

Inge Loes ten Kate

Personal details

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Education

2001-2006	Doctor of Philosophy (PhD) Astronomy, Leiden University, the Netherlands <i>Thesis:</i> Laboratory investigations on organic material on the Martian surface.
1993-1999	Master of Science (MS) Aerospace Engineering, Delft University of Technology, the Netherlands. <i>Thesis:</i> Preliminary design of aerocapture manoeuvres around Mars (University of California, Irvine, US).
1987-1993	Grammar School, Marnix Gymnasium, Rotterdam, the Netherlands

Research Experience

2022-present	Full Professor Planetary Sciences by special appointment, Anton Pannekoek Institute, University of Amsterdam
2020-present	Associate Professor, Planetary Sciences and Astrobiology, Dept. of Earth Sciences, Utrecht University
2016-2020	Assistant Professor, Planetary Sciences and Astrobiology, Dept. of Earth Sciences, Utrecht University
2014-2016	Lecturer - Researcher Planetary Sciences and Astrobiology, Dept. of Earth Sciences, Utrecht University
2012-2014	Researcher - Department of Earth Sciences - Faculty of Geosciences - Utrecht University, Netherlands
2011-2012	Visiting Scientist at PGP - Physics of Geological Processes, Oslo University, Norway
2006-2011	Assistant Research Scientist, National Aeronautics and Space Administration - Goddard Space Flight Center (NASA-GSFC), Goddard Earth Science and Technology Center - University of Maryland, Baltimore County (GEST-UMBC), Greenbelt, MD, USA.
2006	Post-doctoral researcher, Leiden Institute of Chemistry, Leiden University, the Netherlands. Halophilic archaeon <i>Natronorubrum</i> species in extreme environments.

Awards and Grants

2021	Asteroid (563318) ten Kate
2020	NWO PEPSci “Delivery of volatile material to young, rocky, (exo)planets” (€276.000)
2017	NWO ALW Open Competition “PAHs and prebiotic organic chemistry: could complex organics have evolved through large aromatic hydrocarbon-mineral interactions?” (€289.201)
2017	Origin Center Fellow “Developing, testing, and operating the Origin Simulator” (€350.000)
2013	NWO PEPSci “Shining light on bio-molecular evolution: complex organics and comets” (Co-PI, €200.000)
2013	NWO PEPSci “Photosynthesis in extreme environments on Earth as proxy for remote detection of extra terrestrial life” (Co-PI, €200.000)
2011	NWO ALW GO “The role of perchlorates in the preservation of organics on Mars” (Co-PI; €300.000)
2011	Antarctic Service Medal
2011	NASA Group Achievement Award to ILSO-ISRU 2010 Field Test Team for “Outstanding efforts in support of the 2010 International Lunar Surface Operations In-Situ Resource Utilization Test”
2009	NASA ROSES: VAPoR in the Field - Linking Science with Planetary Resource Exploration (\$10.000)
2008	NASA Goddard Innovator of the year award with VAPoR team

Instrument Development Experience

- 2006-2012 *Co-I*: VAPoR: Volatile Analysis by Pyrolysis of Regolith. (PI: D. P. Glavin)
Co-I: Cavity Ring-Down Mass Spectrometer for Methane on Mars (PI: T. C. Onstott)
Collaborator: Sample Analysis at Mars (PI: P. R. Mahaffy)
Collaborator: Laser Desorption Mass Spectrometer (PI: W. B. Brinckerhoff)
Collaborator: Precision Subsampling System for Mars (PI: W. B. Brinckerhoff)

Industry Experience

- 2000-2001 Research Engineer, National Aerospace Laboratory NLR, the Netherlands.
System and signal validation for the European satellite navigation system GalileoSat.
1998 Intern, Arianespace, France.
Design of data archiving tool for Ariane 4 and 5 launch and flight data.

Editorial Experience

- 2011-2017 Associate *Editor*: International Journal of Astrobiology
2009-present Member *Editorial Board*: Astrobiology
2007-present *Reviewer*: Nature Astronomy, Icarus, Journal of Geophysical Research, Geophysical Research Letters,
Planetary and Space Science, Advances in Space Research, Sensors, Origin of Life and Evolution in the
Biosphere, Proceedings of the National Academy of Sciences, Science Advances, Nature Communications

International Networks

- 2013-2017 Core Group member EU-Framework 7 COST Action TD1308 - ORIGINS
2013-2017 Outreach Manager, Erasmus+ proposal, European Astrobiology Campus

National Networks

- 2019-present Chair Origins Center and NWA Route "Origin of life on Earth and in the Universe"
2018-2019 Co-chair NWA Route "Origin of life on Earth and in the Universe" / Origins Center
2017-present Core group member NWA Route "Origin of life on Earth and in the Universe" / Origins Center
2013-2018 NWO Planetary and Exoplanetary Science Network (PEPSci), theme lead

Community Service

- 2021 Europlanet Research Infrastructure interim reviewer
2021 Reviewer Icelandic Research Fund
2020 Reviewer NASA Solar System panel
2019 Reviewer Italian Space Agency / National Institute for Astrophysics, Italy
2019, 2020 Reviewer H2020 ERC Consolidator and Synergy Grant Programmes
2017-2020 Review panel: H2020-MSCA-IF
2016-present Reviewer BELSPO
2016-2017 ESA Solar System Exploration Working Group
2013-present Horizon2020 Space Advisory Board
2013 Review panel: EC FP7-SPACE-2013 program
2009 External reviewer: NASA Research Opportunities in Space and Earth Science

