Insights from mineral equilibria. *42nd Lunar and Planet. Sci*. [CD-ROM], abstract 2323.

132. Lehner, S.W., Petaev, M. I., **Zolotov, M. Yu.**, and Buseck, P.R. (2011) The Origin of Niningerite in EH3 Silica-bearing Chondrules. *42nd Lunar and Planet. Sci*. [CD-ROM], abstract 1863.

131. **Zolotov, M. Yu.** (2010) Chemistry of Magmatic Volatiles and Explosive Volcanism on Mercury. *41st Lunar and Planet. Sci*. [CD-ROM], abstract 1246.

130. **Zolotov, M. Yu.** (2010) Compositions of Oceans on Icy Solar System Bodies. Abstract P24A-02 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

129. **Zolotov, M. Yu.** (2010) Chemical Disequilibria and Sources of Gibbs Free Energy inside Enceladus. Abstract P33A-1563 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

128. Spivak-Birndorf, L. J. and **Zolotov, M. Yu.** (2010) Elemental Composition of Comets: A Mass Balance model. *Meteorit. Planet. Sci*., 45, Suppl. A194.

127. **Zolotov, M. Yu.** (2010) Oceanic Chemistry Evolution on Icy Moons. *Astrobiology Science Conference 2010*, [CD-ROM], abstract 5304.

126. Mironenko M. V., **Zolotov M. Yu.,** Marshakov A. I., Yurasova, T. A., and Rybkina, A. A. (2010). Dissolution Kinetics of Kamacite: Electrochemical Study under Anoxic Aqueous Conditions. *XXXXI Lunar and Planet. Sci*. [CD-ROM], abstract 1403.

125. **Zolotov, M. Yu.** (2010) Chemistry of Magmatic Volatiles and Explosive Volcanism on Mercury. *XXXXI Lunar and Planet. Sci*. [CD-ROM], abstract 1246.

124. **Zolotov, M. Yu.** (2009) Dry Sources of Plume Emissions on Enceladus. *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., abstract P42A-06.

123. Rivkin, A. S., Castillo, J. C.; Abreu, N., Asphaug, E. I., Cheng, A. F.; Clark, B.E.; Cohen, B. A.; Conrad, P. G., Hayne, P. O., Howell, E. S., Johnson, T.V., Kramer, G. Y., Lebofsky, L. A., Li, J., Lim L. F., Lovell, A. J., Matson, D., McCord, T.B., McFadden, L., McKinnon, W. B., Milliken, R., Moore, W. B., Roberts, J. H., Russell, C. T., Schmidt, B.E., Sykes, M.V., Thomas, P. C., and **Zolotov, M. Y.** (2009) The Case for Ceres: Report to the Planetary Science Decadal Survey Committee. *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., abstract P52A-08.

122. McAdam, A. C., **Zolotov, M. Yu.,** Mironenko, M. V., and Sharp, T. G. (2009) Effect of Temperature on Silica Formation during Acid-Basalt Alteration: chemical Equilibrium Constraints. In *Workshop on Modeling Martian Hydrous Environments*. LPI Contribution No. 1482, Lunar and Planetary Institute, Houston, 44-45.

121. **Zolotov, M. Yu.** (2009) Aqueous Chemical Processes in Mars' History. In *Workshop on Modeling Martian Hydrous Environments*. LPI Contribution No. 1482, Lunar and Planetary Institute, Houston, 79-80.

120. **Zolotov, M. Yu.** (2009) Ceres: A Case for Porous, Undifferentiated, and Non-Icy Hydrated Body. *XXXX Lunar and Planet. Sci*. [CD-ROM], abstract 2329.

119. **Zolotov, M. Yu**., and Mironenko, M. V. (2009) On the Composition of Putative Oceans on Early Venus. In *Workshop on Venus Geochemistry: Progress, Prospects, and New Missions*, LPI Contribution 1470, Lunar and Planetary Institute, Houston, 53-54.

118. **Zolotov, M. Yu.** (2008) Is Ceres Differentiated? *Eos Trans. AGU*, *89*(52) Fall Meet. Suppl., abstract P51C-1424.

117. Glein, C. R., **Zolotov, M. Yu.**, and Shock, E. L. (2008) Liquid Water vs. Hydrogen Cyanide on Enceladus. *Eos Trans. AGU*, *89*(52) Fall Meet. Suppl., abstract P23B-1365.

116. **Zolotov, M. Yu**., and Mironenko, M. V. (2008) Aqueous Alteration of CM2 Chondrites Evaluated with Kinetic Models. *Meteoritics & Planetary Sciences*, **43**, Suppl. A177.

115. Mironenko, M. V., Melikhova, T. Yu., **Zolotov, M. Yu.**, Akinfiev, N. N., (2008) GEOCHEQ_M: Program complex for thermodynamic and kinetic modeling of geochemical processes in rock-water-gas systems. Version 2008. *Herald DGGGMS RAS*. http://www.scgis.ru/russian/cp1251/h_dgggms/1-2008/informbul-1_2008/mineral-22e.pdf

114. McAdam, A. C., **Zolotov, M. Yu.,** Mironenko, M. V., and Sharp, T. G. (2008) Formation of Martian Silica-Rich Deposits Through Rock Alteration: A Theoretical Assessment. *XXXIX Lunar and Planet. Sci*. [CD-ROM], abstract 2371.

