

Cyril Grima, Ph. D.

Research Associate

—
Institute for Geophysics, The University of Texas at Austin
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Interests

Cryosphere • Mars • Europa • Titan • Antarctica • Arctic • Ionosphere • Radar sounding

Education

2007–2011	PhD	Planetary Science	Université Grenoble Alpes, FR
2006–2007	M2R (~MS)	Solid Earth Geophysics	Université Grenoble Alpes, FR
2005–2006	M2P (~MS)	Space Technologies	Université Toulouse III, FR
2004–2005	M1 (~BS)	Engineering Physics	Université Grenoble Alpes, FR
2003–2004	L3 (~BS-1)	Applied Physics	Université de Versailles, FR
1999–2001	DUT (~AD)	Mechanical Engineering	Université d'Angoulême, FR

Employment

2015–now	Research Associate	UTIG, Austin, TX, USA <i>Investigation of planetary cryospheres with radar sounders</i>
2011–2015	Postdoctoral Fellow	UTIG, Austin, TX, USA <i>Development of a radar technique for planetary surface assessment • Science definition team member for the exploration of Europa • Polar aerogeophysical campaigns in the Antarctic/Arctic • Supervisor: D. D. Blankenship</i>
2007–2011	Graduate Student	IPAG, Grenoble, FR <i>Derivation of the purity rate for the Martian north polar cap • Formation hypothesis of Martian ice scarps unknown on Earth • Global mapping of the Mars radar surface reflectivity • Shallow Radar (MRO/SHARAD) data • Supervisor: W. Kofman</i>
2006 (6 m.)	Research Fellow	IRF, Kiruna, SE <i>Study of Kelvin-Helmholtz instabilities at the martian ionopause • ASPERA-3 spectro-analyser data set (MarsExpress) • Supervisor: H. Gunell</i>
2005 (2 m.)	Research Assistant	ISTerre, Grenoble, FR

Crustal thickness of the western Alps by seismic receiver functions • Field work on a seismologic station network • Supervisor: A. Paul

- 2004 (1 m.) **Research Assistant** [LATMOS, Verrières-le-Buisson, FR](#)
Assistance in the development of an extrasolar planet detection method • Supervisor: A. Sarkissian
- 2003 **Mechanical Designer** [2MI Group, Montluçon, FR](#)
Design of Isostatic means and foundry equipments for the car industry

Field Experience

- 2014 (1 m.) **Assistant Operator** [Qaanaaq, Greenland](#)
Data acquisition/analysis for airborne geophysical surveys
- 2012 (2 m.) **Assistant Operator** [East Antarctica](#)
Data acquisition/analysis for airborne geophysical surveys
- 2012 (1 m.) **Assistant Operator** [Qaanaaq, Greenland](#)
Data acquisition/analysis for airborne geophysical surveys
- 2011 (2 m.) **Assistant Operator** [East Antarctica](#)
Data acquisition/analysis for airborne geophysical surveys

Mission Experience

Co-Investigator • *Radar for Europa Assessment and Sounding: Ocean to Near-Surface (REASON)* • NASA's Europa Clipper

Associate Team Member • *Cassini RADAR* • NASA's Cassini spacecraft

Co-Investigator • *SOunder for Lunar Volatile Exploration (SOLVE)* • KARI's Korea Pathfinder Lunar Orbiter • (Declined)

Participant • *Radar for Icy Moon Exploration (RIME)* • ESA's Jupiter Icy Moons Explorer

Participant • *Shallow Radar (SHARAD)* • NASA's Mars Reconnaissance Orbiter

Participant • *Mars Advanced Radar for Subsurface and Ionosphere Sounding (MARSIS)* • ESA's Mars Express spacecraft

Honors & Awards

- 2020 **Invited Speaker** • Center for Planetary Systems Habitability • UT Austin, TX
- 2019 **Invited Speaker** • Five Decades of Radioglaciology • International Glaciology Society
- 2019 **Invited Speaker** • Colloquium of the Department of Astronomy • UT Austin, TX
- 2018 **Invited Speaker** • Planetary Habitability Pop-Up Institute • UT Austin, TX
- 2018 **Invited Speaker** • International Geoscience and Remote Sensing Symposium • Spain, Valencia • (Declined due to conflict)
- 2017 **Awardee** • Outstanding Young Researcher • UTIG, Austin, TX

2016 **Invited Panelist** • Where Is Earth 2.0? • SXSW, Austin, Tx
 2013 **Recognition** • Outstanding contribution to Mars Express • European Space Agency
 2012 **Nominee** • Thesis Award (22 nominees out of ~900) • Grenoble University
 2011 **Awardee** • Postdoctoral Fellowship • UTIG, Austin, TX

Funding History

2019–22 **Principal Investigator** • Deciphering the Martian Surface and Near-Surface with Radar statistics • NASA • \$466K
 2016–18 **Co-Investigator** • Joint Radar and Model Investigations of Greenland Basal Water Conditions • NASA • \$701K
 2016–18 **Co-Investigator** • East Antarctic Grounding Line Experiment (EAGLE) • NSF • \$724K
 2015–30 **Co-Investigator** • Radar for Europa Assessment and Sounding: Ocean to Near-surface (REASON) • NASA • \$150M
 2015 **Principal Investigator** • Radar Statistical Reconnaissance of the Martian surface in support of the InSight landing site selection • SWRI • \$15K
 2014–17 **Co-Principal Investigator** • Surface Statistical Reconnaissance on Titan: Preliminary Assessments with the Cassini Radar • JPL • \$100K
 2013–33 **Participant** • Jupiter Icy Moon Explorer (JUICE) Radar for Icy Moon Exploration (RIME) • ESA • \$420K
 2013–14 **Co-Investigator** • Ice Penetrating Radar for Planetary Exploration • JPL • \$500K
 2013 **Co-Principal Investigator** • Radar Surface Statistical Reconnaissance of Mars for Landing Site and Geological Characterization of Planetary Bodies • JSG seed Grant • \$15K
 2011–13 **Fellow** • Postdoctoral Fellowship • UTIG, Austin, TX • \$180K
 2007–09 **Co-Principal Investigator** • Mars Express MARSIS Level 5 Total Electron Content (TEC) derived data • ESA • \$60K

