Frederik J Simons

List of Publications by Citations

73 papers	3,363 citations	31 h-index	57 g-index
80 ext. papers	3,778 ext. citations	5 avg, IF	5.53 L-index

#	Paper	IF	Citations
73	Probabilistic assessment of sea level during the last interglacial stage. *Nature*, **2009**, 462, 863-7	50.4	509
72	Spatiospectral Concentration on a Sphere. *SIAM Review*, **2006**, 48, 504-536	7.4	242
71	The deep structure of the Australian continent from surface wave tomography. *Lithos*, **1999**, 48, 17-43	2.9	186
70	Localized spectral analysis on the sphere. *Geophysical Journal International*, **2005**, 162, 655-675	2.6	181
69	Multimode Rayleigh wave inversion for heterogeneity and azimuthal anisotropy of the Australian upper mantle. *Geophysical Journal International*, **2002**, 151, 738-754	2.6	154
68	Possible animal-body fossils in pre-Marinoan limestones from South Australia. *Nature Geoscience*, **2010**, 3, 653-659	18.3	150
67	Isostatic response of the Australian lithosphere: Estimation of effective elastic thickness and anisotropy using multitaper spectral analysis. *Journal of Geophysical Research*, **2000**, 105, 19163-19184		123
66	Spherical Slepian functions and the polar gap in geodesy. *Geophysical Journal International*, **2006**, 166, 1039-1061	2.6	112
65	Accelerating changes in ice mass within Greenland, and the ice sheet's sensitivity to atmospheric forcing. *Proceedings of the National Academy of Sciences of the United States of America*, **2019**, 116, 1934-1939	11.5	100
64	Minimum-Variance Multitaper Spectral Estimation on the Sphere. *Journal of Fourier Analysis and Applications*, **2007**, 13, 665-692	1.1	91
63	A probabilistic assessment of sea level variations within the last interglacial stage. *Geophysical Journal International*, **2013**, 193, 711-716	2.6	84
62	Accelerated West Antarctic ice mass loss continues to outpace East Antarctic gains. *Earth and Planetary Science Letters*, **2015**, 415, 134-141	5.3	74
61	Spectral estimation on a sphere in geophysics and cosmology. *Geophysical Journal International*, **2008**, 174, 774-807	2.6	73
60	Mapping Greenland's mass loss in space and time. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 19934-7	11.5	69
59	Solving or resolving global tomographic models with spherical wavelets, and the scale and sparsity of seismic heterogeneity. *Geophysical Journal International*, **2011**, 187, 969-988	2.6	67
58	Seismic and mechanical anisotropy and the past and present deformation of the Australian lithosphere. *Earth and Planetary Science Letters*, **2003**, 211, 271-286	5.3	62
57	Multiscale adjoint waveform tomography for surface and body waves. *Geophysics*, **2015**, 80, R281-R302	3.1	58

56	Spatiospectral localization of isostatic coherence anisotropy in Australia and its relation to seismic anisotropy: Implications for lithospheric deformation. *Journal of Geophysical Research*, **2003**, 108,		58
55	Seismic constraints on temperature of the Australian uppermost mantle. *Earth and Planetary Science Letters*, **2005**, 236, 227-237	5.3	54
54	Automatic detection and rapid determination of earthquake magnitude by wavelet multiscale analysis of the primary arrival. *Earth and Planetary Science Letters*, **2006**, 250, 214-223	5.3	49
53	Age-dependent seismic thickness and mechanical strength of the Australian lithosphere. *Geophysical Research Letters*, **2002**, 29, 24-1	4.9	47
52	Ice mass loss in Greenland, the Gulf of Alaska, and the Canadian Archipelago: Seasonal cycles and decadal trends. *Geophysical Research Letters*, **2016**, 43, 3150-3159	4.9	46
51	Slepian Functions and Their Use in Signal Estimation and Spectral Analysis **2010**, 891-923		44
50	Coseismic slip of the 2010 Mw 8.8 Great Maule, Chile, earthquake quantified by the inversion of GRACE observations. *Earth and Planetary Science Letters*, **2012**, 335-336, 167-179	5.3	42
49	Spatiospectral concentration of vector fields on a sphere. *Applied and Computational Harmonic Analysis*, **2014**, 36, 1-22	3.1	40
48	Multiscale adjoint waveform-difference tomography using wavelets. *Geophysics*, **2014**, 79, WA79-WA95	3.1	40
47	Quantitative characterization of coal by means of microfocal X-ray computed microtomography (CMT) and color image analysis (CIA). *International Journal of Coal Geology*, **1997**, 34, 69-88	5.5	40
46	Coseismic and postseismic deformation of the 2011 Tohoku-Oki earthquake constrained by GRACE gravimetry. *Geophysical Research Letters*, **2012**, 39, n/a-n/a	4.9	37
45	Spectral and spatial decomposition of lithospheric magnetic field models using spherical Slepian functions. *Geophysical Journal International*, **2013**, 193, 136-148	2.6	34
44	Spatiospectral concentration in the Cartesian plane. *GEM - International Journal on Geomathematics* , **2011**, 2, 1-36	2.7	33
43	Spatiospectral localization of global geopotential fields from the Gravity Recovery and Climate Experiment (GRACE) reveals the coseismic gravity change owing to the 2004 Sumatra-Andaman earthquake. *Journal of Geophysical Research*, **2008**, 113,		33
42	Double-difference adjoint seismic tomography. *Geophysical Journal International*, **2016**, 206, 1599-1618	2.6	27
41	Global seismic tomography with sparsity constraints: Comparison with smoothing and damping regularization. *Journal of Geophysical Research: Solid Earth*, **2013**, 118, 4887-4899	3.6	27
40	On the potential of recording earthquakes for global seismic tomography by low-cost autonomous instruments in the oceans. *Journal of Geophysical Research*, **2009**, 114,		27
39	Efficient analysis and representation of geophysical processes using localized spherical basis functions **2009**,		26