113. **Zolotov, M. Yu.** (2008) Oceanic Composition on Europa: Constraints from Mineral Solubilities. *XXXIX Lunar and Planet. Sci*. [CD-ROM], abstract 2349.

112. **Zolotov, M. Yu.,** and Mironenko, M. V. (2008) Early Alteration of Matrices in Parent Bodies of CI/CM Carbonaceous Chondrites: Kinetic-Thermodynamic Modeling. *XXXIX Lunar and Planet. Sci*. [CD-ROM], abstract 1998.

111. McAdam, A. C., **Zolotov, M. Yu.,** Mironenko, M. V., and Sharp, T. G. (2007) Formation of Silica Deposits on Mars by Acid Weathering: Physical-Chemical Constraints. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., abstract P11A-0255.

110. Mironenko, M. V., and **Zolotov, M. Yu.** (2007) Aqueous Oxidation of Hydrogen Sulfide as a Cause of Acid Rock Alteration on Mars. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., abstract P11C-0706.

109. **Zolotov, M. Yu.** (2007) Organic History and Ice-Rock Decoupling on Enceladus, *Eos Trans. AGU*, *88*(52) Fall Meet. Suppl., abstract P21B-0540.

108. **Zolotov, M. Yu.** (2007) Water-Rock Interactions and Oceanic Chemistry on Enceladus. *Enceladus Focus meeting, II*, August 2007, Boulder, CO, https://encfg.ciclops.org/meeting_registration.php.

107. **Zolotov, M. Yu.,** and Mironenko, M. V. (2007) Chemical Evolution on an Early Ocean on Europa: A Kinetic-Thermodynamic Modeling. In *Workshop on Ices, Oceans, and Fire: Satellites of the Outer Solar System*, 157-158. LPI Contribution No. 1357, Lunar and Planetary Institute, Houston.

106. **Zolotov, M. Yu.,** Mironenko, M. V., Glein, C. R., and Shock, E. L. (2007) The Formation and Nature of Early Oceans on Icy Satellites: Geochemical Constraints. In *Workshop on Ices, Oceans, and Fire: Satellites of the Outer Solar System*, 159-160. LPI Contribution No. 1357, Lunar and Planetary Institute, Houston.

105. **Zolotov, M. Yu.,** Mironenko, M. V., and Krieg, M. L. (2007) Evaluation of Pressure during Aqueous Alteration and Metamorphism of Asteroids, *Meteoritics and Planetary Science* **42**, Suppl., A171.

104. **Zolotov, M. Yu.,** and Mironenko, M. V. (2007) Formation and Fate of Phyllosilicates on the Surface of Mars: Geochemical Modeling of Aqueous Weathering, *Seventh International Conf. on Mars* [CD-ROM], abstract 3365.

103. **Zolotov, M. Yu.,** and Mironenko, M. V. (2007) Hydrogen Chloride as a Source of Acid Fluids in Parent Bodies of Chondrites, *XXXVIII Lunar and Planet*. *Sci*. [CD-ROM], abstract 2340.

102. McAdam, A. C., **Zolotov, M. Yu.,** Mironenko, M. V., and Sharp, T. G. (2007) Acid Weathering of Basaltic Lithologies: Equilibrium Modeling and Applications to Mars, *XXXVIII Lunar and Planet*. *Sci*. [CD-ROM], abstract 2198.

101. McAdam, A. C., **Zolotov, M. Yu.,** Mironenko, M. V., and Sharp, T. G. (2007) Preferential Low-pH Dissolution of Pyroxene in Plagioclase-Pyroxene Mixtures and Implications for Martian Low-Albedo Regions, *XXXVIII Lunar and Planet*. *Sci*. [CD-ROM], abstract 1871.

100. Mironenko, M. V. and **Zolotov, M. Yu.** (2007) Timing of Acid Weathering and Oxidation on Mars, *XXXVIII Lunar and Planet*. *Sci*. [CD-ROM], abstract 1594.

99. **Zolotov, M. Yu.** (2007) Origin of Acid Fluids on Mars: Impacts vs. Volcanism, *XXXVIII Lunar and Planet*. *Sci*. [CD-ROM], abstract 1343.

98. Glein, C. R., **Zolotov, M. Yu.**, and Shock, E. L. (2007) Hydrothermal Geochemistry as the Source of Plume Gases on Enceladus, *XXXVIII Lunar and Planet*. *Sci*., [CD-ROM], abstract 1251.

97. McAdam, A. C., **Zolotov, M. Yu.**, Mironenko, M. V., Leshin, L. A., and Sharp, T. G. (2006) Low pH Weathering of Mars Analog Lithologies: Thermodynamic Modeling, *Geochimica et Cosmochimica Acta*, Supplement, **70**, No. 18, p. 406.

