Essam Heggy

List of Publications by Year in descending order

95 papers	3,349 citations	136950 32 h-index	149698 56 g-index
97 all docs	97 docs citations	97 times ranked	2744 citing authors

#	Article	IF	Citations
1	Subsurface Radar Sounding of the South Polar Layered Deposits of Mars. Science, 2007, 316, 92-95.	12.6	330
2	Radar Soundings of the Subsurface of Mars. Science, 2005, 310, 1925-1928.	12.6	327
3	Mars North Polar Deposits: Stratigraphy, Age, and Geodynamical Response. Science, 2008, 320, 1182-1185.	12.6	271
4	Depth of the Martian cryosphere: Revised estimates and implications for the existence and detection of subpermafrost groundwater. Journal of Geophysical Research, 2010, 115, .	3.3	200
5	Properties of the 67P/Churyumov-Gerasimenko interior revealed by CONSERT radar. Science, 2015, 349, aab0639.	12.6	178
6	Initial results for the north pole of the Moon from Miniâ€SAR, Chandrayaanâ€1 mission. Geophysical Research Letters, 2010, 37, .	4.0	149
7	Alarming coastal vulnerability of the deltaic and sandy beaches of North Africa. Scientific Reports, 2021, 11, 2320.	3.3	72
8	Absorption and scattering in ground-penetrating radar: Analysis of the Bishop Tuff. Journal of Geophysical Research, 2006, 111, .	3.3	67
9	Modeling polarimetric radar scattering from the lunar surface: Study on the effect of physical properties of the regolith layer. Journal of Geophysical Research, 2011, 116, .	3.3	67
10	On Water Detection in the Martian Subsurface Using Sounding Radar. Icarus, 2001, 154, 244-257.	2.5	66
11	Mars Advanced Radar for Subsurface and Ionospheric Sounding (MARSIS) after nine years of operation: A summary. Planetary and Space Science, 2015, 112, 98-114.	1.7	66
12	An upper limit for ice in Shackleton crater as revealed by LRO Miniâ€RF orbital radar. Geophysical Research Letters, 2012, 39, .	4.0	65
13	Searching for evidence of hydrothermal activity at Apollinaris Mons, Mars. Icarus, 2012, 217, 297-314.	2.5	64
14	Subsurface imaging in south-central egypt using low-frequency radar: bir safsaf revisited. IEEE Transactions on Geoscience and Remote Sensing, 2003, 41, 1672-1684.	6.3	62
15	An advanced photogrammetric method to measure surface roughness: Application to volcanic terrains in the Piton de la Fournaise, Reunion Island. Remote Sensing of Environment, 2013, 135, 1-11.	11.0	62
16	Cosmochemical implications of CONSERT permittivity characterization of 67P/CG. Monthly Notices of the Royal Astronomical Society, 2016, 462, S516-S532.	4.4	59
17	Radar probing of Jovian icy moons: Understanding subsurface water and structure detectability in the JUICE and Europa missions. Icarus, 2017, 285, 237-251.	2.5	54
18	Direct observations of asteroid interior and regolith structure: Science measurement requirements. Advances in Space Research, 2018, 62, 2141-2162.	2.6	54

