

NATHALIE A. CABROL

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Professional Summary

Nathalie joined the SETI Institute (SI) in 1998, where she is a Senior Research Scientist. She was named Director of the Carl Sagan Center at the SI in August 2015. In addition to framing the scientific vision at the SI, she leads projects in planetary science and astrobiology, develops science exploration strategies for Mars, Titan, and the Outer Solar System icy moons, and designs robotic field experiments. She explores high altitude lakes in the Andes where environmental conditions are analogous to early Mars. With her team, she documents life's adaptation to extreme environments, the effect of rapid climate change on lake ecosystems and habitats, its geobiological signatures, and relevance to planetary exploration.

Nathalie was the spokesperson for the selection of Gusev crater as the landing site for the Mars Exploration Rover (MER) mission Spirit rover and is a member of the MER science team since 2002. She is leading Astrobiology Science and Technology projects, including the NASA Nomad rover field experiment (1997), and other NASA ASTEP-funded science and technology projects including Life in the Atacama (2003-2006) and Subsurface Life in the Atacama (2011-2015), NASA ASTEP Planetary Lake Lander project (2011-2015) that explored the impact of ice loss on planetary lakes using technology developed for the exploration of Titan. Since January 2015, she has been the PI of the SETI Institute NASA Astrobiology Institute (NAI) team that seeks to understand the impact of rapid environmental change on habitability and biosignature potential on Mars. She counts over 630 peer-reviewed publications and proceedings of professional conferences. She is the author of 3 books, and 7 chapters of books on the subject of planetary science and exploration, astrobiology, and terrestrial extreme environments.

Nathalie's work is featured in the US and international media (e.g., New York Times, Le Point, Wall Street Journal, TED talk, Discovery Channel, NOVA, M6, BBC, National Geographic, Scientific American, Popular Science, New, New Einsteins, Tested.com, other) and in popular books (e.g., The Martian Race, Gregory Bendford, Warner Books; Almost Human: Making Robots Think, Lee Gutkind, Norton & Company, Inc; Are We Alone? Gloria Skurzynski, National Geographic Society; Mapping Mars: Science, Imagination, and the Birth of a World, Macmillan).

Nathalie is the recipient of NASA and other research awards. She was elected Carey Fellow in 2007, Women of Discovery (Air and Space) Wings Worldquest (2005) and received an International Women Leadership Association Award in 2012. Education and Public Outreach (E/PO) has a central place in her work. She mentors students in the field and in the lab. and meets with them in schools. All of her projects involve a large E/PO component. To date, she has given over 400 public lectures on the subjects of planetary science, exploration, and astrobiology.

Skills

Leadership
Vision / Innovation
Creativity
Structure / Organization

Impact Factor



Languages

French (native)
English (professional proficiency)
Italian (bilingual proficiency)
Spanish: (minimum prof. proficiency)
Classical: Latin (5 years)/Greek (1 year)

Scholar Impact Factor: h-index: 43; i-10: 97; g-index: 22; RG Score: 47 Impact Factor: Higher than 97.5% of listed members.

Work History

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|---------------------------------------|-------------------------------|-----------------------|
| • Director, Carl Sagan Center | SETI Institute | Since Aug. 8, 2015 |
| • Principal Investigator | SETI Institute | Sep. 1998 – Present |
| • National Research Council Fellow | NASA Ames | Jun. 1996 – Jun. 1998 |
| • MESR (France) Postdoc. Fellow | NASA Ames | Nov. 1994 – May. 1996 |
| • Act. Hydro. Postdoc. Fellow, France | Observatoire de Paris/ Meudon | Mar. 1992 – Oct. 1994 |

Education

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|---|----------------------------|-----------|
| • Geology Lecturer Certification | Versailles Academy, France | Jun 1995 |
| • PhD: <i>Evolution of Water on Mars</i> | Univ. Paris I, Sorbonne | Dec. 1991 |
| • DEA , Dynamic Geomorphology | Univ. Paris I, Sorbonne | Jun. 1987 |
| • Master , <i>Ma'adim and Dao Valles, Mars</i> | Univ. Paris I, Sorbonne | Jun. 1986 |
| • Undergraduate Degrees - Major: Earth Science – Climate, Hydrology, Geomorphology, Environmental Hazards, Remote Sensing, Mapping. <i>Minors:</i> History, Philosophy, Statistics. | Univ. Paris 10, Nanterre | June 1985 |
| • Hypokhâgne: Classical Studies. | Lycée Debussy, France | Jun 1983 |

