Nicholas J Tosca

List of Publications by Year
in descending order

69 papers	5,554 citations	94433 37 h-index	95266 68 g-index
71 all docs	71 docs citations	71 times ranked	3835 citing authors

#	Article	IF	Citations
1	Provenance and diagenesis of the evaporite-bearing Burns formation, Meridiani Planum, Mars. Earth and Planetary Science Letters, 2005, 240, 95-121.	4.4	506
2	Stratigraphy and sedimentology of a dry to wet eolian depositional system, Burns formation, Meridiani Planum, Mars. Earth and Planetary Science Letters, 2005, 240, 11-72.	4.4	496
3	Chemistry and mineralogy of outcrops at Meridiani Planum. Earth and Planetary Science Letters, 2005, 240, 73-94.	4.4	349
4	An integrated view of the chemistry and mineralogy of martian soils. Nature, 2005, 436, 49-54.	27.8	348
5	Water alteration of rocks and soils on Mars at the Spirit rover site in Gusev crater. Nature, 2005, 436, 66-69.	27.8	240
6	Geochemical modeling of evaporation processes on Mars: Insight from the sedimentary record at Meridiani Planum. Earth and Planetary Science Letters, 2005, 240, 122-148.	4.4	226
7	Water Activity and the Challenge for Life on Early Mars. Science, 2008, 320, 1204-1207.	12.6	222
8	Acid-sulfate weathering of synthetic Martian basalt: The acid fog model revisited. Journal of Geophysical Research, 2004, 109, .	3.3	199
9	Two Years at Meridiani Planum: Results from the Opportunity Rover. Science, 2006, 313, 1403-1407.	12.6	188
10	Origin of acidic surface waters and the evolutionÂof atmospheric chemistry on early Mars. Nature Geoscience, 2010, 3, 323-326.	12.9	155
11	An authigenic origin for Precambrian greenalite: Implications for iron formation and the chemistry of ancient seawater. Bulletin of the Geological Society of America, 2016, 128, 511-530.	3.3	153
12	Evolution of the Toarcian (Early Jurassic) carbon-cycle and global climatic controls on local sedimentary processes (Cardigan Bay Basin, UK). Earth and Planetary Science Letters, 2018, 484, 396-411.	4.4	129
13	Juvenile chemical sediments and the long term persistence of water at the surface of Mars. Earth and Planetary Science Letters, 2009, 286, 379-386.	4.4	121
14	An astrobiological perspective on Meridiani Planum. Earth and Planetary Science Letters, 2005, 240, 179-189.	4.4	113
15	Experimental constraints on Li isotope fractionation during clay formation. Geochimica Et Cosmochimica Acta, 2019, 250, 219-237.	3.9	113
16	Chemical divides and evaporite assemblages on Mars. Earth and Planetary Science Letters, 2006, 241, 21-31.	4.4	108
17	Hydrothermal jarosite and hematite in a pyroxene-hosted melt inclusion in martian meteorite Miller Range (MIL) 03346: Implications for magmatic-hydrothermal fluids on Mars. Geochimica Et Cosmochimica Acta, 2009, 73, 4907-4917.	3.9	102
18	Sedimentary talc in Neoproterozoic carbonate successions. Earth and Planetary Science Letters, 2011, 306, 11-22.	4.4	97