Professional Service

2020 **Co-Organizer** • "LPSC at UT" video conference, in reaction to LPSC cancellation due to COVID-19 • UT Austin
 2020 **Organizing Committee Member** • Science from Space Symposium • UT Austin
 2019–now **Member** • Earth Science & Space Mission Research Interest Group (RIG) • UT Office of the Vice President for Research
 2019 **Guest Lecturer** • The habitability of Europa and its investigation by radar sounding • GEO 114G, UT Austin
 2019–now **Member** • Fellowship Committee • UTIG
 2018–now **Co-Director** • Kristian Chan Ph.D. Committee • UT Austin
 2017–18 **Member** • Technical Staff Evaluation Committee • UTIG
 2015–now **Coordinator** • Reflectometry Measurement Implementation Group • REASON Team
 2015–now **Coordinator** • Plasma Measurement Implementation Group • REASON Team

2015–18 **Co-Conveneer** • Radar Investigations of Planetary Surfaces and Subsurfaces • AGU Fall Meeting
 2018 **Member** • Eric Ivan Petersen Ph.D. Committee • UT Austin
 2017 **Member** • Dan Lalich Ph.D. Committee • UT Austin
 2017 **Member** • Wei Wei Examining Committee • UT Austin
 2017 **Member** • Laura Lindzey Examining Committee • UT Austin
 2016 **Guest Lecturer** • Icy worlds in the solar system • UT Austin
 2016 **Member** • Postdoctoral Fellowship Committee • UTIG

Journal Reviewer (Publons) • Advances in Space Research • Annals of Glaciology • The Cryosphere • Earth and Planetary Science Letters • Geophysical Research Letters • Journal of the Geological Society of London • Journal of Geophysical Research • IEEE Geoscience and Remote Sensing Letters • IEEE Transactions on Geoscience and Remote Sensing • Icarus • Nature • Remote Sensing • Radio Science

Proposal Reviewer • NASA Maturation of Instruments for Solar System Exploration program • NASA Future Investigators in NASA Earth and Space Science and Technology program • NASA CubeSat Launch Initiative • University of Missouri Research Board Grant

Supervision & Mentorship

2019 Christopher Gerekos • **Invited GRA**
 2018–now Kirk Scanlan • **Post-Doc**
 2018–19 Gregor Steinbrugge • **Post-Doc**
 2017–now Kristian Chan • **GRA**
 2014–18 Anja Rutishauser • **GRA**
 2013–16 Erika Lopez Garcia • **URA**
 2012–14 Arami Rosales • **URA**
 2012–13 Cassidy Cura • **High School**
 2012–13 Blake Karwoski • **High School**
 2012–13 Elena Arnold • **High School**
 2010 Adrien Tavernier • **URA**
 2010 Solmaz Adéli • **URA**
 2009–10 Aurélien Stolzenbach • **URA**
 2008 Anthony Servain • **URA**

Outreach

2018 Speech at the Geology Club • Texas State University, San Marcos, TX
 2017 Speech about the Antarctic before 5th and 6th grades' • Austin International School (AIS)
 2016 Speaker for Where Is Earth 2.0? Discovering a Planet Like Ours • SXSW, Austin, Tx

Press Releases

- 2018 **Discovery of the First Hypersaline Subglacial Lake** • inc. Discover Magazine, Phys.org,
2017 **Titan Hydrocarbon's Lake Smoothness** • inc. UT News, NBC News, Space.com, Phys.org
2015 **Radar Instrument Selection for the Europa Mission** • inc. The Guardian, Ars Technica
2009 **Ice Purity of the Northern Martian Polar Cap** • inc. Agence France Press, France Bleu

Refereed Publications ([Metrics](#))

(*Mentored Students/Postdocs)

31. *C. Gerekos, **C. Grima**, G. Steinbrugge, S. Thakur, K. M. Scanlan, D. A. Young, L. Bruzzzone, D. D. Blankenship, (submitted), Martian roughness analogues of European terrains and implications on radar backscatter, Icarus, TBD.
30. *G. Steinbrugge, R.C. Voigt, D. Schroeder, A. Stark, M. Haynes, K. Scanlan, C. Hamilton, D. A. Young, H. Hussmann, **C. Grima**, D. D. Blankenship, (2020), [The Surface Roughness of Europa derived from Galileo Stereo Images](#), Icarus 343(113669).
29. Lopes R. M. C., Wall S. D., Elachi C., Birch S. P. D., Corlies P., Coustenis A., Hayes A. G., Hofgartner J. D., Janssen M. A., Kirk R. L., LeGall A., Lorenz R. D., Lunine J. I., Malaska M. J., Mastroguiseppe M., Mitri G., Neish C. D., Notarnicola C., Paganelli F., Paillou P., Poggiali V., Radebaugh J., Rodriguez S., Schoenfeld A., Soderblom J. M., Solomonidou A., Stofan E. R., Stiles B. W., Tosi F., Turtle E. P., West R. D., Wood C. A., Zebker H. A., Barnes J. W., Casarano D., Encrenaz P., Farr T., **Grima C.**, Hemingway D., Karatekin O., Lucas A., Mitchell K. L., Ori G., Orosei R., Ries P., Riccio D., Soderblom L. A., Zhang Z., (2019), [Titan as Revealed by the Cassini Radar](#), Space Science Reviews 215(4), article id. 33, 50 pp.
28. *L. M. Scanlan, **C. Grima**, G. Steinbrugge, S. D. Kempf, D. A. Young, D. D. Blankenship, (2019), [Geometric Determination of Ionospheric Total Electron Content from Dual Frequency Radar Sounding Measurements](#), Planetary and Space Science 178(104696).
27. **Grima C.**, I. Koch, J. S. Greenbaum, K. M. Soderlund, D. D. Blankenship, D. A. Young, D. M. Schroeder, S. Fitzsimons, (2019), [Surface and Basal Boundary Conditions at the Southern McMurdo and Ross Ice Shelves, Antarctica](#), Journal of Glaciology 65(252), 675-688.
26. *A. Rutishauser, D.D. Blankenship, M. Sharp, M. L. Skidmore, J. S. Greenbaum, **C. Grima**, D. M. Schroeder, J. A. Dowdeswell and D. A. Young, (2018), [Discovery of a hypersaline subglacial lake complex beneath Devon Ice Cap, Canadian Arctic](#). Science Advances 4(4), eaar4353.
25. *G. Steinbrugge, D.M. Schroeder, M.S. Haynes, H. Hussmann, **C. Grima**, D.D. Blankenship, (2018), [Assessing the potential for measuring Europa's tidal Love number h2 using radar sounder and topographic imager data](#), Earth and Planetary Science Letters, Volume 482, 334-341.