Professional Experience

- **August 2015-Present:** Director, Carl Sagan Center, SETI Institute.
- **2015-Present:** Principal Investigator (PI), SETI Institute NAI Team: *Changing Planetary Environments and the Fingerprints of Life*.
- **2011-2015:** PI, NASA ASTEP: Planetary Lake Lander.
- **2011-2015:** Science PI, NASA ASTEP: Subsurface Life in the Atacama Project.
- **2011-2013:** Co-Investigator (Co-I) ASTID: TextureCam: Onboard Image Texture Analysis.
- **2008-2011:** PI, NASA Exobiology Program: Thermal detection of caves on Earth and Mars.
- **2007-2010:** PI, NASA E/PO Supplement to PGG - Young Women in Science.
- **2007-2010:** PI, NASA PGG: Formation and Evolution of Spherules and Possible Planetary Analogy
- **2007-2010:** PI, NASA MDAP: Systematic Sedimentology of Rocks and Soils at Gusev Crater
- **2003-Present:** Participating Scientist, NASA Mars Exploration Rover mission; Science Team.
- **2003-2008:** PI “Impact of UV on life in some of the highest lakes on Earth”, NAI/Co-I SETI team.
- **2003-2007:** Co-I, NASA-AIRS: Analyzing science operations for the robotic search for life in the Atacama.
- **2003-2006:** Science PI, NASA ASTEP: Life in the Atacama project: Searching for life with rovers.
- **2003-2006:** Co-I, NASA ASTEP Grant: *Science-on-the-fly* (autonomous science with rovers).
- **2003:** Expedition Lead, National Geographic Society expedition grant, High Lakes, Andes.
- **2002-2005:** Co-I, NASA AISR Grant: Data-Centric Analysis of human-directed robotic geology.
- **2002-2003:** PI, NASA ARC-DDF Grant: Exploring the limits of life in some of the highest lakes on Earth.
- **2001-2003:** Science Lead, NASA ARC-IS: Autonomous exploration of aqueous environments on Mars.
- **2000-2003:** Spokesperson for the selection of Gusev crater as the landing site for the Spirit rover.
- **1999:** Science Lead and Project Manager of the first astronaut-rover field experiment (ASRO) in Silver Lake. Project in collaboration with NASA Johnson Space Center.
- **1999:** Deputy-Science Lead, Marsokhod rover field experiment, Silver Lake.

- **1997:** Science Lead, Nomad rover field experiment, Atacama desert, Chile.
- **1995-1996:** Science team member: Marsokhod rover field experiment, Tuba City and Hawaii.
- **1994-1995:** Science Lead on a study of the feasibility of an astrobiology mission on Mars (NASA Ames).

Professional Committees and Reviews

Chair, Biosignature Detection Working Group at the NASA Astrobiology Institute.

Member of the OPAG “Roadmap to Ocean Worlds (ROW)” Group to identify and prioritize science objectives for ocean worlds, design a roadmap to explore these worlds and address science objectives, recommend technology, mission concepts in support of the decadal survey, and place exploration of ocean worlds into the larger context of solar system exploration since February 2016.

Member of the MEPAG Science Analysis Group (SAG) “Scientific Objectives for the Human Exploration of Mars” (HSO-SAG), since March 2015.

Executive Council member, NASA Astrobiology Institute, since November 2014.

Co-Chair, Study Steering Group on “Deglaciation: Past, Present, Future” jointly commissioned and supported by the NASA Cryosphere Program and the Astrobiology Program (2011-2013).

External Reviewer for: NASA Mars Fundamental Research Program (MFRP), NASA Mars Data Analysis Program (MDAP), NASA Planetary Geology and Geophysics (PG&G), NASA Planetary Instrument Definition & Development Program (PIDDP), NASA Moon Mars Analog Mission Activities, External advisor for the European Space Agency (ESA) Exobiology Science Team Study, External Collaborator, ESA Reports for the Search for Life in the Solar System (final report June 1997).

Internal Panel Reviewer for: NASA PSTAR program.