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19	Radar properties of comets: Parametric dielectric modeling of Comet 67P/Churyumovâ€“Gerasimenko. Icarus, 2012, 221, 925-939.	2.5	50
20	The WISDOM Radar: Unveiling the Subsurface Beneath the ExoMars Rover and Identifying the Best Locations for Drilling. Astrobiology, 2017, 17, 565-584.	3.0	50
21	Ground-penetrating radar sounding in mafic lava flows: Assessing attenuation and scattering losses in Mars-analog volcanic terrains. Journal of Geophysical Research, 2006, 111, .	3.3	48
22	Photogrammetric assessment of shoreline retreat in North Africa: Anthropogenic and natural drivers. ISPRS Journal of Photogrammetry and Remote Sensing, 2019, 157, 73-92.	11.1	46
23	Forecasting water budget deficits and groundwater depletion in the main fossil aquifer systems in North Africa and the Arabian Peninsula. Global Environmental Change, 2018, 53, 157-173.	7.8	42
24	Egyptâ€™s water budget deficit and suggested mitigation policies for the Grand Ethiopian Renaissance Dam filling scenarios. Environmental Research Letters, 2021, 16, 074022.	5.2	41
25	A deep groundwater origin for recurring slope lineae on Mars. Nature Geoscience, 2019, 12, 235-241.	12.9	40
26	Modeling radar scattering from icy lunar regoliths at 13 cm and 4 cm wavelengths. Journal of Geophysical Research, 2011, 116, .	3.3	39
27	A passive probe for subsurface oceans and liquid water in Jupiterâ€™s icy moons. Icarus, 2015, 248, 463-477.	2.5	39
28	Discovery of the largest impact crater field on Earth in the Gilf Kebir region, Egypt. Comptes Rendus - Geoscience, 2004, 336, 1491-1500.	1.2	36
29	Groundwater level prediction in arid areas using wavelet analysis and Gaussian process regression. Engineering Applications of Computational Fluid Mechanics, 2021, 15, 1147-1158.	3.1	36
30	Groundwater dynamics in fossil fractured carbonate aquifers in Eastern Arabian Peninsula: A preliminary investigation. Journal of Hydrology, 2019, 571, 460-470.	5.4	35
31	Discovery of a double impact crater in Libya: the astrobleme of Arkenu. Comptes Rendus - Geoscience, 2003, 335, 1059-1069.	1.2	33
32	Local geoelectrical models of the Martian subsurface for shallow groundwater detection using sounding radars. Journal of Geophysical Research, 2003, 108, .	3.3	32
33	An extended field of crater-shaped structures in the Gilf Kebir region, Egypt: Observations and hypotheses about their origin. Journal of African Earth Sciences, 2006, 46, 281-299.	2.0	32
34	Groundwater mixing in shallow aquifers stressed by land cover/land use changes under hyper-arid conditions. Journal of Hydrology, 2021, 598, 126245.	5.4	29
35	Comparing dune migration measured from remote sensing with sand flux prediction based on weather data and model, a test case in Qatar. Earth and Planetary Science Letters, 2018, 497, 12-21.	4.4	28
36	Dataset of daily near-surface air temperature in China from 1979 to 2018. Earth System Science Data, 2022, 14, 1413-1432.	9.9	26

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37	Dielectric and hardness measurements of planetary analog rocks in support of in-situ subsurface sampling. Planetary and Space Science, 2013, 86, 150-154.	1.7	25
38	Radar sounding of temperate permafrost in Alaska: Analogy to the Martian midlatitude to high-latitude ice-rich terrains. Journal of Geophysical Research, 2011, 116, .	3.3	24
39	Groundwater mounding: A diagnostic feature for mapping aquifer connectivity in hyper-arid deserts. Science of the Total Environment, 2021, 801, 149760.	8.0	23
40	Performances of ground penetrating radars in arid volcanic regions: Consequences for Mars subsurface exploration. Geophysical Research Letters, 2001, 28, 911-914.	4.0	22
41	Geoelectrical constraints on radar probing of shallow water-saturated zones within karstified carbonates in semi-arid environments. Journal of Applied Geophysics, 2010, 70, 181-191.	2.1	22
42	InSAR Assessment of Surface Deformations in Urban Coastal Terrains Associated With Groundwater Dynamics. IEEE Transactions on Geoscience and Remote Sensing, 2015, 53, 6356-6371.	6.3	22
43	A study of P-band synthetic aperture radar applicability and performance for Mars exploration: Imaging subsurface geology and detecting shallow moisture. Journal of Geophysical Research, 2006, 111, .	3.3	21
44	Computing lowâ€frequency radar surface echoes for planetary radar using Huygensâ€Fresnel's principle. Radio Science, 2015, 50, 1097-1109.	1.6	21
45	Sounding the subsurface of Athabasca Valles using MARSIS radar data: Exploring the volcanic and fluvial hypotheses for the origin of the rafted plate terrain. Journal of Geophysical Research, 2009, 114, .	3.3	19
46	Radar Sounding Through the Earthâ€™s Ionosphere at 45 MHz. IEEE Transactions on Geoscience and Remote Sensing, 2017, 55, 5833-5842.	6.3	18
47	Bulk composition of regolith fines on lunar crater floors: Initial investigation by LRO/Mini-RF. Earth and Planetary Science Letters, 2020, 541, 116274.	4.4	18
48	Low-frequency radar sounding investigations of the North Amargosa Desert, Nevada: A potential analog of conductive subsurface environments on Mars. Journal of Geophysical Research, 2006, 111, .	3.3	16
49	Orbiting Arid Subsurface and Ice Sheet Sounder (OASIS): Exploring desert aquifers and polar ice sheets and their role in current and paleo-climate evolution. , 2013, , .		15
50	Probing structural elements of small buried craters using ground-penetrating radar in the southwestern Egyptian desert: Implications for Mars shallow sounding. Geophysical Research Letters, 2006, 33, .	4.0	13
51	MARSIS subsurface radar investigations of the South Polar reentrant Chasma Australe. Journal of Geophysical Research, 2008, 113, .	3.3	13
52	Quantification of L-band InSAR coherence over volcanic areas using LiDAR and in situ measurements. Remote Sensing of Environment, 2014, 152, 202-216.	11.0	13
53	Permittivity measurements of porous matter in support of investigations of the surface and interior of 67P/Churyumov-Gerasimenko. Astronomy and Astrophysics, 2015, 583, A39.	5.1	12
54	Surface and subsurface structural mapping using low frequency radar: A synthesis of the Mauritanian and Egyptian experiments. Journal of African Earth Sciences, 2006, 44, 220-228.	2.0	10