Teaching Experience

- 2015 Basis Kwalificatie Onderwijs / Basic University Teaching Qualification
2019 Senior Kwalificatie Onderwijs / Senior University Teaching Qualification
- 2018-present Coordinator Honours Seminar Faculty of Geosciences
2016-2018 Teacher Chemistry of System Earth (GEO1-2206)
2016-present Teacher Petrological and Geochemical Evolution of the Earth (Geo4-1403)
2014-present Coordinator and teacher Planetology, and introduction (Geo3-1327A)
2013 Teacher Planetology, and introduction (Geo3-1327A)
Lecture on Mars in Planetary Science II - Delft University of Technology
2012 Lectures on Mars in Introduction to Planetology, Utrecht University, and VU Amsterdam
Supervised "Design your own Planetary Mission" projects
2006 Astrobiology, Higher Education for Older People (HOVO), Leiden University, the Netherlands
2002-2004 Lecture assistant for the Astrobiology class, Faculty of Science, Leiden University, the Netherlands
1998 Teaching assistant flight dynamics, Faculty of Aerospace Engineering, Delft University of Technology,
the Netherlands

Student Supervision

2014-present	8 PhD students
2014-present	26 MSc students
2013-present	21 BSc students
2012,2013	Coaching elementary school students in Space related projects
2008,2009	Mentoring summer interns at Goddard Space Flight Center
2009	Co-supervising high school students from 't Hooghe Landt in Amersfoort, the Netherlands

Convened and Chaired Conferences and Sessions

2022	International Space Science Institute, Bern. "Towards a TRACERS portal" working group (PI, Chair)
2018	Lorentz Center Workshop "Towards a Roadmap for Universal Life" (Co-Chair)
2017	International Symposium on Education in Astronomy and Astrobiology (ISE2A), Utrecht, the Netherlands (Co-Chair)
2009	Astrobiology: Meteorites, Microbes, Hydrous Habitats, and Irradiated Ices, Session at 40 th Lunar and Planetary Science Conference, The Woodlands, TX, March 23-27, 2009.
2008	Advances in Astrobiological Instrument Development, Session at AbSciCon 2008, Santa Clara, California, April 14-17, 2008.
2008	Laboratory Analogue Environments for Studying Geochemical and Biological Processes on Planetary Surfaces, Session at AbSciCon 2008, Santa Clara, California, April 14-17, 2008.

Field Experience

2012	NASA Moon and Mars Analog Mission Activities (MMAMA) Campaign, instrument field testing - Mauna Kea, Hawaii, USA
2011	NASA Desert RATS (Desert Research and Technology Studies), instrument field testing - Black Point Lava Flow, AZ, USA
2010-2011	ANSMET - Antarctic Search for Meteorites - 2 month campaign, including 6 weeks field camp in Davis-Ward region, Dominion Range, Antarctica
2010	AMASE - Arctic Mars Analogue Svalbard Expedition - 3 week instrument testing and Mars analogue study in Ny Ålesund, Svalbard, Norway.
2010	International Lunar Surface Operations - In Situ Resource Utilization, instrument field testing - Mauna Kea, Hawaii, USA
2008	Two-week paleomagnetic sampling campaign in Lycean Nappes, Turkey.

Scientific presentations (oral)

- 2018 - On the role of extraterrestrial organics in the origin of life - Carnegie Institution for Science, Washington DC, December 7, 2018 (**INVITED**)
- Origins of Life and Geology, Lorentz Center Workshop: Towards a Roadmap for Universal Life, October 29, 2018 (**INVITED**)
 - On the role of extraterrestrial organics in the origin of life - Origins Symposium: Tracing life's emergence and preservation, Utrecht, October 9, 2018
- 2017 - Photodegradation of selected organics on Mars - Geoscience for understanding habitability in the solar system and beyond - Furnas, São Miguel, Azores, Portugal, September 25-29
- Photodegradation of selected organics on Mars - European Planetary Science Conference, Riga, Latvia, September 18-22
 - Prospects for Life on Mars - Fundamentals of Life, Origins Center, Groningen, August 31 - September 1 (**INVITED**)
 - Organics on Mars - Edinburg Centre for Astrobiology, University of Edinburgh, Scotland - March 7 (**INVITED**)
 - Ecology of Mars? - NAEM Ecology - Lunteren - February (**INVITED**)
- 2016 - Organics on Mars - StarPlan Centre for Star and Planet Formation, University of Copenhagen, Denmark - November (**INVITED**)
- Organics on Mars - European Conference on Laboratory Astrophysics - Madrid, Spain - November (**INVITED**)
 - Prebiotic chemistry on cosmic dust - ISSI Cosmic Dust Workshop - ISSI, Bern Switzerland, November (**INVITED**)
 - Organics on Mars - Evolution of Chemical Complexity: From simple interstellar molecules to terrestrial biopolymers - Liblice, Czech Republic, September (**INVITED**)
- 2015 - Organics on Mars? - Kapteyn Institute / SRON, Groningen - June (**INVITED**)
- AstroBioGeoChemistry, The bridge between space, planets, life and Earth - VU University - April (**INVITED**)
 - Extraterrestrial Minerals - Mineralogy Symposium Utrechtse Aardwetenschappen Vereniging (**INVITED**)