Member: International Academy of Astronautics SETI Permanent Committee

Committees and Reviews for Professional Journals

Reviewer for Meteoritics and Planetary Sciences, Nature, Cambridge University Press (science books), Geophysical Research Letter, Icarus, Journal of Geophysical Research, Planetary & Space Science,

Editorial Board of Professional Journals

Astrobiology Journal, (Sherry L. Cady Editor in Chief), (2012-Present).

Board of Editors of the European International Journal of Astrobiology (2001-2009).

Professional Honors and Awards

Science:

- Named SETI Institute **Fellow** (2023)
- Named **Honorary Member** of the Philomathic Society of Paris
- Named **Fellow** of the California Academy of Sciences (2016)
- **NASA Group Achievement Award** – Planetary Lake Lander Project Team, (2014).
- **NASA Group Achievement Award** – Mars Exploration Rover Science and Operations Team. Citation: For ten years of sustained exploration and scientific discovery on the surface of Mars with the Mars Exploration Rovers (2014).
- **NASA Group Achievement Award** – ARC Family 2013 (2014).
- American Institute of Aeronautics and Astronautics **Haley Space Flight Award** for the Mars Exploration Rover Development and Operations Team (2012).
- **New zooplankton species** from the Licancabur summit lake (5,914 m asl) named after Cabrol: *Scutiglypha cabrolae* (2009)
- **NASA Group Achievement Award** for the MER 3rd and 4th extended mission (2008).
- **NASA Ames Honor Award** for Excellence as Contractor Employee (2005).
- **NASA Group Achievement Award:** MER extended mission Science/Science Support Team (2005).
- **NASA Group Achievement Award** for the MER Science Support Team (2004).
- **NASA Group Achievement Award** for the MER Science Operations Team (2004).
- Earth and Space Foundation **First Exploration Award** to the Mars Exploration Rover Team (2004).

- **Gold Medal**, International Water and Science Award (Unesco/European Parliament) (2000).
- NASA Ames Research Center Space Science Division **Outstanding Achievements Award** (1999).
- **NASA-JSC Group Achievement Award** for the Astronaut/Rover (ASRO) Project (1999).
- **NASA Ames-IMG Outstanding Achievement Award** for the ASRO Field Experiment (1999).
- Medal of the French Société d'Encouragement au Progrès for Scientific Research (1997).
- Prix George Bidault de L'Isle, Société Astronomie de France (1992)
- Medal of the Observatory of Triel (France) for PhD thesis research (1992).

Women Leadership:

- International Women Leadership Association Award (2012).
- Wings WorldQuest Elected Carey Fellow (2007)
- Women of Discovery: Air and Space Award, Wings WorldQuest, (2005)

Recent Honors (2005 - Present):

- Invited Presentation, *National Academy of Sciences, Extant Mars on Life Panel* (2020)
- Le Point, Portrait (December 2019)
- New York Times Article (Magazine, March 25, 2018).
- Invited Presentation, *National Academy of Sciences, Astrobiology* (2018)
- Sagan Lecture, invited speaker, AGU Fall Conference, San Francisco, December 14, 2016.
- TED Conference 2015, invited speaker, Vancouver (2015).
- Keynote Speaker (2013) – First Astrobiology Conference, Universidad Andres Bello, Santiago (Chile) October 8-12, 2013: Lecture title: *Pathways to Planetary Exploration*.
- Keynote Speaker, (2013) – Conferencia Internacional, Santiago (Chile), April 2013: Lecture title: *From the Andes to Kepler – A Decade of Revolution in the Search for Life Beyond Earth*.
- Session Chair, AGU Fall session (2012): Rapid Environmental Change and the Fate of Planetary Habitability (I, II, III).
- Invited speaker, AGU Fall session (2010)
- Invited speaker, 32nd, Microbiology Symposium, Antofagasta, Chile (2010).
- Session Chair and Invited speaker, SPIE Conference (2010): Instruments, Methods, and Mission for Astrobiology Session.
- Invited speaker, SPIE Conference, San Diego (2007).
- Science Organizing Committee, 41st Lunar and Planetary Science Conference.
- Science Panel, NASA Summer University, NASA Ames (2009).
- Invited speaker, NASA Ames Director's Colloquium Series (2007).
- Invited speaker, NASA Risk and Exploration Symposium, Monterey, CA (2005).
- Invited speaker (Colloquium Series), NASA Goddard Flight Center (2005).