96. **Zolotov, M. Yu.**, and Shock, E. L. (2006) Chemical Evolution of Europa's Ocean: Insights from Chondrites, *Europa Focus Group, Workshop 5*, Moffett Field, California, February 27-28, 2006, abstracts, 135-136.

95. **Zolotov, M. Yu.**, and Shock, E. L. (2006) Evolution of Chemical Energy Sources for Life on Europa, *Astrobiology*, **6**(1), p. 162.

94. Shock, E. L., **Zolotov, M.**, and Holloway, J. (2006) Heat Loss, Planetary Differentiation and the Emergence of Life, *Astrobiology*, **6**(1), p. 96.

93. McAdam, A. C., **Zolotov, M. Yu.**, Mironenko, M. V., Leshin, L. A., and Sharp, T. G. (2006) Aqueous Chemical Weathering of a Mars Analog Lithology: Kinetic Modeling for a Ferrar Dolerite Composition, *XXXVII Lunar and Planet*. *Sci*., [CD-ROM], abstract 2363.

92. Kuzmin, R. O., Christensen, P. R., **Zolotov, M. Yu**., and Anwar S. (2006), Mapping of Seasonal Bound Water Content Variations on the Martian Surface Based on the TES Data *XXXVII Lunar and Planet*. *Sci*., abstract 1846.

91. Kuzmin, R. O., Christensen, P. R., Ruff, T. G., Knudson, A. T**, Zolotov, M. Yu**., and Athena Science Team, (2006) Spatial and Temporal Variations of Bound Water Content in the Martian Soil Within the Gusev Crater: Preliminary Results of the TES and Mini-TES Data Analysis, *XXXVII Lunar and Planet. Sci*., abstract 1673.

90. Niles, P. B., **Zolotov, M. Yu**., and Leshin, L. A. (2006) The Role of CO_2 in Aqueous Alteration of Ultra-Mafic Rocks and the Formation of Mg-, Fe-rich Aqueous Solutions on Early Mars, *XXXVII Lunar and Planet*. *Sci*. [CD-ROM], abstract 1440.

89. **Zolotov, M. Yu.,** Krieg, M. L., Shock, E. L., and McKinnon, W. B. (2006) Chemistry of a Primordial Ocean on Europa, *XXXVII Lunar and Planet*. *Sci*. [CD-ROM], abstract 1435.

88. **Zolotov, M. Yu.** (2006) Venus Atmosphere-Surface Chemical Interactions, *AGU Chapman Conference on Exploring Venus as a Terrestrial Planet*, Key Largo, FL, 13-17 February 2006, vol. of abstracts, 16.

87. **Zolotov, M. Yu**., Owen T., Atreya S., Niemann H., and Shock, E. L. (2005) An Endogenic Origin of Titan's Methane, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract P43B-O4, Invited.

86. Owen, T., Atreya, S., Niemann, H., and **Zolotov M.** (2005) Titan: A Fiercely Frozen Echo of the Early Earth, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract U23A-08.

85. **Zolotov, M. Yu.** (2005) Water-Rock Reactions on Non-Planetary Bodies in the Early Solar System, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract P53A-07, Invited.

84. Kuzmin R. O., Christensen P. R., **Zolotov M. Yu.**, and Anwar S. (2005) Seasonal Variations of the Bound Water Content on the Martian Surface: Global Mapping of the 6.1 μm Emissivity Band Based on TES Data.

Brown-Vernadsky Microsymposiun on Comparative Planetology. October 2005, Moscow. Vernadsky Institute.