- 2014 - "Experimentally studying extraterrestrial organic processes", NEVAC, June 4 (**INVITED**)
- "Astrobiology and the Dutch PEPSci Network", NASA Ames Research Center, May 25-30, (**INVITED**)
- "Cosmic Pollution on Mars", Biosignatures Conference, Bergen, May 20-22,
- 2013 - "Experimentally studying extraterrestrial organic processes", 5th Conference of the Astrobiology Society of Britain, Edinburgh, April 16-19
- 2012 - "ANSMET, the Antarctic Search for METorites campaign 2010-2011", NASA Head Quarters, Washington DC, USA (**INVITED**)
- 2010 - "Fieldwork for planetary scientists: *In situ* analyses and laboratory simulations." VU University Amsterdam, (**INVITED**)
- 2009 - ten Kate I. L., Mahaffy P. R., Jackson T. L., and Farrell W. M. "Dust storm electrification in a Mars chamber." *European Planetary Science Conference*. Potsdam, Germany, September 14-18, 2009.
- 2008 - ten Kate I. L., Glavin D. P., and the VAPoR team (2008) "VAPoR: Analyzing lunar regolith by pyrolysis mass spectrometry." *Cyanobacteria in the Lunar Environment Workshop*, Moffet Field, California, January 29-31, 2008.
- ten Kate I. L. and Mahaffy P. R. (2008), "Laboratory investigations on discharge in the martian atmosphere". *AbSciCon 2008*, Santa Clara, California, April 14-17, 2008.
- ten Kate I. L., Malespin C. A., Glavin D. P., and the VAPoR team (2008), "VAPoR bread-board development, first pyrolysis results". *Joint Annual Meeting of LEAG-ICEUM-SRR*, Cape Canaveral, Florida, October 28-31, 2008.
- Mass spectrometry in planetary science. Netherlands Institute for Space Research (SRON) (**INVITED**).
- 2006 - ten Kate I. L. and Mahaffy P. R. (2006) "Mitigation of the impact of terrestrial contamination on organic measurements from the Mars Science Laboratory, 2006 Fall Meeting American Geophysical Union, San Francisco, CA, USA.
- ten Kate I. L. (2006) "Laboratory studies of organic material under simulated martian conditions." *18th Rencontres de Blois*, France (**INVITED**).
- ten Kate I. L. (2006) "Laboratory simulations on complex organics on Mars", *8th Dutch Earth Sciences Conference (NAC)*, Velthoven, the Netherlands.
- ten Kate I. L. (2006) "Planetary science and life". *1st Dutch National Planetary Sciences Platform (NPP) meeting*, Velthoven, the Netherlands (**INVITED**).
- "The behaviour of halophilic archaea under martian conditions", *General Assembly of the European Geosciences Union*, Vienna, Austria.
- 2005 - "Mars simulations in support of planetary exploration", Pacificchem, Honolulu, HI, USA.
- "Glycine and D-alanine in Mars like conditions", *General Assembly of the European Geosciences Union*, Vienna, Austria.
- 2003 - "Behaviour of organic molecules under simulated Mars conditions", 3rd *European Workshop on Astrobiology*, Madrid, Spain.
- "Laboratory simulations on complex organics on Mars", 34th *Lunar and Planetary Science Conference*, Houston, TX, USA.
- 2002 - "Laboratory simulations on complex organics on Mars", 2nd *European Workshop on Astrobiology*, Graz, Austria