#	Article	IF	Citations
19	Clay mineralogy, organic carbon burial, and redox evolution in Proterozoic oceans. Geochimica Et Cosmochimica Acta, 2010, 74, 1579-1592.	3.9	94
20	Chemical controls on incipient Mg-silicate crystallization at 25Â°C: Implications for early and late diagenesis. Clay Minerals, 2014, 49, 165-194.	0.6	88
21	Searching for an oxygenation event in the fossiliferous Ediacaran of northwestern Canada. Chemical Geology, 2013, 362, 273-286.	3.3	78
22	Production of hydrogen peroxide in Martian and lunar soils. Earth and Planetary Science Letters, 2007, 255, 41-52.	4.4	73
23	Fe oxidation processes at Meridiani Planum and implications for secondary Fe mineralogy on Mars. Journal of Geophysical Research, 2008, 113, .	3.3	73
24	Magnetite authigenesis and the warming of early Mars. Nature Geoscience, 2018, 11, 635-639.	12.9	66
25	The Sedimentary Cycle on Early Mars. Annual Review of Earth and Planetary Sciences, 2019, 47, 91-118.	11.0	59
26	Veneers, rinds, and fracture fills: Relatively late alteration of sedimentary rocks at Meridiani Planum, Mars. Journal of Geophysical Research, 2008, 113, .	3.3	57
27	Fe(II)-carbonate precipitation kinetics and the chemistry of anoxic ferruginous seawater. Earth and Planetary Science Letters, 2019, 506, 231-242.	4.4	57
28	Experimental examination of the Mg-silicate-carbonate system at ambient temperature: Implications for alkaline chemical sedimentation and lacustrine carbonate formation. Geochimica Et Cosmochimica Acta, 2018, 225, 80-101.	3.9	56
29	Controlled hydroxyapatite biomineralization in an ~810 million-year-old unicellular eukaryote. Science Advances, 2017, 3, e1700095.	10.3	53
30	Diagenetic pathways linked to labile Mg-clays in lacustrine carbonate reservoirs: a model for the origin of secondary porosity in the Cretaceous pre-salt Barra Velha Formation, offshore Brazil. Geological Society Special Publication, 2018, 435, 33-46.	1.3	53
31	A mineralogical signature for Burgess Shaleâ€"type fossilization. Geology, 2018, 46, 347-350.	4.4	48
32	The role of microbial sulfate reduction in calcium carbonate polymorph selection. Geochimica Et Cosmochimica Acta, 2018, 237, 184-204.	3.9	46
33	Products of the iron cycle on the early Earth. Free Radical Biology and Medicine, 2019, 140, 138-153.	2.9	45
34	Diagenetic and detrital origin of moretane anomalies through the Permianâ€"Triassic boundary. Geochimica Et Cosmochimica Acta, 2012, 84, 104-125.	3.9	43
35	Stratigraphic evolution of the Neoproterozoic Callison Lake Formation: Linking the break-up of Rodinia to the Islay carbon isotope excursion. Numerische Mathematik, 2015, 315, 881-944.	1.4	43
36	Experimental constraints on Mg isotope fractionation during clay formation: Implications for the global biogeochemical cycle of Mg. Earth and Planetary Science Letters, 2020, 531, 115980.	4.4	43

#	Article	IF	Citations
37	Evidence of phyllosilicates in Wooly Patch, an altered rock encountered at West Spur, Columbia Hills, by the Spirit rover in Gusev crater, Mars. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	40
38	Mars Exploration Rover Geologic traverse by the Spirit rover in the Plains of Gusev Crater, Mars. Geology, 2005, 33, 809.	4.4	35
39	Physicochemical properties of concentrated Martian surface waters. Journal of Geophysical Research, 2011, 116, .	3.3	35
40	Serpentinization as a reactive transport process: The brucite silicification reaction. Earth and Planetary Science Letters, 2018, 484, 385-395.	4.4	34
41	Marine anoxia and sedimentary mercury enrichments during the Late Cambrian SPICE event in northern Scotland. Geology, 2019, 47, 475-478.	4.4	34
42	The triple oxygen isotope composition of Precambrian chert. Earth and Planetary Science Letters, 2020, 537, 116167.	4.4	30
43	Bedrock formation at Meridiani Planum. Nature, 2006, 443, E1-E2.	27.8	28
44	A seawater throttle on H ₂ production in Precambrian serpentinizing systems. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 14756-14763.	7.1	28
45	Application of the Pitzer ion interaction model to isopiestic data for the Fe2(SO4)3â€“H2SO4â€“H2O system at 298.15 and 323.15K. Geochimica Et Cosmochimica Acta, 2007, 71, 2680-2698.	3.9	27
46	Experimental constraints on the evaporation of partially oxidized acid-sulfate waters at the martian surface. Geochimica Et Cosmochimica Acta, 2009, 73, 1205-1222.	3.9	24
47	Aluminosilicate haloes preserve complex life approximately 800 million years ago. Interface Focus, 2020, 10, 20200011.	3.0	24
48	Growth kinetics of siderite at 298.15â€¯K and 1â€¯bar. Geochimica Et Cosmochimica Acta, 2020, 274, 97-117.	3.9	24
49	Were Aqueous Ripples on Mars Formed by Flowing Brines?. , 2012, , 139-150.		23
50	Early formation and taphonomic significance of kaolinite associated with Burgess Shale fossils. Geology, 2021, 49, 355-359.	4.4	22
51	Evidence for anoxic shallow oceans at 2.45 Ga: Implications for the rise of oxygenic photosynthesis. Geology, 2019, 47, 622-626.	4.4	21
52	Humidity-induced phase transitions of ferric sulfate minerals studied by in situ and ex situ X-ray diffraction. American Mineralogist, 2009, 94, 1629-1637.	1.9	18
53	Phosphorus burial in ferruginous SiO2-rich Mesoproterozoic sediments. Geology, 2020, 48, 92-96.	4.4	18
54	Acid production by FeSO4{middle dot}nH2O dissolution and implications for terrestrial and martian aquatic systems. American Mineralogist, 2009, 94, 409-414.	1.9	16