83. **Zolotov, M. Yu.**, Shock, E. L., and Mironenko, M. V. (2005) Hydrogen Formation and Phase Partitioning During Parent Body Alteration of Chondrites: A Thermodynamic Quantification, *Meteoritics and Planetary Science* **40**, Suppl., A176.
82. **Zolotov, M. Yu.**, Mironenko, M. V., and Shock, E. L. (2005) Thermodynamic Constraints on Fayalite Formation on Parent Bodies of Chondrites, *Meteoritics and Planetary Science* **40**, Suppl., A175.
81. **Zolotov, M. Yu.**, Mironenko, M. V., and Shock, E. L. (2005) Competitive Oxidation and Hydration during Aqueous Alteration of Asteroids. In *Workshop on Oxygen in Asteroids and Meteorites*, held June 2-3, 2005 in Flagstaff, Arizona, LPI Contribution No. 1267, p. 33.
80. **Zolotov, M. Yu**., Mironenko, M. V., and Shock, E. L. (2005) Aqueous Alteration and Hydrogen Generation on Parent Bodies of Unequilibrated Ordinary Chondrites: Thermodynamic Modeling for the Semarkona Composition. *XXXVI Lunar and Planet*. *Sci*. [CD-ROM], abstract 2271.
79. Mironenko, M. V., and **Zolotov, M. Yu**. (2005) Thermodynamic Models for Aqueous Alteration Coupled with Volume and Pressure Changes in Asteroids, *XXXVI Lunar and Planet*. *Sci*. [CD-ROM], abstract 2207.
78. **Zolotov, M. Yu**., and Shock, E. L. (2004) Formation of Jarosite-bearing Deposits Through Aqueous Oxidation of Pyrite at the Meridiani Planum, Mars, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., abstract P24A-05.
77. **Zolotov, M. Yu**., Shock, E. L., Niles, P., and Leshin, L. (2004) Martian Subsurface Waters: Alkaline and Reduced Throughout History. *Second Conference on Early Mars*, October 11-15, 2004, Jackson Hole, Wyoming, abstract 8036.
76. **Zolotov, M. Yu**., and Shock, E. L. (2004) Pathways of Hydrogen Generation during Aqueous Alteration of Chondrites. *Meteoritics and Planetary Science* **39**, Suppl., A119.
75. Kuzmin, R. O., Christensen, P. R., and **Zolotov, M. Yu**. (2004) Results of Global Mapping of Bound Water Distribution in the Martian Surface Material Based on TES Data. *Geophysical Research Abstracts*, Vol. 6, 07008. European Geosciences Union.
74. Kuzmin, R. O., Christensen, P. R., and **Zolotov, M. Yu**. (2004) Global Mapping of Martian Bound Water at 6.1 Microns based on TES Data: Seasonal Hydration-Dehydration of Surface Minerals. *XXXV Lunar and Planet. Sci.*, [CD-ROM], abstract 1810.
73. **Zolotov, M. Yu**., Kuzmin, R. O., and Shock, E. L. (2004) Mineralogy, Abundance, and Hydration State of Sulfates and Chlorides at the Mars Pathfinder Landing Site. *XXXV Lunar and Planet*. *Sci*., [CD-ROM], abstract 1465.
72. **Zolotov, M. Yu.,** Shock, E. L., Barr, A. C., and Pappalardo, R. T. (2004) Brine Pockets in the Icy Crust of Europa: Distribution, Chemistry, and Habitability. In *Workshop on Europa's Icy Shell: Past, Present, and Future*, 100-101, LPI Contribution No. 1195, Lunar and Planetary Institute, Houston.
71. Shock, E. L., McKinnon, W., and **Zolotov, M. Yu**. (2003) Habitability of Icy Galilean Satellites. *Seventh Exobiology Principal Investigators Science Conference*, NASA Ames Center, August 25-29, 2003.
70. **Zolotov, M. Yu**., Seewald, J. S., and McCollom, T. M. (2003) Dissolved Carbon Monoxide in Hydrothermal Fluids on Solar System Bodies: Experimental study of Reactivity and Organic Synthesis. *Meteoritics and Planetary Science* **38**, Suppl. A132.
69. **Zolotov, M. Yu**., and Shock, E. L. (2003) Aqueous Reduction Processes in Asteroids. *Meteoritics and Planetary Science* **38**, Suppl., A68.
68. **Zolotov, M. Yu**., and Shock, E. L. (2003) Aqueous Oxidation of Parent Bodies of Carbonaceous Chondrites and Galilean Satellites Driven by Hydrogen Escape, *XXXIII Lunar and Planet. Sci.*, [CD-ROM], abstract 2047.
67. **Zolotov, M. Yu**. (2003) Martian Volcanic Gases: Are they Terrestrial-like? *XXXIV Lunar and Planet. Sci.*, [CD-ROM], abstract 1795.
66. **Zolotov, M. Y**., and Shock, E. L. (2003) Autotrophic Sulfate Reduction in Hydrothermally Formed Ocean on Europa. *Astrobiology* **2**, No. 4, 514.
65. **Zolotov, M. Y**., Shock, E. L. and McKinnon, W. B. (2002) Effects of Early Water-Rock Chemical Interactions on Interior Structures, Physical Properties, and Heat Balances of Galilean Satellites. *Eos Trans. AGU*, **83** (47), Fall Meet. Suppl., F839.
64. **Zolotov, M. Yu**., and Shock, E. L. (2002) The Speciation of Sulfur in an Ocean on Europa, *XXXIII Lunar and Planet. Sci.*, [CD-ROM], abstract 1531.
63. **Zolotov, M. Yu**., and Matsui, T. (2002) Chemical Models for Volcanic Gases on Venus, *XXXIII Lunar and Planet. Sci.*, [CD-ROM], abstract 1433.