Inge Loes ten Kate - publications

Peer-reviewed journal articles

51. Kopacz, N., Csuka, J., Baqué, M., Iakubivskiy, I., Guðlaugardóttir, H., Klarenberg, I.J., Ahmed, M., Zetterlind, A.O., Singh, A., ten Kate, I.L., Hellebrand, E., Stockwell, B.R., Stefánsson, A.B., Vilhelmsson, O., Neubeck, A., Schnürer, A., Geppert, W. (2022) A Study in Blue: Secondary Copper-Rich Minerals and Their Associated Bacterial Diversity in Icelandic Lava Tubes *Earth and Space Science* 9 (5), e2022EA002234
50. Frantseva, K., Nesvorný, D., Muellerd, M., van der Tak, F.F.S., ten Kate, I.L., Petr Pokorný, P. (2022) Exogenous delivery of water to Mercury. *Icarus*. doi: <https://doi.org/10.1016/j.icarus.2022.114980>.
49. Giese, C.-C., ten Kate, I.L., van den Ende, M., Wolthers, M., Aponte, J., Camprubí, E., Dworkin, J., Elsila, J., Hangx, S., King, H., Mclain, H., Plümper, O., Tielens, A.G.G.M. (2022) Experimental and Theoretical Constraints on Amino Acid Formation from PAHs in Asteroidal Settings. *ACS Earth and Space Chemistry*, in press.
48. Campisi D., Lamberts, T., Dzade, N.Y., Martinazzo, R., ten Kate, I.L., Tielens, A.G.G.M. (2021) Interaction of Aromatic Molecules with Forsterite: Accuracy of the Periodic DFT-D4 Method. *The Journal of Physical Chemistry A*, 125, 13, 2770–2781.
47. Frantseva, K., Mueller, P., Pokorný, P., van der Tak, F.F.S., ten Kate, I.L. (2020) Enrichment of the HR 8799 planets by minor bodies and dust. *Astronomy & Astrophysics* 638, A50
46. Patty, C.H.L., ten Kate, I.L., Buma, W.-J., van Spanning, R.J.M., Steinbach, G., Ariese, F., Snik, F. (2019) Circular Spectropolarimetric Sensing of Vegetation in the Field: Possibilities for the Remote Detection of Extraterrestrial Life. *Astrobiology* 19,1-9
45. Kofman, V., He, J., ten Kate, I.L., Linnartz, H. (2019) The Refractive Index of Amorphous and Crystalline Water Ice in the UV-vis. *The Astrophysical Journal*, 875, 131
44. Giese, C.-C. Ten Kate, I.L., Plümper, O. King, H.E., Lenting, C. Liu, Y. Tielens, A.G.G.M. (2019) The evolution of polycyclic aromatic hydrocarbons under simulated inner asteroid conditions. *Meteoritics and Planetary Science* 54 (9), 1930-1950
43. Beaty, D.W. et al. (2019) The potential science and engineering value of samples delivered to Earth by Mars sample return. *Meteoritics and Planetary Science* 54(S1)S3-S152.
42. Beaty, D.W. et al. (2019) The potential science and engineering value of samples delivered to Earth by Mars sample return. *Meteoritics and Planetary Science* 54(3)667-671.
41. Giese, C.-C., King, H.E., Van Den Ende, M.P.A., Plümper, O., Ten Kate, I.L., Tielens, A.G.G.M. (2018) In Situ Nanoscale Investigation of Step Retreat on Fluoranthene Crystal Surfaces. *ACS Earth and Space Chemistry* 2(12)1301-1311.
40. Patty, C. H. L., Ariese, F., Buma, W. J., ten Kate, I. L., van Spanning, R.J. M., Visser, L. J. J., and Snik, F. (2018) Circular spectropolarimetric sensing of higher plant and algal chloroplast structural variations. *Photosynthesis research* 140 (2), 129-139.
39. ten Kate, I. L. (2018) Organic molecules on Mars. *Science* 360(6393), 1068-1069.
38. Fornaro, T., Boosman, A., Brucato, J.R., ten Kate, I.L., Siljeström, S., Poggiali, G., Steele, A., Hazen, R.M. (2018) UV irradiation of biomarkers adsorbed on minerals under Martian-like conditions: Hints for life detection on Mars. *Icarus* 313, 38-60
37. Kofman, V., Witlox, M.J.A., Bouwman, J., Ten Kate, I.L., Linnartz, H. (2018) A multifunctional setup to record FTIR and UV-vis spectra of organic molecules and their photoproducts in astronomical ices. *Review of Scientific Instruments* 89(5),053111
36. Frantseva, K., Mueller, M., ten Kate, I.L., van der Tak, F.F.S., Greenstreet, S. (2018) Delivery of organics to Mars through asteroid and comet impacts. *Icarus* 309, 125-133
35. Patty, C.H.L., Luo, D.A., Snik, F., Ariese, F., Buma, W.J., ten Kate, I.L., van Spanning, R.J.M., Sparks, W.B., Germer, T.A., Garab, G.j, Kudenov, M.W. (2018) Imaging linear and circular polarization features in leaves with complete Mueller matrix polarimetry. *Biochimica et Biophysica Acta - General Subjects* 1862(6), 1350-1363
34. Cottin, H., Kotler, J.M., Bartik, K., Cleaves, H.J.,II, Cockell, C.S., de Vera, J.-P.P., Ehrenfreund, P., Leuko, S., Ten Kate, I.L., Martins, Z., Pascal, R., Quinn, R., Rettberg, P., Westall, F. (2017) Astrobiology and the Possibility of Life on Earth and Elsewhere... *Space Science Reviews* 209(1-4), 1-42