24. Castelletti D., D. M. Schroeder, S. Hensley, **C. Grima**, G. Ng, D. Young, Y. Gim, L. Bruzzone, A. Moussessian and D. D. Blankenship (2017). *An Interferometric Approach to Cross-Track Clutter Detection in Two Channel VHF Radar Sounders*, IEEE Transactions on Geoscience and Remote Sensing 55(11), 6128 - 6140.
23. **Grima C.**, M. Mastrogiuseppe, A. G. Hayes, S. D. Wall, R. D. Lorenz, J. D. Gardner, B. Stiles, C. Elachi, (2017), *Surface Roughness of Titan's Hydrocarbon Seas*, Earth and Planetary Science Letters 474, 20-24.
22. *A. Rutishauser, **C. Grima**, M. Sharp, D. Blankenship, D. Young, F. Cawkwell, J. Dowdeswell, (2016), *Characterizing near-surface firn using the scattered signal component of the glacier surface return from airborne radio-echo sounding*, Geophysical Research Letters 43(24), pp. 12,502-510.
21. Golombek M., D. Kipp, N. Warner, I. J. Daubar, R. Fergason, R. Kirk, R. Beyer, A. Huertas, S. Piqueux, N. E. Putzig, B. A. Campbell, G. A. Morgan, C. Charalambous, W. T. Pike, K. Gwinner, F. Calef, D. Kass, M. Mischna, J. Ashley, C. Bloom, N. Wigton, T. Hare, C. Schwartz, H. Gengl, L. Redmond, J. Sweeney, **C. Grima**, I. B. Smith, E. Sklyanskiy, M. Lisano, J. Bernardino, S. Smrekar, P. Lognonné, W. B. Banerdt, 2016, *Selection of the InSight Landing Site*, Space Science Reviews 211(1-4), pp 5-95.
20. Putzig N. E., G. A. Morgan, B. A. Campbell, **C. Grima**, I. B. Smith, R. J. Phillips, M. P. Golombek, (2016), *Radar derived Properties of the InSight Landing Site in Western Elysium Planitia on Mars*, Space Science Reviews 211(1-4), pp 135-146.
19. Schroeder D., B. Campbell, L. Bruzzone, A. Romero-Wolf, D. Blankenship, **C. Grima**, W. Kofman, L. Carrer, (2016), *Assessing the potential for passive radio sounding of Europa and Ganymede with RIME and REASON*, Planetary and Space Science 134, 52-60.
18. Poggiali V., M. Mastrogiuseppe, A. Hayes, R. Seu, S. Birch, R. Lorenz, **C. Grima**, J. Kargel, J. Hofgartner, (2016), *Liquid Filled Canyons on Titan*, Geophysical Research Letters 43(15), 7887-7894.
17. **Grima C.**, J. S. Greenbaum, *E. Lopez Garcia, K. M. Soderlund, *A. Rosales, D. D. Blankenship, D. A. Young, (2016), *Radar detection of the brine extent at McMurdo Ice Shelf, Antarctica, and its control by snow accumulation*, Geophysical Research Letters 43(13), 7011-7018.
16. Vance T., J. Roberts, A. Moy, M. Curran, C. Tozer, A. Gallant, N. Abram, T. van ommen, D. Young, **C. Grima**, D. Blankenship, M. Siegert, (2016), *Optimal site selection for a high resolution ice core*. Clim. Past 12, 595-610.
15. **Grima C.**, D. D. Blankenship, D. M. Schroeder. (2015), *Radar Signal Propagation Through the Ionosphere of Europa*. Planetary and Space Science 117, 421-428.
14. Schroeder D. M., **C. Grima**, D. D. Blankenship. (2015), *Evidence for Variable Grounding Zone Extent and Shear Margin Bed Conditions Across Thwaites Glacier, West Antarctica*. Geophysics, vol.81, NO 1.

13. Sánchez-Cano B., D.D. Morgan, O. Witasse, S.M. Radicella, M. Herraiz, R. Orosei, M. Cartacci, A. Cicchetti, R. Noschese, W. Kofman, **C. Grima**, J. Mouginot, D.A. Gurnett, M. Lester, P.-L. Blelly, H. Opgenoorth and G. Quinsac, (2015), *Total Electron Content in the martian atmosphere: a critical assessment of the Mars Express MARSIS datasets*, Journal of Geophysical Research: Space Physics 120(3), 2166-2182.
12. **Grima, C.**, Blankenship, D. D., Young, D. A., and Schroeder, D. M. (2014), *Surface slope control on firn density at Thwaites Glacier, West Antarctica: Results from airborne radar sounding*. Geophysical Research Letters 41(19), 6787-6794.
11. **Grima, C.**, Schroeder, D. M., Blankenship, D. D., and Young, D. A., (2014), *Planetary landing zone reconnaissance using ice penetrating radar data: concept validation in Antarctica*. Planetary and Space Science 103, 191-204.
10. Schroeder, D. M, Blankenship, D. D., Raney, K. R., **Grima, C.**, (2014), *Estimating subglacial water geometry using radar bed echo specularity: application to Thwaites Glacier, Antarctica*. IEEE Geoscience and Remote Sensing Letter 12(3), 443-447.
9. **Grima, C.**, (2014), *Comments on 'An inversion of Planetary Rough Surface Permittivity From Radar Sounder Observations'*. IEEE Antenna and Wireless Propagation Letter, 13(1), pp. 1-2.
8. Lasue, J., Mangold, N., Hauber, E., Clifford, S., Feldman, W., Gasnault, O., **Grima, C.**, Maurice S., Mousis O., (2013), *Quantitative assessments of the martian hydrosphere*. Space Science Reviews, Volume 174, Issue 1-4, 155-212.
7. **Grima, C.**, Kofman, W., Herique, A., Orosei, R., and Seu, R., (2012), *Quantitative analysis of Mars surface radar reflectivity at 20 MHz*. Icarus, 220, 84-99.
6. **Grima, C.**, Costard, F., Kofman, W., Saint-Bézar, B., Servain, A., Rémy, F., Mouginot, J., et al., (2011), *Large asymmetric polar scarps on Planum Australe, Mars: Characterization and evolution*. Icarus, 212(1), 96-109.
5. Mouginot, J., Pommerol, a., Kofman, W., Beck, P., Schmitt, B., Hérique, A., **Grima, C.**, et al., (2010), *The 3-5MHz global reflectivity map of Mars by MARSIS/Mars Express: Implications for the current inventory of subsurface H₂O*. Icarus, 210(2), 612-625.
4. Pommerol, A., Kofman, W., Audouard, J., **Grima, C.**, Beck, P., Mouginot, J., Hérique, A., et al., (2010), *Detectability of subsurface interfaces in lunar maria by the LRS/SELENE sounding radar: Influence of mineralogical composition*. Geophysical Research Letters, 37(3), 1-5.
3. **Grima, C.**, Kofman, W., Mouginot, J., Phillips, R. J., Hérique, A., Biccari, D., Seu, R., et al. (2009), *North polar deposits of Mars: Extreme purity of the water ice*. Geophysical Research Letters, 36(3), 2-5.
2. Mouginot, J., Kofman, W., Safaeinili, A., **Grima, C.**, Hérique, A., and Plaut, J. J. (2009), *MARSIS surface reflectivity of the south residual cap of Mars*. Icarus, 201(2), 454-459.