Education and Public Outreach

Sharing the excitement of exploration and discovery in planetary exploration is paramount in Cabrol's career. She started giving public lectures at age 23. She now counts over 400 lectures in the USA, France, Chile, and Mexico, including a broad range of audiences, e.g., the general public, private industries, associations, societies and clubs, museums and exploratoriums, schools, colleges, universities, and retirement homes. She also trains the next generation of explorers and scientists by involving them in scientific expeditions in the desert, in the Andes, and in planetary research at NASA Ames and the SETI Institute through programs that include: the NASA Astrobiology Academy Student Program, NASA Ames GSRP, REU, NASA Biology Program Internship, and NASA Postdoctoral Program.

Other Outreach

- Scientific Adviser for "Living Worlds", California Academy of Sciences. Released on 11/05/2021. The show has received the Winner Science & Education Best of Earth 2021.

Membership in Professional Societies and Other

- Fellow, California Academy of Sciences
- Fellow, Wings WorldQuest
- Astrobiology Society
- American Geophysical Union
- TED
- Trustee, National Parks Conservancy
- Sempervirens Fund (Protection of Redwood Forests)
- International High IQ Society

Current Certification

- Scientific O2 Rebreather (Aqualung C.O.D.E)
- WASI/NASE Worldwide Open Water Scuba Diver
- California Department of Boating and Waterways License
- First Aid (American Health Care Academy)
- Adult/Child/Infant CPR/AED (American Health Care Academy)

Other

- Born August 30, 1963, Bagneux (France); Married to Edmond A. Grin in April 15, 2000 (Los Gatos, California, USA); No children. US citizen.
- Hobbies: Diving, kayaking, mountaineering, trekking, music, art and symbolism, writing, reading.
- Co-Exec Producer, *In Saturn's Rings* IMAX movie (coming up in 2015), Stephen van Vuuren, Director.
- Two women world records for high altitude free diving and scuba diving (Licancabur, 5,914 m).
- **Websites:** www.seti.org/users/nathalie-cabrol; www.researchgate.net/profile/Nathalie_Cabrol; www.linkedin.com/profile/view?id=48233;
- Founder and Administrator of Planetary Landscapes (>1.6M followers to date): www.facebook.com/PlanetaryLandscapes?ref=boo

Publications

I. Peer-Reviewed Journals (listed by year)

Cabrol, N.A. (2025), *Inséparables: Les destins croisés de la Terre et de la Vie*, (Julliard, Ed.), 265 p.

Cabrol, N. A. (2024), *The Secret Life of the Universe*, (Scriber, Simon & Schuster Eds).

Lezcano, MA, et al., including **NA Cabrol**. (2024). Hyperextension of genetic diversity and metabolic capacity of extremophilic bacteria and archaea in ancient Andean lake sediments, *Microbiome*, <https://doi.org/10.1186/s40168-024-01878-x>

Cabrol, N. A. (2023), *A L'Aube de Nouveaux Horizons*, Editions Le Seuil, Paris

Cabrol, N. A. (2023), *L'Énigme Cosmique de la Vie*, Editions Le Seuil, Paris

Cabrol, N.A. (2022), Un Tiempo Como Ningún Otro, Prólogo In: *La Búsqueda de Vida Extraterrestre Inteligente, (Un Enfoque Interdisciplinario)*, J. G Funes, editor. (in preparation).

Cabrol, N.A. and the SETI NAI Team, Biosignature exploration: From terrestrial polyextreme environments to Mars, (in preparation).

Hinman, N., Hoffman, M., Warren-Rhodes, K., Phillips, M., Noffke, **N.A. Cabrol**, N., Tebes Cayo, C., Cabestrero Arenda, O., Chong-Diaz, G., Demergasso, C., Bishop, J., Gulick, V., Summers, D., Sobron, P., McInenly, M., Moersch, J., Rodriguez, Sarazzin, P., Rhodes, K., Javiera, C., Wettergreen, D., Parro, V. and the SETI NAI Team (2022). Surface morphologies in a Mars-analog Ca-sulfate Salar, High Andes, Northern Chile. *Frontiers Astronomy and Space Science*, <https://doi.org/10.3389/fspas.2021.797591>

Hinman, M.A. Mave, L.C Powers, P. Schmitt-Kopplin, **N.A Cabrol**, M. Gonsior (2022). Controls on reactive oxygen species cycles in Yellowstone hot springs: implications for biosignature preservation on Mars, *Frontiers Astronomy and Space Science*, DOI: 10.3389/fspas.2022.727015.