33. Kofman V., Sarre P. J., Hibbins R. E., ten Kate I. L., Linnartz H. (2017) Laboratory spectroscopy and astronomical significance of the fully-benzenoid PAH triphenylene and its cation. *Molecular Astrophysics* 7, 19-26
32. Martins Z., Cottin H., Kotler J. M., Carrasco N., Cockell C. S., de la Torre Noetzel R., Demets R., de Vera J.-P., d'Hendecourt L., Ehrenfreund P., Elsaesser A., Foing B., Onofri S., Quinn R., Rabbow E., Rettberg P., Ricco A. J., Slenzka K., Stalport F., ten Kate I. L., van Loon J. J. W. A., Westall F. (2017) Earth as a Tool for Astrobiology—A European Perspective. *Space Science Reviews* 209 (1), 43-81
31. Fries M., Christou A., Archer D., Conrad P., Cooke W., Eigenbrode J., ten Kate I. L., Matney M., Niles P., Sykes M., Steele A., and Treiman A. (2016) A cometary origin for martian atmospheric methane. *Geochemical Perspective Letters* 2, 10-23.
30. Reuver, M., de Meijer, R. J., ten Kate, I. L., van Westrenen, W. (2015) Boundary conditions for the formation of the Moon. *Netherlands Journal of Geosciences* 95(2), 131-139
29. ten Kate, I. L., Reuver M. (2015) PALLAS: Planetary Analogues Laboratory for Light, Atmosphere, and Surface Simulations. *Netherlands Journal of Geosciences*. 95(2), 183-189
28. Röling, W. F. M., Aerts, J. W., Patty, C. H. L., ten Kate, I. L., Ehrenfreund, P., Direito, S. O. L. (2015) The significance of microbe-mineral-biomarker interactions in the detection of life on mars and beyond. *Astrobiology* 15(6):492-507.
27. Yingst, R. A., Russell, P., ten Kate, I. L., Noble, S., Graff, T., Graham, L., Eppler D. (2015) Designing Remote Operations Strategies to Optimize Science Mission Goals: Lessons Learned from the Moon Mars Analog Mission Activities Mauna Kea 2012 field test. *Acta Astronautica* 113, 120-131.
26. Graham, L. ten Kate, I. L., Graff, T., Yingst, R. A. (2015) 2012 Moon Mars Analog Mission Activities on Mauna Kea, Hawai'i. *Advances in Space Research* 55(10), 2405-2413.
25. Freissinet, C., Glavin, D. P., Mahaffy, P. R., Miller, K. E., Eigenbrode, J. L., Summons, R. E., Brunner, A. E., Buch, A., Szopa, C., Archer, P. D., Franz, H. B., Atreya, S. K., Brinckerhoff, W. B., Cabane, M., Coll, P., Conrad, P. G., Des Marais, D. J., Dworkin, J. P., Fairén, A. G., François, P., Grotzinger, J. P., Kashyap, S., ten Kate, I. L., Leshin, L. A., Malespin, C. A., Martin, M. G., Martin-Torres, F. J., McAdam, A. C., Ming, D. W., Navarro-González, R., Pavlov, A. A., Prats, B. D., Squyres, S. W., Steele, A., Stern, J. C., Sumner, D. Y., Sutter, B., Zorzano, M.-P. (2015) Organic molecules in the Sheepbed Mudstone, Gale Crater, Mars. *Journal of Geophysical Research: Planets* 120 (3), 495-514.
24. Knak Jensen, S. J., Skibsted, J., Jakobsen, H. J., ten Kate, I. L., Gunnlaugsson, H. P., Merrison, J. P., Finster, K., Bak, E., Iversen, J. J., Kondrup, J. C., & Nørnberg, P. (2014) A sink for methane on Mars? The answer is blowing in the wind. *Icarus* 236: 24-27.
23. Stern J., McAdam A, ten Kate I. L., Blake D., Morris R. V., Bowden R., Fogel M., Glamoclija M., Mahaffy P., Steele A., Amundsen H. (2013) Isotopic and Geochemical analysis of carbonates by evolved gas techniques: Simulating isotopic measurements for Mars surface operations in Svalbard, Norway. *Icarus*, 224, 297-308.
22. Graham L.D. , Morris R. V., Graff T. G. , Yingst R. A., ten Kate I. L., Glavin D. P., Hedlund M., Malespin C. A., Mumm E. (2013) Moon and mars analog mission activities for Mauna Kea 2012. *IEEE Aerospace Conference Proceedings* , # 6497195
21. ten Kate I. L., Armstrong R., Bernhardt B., Blumers M., Craft J., Boucher D., Caillibot E., Captain J., Deleuterio G., Farmer J. D., Glavin D. P., Graff T., Hamilton J. C., Klingelhöfer G., Morris R. V., Nuñez J. I., Quinn J. W., Sanders G. B., Sellar R. G., Sigurdson L., Taylor R., Zacny K. (2012) Mauna Kea, Hawai'i, as an analogue site for future planetary resource exploration: Results from the 2010 ILSO-ISRU field-testing campaign. *Journal of Aerospace Engineering* 26 (1), 183-196.
20. Keheyan Y. and ten Kate I. L. (2012) Radiolytic studies of naphthalene in the presence of water. *Origins of Life and the Evolution of the Biosphere*. 42(2):179-186. DOI 10.1007/s11084-012-9285-2.
19. Mellerowicz, B., Paulsen, G., Zacny, K., Craft, J., Brinckerhoff, W.B., ten Kate, I.L., Conrad, P. (2012) Precision subsampling system for planetary exploration. *Earth and Space 2012 - Proceedings of the 13th ASCE Aerospace Division Conference and the 5th NASA/ASCE Workshop on Granular Materials in Space Exploration*, 512-525.
18. Glavin D. P., Malespin C., ten Kate I. L., Getty S. A., Holmes V. E., Mumm E., Franz H. B., Noreiga M., Dobson N., Southard A. E., Feng S. H., Kotecki C. A., Dworkin J. P., Swindle T. D., Bleacher J. E., Rice J. W., and Mahaffy P. R. (2012) Volatile Analysis by Pyrolysis of Regolith for Planetary Resource Exploration. *IEEE Aerospace Conference Proceedings* #1180.
17. Chanover N. J., Glenar D. A., Voelz D. G., Xiao X., Tawalbeh R., Boston P. J., Brinckerhoff W. B., Mahaffy P. R., Getty S.,