62. Schmitt, B., **Zolotov**, **M.,** Moses, J., Fegley, B., and Rodrigues, S. (2001) Chlorine Compounds on Io: Volcanic/Atmospheric Chemistry and Surface Spectroscopy. *Jupiter - The Planet, Satellites and Magnetosphere.*
61. **Zolotov, M. Yu**., Seewald, J. S., and McCollom, T. M. (2001) Experimental Investigation of Aqueous Carbon Monoxide Reactivity under Hydrothermal Conditions. *Eleventh Annual V. M. Goldschmidt Conference*, May 20-24, 2001, Hot Springs, Virginia, abstract 3809.
60. **Zolotov, M. Yu**., and Shock, E. L. (2001) Geochemical Constraints on the Oxidation States of the Europan Ocean and Mantle, *XXXII Lunar and Planet. Sci.*, [CD-ROM], abstract 2025.
59. **Zolotov, M. Yu**., and Shock, E. L. (2001) A Hydrothermal Origin for the Sulfate-Rich Ocean of Europa, *XXXII Lunar and Planet. Sci.*, [CD-ROM], abstract 1990.
58. **Zolotov, M. Yu**., and Fegley, B., Jr. (2001) Chemistry and Vent Pressures of Very High-Temperature Gases Emitted from Pele volcano on Io. *XXXII Lunar and Planet. Sci.*, [CD-ROM], abstract 1474.
57. **Zolotov, M. Yu**., and Shock E. L. (2000) The Oxidation State of Europa and Other Galilean Satellites. *Eos Trans. AGU*, **81**, No. 48, F790.
56. Moses, J. I., **Zolotov, M. Yu**., and Fegley, B., Jr. (2000) Photochemistry of a Volcanically Driven Atmosphere on Io. *American Astronomical Society*, DPS meeting #32, #35.04
55. Fegley, B., Jr., and **Zolotov, M. Yu**. (2000) Carbon Chemistry of Volcanic Gases on Io. *Meteoritics and Planetary Science*, **35**, suppl., A52.
54. Moses, J. I., **Zolotov, M. Yu**., and Fegley, B., Jr. (2000) Photochemistry Near an Active Volcanic Plume on Io. *Eos Trans. AGU***, 81,** No. 19**,** S290.
53. **Zolotov, M. Yu**., and Shock, E. L. (2000) A Microbial Cycle for Organic Carbon and Sulfur in the Vicinity of the Oceanic Floor on Europa. *First Astrobiology Science Conference*, April 3-5, 2000, California, NASA Ames Research Center, 17.
52. **Zolotov, M. Yu**., Amend, J., and Shock, E. L. (2000) Abiotic Synthesis of Amino Acids in Planetary Volcanic Gases: Thermodynamic Assessment. *First Astrobiology Science Conference*, April 3-5, 2000, NASA Ames Research Center, 165.
51. **Zolotov, M. Yu**., and Fegley, B., Jr. (2000) Eruption Conditions of Pele Volcano on Io Inferred from Chemistry of its Volcanic Plume. *XXXI Lunar and Planet. Sci.*, [CD-ROM], abstract 2098.
50. **Zolotov, M. Yu**., and Shock, E. L. (2000) Thermodynamic Stability of Hydrated Salts on the Surface of Europa. *XXXI Lunar and Planet. Sci.*, [CD-ROM], abstract 1843.
49. **Zolotov, M. Yu**., and Shock, E. L. (2000) Freezing of Oceanic Water on Europa: Theoretical Modeling. *XXXI Lunar and Planet. Sci.*, [CD-ROM], abstract 1726.
48. **Zolotov, M. Yu**., and Shock, E. L. (2000) Mass Balance Constraints on the Elemental Composition of the Ocean on Europa. *XXXI Lunar and Planet. Sci.*, [CD-ROM], abstract 1580.
47. **Zolotov, M. Yu**., and Fegley, B., Jr. (2000) Volcanic Degassing of Hydrogen Compounds on Io. *XXXI Lunar and Planet. Sci.*, [CD-ROM], abstract 1186.
46. **Zolotov, M. Yu**., and Shock E. L. (1999) Thermodynamic Stability and Origin of Hydrated Salts on the Surface of Europa. *Eos Trans. AGU*, **80**, No. 46, F604.
45. Fegley, B., and **Zolotov, M. Yu**. (1999) Degassing and Condensation of Na-, K-, and Cl-bearing Compounds Emitted from High-Temperature Lava on Io. *Eos Trans. AGU*, **80**, No. 46, F625.
44. **Zolotov, M. Yu**., and Shock, E. L. (1999) Stability of Polycyclic Aromatic Hydrocarbons in the Solar Nebula. In *Ninth Annual V. M. Goldschmidt Conference,* LPI Contribution No. 971, Lunar and Planetary Institute, Houston, 341-342.
43. **Zolotov, M. Yu**., and Shock, E. L. (1999) Speciation of Nitrogen Compounds in Planetary Volcanic Gases. *XXX Lunar and Planet. Sci.*, [CD-ROM], abstract 1895.
42. **Zolotov, M. Yu**., and Shock, E. L. (1999) Abiotic Origin for PAHs and Aliphatic Hydrocarbons in ALH84001 and Nakhla Martian Meteorites: Synthesis in Trapped Magmatic and/or Impact Gases. *XXX Lunar and Planet. Sci.*, [CD-ROM], abstract 1879.
41. **Zolotov, M. Yu**., and Fegley, B., Jr. (1999) Oxidation State of Volcanic Gases on Io. *XXX Lunar and Planet. Sci.*, [CD-ROM], abstract 1132.
40. **Zolotov, M. Yu**., and Shock, E. L. (1998) Metastable Hydrocarbon Condensates of Volcanic Gases: Thermodynamic Constraints on Abiotic Synthesis. *Eos Trans. AGU*, **79**, No. 45, F967.
39. **Zolotov, M. Yu**., and Shock, E. L. (1998) Volcanic Gases: Synthesis of Organic Compounds on the Present and Early Earth. In *Origin of the Earth and Moon*, LPI Contrib. No. 957, Lunar and Planetary Institute, Houston, 57.