Megevand, V., D. Carrizo, M.A. Lezcano, M. Moreno-Paz, **N.A. Cabrol**, V. Parro, and L. Sánchez-García, (2022), Lipid profiles from fresh biofilms along a temperature gradient on a hydrothermal stream at El Tatio (Chilean Andes), as a proxy for the interpretation of past and present biomarkers beyond Earth, *Front. Microbiol.* 13:811904. doi: 10.3389/fmicb.2022.811904, June 27.

Phillips, M., J.E. Moersch, **N.A. Cabrol**, A. Candela, D. Wettergreen, K. Warren-Rhodes, N.W. Hinman, and the SETI NAI Team, Planetary mapping using Deep Learning: A method to evaluate feature identification confidence applied to habitats in Mars-analog terrain, *Astrobiology* (Accepted).

Santos-Severino, R., M. Moreno-Paz, F. Puente Sánchez, L. Sánchez-García, V. A. Risso, J.M. Sánchez-Ruiz, **N.A. Cabrol**, V. Parro, (2022), Billion-aged peptide analogs detected in a hydrothermal early Earth-like environment, PNAS MS#2022-09364

Warren-Rhodes, K., **N.A. Cabrol**, et al., Decoding microbial spatial patterns as a blueprint for biosignature detection of Mars and Beyond, *Nature Astronomy* 2023.

Cabrol, N.A., Tracing a modern biosphere on Mars, *Nature Astronomy* 2021.

Chopra, A., A. Bell, W. Fawcett, R. Talebi, D. Angerhausen, A.G. Baydin, A. Berea, **N.A. Cabrol**, C. Kempes, and M. Mascaró, PyATMOS: A scalable grid of hypothetical planetary atmospheres,

Hinman, NW et al., including **N.A. Cabrol**. Surface morphologies and microenvironments within a Mars-analog Ca-sulfate playa in the Atacama Desert, Chile – awaiting co-author comments, *Palaios*, *J.Sed.Res.*, or *Frontiers in Astronomy*, special issue on Mars analogs (submitted).

Hinman, NW et al., including **N.A. Cabrol**. Mars-like physicochemical conditions control digitate sinter formation at El Tatio, Chile – in final stages of preparation, *Nature Astronomy* (in preparation).

Hoffman, M. et al., including **N.A. Cabrol**, The Importance of Overlapping Geologic Events in the Formation of Degassing Vents in Salt Basins in Northern Chile", (submitted to *Scientific Reports*).

From bubble to crater: Lined vent holes in the gypsum deposits of Salar de Pajonales, Chile (in preparation).

Jenness, J.; D.L. Sonderegger; T.N. Titus; M.D. Jhabvala; **N.A. Cabrol**. Advancing Cave Detection using Terrain Analysis Techniques and Thermal Imagery, *Remote Sensing of Environment* (submitted)

Ukstins, I., JA Wartho, **NA Cabrol**, EA Grin, MC van Soest, MB Biren, KV Hodges, G. Chong (2021). An (U-Th)/He age for the small Monturaqui impact structure, Chile, *Quat. Geochron.*, <https://doi.org/10.1016/j.quageo.2021.101217>

Wynne, JJ., MD. Jhabvala; **NA. Cabrol**, Using near-surface temperature data to vicariously calibrate high-resolution thermal infrared imagery and estimate physical surface properties, *MethodsX* (submitted).

Wynne, JJ, J. Jenness, DL Sionderegger, TN Titus, MD Jhabvala and NA Cabrol (2021), Advancing cave detection using terrain analysis and thermal imagery, *Remote Sens.* **13(18)**, <https://doi.org/10.3390/rs13183578>

Cabrol, N.A. et al. Addressing strategic knowledge gaps in the search for biosignatures on Mars. *White Paper submitted to the 2020 NRC Planetary Science Decadal Survey (2023-2032)*, 2020.

Cabrol, N.A. et al. Mission Concept: High-Resolution Mars Environmental Sensor Array. *White Paper submitted to the 2020 NRC Planetary Science Decadal Survey (2023-2032)*, 2020.

Häder, D.-P., and **Cabrol, N.A.** Long-term monitoring of solar irradiance in the Tropical Andes, *Photochem. Photobiol.* <https://doi.org/10.1111/php.13276>, 2020.