- ten Kate I., McAdam A. (2011) An AOTF-LDTOF spectrometer suite for in situ organic detection and characterization. IEEE Aerospace Conference Proceedings #5747295.
16. Brinckerhoff W. B., ten Kate I. L., Hernstig T., Mellerowicz B., Wilson J., Zacny K., Mumm E., Romani E. J., Conrad P., Franz H. B., Mahaffy P. R., Corrigan C. M., Onstott T. C. (2010) Precision Subsampling System for Mars and Beyond. American Society for Civil Engineering Conf. Proc. 366, 123-140
 15. Manning H. M., ten Kate I. L., Battel S., and Mahaffy P. M. (2010) Electric discharge in the Martian atmosphere, Paschen curves and implications for future missions. *Advances in Space Research* 46(10), 1334-1340.
 14. Peeters Z., Vos, D., ten Kate I. L., Selch F., van Sluis C. A., Sorokin D. Yu., Muyzer G., Stan-Lotter H., van Loosdrecht M. C. M., and Ehrenfreund P. (2010) Survival and death of the haloarchaeon *Natronorubrum* strain HG-1 in a simulated martian environment. *Advances in Space Research* 46(9), 1149-1155.
 13. Getty S. A., ten Kate I. L., Feng S. H., Brinckerhoff W. B., Cardiff E. H., Holmes V. E., King T. T., Li M. J., Mumm E., Mahaffy P. R., Glavin D. P. (2010) Development of the VAPoR Instrument: a Pyrolysis-Time-of-Flight Mass Spectrometer. *International Journal of Mass Spectrometry* 295, 124-132.
 12. ten Kate I. L. (2010) Organics on Mars? *Astrobiology* 10(6), 589-603 (INVITED).
 11. ten Kate I. L., Cardiff E. H., Dworkin J. P., Feng S. H., Holmes V., Malespin C., Stern J., Swindle T. D., and Glavin D. P. (2010) VAPoR - Volatile Analysis by Pyrolysis of Regolith - an instrument for in situ detection of water, noble gases, and organics on the Moon. *Planetary and Space Science* 58, 1007-1017.
 10. Garcia R., Misra P., Mahaffy P. R., and ten Kate I. L. (2010) Database and Library Development of Organic Species using Gas Chromatography and Mass Spectral Measurements in Support of Sample Analysis at Mars. Conference Proceedings of the NSBE Aerospace Conference, February 5-10, 2010, Los Angeles, California, 280-285.
 9. ten Kate I. L., Canham J. S., Conrad P. G., Errigo Th., Katz I., Mahaffy P. R. (2008) Mitigation of the impact of terrestrial contamination on organic measurements from the Mars Science Laboratory, *Astrobiology* 8(3), 571-582.
 8. Garry J. R. C., ten Kate I. L., Ehrenfreund P., Foing B. H. (2007) Response of organics to simulated martian conditions. In: *Response of organisms to the martian environment* edited by C. Cockell and G. Horneck, ESA Special Publication 1299, Noordwijk, the Netherlands, 47-58.
 7. Garry J. R. C., ten Kate I. L., Martins Z., Nørnberg P., Ehrenfreund P. (2006) Analysis and survival of amino acids in Martian regolith analogs, *Meteoritics and Planetary Science* 41(3), 391-405.
 6. ten Kate I. L., Garry J. R. C., Peeters Z., Foing B. H., Ehrenfreund P. (2006) The effects of Martian near surface conditions on the photochemistry of amino acids, *Planetary and Space Science* 54, 296-302.
 5. ten Kate I. L., Garry J. R. C., Peeters Z., Quinn R. C., Foing B. H., Ehrenfreund P. (2005) Amino acid photostability on the Martian surface, *Meteoritics and Planetary Science* 40(8), 1185-1193.
 4. ten Kate I. L., Ruitkamp R., Botta O., Lehmann B., Gomez Hernandez C., Boudin N., Foing B. H., Ehrenfreund P. (2003) Investigating complex organic compounds in a simulated Mars environment, *International Journal of Astrobiology* 1(4), 387-399.
 3. ten Kate I. L., Ruitkamp R., Botta O., Lehmann B., Gomez Hernandez C., Boudin N., Foing B. H., and Ehrenfreund P. (2002) Laboratory studies on complex organic molecules on Mars. Part I - Rationale. In: *Earth-like planets and moons. Proceedings of the 36th ESLAB Symposium, 3-8 June 2002, ESTEC, Noordwijk, The Netherlands.* Eds.: B. Foing, B. Battrick. Noordwijk: ESA Publications Division. pp. 293 - 296.
 2. ten Kate I. L., Ruitkamp R., Botta O., Lehmann B., Gomez Hernandez C., Boudin N., Foing B. H., and Ehrenfreund P. (2002) Laboratory studies on complex organic molecules on Mars. Part II - Experimental set-up and related work. In: *Proceedings of the First European Workshop on Exo-Astrobiology, 16-19 September 2002, Graz, Austria.* Ed.: Huguette Lacoste. Noordwijk: ESA Publications Division. pp. 81-85.
 1. Lammer H., Wurz P., ten Kate I. L., and Ruitkamp R. (2002) Simulations of martian surface and subsurface processes. In: *Proceedings of the First European Workshop on Exo-Astrobiology, 16-19 September 2002, Graz, Austria.* Ed.: Huguette Lacoste. Noordwijk: ESA Publications Division. pp. 533-534.

Books

1. The International Symposium on Education in Astronomy and Astrobiology (ISE2A 2017). (2019). EPJ Web of Conferences. S. Deustua, K. Eastwood and I.L. ten Kate (Eds.)

Book chapters

5. Camprubi, E., Markovitch, O., Muchowska, K.B., Otto, S., ten Kate, I.L. (2022) Prebiotic chemistry: From dust to molecules and beyond. In: *New Frontiers in Astrobiology*. Ed. Rebecca Thombre and Parag Vaishampayan. Elsevier pp. 19-47
4. Patty, C.H.L., ten Kate, I.L., Sparks, W.B., Snik, F. (2018) Remote Sensing of Homochirality: A Proxy for the Detection of Extraterrestrial Life. In: *Chiral Analysis (2nd edition)*. Ed. Polavarapu, P.L. Elsevier pp. 29-69
3. ten Kate I. L. and Preston J. L. (2015) Earth Analogies. In: *Generation and Applications of Extra-Terrestrial Environments on Earth*. Eds. Beysens D. A., van Loon, J. A. River Publishers. pp. 165-171.
2. ten Kate I. L. and Motamedi, R. (2015) Celestial Bodies. In: *Generation and Applications of Extra-Terrestrial Environments on Earth*. Eds. Beysens D. A., van Loon, J. A. River Publishers. pp. 31-41.
1. Brinckerhoff W. B., Cornish T. J., Ecelberger S. A., Managadze G. G., Getty S. A., Corrigan C. M., ten Kate I. L., Mahaffy P. R., Ganesan A. L. (2010) Miniature laser time-of-flight mass spectrometers for planetary missions. In: Lee, M. (Ed.), *Applied Mass Spectroscopy Handbook*. John Wiley and Sons.