1. Gunell, H., Amerstorfer, U. V., Nilsson, H., **Grima, C.**, Koepke, M., Fränz, M., Winningham, J. D., et al. (2008) *Shear driven waves in the induced magnetosphere of Mars*. Plasma Physics and Controlled Fusion, 50(7), 074018.

Academic and Technical Reports

9. Young D. A., N. Wolfenbarger, T. Richter, **C. Grima** and K. Soderlund, 2019, *Science Verification and Validation Point Models for REASON*, Jet Propulsion Laboratory Interoffice Memorandum, IOM-REASON-2019-001.
8. **Grima C.**, 2017, *Europa Radio Noise Shadow*, Jet Propulsion Laboratory Interoffice Memorandum, IOM-REASON-2017-001.
7. **Grima C.**, 2014, *Europa Space Environment and Radar Operations*, White paper for the "Ice Penetrating Radar team for the Instrument Concept for Europa Exploration" (ICEE) program (JPL/NASA).
6. Schroeder D.M., **Grima C.**, Blankenship D.D., 2012, *Assessing the Utility of the Europe Clipper Radar Sounder to Identify Potential Landing Sites*, White paper for the "Europa Science Definition Team", July 2012
5. **Grima C.**, 2011, *Surface et subsurface de Mars par sondage radar : Analyse des données MRO/Sharad*, Thèse de doctorat, Université de Grenoble.
4. **Grima C.**, Witasse O., and Orosei R., 2009, *MEX-MARSIS subsurface (SS) mode: Total electron content (TEC) of the ionosphere level 5 derived data*. Experimental to planetary archive interface control document (EAICD). European Space Agency.
3. **Grima, C.**, and Kofman, W., 2008, *Ionospheric impact on MARSIS radar signal*. ESA European Space Agency contract report No 21646/08/NL/NR, volume 1.
2. **Grima, C.**, and Kofman, W., 2008, *Correcting the ionospheric impact on MARSIS radar signal*. European Space Agency study contract report No 21646/08/NL/NR, volume 2.
1. **Grima, C.**, and Kofman, W., 2008, *MARSIS derived enhanced ionospheric calibration data*. European Space Agency study contract report No 21646/08/NL/NR, volume 3.

International Conferences

2020

- **C. Grima**, C. Gerekos, K. M. Scanlan, G. Steinbrugge, D. A. Young, S. D. Kempf, and D. D. Blankenship *Mars as an Analog to Anticipate Radar Surface Reflectivity at Europa*, 51th Lunar and Planetary Science Conference, The Woodlands, TX, Abstract 1471. *[Canceled due to COVID-19]*

- D. A. Young, D. D. Blankenship, N. S. Wolfenbarger, **C. Grima**, K. M. Soderlund, K. F. Chan, T. G. Richter, and the REASON Science Team, [An Ensemble of Point Models Approach for Science Verification and Validation for Europa Clipper's REASON \(Radar for Europa Assessment and Sounding: Ocean to Near-surface\)](#), 51th Lunar and Planetary Science Conference, The Woodlands, TX, Abstract 2918. *[Canceled due to COVID-19]*
- K. M. Scanlan, D. A. Young, G. Steinbrügge, **C. Grima**, S. D. Kempf and D. D. Blankenship [Quantitative Approaches to Assess the Quality in Synthetic Aperture Radar Focusing for Orbital Radar Sounding Datasets](#), 51th Lunar and Planetary Science Conference, The Woodlands, TX, Abstract 1591. *[Canceled due to COVID-19]*
- **[Invited] C. Grima**, [The Advent of Cryospheres & the Concatenation of Worlds](#), Inaugural talk to the Center for Planetary Systems and Habitability (CPSH) seminar series, UT Austin, TX.