Hendrix, A.R., et al. (including **Cabrol N.A.**), Ocean Worlds: A roadmap for science and exploration. *White Paper submitted to the 2020 NRC Planetary Science Decadal Survey (2023-2032)*, 2020.

Hendrix, A.R., et al. (including **Cabrol N.A.**), Ocean Worlds: Science goals for the next decade. *White Paper submitted to the 2020 NRC Planetary Science Decadal Survey (2023-2032)*, 2020.

Schmidt, B. et al. (including **Cabrol, N.A.**) Enabling progress towards life detection on NASA missions. A white paper from the Network for Life Detection, *White Paper submitted to the 2020 NRC Planetary Science Decadal Survey (2023-2032)*, 2020.

Cabrol, N.A. 100 Years of the IAU: Beyond the Galileo Experiment, *Nature Astronomy*, **3**:585-587 d, 2019.

Cabrol, N.A. Quantum of life, *Scientific American*, Sept. 5, 2019

Fernández-Martínez, MA., R. dos Santos Severino, M. Moreno Paz, I. Gallardo Carreño, Y. Blanco, K. Warren-Rhodes, M. Garcia-Villadangos, M. Ruiz-Bermejo, A. Barberán, D. Wettergreen, **N.A. Cabrol**, and V. Parro. Prokaryotic community structure and metabolisms in shallow subsurface of Atacama Desert playas and alluvial fans after heavy rains: repairing and preparing for next dry period. *Frontiers in Microbiology, section Extreme Microbiology*, ID: 463848, 2019 (in review).

Parro, V., I. Gallardo-Carreño, **N. A. Cabrol**, V. C. Tilot, F. Puente-Sánchez, C. Thompson, E. Smith, P. Sobrón, Y. Blanco López, M. García-Villadangos, C. Tambley, C. S Demergasso, A. Echeverría, M. Moreno-Paz, A. G Fairén Benthic microbiology and nitrogen cycle of a glacial oligotrophic Andean lake as analogue for planetary exploration, *Frontiers in Microbiology*, 2019.

Sánchez-García L., M. Ángel Fernández, M. García-Villadangos, Y. López-Blanco, S. L Cady, N. Hinman, M. Bowden, S. Brian Pointing, K. C Lee, K. Warren-Rhodes, D. Lacap-Bugler, **N. A. Cabrol**, V. Parro, D. Carrizo, Microbial biomarker transition in high altitude sinter mounds from El Tatio (Chile) through different stages of hydrothermal activity, *Frontiers in Microbiology, section Microbiological Chemistry and Geomicrobiology*, 2019.

Tilot, V.C., **N.A. Cabrol**, V.G. Parro, A.G. Fairén, R.F.G. Ormond, E. Moreno-Ostos, N. Lopez-Gonzalez, F.A. Figueroa Rebolle, I. Gallardo Carreño, E.P Smith, P.Sobron, C. Demergasso, C. Tambley, J. Robidart, A test in a high altitude lake of a multi-parametric rapid methodology for assessing life in liquid environments on planetary bodies, together with the provisional report of a new freshwater polychaete tubeworm community. *Frontiers in Environmental Science, section Microbiological Chemistry and Geomicrobiology*, Manuscript ID: 441309, 2019.

Warren-Rhodes, K., K. Lee, S. Archer, L. Ng Boyle, **N. Cabrol**, D. Wettergreen, K. Zacny. C. Demargasso, J. Moersch, G. Chong, S. Vijayrangan, C. Tebes, M. Wagner, K. Tanaka, T. Hare, C. Gayle Tate, A. Wang, J. Wei, G. Foil, N. and Pointing, S. (2019). Subsurface microbial habitats in an extreme desert Mars-analogue environment. *Front. Microbiol.* (Feb 2019). doi: 10.3389/fmicb.2019.00069.