38. **Zolotov, M. Yu**., and Shock, E. L. (1998) Abiotic Synthesis of Hydrocarbons on Mars: Theoretical Modeling of Metastable Equilibria. In *Workshop on the Issue Martian Meteorites: Where Do We Stand and Where Are We Going?* LPI Contrib. No. 956, Lunar and Planetary Institute, Houston, 62-64.
37. **Zolotov, M. Yu**., Zabalueva, E. V., and Kuzmin, R. O. (1997) Stability of Hydrated Salts and Goethite in the Desiccated Upper Layer of the Martian Regolith. *XXVIII Lunar and Planet. Sci.*, 1633-1634.
36. **Zolotov, M. Yu**., Fegley, B. Jr., and Lodders, K. (1996) Thermodynamic Modeling of the Near-Surface Chemistry and Redox Condition of Venus Atmosphere. *Eos* Trans. AGU **77**, No. 46, F439.
35. Fegley, B. Jr., **Zolotov, M. Yu**., and Lodders, K. (1996) Kinetic Modeling of the Near-Surface Atmospheric Chemistry and Redox State of Venus. *Eos* Trans. AGU **77**, No. 46, F439.
34. **Zolotov, M. Yu.** (1996) Thermochemical Gaseous Equilibrium and Redox State for the Deep Atmosphere of Venus. *Annales Geophysicae*, Vol. 14, Suppl. III, C802.
33. **Zolotov, M. Yu.** (1996) A Model for the Climatic Changes of the Venus Atmosphere During the Last 500 Million Years. *Annales Geophysicae*, Vol. 14, Suppl. III, C802.
32. **Zolotov, M. Yu.** (1995) A Model of Thermochemical Gaseous Equilibrium for the Near-Surface Atmosphere of Venus. In *International Working Meeting on Comparative Planetology* (*22-nd Vernadsky-Brown Microsymposium)*, Moscow, October 1995, Vernadsky Institute, Russian Academy of Sciences, Moscow, 111-112.
31. **Zolotov, M. Yu**. (1995) A Model of the Venus Atmosphere Evolution Along with Titanhematite-Magnetite-Pyrite Buffer. *XXVI Lunar and Planet. Sci.*, 1569-1570.
30. **Zolotov, M. Yu.** (1995) Phase Relations in the Fe-S-O System: Titanhematite-Magnetite-Pyrite Equilibrium as a Buffer of Venus Atmospheric Composition. *XXVI Lunar and Planet. Sci.*, 1571-1572.
29. **Zolotov, M. Yu.** (1995) Temporal Changes of Carbonates Stability on the Venus Surface. *XXVI Lunar and Planet. Sci*., 1573-1574.
28. **Zolotov, M. Yu.** (1994) Near-Surface Atmosphere of Venus: New Estimations of Redox Conditions Based on New Data. *XXV Lunar and Planet. Sci.*, 1569-1570.
27. **Zolotov, M. Yu.** (1994) Phase Relations in the Fe-Ti-Mg-O Oxide System and Hematite Stability at the Condition of Venus Surface. *XXV Lunar and Planet. Sci.*, 1571-1572.
26. **Zolotov, M. Yu.**, Krot, T. V., and Moroz, L. V. (1993) K, U, and Th Behavior in Martian Environmental Conditions. *XXIV Lunar and Planet. Sci.*, 1585-1586.
25. Klose, K. B., and **Zolotov, M. Yu.** (1992) Chemical Weathering of Evolved Igneous Rocks on Venus. *XXIII Lunar and Planet. Sci.*, 699-700.
24. **Zolotov, M. Yu.** (1992) A Model of the physico-chemical evolution of the Venus atmosphere as a result of volcanic CO_2 degassing. *XXIII Lunar and Planet. Sci.*, 1589-1590.
23. **Zolotov, M. Yu.** (1992) Pyrite-Magnetite or Magnetite-Hematite Mineral Assemblages as a Possible Buffer of the Composition of the Venus Atmosphere. *XXIII Lunar and Planet. Sci.*, 1591-1592.
22. Mironenko, M. V., **Zolotov, M. Yu.**, and Frenkel, M. Y. (1992) Algorithm, Computer Code and Database for Computation Equilibria in Systems Involving Solid, Aqueous and Gas Nonideal Solutions. In *The Second International Symposium: Thermodynamics of Natural Processes and Russian Symposium: Thermodynamics in Geology*, 13-20 Sept. 1992, Novosibirsk, Russia, 117.
21. **Zolotov, M. Yu.** (1991) Chemical Weathering of Olivines and Ferromagnesian Pyroxenes on the Surface of Venus. *XXII Lunar and Planet. Sci.*, 1567-1568.
20. **Zolotov, M. Yu.** (1991) Pyrite Stability on the Surface of Venus. *XXII Lunar and Planet. Sci*., 1569-1570.
19. **Zolotov, M. Yu.** (1991) Redox Conditions of the Near-Surface Atmosphere of Venus. I. Some Reevaluations. *XXII Lunar and Planet. Sci.*, 1571-1572.
18. **Zolotov, M. Yu.** (1991) Redox Conditions of the Near-Surface Atmosphere of Venus. II. Equilibrium and Disequilibrium Models. *XXII Lunar and Planet. Sci.*, 1573-1574.
17. **Zolotov, M. Yu.** (1991) Stability of the Magnesium- and Manganese-Bearing Carbonates on the Surface of Venus. *XXII Lunar and Planet. Sci.*, 1575-1576.
16. **Zolotov, M. Yu.** (1989) Water-Bearing Minerals in the Martian Soil (Thermodynamic Prediction of Stability). *XX Lunar and Planet. Sci.*, 1257-1258.
15. **Zolotov, M. Yu.** (1989) Water-bearing Minerals in the Martian Soil. Abstr. 10-th *Soviet-American Working Meeting on Planetology, (Vernadsky-Brown Microsymposium)*, Moscow, Vernadsky Institute, 15-16 (in Russian).
14. **Zolotov, M. Yu.** (1988) Secondary Alteration of Igneous Rocks of Venus. In *Abstr. 8-th Soviet-American Working Meeting on Planetology*, (Vernadsky-Brown Microsymposium), Moscow, Vernadsky Institute, 49-50 (in Russian).