Inge Loes ten Kate - public outreach

2022

- Klokhuis
- podcast BNR / Space Cowboys

2021

- Volkskrant - 'De 21 meest bijzondere wetenschapsbeelden van 2021 - geduid door 21 wetenschappers'
- NPO Radio 1, Focus, Wetenschapswens voor 2022
- NPO Radio 1, Focus, 'Wat gaat de Mars rover Perseverance doen op Mars'
- NTR:NOS Nieuwsuur, live verslag Perseverance landing op Mars
- NTR Jeugdjournaal en Jeugdjournaal Uitgelicht, "Perseverance landing op Mars"
- Atos Radio, 'Bonjour met Benzakour'
- NTR Atlas, 'Mars'
- Kijk, Chemistryworld, NOS, Volkskrant, NRC, nieuwsduiding
- DUB, 'Ruimteonderzoeker Inge Loes ten Kate'
- Kidsweek, 'De zoektocht naar buitenaardse wezens'
- Kijk, 'Bouwstenen van leven'
- Zenith, 'In gesprek met Inge Loes ten Kate'
- KNVWS / Sonneborgh, 'Organisch materiaal in ons zonnestelsel'
- Haags Vrouwen Netwerk, 'Organisch materiaal in ons zonnestelsel'

2020

- KNVWS Triangulum - Buitenaardse organische moleculen en hun rol in het ontstaan van leven?
- NOS nieuws, "NASA Mars missie Perseverance"
- podcast BNR / Space Cowboys 'Nieuwe missies naar Mars'
- NPO Radio1, 2, Slam FM, over Chinese, UAE, NASA Mars missies
- Quest artikel "De aarde en het ontstaan van leven"
- NPO Radio 1, 'Marsbevingen'
- Quest podcast, "Wonen op Mars"
- Science Symposium Raayland College Venray, "Zoeken naar buitenaards leven, hoe doe je dat"
- Trouw, 'Leven op Mars'
- RTV Utrecht, 'Missies naar Mars'

2019

- Gala van de Sterrenkunde, "De zoektocht naar buitenaards leven"
- Studium Generale Maastricht, "De zoektocht naar buitenaards leven"
- Jurylid Robbert Dijkgraaff Essayprijs, New Scientist
- KRO-NCRV, NPO1, interview in "De maanlanding: 50 jaar na de eerste stap"
- NPO Radio 1, "de Nieuws BV", studiogast, 'Zoeken naar leven buiten de aarde'
- NPO Radio 1, uitleg selectie Dragonfly missie
- 'M', NPO1, studiogast, Selectie nieuwe NASA zonenestelsel missie
- "Ons zonnestelsel" lezing (en organisatie) KNAW Symposium 'Een nieuwe blik op ons zonnestelsel'
- "Hoe doe ik onderzoek in de ruimte?" Voorprogramma André Kuipers Colletour, ism Wetenschapsknooppunt UU
- "Was Mars ooit bewoonbaar?", lezing Mapping Space #3
- "De rol van buitenaards organisch materiaal in het ontstaan van leven" New Scientist Live Festival, TivoliVredenbrug
- 'M', NPO1, studiogast, De zoektocht naar buitenaards leven
- Het Parool, "Speuren naar leven op Mars"
- Philips Veteranen, 'Was Mars ooit leefbaar? Door meten kun je weten.'
- BNR / Space Cowboys: "The Search for Life in Space" (10 jan 2019)
- 'Leven op Mars', lezing Museon

2018

- "Leven op Mars?", lezing Weekend van de Wetenschap, Geofort
- Kijk, 'buitenaards leven zeldzaam door fosfor'
- Quest, 'Hoe zien aliens eruit?'
- Volkskrant, "Nieuw bewijs voor geisers op Jupitermaan Europa"
- "Organisch materiaal in ons zonnestelsel", in Natuurkundige Voordrachten, Koninklijke Maatschappij voor Natuurkunde, no 96
- Project Ruimte, 3 lezingen groep 1-3 Openbare Dalton Basisschool Pieterskerkhof, Utrecht
- NPO Nieuwsuur, Lancering InSight naar Mars
- Universiteit van Nederland "Begon het leven bij een steen"

2017

- Koninklijke Vereniging voor Natuurkunde Diligentia “Organisch materiaal in ons zonnestelsel”
- History Channel, “De landing van Curiosity”
- BNR, Origins Center
- NEMO, tentoonstelling “Leven in het Heelal”
- Theatergroep Het Filiaal “Enkeltje Mars”
- AD, “Enkeltje Mars”

2016

- BNR, De nieuwe wereld “Wat als ET belt?”
- EenVandaag, ExoMars, Schiaparelli landing
- NPO radiol, nieuws & co, Schiaparelli landing
- SchoolTV, ExoMars / zoeken naar leven op Mars, <http://schooltv.nl/video/expertvideos-onderzoek-naar-leven-op-de-planeet-mars/#q=mars>
- RTL nieuws - Elon Musk op Mars
- Volkskrant Wetenschap, Mars Attracts!
- Paradisolezing, Buitenaards leven, Feit of Fictie?