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55	Finite difference time domain simulation of radar wave propagation through comet nuclei dielectric models. Meteoritics and Planetary Science, 2008, 43, 1085-1095.	1.6	10
56	Dielectric properties of Asteroid Vestaâ€™s surface as constrained by Dawn VIR observations. Icarus, 2015, 262, 93-101.	2.5	10
57	Geophysical Monitoring of Ground Surface Deformation Associated with a Confined Aquifer Storage and Recovery Operation. Water Resources Management, 2015, 29, 4667-4682.	3.9	9
58	Mapping exposed and buried lava flows using synthetic aperture and ground-penetrating radar in Craters of the Moon lava field. Geophysics, 2007, 72, B161-B174.	2.6	8
59	Robotic Follow-up for Human Exploration. , 2010, , .		8
60	Orbital bistatic radar observations of asteroid Vesta by the Dawn mission. Nature Communications, 2017, 8, 409.	12.8	8
61	Radar investigations of planetary and terrestrial environments. Journal of Geophysical Research, 2006, 111, .	3.3	7
62	MARSIS radar sounder observations in the vicinity of Ma'adim Vallis, Mars. Icarus, 2009, 201, 460-473.	2.5	7
63	Exploring morphology, layering and formation history of linear terrestrial dunes from radar observations: Implications for Titan. Remote Sensing of Environment, 2018, 204, 296-307.	11.0	6
64	Probing groundwater in arid environments: challenges and opportunities south of the Mediterranean basin. Euro-Mediterranean Journal for Environmental Integration, 2018, 3, 1.	1.3	5
65	Impacts of water stress on lagoonal ecosystem degradation in semi-arid coastal areas. Marine Pollution Bulletin, 2022, 179, 113445.	5.0	5
66	Radar investigations of Apollinaris Mons on Mars: Exploring the origin of the fan deposits. Planetary and Space Science, 2014, 103, 262-272.	1.7	4
67	Quantifying Subsurface Propagation Losses for VHF Radar Sounding Waves in Hyper-Arid Terrains. , 2018, , .		4
68	Post-rendezvous radar properties of comet 67P/CG from the Rosetta Mission: understanding future Earth-based radar observations and the dynamical evolution of comets. Monthly Notices of the Royal Astronomical Society, 2019, 489, 1667-1683.	4.4	4
69	Groundwater Mounding in Fractured Fossil Aquifers in the Saharan-Arabian Desert. Advances in Science, Technology and Innovation, 2019, , 359-362.	0.4	4
70	Assessing Subwavelength VHF Radar Scattering Losses in Hyperarid Carbonate Formations. IEEE Geoscience and Remote Sensing Letters, 2021, 18, 597-601.	3.1	4
71	Utilizing the SAR, GIS, and Novel Hybrid Metaheuristic-GMDH Algorithm for Flood Susceptibility Mapping. , 2021, , .		4
72	<title>Subsurface imaging with low-frequency SAR field validation in France and Egypt using ground-penetrating radar</title>. , 2002, 4758, 217.		3