2019

- D. Young, J. Greenbaum, D. Blankenship, M. Siegert, J. Roberts, T. van Ommen, A. Aitken6, **C. Grima**, E. Le Meur and The ICECAP collaboration, [ICECAP's contribution to NASA's Operation IceBridge in East Antarctica](#), AGU Fall Meeting 2019, San Francisco, CA.
- S. Christian, M. Liu-Schiaffini, A. Rutishauser, K. Chan, **C. Grima** and D. Blankenship, [Investigating Ice Surface Elevations Derived from Laser and Radar-sounding Measurements Over Devon Ice Cap, Canadian Arctic](#), AGU Fall Meeting 2019, San Francisco, CA.
- G. Steinbrügge, M. Haynes, K. Scanlan, D. Young, **C. Grima**, S. Kempf, D. Schroeder and D. Blankenship, [SHARAD Altimetry on Mars: Towards an improved, global digital terrain model](#), AGU Fall Meeting 2019, San Francisco, CA.
- K. Scanlan, L. Beem, **C. Grima**, D. Buhl, D. Young and D. Blankenship, [Differentiating Subglacial Drainage Patterns through the Depolarization of Airborne Radar Sounding Measurements](#), AGU Fall Meeting 2019, San Francisco, CA.
- K. Chan, A. Rutishauser, **C. Grima** and D. Blankenship, [Detection of Near-Surface Frozen Brines at Europa: Radar Investigation of a Canadian Arctic Analog](#), AGU Fall Meeting 2019, San Francisco, CA.
- C. Gerekos, **C. Grima**, G. Steinbrügge, K. Scanlan, D. Young, L. Bruzzone, and D. Blankenship [Comparing the multifractal properties of European and Martian surfaces](#) EPSC-DPS Joint Meeting 2019, Geneva, Switzerland, Abstract EPSC-DPS2019-330.
- G. Steinbrügge, J.R.C. Voigt, D.M. Schroeder, A. Stark, M.S. Haynes, K.M. Scanlan, C.W. Hamilton, D.A. Young, H. Hussmann, **C. Grima**, D.D. Blankenship [Reassessing Europa's Surface Roughness](#) EPSC-DPS Joint Meeting 2019, Geneva, Switzerland, Abstract EPSC-DPS2019-865.
- **[Invited] C. Grima** [Planetary Analogy and Radioglaciology](#), Five Decades of Radioglaciology, IGS Symposium, Stanford, California, Abstract 81A3081.

- A. Romero-Wolf, D. M. Schroeder, S. Peters, B. Bills, D. D. Blankenship, L. Bruzzone, B. Campbell, L. Carrer, **C. Grima**, E. Heggy [Status and prospects of passive sounding with radio-astronomical sources](#), Five Decades of Radioglaciology, IGS Symposium, Stanford, California, Abstract 81A3009.
- K. M. Scanlan, G. Steinbrügge, S. D. Kempf, **C. Grima**, D. A. Young, D. D. Blankenship [Alternative strategies for synthetic aperture radar focusing of orbital radar sounding measurements](#), Five Decades of Radioglaciology, IGS Symposium, Stanford, California, Abstract 81A3054.
- A. Rutishauser, D. D. Blankenship, L. Beem, J. S. Greenbaum, D. A. Young, **C. Grima**, L. N. Schwartz, J. A. Foran, A. Criscitiello [New radar-sounding investigations over the hypersaline subglacial lakes beneath Devon Ice Cap, Canadian Arctic](#), Five Decades of Radioglaciology, IGS Symposium, Stanford, California, Abstract 81A3055.
- D. A. Young, **C. Grima**, G. Steinbrügge, K. M. Scanlan, S. D. Kempf, D. D. Blankenship [REASON for Europa: data products and algorithms](#), Five Decades of Radioglaciology, IGS Symposium, Stanford, California, Abstract 81A3056.
- J. S. Greenbaum, D. M. Schroeder, **C. Grima**, N. Gourmelen, C. Dow, F. Habbal, J. Roberts, R. Warner, D. Gwyther [Surface and basal melting of the Totten Glacier Ice Shelf, East Antarctica](#), Five Decades of Radioglaciology, IGS Symposium, Stanford, California, Abstract 81A3067.
- T. Creyts, D. M. Schroeder, **C. Grima**, W. Chu, T. M. Jordan, J. Paden, R. Culberg [Bed roughness as a control on the drainage of subglacial water](#), Five Decades of Radioglaciology, IGS Symposium, Stanford, California, Abstract 81A3175.
- **[Invited] C. Grima** [The Habitability of Europa and its Investigation by Radar Sounding](#), Department of Astronomy Colloquium, UT Austin, TX.
- G. Steinbrügge, K.M.Scanlan, D.A. Young, **C. Grima**, S.D.Kempf and D.D. Blankenship [Sharad Radar Altimetry and Geodesy](#), 50th Lunar and Planetary Science Conference (2019), The Woodlands, TX, Abstract 1993.
- K. M. Scanlan, D. A. Young, **C. Grima**, G. Steinbrügge, S. D. Kempf and D. D. Blankenship [Englacial radar Attenuation Rates in the Promethei Lingula Area of the Martian South Polar Layered Deposits](#), 50th Lunar and Planetary Science Conference (2019), The Woodlands, TX, Abstract 1994.
- **C. Grima**, G. B. Steinbrügge, K. M. Scanlan, D. A. Young, N. E. Putzig, M. R. Perry, B. A. Campbell, S. D.Kempf and D. D. Blankenship [Deciphering the martian Surface and near-surface with Radar Statistics](#), 50th Lunar and Planetary Science Conference (2019), The Woodlands, TX, Abstract 1280.

2018

- D. A. Young, **C. Grima**, G. Steinbrugge, K. M. Scanlan, S. D. Kempf, D. D. Blankenship [REASON For Europa: Data products and algorithms](#), AGU Fall Meeting 2018, Washington, DC, P51G-2955.