13. **Zolotov, M. Yu.** (1987) Redox Conditions on Venus Surface. *XVIII Lunar and Planet. Sci*., 1134-1135.
12. **Zolotov, M. Yu.**, Khodakovsky, I. L., and Westrum, E. F., Jr. (1987) Stability of Scapolites on Venus Surface. *XVIII Lunar and Planet. Sci.*, 1136-1137.
11. Barsukov, V. L., Borunov, S. P., Volkov, V. P., **Zolotov, M. Yu**., Sidorov, Yu. I., and Khodakovsky, I. L. (1986) Mineral Composition of Venus Soil at Venera 13, Venera 14, and Vega 2 Landing Sites. *XVII Lunar and Planet. Sci.*, 28-29.
10. Suleimenov, O. M., **Zolotov, M. Yu.,** and Khodakovsky, I. L. (1986) Stability of Salt Hydrates in Martian Regolith. *XVII Lunar and Planet. Sci*., 845-846.
9. Volkov, V. P., Sidorov, Yu. I., **Zolotov, M. Yu.**, Borunov, S. P., and Khodakovsky, I. L. (1986) Mineral Composition of Venus Soil at Venera 13, Venera 14, and Vega 2 Landing Sites. Abstr. 26th *COSPAR* Meeting, Toulouse, France.
8. **Zolotov, M. Yu.** (1986) Oxidation of Iron-Bearing Silicates on Venus Surface. *XVII Lunar and Planet. Sci.*, 971-972.
7. **Zolotov, M. Yu.** (1986) Venus Weathering Crust: Structure and Development. *XVII Lunar and Planet. Sci.*, 973-974.
6. **Zolotov, M. Yu.**, and Sidorov, Yu. I. (1986) Nitrates in Martian Soil? *XVII Lunar and Planet. Sci*., 975-976.
5. **Zolotov, M. Yu.** (1985) Sulfur-Containing Gases in the Venus Atmosphere and Stability of Carbonates. *XVI Lunar and Planet. Sci*., 942-943.
4. **Zolotov, M. Yu.**, and Khodakovsky, I. L. (1985) Composition of Volcanic Gases on Venus. *XVI Lunar and Planet. Sci.*, 944-945.
3. **Zolotov, M. Yu.** (1985) Sulfur-Bearing Gases in the Venus Atmosphere and Stability of Rock-Forming Minerals. Abstr. *First All-Union Symposium on Thermodynamics in Geology*, Suzdal', part 2., 166-171, (in Russian).
2. **Zolotov, M. Yu.**, Semenov, Yu. V., Sidorov, Yu. I., Zhdanov, V. M. and Turdakin, V. A. (1984) Thermodynamic properties of sodalite. In *Probemy Kalorim. Khim. Termodin*., Dokl. Vses. Konf., 10th, Ed.: Emanuel, N. M., Akademiya Nauk SSSR, Institute Khim. Fiziki, Chernogolovka, USSR, Vol. 2, 451-453 (in Russian).
1. **Zolotov, M. Yu.,** Sidorov, Yu. I., Volkov, V. P., Borisov, M. V., and Khodakovsky, I. L. (1983) Mineral Composition of Martian Regolith: Thermodynamic Assessment. *XIV Lunar and Planetary Sci.*, 883-884.