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73	Bistatic Radar Occultations of Planetary Surfaces. IEEE Geoscience and Remote Sensing Letters, 2020, 17, 804-808.	3.1	3
74	Exploring the nature of buried linear features in the Qatar peninsula: Archaeological and paleoclimatic implications. ISPRS Journal of Photogrammetry and Remote Sensing, 2022, 183, 210-227.	11.1	3
75	Exploring Deserts Response to Climate Change from the Orbiting Arid Subsurface and Ice Sheet Sounder (OASIS). , 2021, , .		2
76	‹title›Water detection in the Martian subsurface‹/title›. , 2002, , .		1
77	L-band InSAR decorrelation analysis in volcanic terrains using airborne LiDAR data and in situ measurements: The case of the Piton de la Fournaise volcano, France. , 2012, , .		1
78	Feasibility of Estimating Turbulent Heat Fluxes via Variational Assimilation of Reference-Level Air Temperature and Specific Humidity Observations. Remote Sensing, 2020, 12, 1065.	4.0	1
79	Hydrometeorology: Review of Past, Present and Future Observation Methods. , 0, , .		1
80	Exploring Ceresâ€™s Unusual Regolith Porosity and Its Implications for Volatile Retention. Planetary Science Journal, 2021, 2, 182.	3.6	1
81	Mapping Transient Soil Moisture Post Rainstorm Events in Hyper-Arid Karst Environments Using Multi-Sensor Observations. , 2021, , .		1
82	Radar Probing of Subsurface Moisture in Barchan Dunes. Advances in Science, Technology and Innovation, 2019, , 233-235.	0.4	1
83	Experimental validation of a GPR dedicated to the Martian subsurface exploration (Pyla sand dune). , 0, , .		0
84	Correction to â€œGround-penetrating radar sounding in mafic lava flows: Assessing attenuation and scattering losses in Mars-analog volcanic terrainsâ€• Journal of Geophysical Research, 2006, 111, .	3.3	0
85	Exploring the Martian subsurface of Athabasca using MARSIS radar data: Testing the volcanic and fluvial hypotheses for the origin of the morphology. , 2009, , .		0
86	Coupling polarimetric L-Band insar and airborne lidar to characterize the geomorphological deformations in the piton de la fournaise volcano. , 2010, , .		0
87	Modeling radar scattering from icy lunar regoliths. , 2011, , .		0
88	Understanding the Evolution of Water Deficit in the North African Region. Advances in Science, Technology and Innovation, 2018, , 849-851.	0.4	0
89	Synthetic aperture radar imaging of the interior of comets using time-domain back-projection. , 2018, , .		0
90	Assessing Sub-Wavelength VHF Radar Scattering Losses in Dry Terrains: Application to Karst Environments. , 2019, , .		0

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91	Deep Trek: Mission Concepts for Exploring Subsurface Habitability & Life on Mars â€" A Window into Subsurface Life in the Solar System. , 2021, 53, .		0
92	Feasibility of Estimating Snow Emissivity Via Assimilation of Multifrequency Passive Microwave Data. , 2021, , .		0
93	Groundwater Exploration in the Solar System: â€œthe Restless Hunt for Lifeâ€• Advances in Science, Technology and Innovation, 2018, , 53-54.	0.4	0
94	Resolving Groundwater Conduits in Hyper-Arid Eroded Karsts Using High-Resolution L-Band SAR and Optical Images. , 2020, , .		0
95	Processing and Analysis for Radio Science Experiments (PARSE): Graphical Interface for Bistatic Radar. Planetary Science Journal, 2022, 3, 24.	3.6	0