- G. Steinbrugge, J. R. C. Voigt, A. Stark, B. Giese, D. M. Schroeder, M. Haynes, D. A. Young, **C. Grima**, H. Hussmann, D. D. Blankenship [Reassessing the surface roughness of Europa using Galileo stereo images](#), AGU Fall Meeting 2018, Washington, DC, P42B-05.
- F. Habbal, J. S. Greenbaum, **C. Grima**, D. A. Young, J. L. Roberts, T. D. van Ommen, D. D. Blankenship [Using radar sounding to detect grounding line positions with evidence of modern grounding line retreat in East Antarctica](#), AGU Fall Meeting 2018, Washington, DC, C51F-1130.
- T. T. Creyts, W. Chu, **C. Grima**, D. M. Schroeder [Bed roughness as a control on the drainage of subglacial water](#), AGU Fall Meeting 2018, Washington, DC, C51E-1107.
-A. Rutishauser, D. D. Blankenship, L. Beem, J. S. Greenbaum, D. A. Young, **C. Grima**, A. S. Criscitiello [New insights from an airborne geophysical survey over the hypersaline subglacial lakes beneath Devon Ice Cap, Canadian Arctic](#), AGU Fall Meeting 2018, Washington, DC, C51E-1105.
- K. Chan, **C. Grima**, D. D. Blankenship, K. M. Soderlund, D. A. Young [Dielectric Brine-Ice Mixtures on Europa, and the Need for New Experiments](#), Europa Deep Dive 2: Composition, #3015, October 2018, Houston, TX.
- N. S. Wolfenbarger, D. D. Blankenship, K. M. Soderlund, D. A. Young, and **C. Grima** [Leveraging Terrestrial Marine Ice Cores to Constrain the Composition of Ice on Europa](#), Europa Deep Dive 2: Composition, #3036, October 2018, Houston, TX.
- **[Invited] C. Grima** [Terrestrial Analogs of Icy Worlds](#), Planetary Habitability Pop-Up Institute, University of Texas at Austin.
- D. Blankenship, A. Moussessian, J. Plaut, G. W. Patterson, Y. Gim, D. Schroeder, K. Soderlund, D. Young, **C. Grima**, E. Chapin REASON for Europa, COSPAR Assembly (2018), Pasadena, CA, Paper 24665.
- **C. Grima**, D. D. Blankenship, C. Paty, Y. Gim, W. Kurth, E. Chapin, D. M. Schroeder, J. J. Plaut, G. Patterson, A. Moussessian, D. A. Young Investigating Europa's Plasma Environment from radar Sounding, COSPAR Assembly (2018), Pasadena, CA, Paper 24685.
- Y. Brouet, R. Cerubini, A. Pommerol, N. Thomas, L. Neves, P. Sabouroux. **C. Grima**, [Dielectric spectroscopy measurements of saline aqueous solutions in the VHF-UHF bands: towards a dielectric model for icy satellites water reservoirs](#), 5th IEEE International Workshop on Metrology for Aerospace, Rome, Italy (2018).
- B. S. Tober, J. W. Holt, **C. Grima**, J. S. Levy [Radar Reflectivity Analysis of Boulder Halos on Mars: Is Subsurface Ice the Culprit?](#), 49th Lunar and Planetary Science Conference (2018), Houston, TX, Abstract 2935.

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- **C. Grima**, I. Koch, J.S. Greenbaum, K.M. Soderlund, D.D. Blankenship, D.A. Young, S. Fitzsimons. [Surface and basal ice shelf mass balance processes of the Southern McMurdo Ice](#)

[Shelf determined through radar statistical reconnaissance](#), AGU Fall Meeting 2017, New Orleans, USA, C51B-0977.

- J.S. Greenbaum, D.D. Blankenship, **C. Grima**, D.M. Schroeder, K.M. Soderlund, D.A. Young, S.D. Kempf, M.J. Siegert, J.L. Roberts, R.C. Warner, T.D. van Ommen. [Remote Characterization of Ice Shelf Surface and Basal Processes: Examples from East Antarctica \(Invited\)](#), AGU Fall Meeting 2017, New Orleans, USA, P53H-01.
- A. Rutishauser, M.J. Sharp, D.D. Blankenship, M.L. Skidmore, **C. Grima**, D.M. Schroeder, J.S. Greenbaum, J.A. Dowdeswell, D.A. Young. [Geophysical Investigations of Hypersaline Subglacial Water Systems in the Canadian Arctic: A Planetary Analog](#), AGU Fall Meeting 2017, New Orleans, USA, C22A-08.
- D.A. Young, **C. Grima**, J.S. Greenbaum, L. Beem, M. Cavitte, E. Quartini, S.D. Kempf, J.S. Roberts, M.J. Siegert, C. Ritz, D.D. Blankenship. [The subglacial roughness of Antarctica: Analogs, interpretation and implications for ice thickness uncertainties](#), AGU Fall Meeting 2017, New Orleans, USA, C32A-05.
- K. Chan, **C. Grima**, D. D. Blankenship, D. A. Young, K. M. Soderlund. [Mobilization of Near-Surface Brine on Europa](#). Europa Deep Dive 1: Ice Shell Exchange Processes, Houston, Tx, #7014.
- F. Habbal, J. S. Greenbaum, **C. Grima**, D. A. Young, J. Roberts, T. van Ommen, and D. D. Blankenship. [Improved grounding line constraints and evidence of retreat of Totten Glacier, East Antarctica](#), EGU General Assembly, Vienna, Austria, #EGU2017-1526.
- J. S. Greenbaum, D. M. Schroeder, **C. Grima**, F. Habbal, C. Dow, J. Roberts, D. Gwyther, T. van Ommen, M. Siegert, and D. D. Blankenship, [Morphological evidence and direct estimates of rapid melting beneath Totten Glacier Ice Shelf, East Antarctica](#), EGU General Assembly, Vienna, Austria, #EGU2017-1559.
- Steinbrügge G., D. M. Schroeder, M. S. Haynes, H. Hussmann, **C. Grima**, and D. D. Blankenship, [Assessing the potential for measuring Europa's tidal Love number h2 using radar sounder and topographic imager data](#), EGU General Assembly, Vienna, Austria, #EGU2017-9205.
- **Grima C.**, Blankenship D.D., Paty C., Gim Y., Kurth W. S., et al. [Investigating Europa's Plasma Environment from Radar Sounding](#), LPSC XLVIII, The Woodlands, Texas, #2816.
- Blankenship D.D., **Grima C.**, Young D.A., Schroeder D.M., Soderlund K.M., et al. [Understanding Europa's Ice Shell and Subsurface Water Through Terrestrial Analogs for Flyby Radar Sounding](#), LPSC XLVIII, The Woodlands, Texas, #2888.

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- **Grima C.**, E. Lopez Garcia, I. Koch, J.S. Greenbaum, K.M. Soderlund, D.D. Blankenship, D.A. Young, S. Fitzsimons, [Surface Density, Roughness, and Brine Infiltration Observed with Airborne Radar Statistical Reconnaissance at The McMurdo Ice Shelf, Antarctica](#), AGU 2016, San Francisco, C53A-0701.