Some mentions in the media

2024:

https://aerospaceamerica.aiaa.org/features/why-europa/

2023:

https://www.msn.com/en-us/news/technology/lost-planet-theia-is-hidden-inside-the-earth-new-study-says/ar-AA1jgMb4?cvid=5F4991662C0849F7A1AE1D486B539C90&ocid=nl_article_link

Phosphorous, crucial for life, found on Saturn's moon Enceladus - The Washington Post

https://www.nytimes.com/2023/06/14/science/enceladus-phosphorus-life.html

https://www.cnn.com/2023/06/14/world/enceladus-ocean-phosphorus-scn/index.html

https://www.npr.org/transcripts/1182520045

https://www.popsci.com/science/life-on-enceladus-phosphorus/

https://www.iflscience.com/phosphates-essential-for-life-are-abundant-in-the-oceans-of-enceladus-69389

https://www.theregister.com/2023/06/14/phosphates_on_enceladus/

https://www.msn.com/en-us/news/technology/life-on-enceladus-scientists-discover-phosphates-on-saturn-s-moon/ar-AA1cy1cC

https://www.spiegel.de/wissenschaft/weltall/phosphate-im-ozean-von-saturnmond-enceladus-gefunden-a-1ff4e668-4cac-4b55-a7b0-f86edb96564a

https://www.the-sun.com/tech/8377390/alien-hunters-saturn-icy-moon-life/

https://www.theregister.com/2023/06/14/phosphates_on_enceladus/

https://www.deseret.com/2023/6/15/23762134/six-elements-for-life-found-on-saturns-moon

https://finance.yahoo.com/news/6-elements-needed-life-now-193651986.html

https://www.thepost.co.nz/a/world-news/350021229/this-alien-ocean-is-first-known-to-have-all-elements-crucial-for-life

https://sputnikglobe.com/amp/20230615/researchers-uncover-essential-ingredient-for-life-in-enceladus-soda-ocean-1111165105.html

https://game-news24.com/2023/06/14/the-last-component-of-life-required-upon-the-moon-of-saturn-was-found-on-the-moon/

https://www.nzz.ch/wissenschaft/enceladus-der-ozean-des-saturn-mondes-enthaelt-lebenswichtige-phosphate-ld.1742426

https://www.laverdad.es/ciencia/espacio/detectan-fosfatos-oceano-oculto-luna-encedalo-20230614185215-nt.html

https://avalanchenoticias.com.br/espaco/o-ultimo-componente-necessario-para-a-origem-da-vida-foi-encontrado-na-lua-de-saturno/

https://www.ara.cat/ciencia-medi-ambient/troben-tots-ingredients-vida-ocea-d-lluna-saturn_1_4730431.html

https://playofgame.com/enceladusun-soda-okyanusundaki-fosfor-yasamin-umutlarini-artiriyor/

Past years

https://www.statepress.com/article/2022/02/meet-mikhail-zolotov-asu-professor-europa

https://www.scientificamerican.com/article/a-nasa-probe-may-have-found-signs-of-life-on-venus-40-years-ago/

https://www.pbs.org/wgbh/nova/article/dwarf-planet-ceres-water-geologically-active/

https://www.sciencedaily.com/releases/2020/05/200504165647.htm

https://www.scientificamerican.com/article/claims-of-lsquo-ocean-rsquo-inside-ceres-may-not-hold-water/

https://www.nbcnews.com/tech/tech-news/mud-volcanoes-buried-ocean-scientists-say-asteroid-ceres-surprisingly-active-n1236263

https://asunow.asu.edu/20200117-dwarf-planet-ceres-asphalt-body-solar-system

https://www.popularmechanics.com/space/deep-space/a29091084/comet-photos-2019/

https://www.astrobio.net/news-exclusive/how-phosphorus-came-in-from-the-cold/

https://dailygalaxy.com/2018/09/scarce-in-solar-system-nasa-astrobiologists-are-tracking-phosphorus-for-signs-of-other-life/

http://www.scientificamerican.com/article/scientists-get-to-the-bottom-of-the-bright-spots-on-ceres/

http://www.dailymail.co.uk/sciencetech/article-3666364/Alien-spots-Ceres-stranger-thought-Dwarf-planet-s-patches-underground-material-seeping-impact-strikes.html

http://www.space.com/33302-ceres-bright-spots-new-composition.html

http://leadercall.com/2016/07/scientists-get-to-the-bottom-of-the-bright-spots-on-ceres/

https://uk.news.yahoo.com/mistaken-identity-ceres-mysterious-bright-spots-arent-epsom-174943839.html

http://www.csmonitor.com/Science/2016/0803/Scientists-take-a-closer-look-at-Io-s-collapsible-atmosphere

http://www.azcentral.com/story/news/local/tempe/2015/06/05/nasa-asu-jupiter-moon-explore-life/28438093/