- Cabrol, N. A.**, The co-evolution of life & environment on Mars: An ecosystem perspective to the robotic search of biosignatures, *Astrobiology*, 18(1): 10.1089/ast.2017.1756, 2018.
- Cabrol, N. A.**, E. A. Grin, P. Zippi, N. Noffke, and D. Winter, Evolution of altiplanic lakes at the Pleistocene/Holocene transition: A window into early Mars declining habitability, changing habitats, and biosignatures. Chapter 6, In: *From Habitability to Life on Mars*, (Cabrol, N.A., and E.A. Grin, Eds), Elsevier, Amsterdam, The Netherlands, 153-179, 2018.
- Cabrol, N. A.**, E. A. Grin, N. Hinman, J. Moersch, N. Noffke, C. Phillips, P. Sobron, D. Summers, K. Warren-Rhodes, and D. S. Wettergreen: Concluding Remarks: Bridging Strategic Knowledge Gaps in the Search for Biosignatures on Mars - A Blueprint. Chapter 13, In: *From Habitability to Life on Mars*, (Cabrol, N.A., and E.A. Grin, Eds), Elsevier, Amsterdam, The Netherlands, 349-361, 2018.
- Echeverría-Vega, A., C. S. Demergasso, G. Chong, A. E. Serrano, M. Guajardo, O. Encalada, V. Parro, Y. Blanco, Luis Rivas, M. Moreno-Paz, J. Luque, K. C. Rose, **N. A. Cabrol**, Watershed-induced limnological and microbial status in two oligotrophic Andean lakes exposed to the same climatic scenario, *Frontiers in Microbiology*, section Aquatic Microbiology, 296225, 2018
- Herkenhoff, K. E., S. W. Squyres, R. E. Arvidson, S. Cole, R. Sullivan, A. Yingst, **N. A. Cabrol**, E. M. Lee, J. Richie, B. Sucharski, J. F. Bell III, F. Calef, M. Chapman, L. Edgar, B. Franklin, P. Geissler, J. Hurowitz, E. Jensen, J. R. Johnson, R. Kirk, P. Lanagan, C. Leff, J. Maki, K. Mullins, B. Redding, M. Rice, M. Sims, L. Soderblom, N. Spanovich, R. Springer, A. Sunda, and A. Vaughan: Overview of *Spirit* Microscopic Imager Results, *J. Geophys. Res.*
- Häder D.-P., and **N.A Cabrol**: Increasing UV Environment & Life Adaptation Potential on Early Mars: Lessons from Terrestrial Analogs. Chapter 9, In: *From Habitability to Life on Mars*, (Cabrol, N.A., and E.A. Grin, Eds), Elsevier, Amsterdam, The Netherlands, 233-249, 2018.
- Morse, J., E. Bendek, **N. Cabrol**, F. Marchis, M. Turnbull, S. Chackrabarti, D. Fischer, C. Goldblatt, O. Guyon, M. Hart, J. Males, J. Kasting, *Astrophysics*, White Paper to the Committee on Exoplanet Science Strategy, National Academies of Sciences, Engineering, and Medicine, Washington D.C., 2018.
- Cabrol, N. A.**, Alien mindscapes – Perspective on the Search for Extraterrestrial Intelligence. *Astrobiology*, **16**, 9, DOI: 10.1089/ast.2016.1536, 2016
- Cabrol, N. A.**, *What Are We Looking For? An Overview of the Search for Extraterrestrials*, In: Aliens, Al-Khalili, J., ed., Chapter 16, pp 178-187, 2016.
- Vijayarangan, S., D. Kohanbash, G. Foil, D. Thompson, A. Wang, K. Zacny, N. Cabrol, and D. Wettergreen, Robotic subsurface exploration and science with long duration autonomy, 2017.
- Parro, V., Y. Blanco, F. Puente-Sánchez, L. A. Rivas, M. Moreno-Paz, A. Echeverria, G. Chong-Diaz, C. Demergasso, and **N. A. Cabrol**, Biomarkers and metabolic patterns in the sediments of evolving glacial lakes as a proxy for planetary lake exploration. *Astrobiology*, V. 17., doi: 10.1089/ast.2015.1342, 2016.
- Overholt, P., K. C. Rose; C. E. Williamson; J. M. Fischer; **N. A. Cabrol**, Behavioral responses of freshwater calanoid copepods to the presence of ultraviolet radiation: avoidance and attraction, *Journal of Plankton Research*; doi: 10.1093/plankt/fbv113, 2016.
- Lorenz, R. D., and **N. A. Cabrol**, On-board science insights and vehicle dynamics from scale-model trials of the Titan Mare Explorer (TiME) capsule at Laguna Negra, Chile, *Astrobiology PLL special issue*, doi:10.1089/ast.2015.1303, 2016.
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