2015

- NTR, NPO1/NPOZapp, Het Klokhuis, Mars
- NWO documentaire, Are we Alone?
- BNR radio, De Nieuwe Wereld, interview, Ondernemen in de Ruimte
- RTLnieuws.nl, Volgende missie naar Mars in maart: dit gaat NASA doen
- nu.nl, Hoe Wubbo Ockels 30 jaar geleden bijdroeg aan leven op Mars
- nos.nl, NASA heeft een Mars-mysterie opgelost, maar welk mysterie?
- nos.nl, Het echte werk op Mars begint nu pas voor Curiosity
- Telegraaf, Water op Mars, zegt NASA, en dus ook leven!
- AD, Zin in een spannende baan? Word astronaut bij NASA!
- “Astrobiology”, Leerlingenconferentie voor Hoogbegaafde Leerlingen, Utrecht University
- “Geeft Rosetta haar geheimen prijs?”, Malmberg NASM Lerarencongres, Jaarbeurs, Utrecht
- New Scientist, Op zoek naar Leven

2014

- Heel Nederland kijkt Sterren, MAX, NPO1
- “Rosetta en kometenonderzoek”, Kennis van Nu, NTR, NPO2
- “Rosetta”, NTW SchoolTV
- BNR, radio interview, Stikstof op Mars
- “Wat een dag!”, Philae Landing, ScienceGuide
- “Landen op komeet Chury”, ScienceGuide
- ”In gesprek met Marsonderzoekster en Astrobiologe Inge Loes ten Kate”, Zenit
- “Nederland bootst planetoiden na en wil zo ontdekken hoe leven kon ontstaan”, Quest
- “Microben op Mars”, Teylers magazijn
- “Leven op Mars?”, Sonnenwijzer, Museum Sonnenborgh
- “De gemene deler”, Eos
- Museum exhibit, “Buitenaards, de Jacht op Planeten”, Teylers Museum, Haarlem
- “Reizen voor de Wetenschap”, Kenniscafé, De Balie, Amsterdam
- Quest/NWO, ExperimentNL

2013

- Tijd voor Max, “Curiosity één jaar op Mars”
- “De Wereld Leert Door”, VARA
- NOS Met Het Oog op Morgen, radio interview “Russian Meteorite”
- NOS.nl interview “Marswagen tot mei buiten bereik”
- blog NOS.nl: <http://weblogs.nos.nl/binnenlandredactie/category/curiosity-op-mars/>
- Sonnenwijzer, Museum Sonnenborgh, Leven op Mars?
- Museum exhibit, “Mars”, Museum Sonnenborgh, Utrecht
- Lecture “Curiosity één jaar op Mars!” Nederlands Ruimtevaart Museum / Aviodrome, Lelystad
- Lecture “Leven op Mars” Festival de Beschaving, Utrecht
- Lecture “Mars door de ogen van Curiosity” for Sterrenkundig Gezelschap Minneart, Sonnenborgh, Utrecht
- Lecture and debate “Het belang van onderzoek naar organische stoffen op Mars”. Science Café Utrecht University Museum / Studium Generale.

- Lecture "Curiosity on Mars" Nederlandse Vereniging voor Weer en Sterrenkunde, Arnhem
- Lecture "Curiosity on Mars" Science Café Leiden

2012

- TV interviews about the Curiosity landing, NOS, SBS6: Hart van Nederland, RTV Utrecht, WNL: Half 8 live (NPO3)
- Radio interview "Is er leven op Mars?" Tros Nieuwsshow, Radio 1
- Radio interviews about the Curiosity landing: Met het Oog op Morgen radio 1, RTV Utrecht, NOS radio 1 (voor en na landing), VARA radio 2, KRO radio 4, Omroep MAX radio 2, NOS Studio Sport zomer radio 1, Q-Music, Radio 538.
- Radio interview "Marsmissie. Hoe?Zo! Wetenschap, NTR
- De Volkskrant Wetenschap, "Nog steeds geen leven op Mars",
- ESTA, magazine for higher educated women "Wiskundemeisje" (Science girls)
- News paper interviews on Curiosity landing on Mars: De Volkskrant, Eindhovens Dagblad, Dagblad Tubantia, Nieuwsblad van het Noorden, BN/De Stem, De Telegraaf, Algemeen Dagblad, NOS.nl, Algemeen Dagblad, Het Nieuwsblad, DUB (UU), De Telegraaf
- NOS.nl interview about the Curiosity landing
- Lightning talk: 20PK at Discovery Festival in NEMO Amsterdam
- Lecture "Hoe zoeken we naar water en leven op Mars" at the KNAW symposium "Een nieuwe stap in de speurtocht naar buitenaards leven"

2011

- NOS radio "Met het oog op morgen" interview about Curiosity launch
- Hoe?Zo! Radio, NTR, radio interview "Aliens uit Sterrenstof".
- "Kijk". Dutch popular science magazine, Interview about Curiosity, the SAM instrument suite
- "Quest". Dutch popular science magazine, Interview about Curiosity, the SAM instrument suite
- Lecture: "Voorwaarts Mars". Highschool 't Assink, Haaksbergen
- Lecture "Op naar Mars". Elementary School De Regenboog, Velthoven
- Lecture "Intelligent buitenaards leven?", Het Nutshuis, Den Haag

2010

- Labyrint Science Radio, VPRO, Roundtable discussion on "Life on Mars"

2009

- Goddard Center for Astrobiology event Appalachian Nation Cherokee Pow Wow, Sterling, VA, USA

2007

- Intermediair magazine, Interview "Hydrogen peroxide based life on Mars"
- Middle School Course: "So, you want to be a rocket scientist?", , Goddard Space Flight Center, USA

2006

- RTL nieuws, "Life on Mars"
- Business News Radio, interview, "Life on Mars"
- Noorderlicht, VPRO, radio interview, "Are we alone in the Universe"
- Family Day "Are we alone in the Universe", National Air and Space Museum, Washington, DC, USA

2005

- Lecture "Mars", Old Observatory, Leiden University

2003

- Radio 1 interview,, "Life on Mars and the Beagle 2 landing"
- Radio Nederland Wereldomroep, interview, "Life on Mars"
- Science day, Leiden University, children's workshop on "Living on Mars"

2001

- Lecture "Complex Organics on Mars", Second European Mars Society Convention, Rotterdam 2001
- Participation in Space Day 2001, representing the Lunar Explorers Society, Space Expo, Noordwijk