#	Article	IF	Citations
55	Mineralogical constraints on Neoproterozoic pCO2 and marine carbonate chemistry. Geology, 2020, 48, 599-603.	4.4	16
56	Microstructures in metasedimentary rocks from the Neoproterozoic Bonahaven Formation, Scotland: Microconcretions, impact spherules, or microfossils?. Precambrian Research, 2013, 233, 59-72.	2.7	14
57	Phosphatized early Cambrian archaeocyaths and small shelly fossils (SSFs) of southwestern Mongolia. Palaeogeography, Palaeoclimatology, Palaeoecology, 2019, 513, 166-177.	2.3	13
58	Geochemical controls on the elemental composition of siderite: Implications for palaeo-environmental reconstructions. Geochimica Et Cosmochimica Acta, 2020, 271, 1-15.	3.9	13
59	SMALL SHELLY FOSSIL PRESERVATION AND THE ROLE OF EARLY DIAGENETIC REDOX IN THE EARLY TRIASSIC. Palaios, 2018, 33, 441-450.	1.3	10
60	Experimental constraints on nonskeletal CaCO3 precipitation from Proterozoic seawater. Geology, 2021, 49, 561-565.	4.4	10
61	Kinetic isotope effect in siderite growth: Implications for the origin of banded iron formation siderite. Geochimica Et Cosmochimica Acta, 2022, 322, 260-273.	3.9	10
62	Clay mineral-grain size-calcite cement relationships in the Upper Cretaceous Chalk, UK: a preliminary investigation. Clay Minerals, 2014, 49, 299-325.	0.6	9
63	Marine siliceous ecosystem decline led to sustained anomalous Early Triassic warmth. Nature Communications, 2022, 13, .	12.8	9
64	Geochemical signatures of transgressive shale intervals from the 811â€¯Ma Fifteenmile Group in Yukon, Canada: Disentangling sedimentary redox cycling from weathering alteration. Geochimica Et Cosmochimica Acta, 2020, 280, 161-184.	3.9	8
65	The role of phosphate on non-skeletal carbonate production in a Cretaceous alkaline lake. Geochimica Et Cosmochimica Acta, 2021, , .	3.9	7
66	The influence of elevated SiO₂(<i>aq</i>) on intracellular silica uptake and microbial metabolism. Geobiology, 2021, 19, 421-433.	2.4	4
67	Clay mineralogy, strontium and neodymium isotope ratios in the sediments of two High Arctic catchments (Svalbard). Earth Surface Dynamics, 2018, 6, 141-161.	2.4	3
68	Unravelling surface and subsurface carbon sinks within the early Martian crust. Earth and Planetary Science Letters, 2021, 557, 116663.	4.4	3
69	Sphaerosiderites as sensitive recorders of nonâ€marine depositional and diagenetic history: Insights from the Lower Cretaceous Wealden Supergroup. Depositional Record, 2021, 7, 520-540.	1.7	0