- Rutishauser A., **C. Grima**, M.J. Sharp, Blankenship D.D., D.A. Young D.A. F. Cawkwell, J.A. Dowdeswell, [Characterizing near-surface firn from the scattered signal component of glacier surface reflections detected in airborne radio-echo sounding measurements](#), AGU 2016, San Francisco, C13C-0839.
- Schroeder D. M., **C.Grima**, M. Haynes, J. Greenbaum, [Distinguishing the signatures of ice shelf surface roughness, basal roughness, temperature and chemistry in radar sounding data](#). International Symposium on Interactions of Ice Sheets and Glaciers with the Ocean. La Jolla, California, USA, Abs #74A1991.
- Poggiali V., M. Mastrogiuseppe, A. Hayes, R. Seu, S. Birch, R. Lorenz, **C. Grima**, J. Kargel, and J. Hofgartner, [Liquid-filled Canyons on Titan](#), European Geosciences Union General Assembly, EGU2016-8065.
- Bergeot N., Witasse O., Kofman W., **C. Grima**, Mougnot J., Peter K., Pätzold M., and V. Dehant, [Study of the Total Electron Content in Mars ionosphere from MARSIS data set](#), European Geosciences Union General Assembly, EGU2016-3196.
- **Grima C.**, M. Mastrogiuseppe, A. Hayes, S. Wall, B. Stiles, C. Elachi, [Radar Statistical Reconnaissance with the Cassini RADAR: Roughness of Titan's Seas](#), LPSC, The Woodlands, Texas, #1660.
- N. E. Putzig, G. A. Morgan, B. A. Campbell, **C. Grima**, I. B. Smith, R. J. Phillips, and M. Golombek, [Radar properties of the proposed InSight landing site in Western Elysium Planitia on Mars](#), LPSC, The Woodlands, Texas, #1655.

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- Castelletti D., Schroeder D.M., Hensley S., **Grima C.**, Ng G., D. Young, Yonggyu Gim, Bruzzone L., A. Moussessian, Blankenship D.D., [Clutter detection using two-channel radar sounder data](#), Geoscience and Remote Sensing Symposium (IGARSS), 2015 IEEE International, 26-31 July 2015, Milan , p. 1052-55.
- Poggiali V., Mastrogiuseppe M., Hayes A., Seu R., Birch S., Hofgartner J., Flamini E., Lorenz R., **Grima C.**, Kargel K., Mullen J., [Liquid-Filled Channels on Titan](#), AGU 2015, San Francisco, P12B-02.
- Moussessian A., Blankenship D., Plaut J., Gim Y., Schroeder D., Soderlund K., **Grima C.**, Young D., Chapin E., [REASON for Europa](#), AGU 2015, San Francisco, P13E-05.
- Schroeder D., **Grima C.**, Haynes M., [Surface and Basal Roughness in Radar Sounding Data: Obstacle and Opportunity](#), AGU 2015, San Francisco, C13D-03.
- Blankenship D., **Grima C.**, Young D., Schroeder D., Soderlund K., Gim Y., Plaut J., Patterson G., Moussessian A., [Understanding Europa's Ice Shell and Subsurface Water through Terrestrial Analogs for Flyby Radar Sounding](#), AGU 2015, San Francisco, P53G-02.

- **Grima C.**, Blankenship D., Schroeder D., Moussessian A., Soderlund K., Gim Y., Plaut J., Greenbaum J., Lopez Garcia E., Campbell B., Putzig N., Patterson G. [Surface Reflectometry and Ionosphere Sounding from the Radar for Europa Assessment and Sounding: Ocean to Near-surface \(REASON\)](#), AGU 2015, San Francisco, P11C-2110.
- Blankenship, A. Moussessian, K.M. Soderlund, **C. Grima**, D.A. Young, D.M. Schroeder, Y. Gim, J.J. Plaut, G.W. Patterson, [Revealing secrets of Europa's ice shell, hidden water and plume activity through flyby radar sounding](#), Astrobiology Science Conference, Chicago, #7627.
- **[Invited] C. Grima** Lecture at UTIG Brownbag at UTIG, [How to carefully operate a radar in the space environment of Europa?](#).
- Rutishauser A., **Grima C.**, Sharp M., Blankenship D. D., Young D. A., Dowdeswell J. A., The use of airborne radar reflectometry to derive near-surface snow/firn properties on Devon Ice Cap, Canadian Arctic. IASC Network Arctic Glaciology Annual Meeting, University Centre Obergurl, Austria.
- **Grima C.** and Blankenship. D. D. [Radar Statistical reconnaissance of the 2016 Insight landing sites](#). LPSC, The Woodlands, Texas, #1238.
- Lalich D. Holt J. W. **Grima C.** [Heterogeneity of SHARAD Reflectivity in the NPLD: Implications for the Climate Record](#). LPSC, The Woodlands, Texas, #2430.

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- **Grima C.**, Rosales, Blankenship D. D., Young D. A.. [McMurdo Ice Shelf Sounding and Radar Statistical Reconnaissance at 60-MHz: Brine Infiltration Extent and Surface Properties](#). AGU Fall meeting, San Francisco, #C21C-0372.
- Rutishauser A., **Grima C.**, Sharp, Blankenship, Young, Dowdeswell. [The use of airborne radar reflectometry to establish snow/firn density distribution on Devon Ice Cap, Canadian Arctic: A path to understanding complex heterogeneous internal layering patterns](#). AGU Fall meeting, San Francisco, #C21C-0352.
- Palmer, Dowdeswell, Christoffersen, Benham, Young, Blankenship, Richter, Ng, **Grima C.**, Habbal, Sharp. [Airborne geophysical survey of ice caps in the Queen Elizabeth Islands, Arctic Canada](#). AGU Fall meeting, San Francisco, #C21C-0360.
- Schroeder D.M., **Grima C.**, Blankenship D.D. [Characterizing Englacial Attenuation and Grounding Zone Geometry Using Airborne Radar Sounding](#). AGU Fall meeting, San Francisco, #C53B-0303.
- **[Invited] C. Grima** UTIG Seminar [Leveraging Radar Sounding with Surface Reconnaissance: From Antarctic Science to Planetary Landing Sites](#), UTIG, Austin, TX.
- Schroeder D. M., Burch C. B., Soderlund K. M., **Grima C.**, Blankenship D. D., Komacek T. D., Quinn T. M., Van Hecke M. A., Schmidt B. E., Patterson G. W., Plaut J. J. Icy world science and habitability in the national science olympiad for middle school students. Workshop on the habitability of Icy Worlds, Pasadena, California, USA.

- **Grima C.**, Schroeder D. M., Blankenship D. D., Young D. A. Europa landing site selection supported by ice penetrating radar. Workshop on the habitability of Icy Worlds, Pasadena, California, USA.
- Blankenship D. D., Moussessian A., Schroeder D. M., Soderlund K., **Grima C.**, Gim Y., Plaut J. J., Schmidt B. E.. Flyby sounding of Europa's icy shell: radar investigations, analogs, and instruments for the Europa Clipper mission. Workshop on the habitability of Icy Worlds, Pasadena, California, USA.

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- **Grima C.**, Schroeder D. M., Blankenship D. D., Young D. A.. Planetary surface roughness derived from ice penetrating radar data: Method and concept validation in Antarctica. AGU Fall Meeting, San Francisco, California, USA. (2013) Grima C., Schroeder D. M., Blankenship D. D., Young D. A.. Firn variability derived from a statistical analysis of airborne ice penetrating radar over the Thwaites Glacier catchment, West Antarctica. IGS Int. Glacio. Soc. Symp. on Radioglaciology, Lawrence, Kansas, USA.
- **Grima C.**, Schroeder D. M., Blankenship D. D., Young D. A. Identifying Surface Characteristics with an Ice Penetrating Radar Sounder at Europa: Potential for Landing Site selection. Lun. and Planet. Sc. Congress, The Woodlands, Texas, USA.
- Blankenship D. D., Schroeder D. M., Soderlund K. M., **Grima C.** Flyby sounding of Europa's icy shell: radar investigations, analogs, and instruments for the Europa Clipper Mission. IGS Int. Glacio. Soc. Symp. on Radioglaciology, Lawrence, Kansas, USA.
- Arnold E., Curra C., Karowski B., Schroeder D. M., **Grima C.**, Young D. A., Blankenship D. D. How to enhance Europa surface characterization with an ice penetrating radar? Comparative study in Antarctica. AGU Fall meeting, San Francisco.

2012

- Palmer S. J., Dowdeswell J. A., Christoffersen P., Young D. A., Blankenship D. D., Stiebert M. J., Bamber, J. L., Greenbaum J. S., Ng G., **Grima C.** Airborne geophysical investigation of basal conditions at flow transitions of 16 Greenland Ice Sheet outlet glaciers. AGU meeting, San Francisco, USA.
- **[Invited] Grima C.** Lecture at IPAG, "*Exploiter la nature statistique de l'écho radar pour la caractérisation des surfaces planétaires*", France.
- **[Invited] Grima C.** Lecture at LEGOS, "*Exploiter la nature statistique de l'écho radar pour la caractérisation des surfaces planétaires*", France.

2011

- Kofman W., **Grima C.**, Hérique A., Seu R., Radar reflectivity of the surface of Mars at 20 MHz from SHARAD: Cartography and quantitative analysis. AGU meeting, San Francisco, USA.

2010

- **Grima C.**, Kofman W., Hérique A., Seu R., Physical parameters of the near-surface of mars derived from sharad radar reflectivity: statistical approach. 38th COSPAR scientific assembly, Bremen, Germany.

2009

- Pommerol A., Mouginot J., Kofman W., Safaeinili A., Plaut J.J., **Grima C.**, Herique A., and Beck P. Martian surface radar reflectivity from MARSIS soundings, AGU meeting, San Francisco, USA.
- Pommerol A., Kofman W., Audouard J., Kobayashi T., **Grima C.**, Mouginot J., Beck P., and Ono T., Characterization and mapping of the Lunar subsurface by the LRS/SELENE radar sounder : methods and preliminary results, Europ. Planet. Sci. Congress, Potsdam, Germany.
- Kofman W., Mouginot J., Beck P., Pommerol A., Schmitt B., **Grima C.**, Herique A., Safaeinili A., and Plaut J.J., Mars surface materials from MARSIS radar reflectivity, AGU meeting, San Francisco, USA.
- **Grima C.**, Kofman W., Hérique A., Beck P., and Seu R., Mapping the radar reflectivity of the Martian surface with the SHAlow RADar (SHARAD), Europ. Planet. Sci. Congress, Potsdam, Germany.
- **Grima C.**, Costard F., Kofman W., Clifford S.M., Mouginot J., Servain A., Herique A., and Seu R., Studying the geomorphology of unusual glacial scarps on Mars, using a multi-instrumental approach, Journées de la SF2A, Besançon, France.
- **Grima C.**, Costard F., Kofman W., Clifford S.M., Mouginot J., Servain A., Herique A., and Seu R. Large and assymetric polar scarps in Planum, Mars : Characterization and evolution. AGU meeting, San Francisco, USA.

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- Mouginot J., Kofman W., Safaeinili A., **Grima C.**, Hérique A., Plaut J., and Picardi G. Thickness of south residual cap of Mars by MARSIS. COSPAR scientific assembly, Montreal, Canada.
- Mouginot J., Kofman W., **Grima C.**, Safaeinili A., and Plaut J. Martian Surface Reflectivity seen by MARSIS. AGU meeting, San Francisco, USA.
- Kofman W., **Grima C.**, Mouginot J., Hérique A., Seu R., Bicarri D., and Orosei R. 3D modeling of south polar layered deposits on Mars with SHARAD radar data. Europ. Planet. Sci. Congress, Potsdam, Germany.
- **Grima C.**, Kofman W., Mouginot J., Servain A., Beck P., Pommerol A., Hérique A., and Seu R. Unusual ice scarps on Mars : an origin highlighted by radar sounding, elevation data, and visible imagery. Int. Symp. on Radioglacio. and its App., Madrid, Spain.

- **Grima C.**, Kofman W., Mouginot J., Servain A., Beck P., Pommerol A., Hérique A., and Seu R. Surface and subsurface study of unusual ice scarps, southern polar cap of Mars. 37th COSPAR scientific assembly, Montreal, Canada.

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- Kofman W., **Grima C.**, Mouginot J., Herique A., Seu R., Biccari D., Orosei R. 3D Modeling of South Polar Layered Deposits on Mars with SHARAD radar data. EuroPlanet Science Congress, Berlin, Germany, Vol.2., EPSC2007-A-00554, 2007.

2006

- Gunell H., H. Nilsson, U. V. Amerstorfer, E. Carlsson, C. Grima, and the Aspera-3 Team. Plasma instabilities near Mars. 36th COSPAR Scientific Assembly, Beijing, China. #2338