38	Imaging the Galápagos mantle plume with an unconventional application of floating seismometers. *Scientific Reports*, **2019**, 9, 1326	4.9	21
37	Parametrizing surface wave tomographic models with harmonic spherical splines. *Geophysical Journal International*, **2008**, 174, 617-628	2.6	21
36	Local spectral variability and the origin of the Martian crustal magnetic field. *Geophysical Research Letters*, **2012**, 39,	4.9	20
35	Seismic monitoring in the oceans by autonomous floats. *Nature Communications*, **2015**, 6, 8027	17.4	19
34	The spherical Slepian basis as a means to obtain spectral consistency between mean sea level and the geoid. *Journal of Geodesy*, **2012**, 86, 609-628	4.5	19
33	Wavelets and wavelet-like transforms on the sphere and their application to geophysical data inversion **2011**,		19
32	Constraints on upper mantle viscosity from the flow-induced pressure gradient across the Australian continental keel. *Geochemistry, Geophysics, Geosystems*, **2010**, 11, n/a-n/a	3.6	18
31	High-resolution local magnetic field models for the Martian South Pole from Mars Global Surveyor data. *Journal of Geophysical Research E: Planets*, **2015**, 120, 1543-1566	4.1	16
30	Maximum-likelihood estimation of lithospheric flexural rigidity, initial-loading fraction and load correlation, under isotropy. *Geophysical Journal International*, **2013**, 193, 1300-1342	2.6	14
29	How do we understand and visualize uncertainty?. *The Leading Edge*, **2006**, 25, 542-546	1	14
28	A future for drifting seismic networks. *Eos*, **2006**, 87, 305	1.5	13
27	A Suite of Software Analyzes Data on the Sphere. *Eos*, **2015**, 96,	1.5	13
26	The origin of secondary microseism Love waves. *Proceedings of the National Academy of Sciences of the United States of America*, **2020**, 117, 29504-29511	11.5	10
25	The exponentiated phase measurement, and objective-function hybridization for adjoint waveform tomography. *Geophysical Journal International*, **2020**, 221, 1145-1164	2.6	10
24	Automatic discrimination of underwater acoustic signals generated by teleseismic P-waves: A probabilistic approach. *Geophysical Research Letters*, **2011**, 38, n/a-n/a	4.9	10
23	Determining the Depth of Jupiter's Great Red Spot with Juno: A Slepian Approach. *Astrophysical Journal Letters*, **2019**, 874, L24	7.9	9
22	A spatiospectral localization approach to estimating potential fields on the surface of a sphere from noisy, incomplete data taken at satellite altitudes **2007**,		9
21	Analysis of seafloor seismograms of the 2003 Tokachi-Oki earthquake sequence for earthquake early warning. *Geophysical Research Letters*, **2008**, 35,	4.9	7

20	Scalar and Vector Slepian Functions, Spherical Signal Estimation and Spectral Analysis **2015**, 2563-2608		7
19	A general approach to regularizing inverse problems with regional data using Slepian wavelets. *Inverse Problems*, **2017**, 33, 125016	2.3	6
18	Multiscale Estimation of Event Arrival Times and Their Uncertainties in Hydroacoustic Records from Autonomous Oceanic Floats. *Bulletin of the Seismological Society of America*, **2020**, 110, 970-997	2.3	5
17	Spherical Harmonics Based Special Function Systems and Constructive Approximation Methods. *Geosystems Mathematics*, **2018**, 753-819	0.2	5
16	Internal and external potential-field estimation from regional vector data at varying satellite altitude. *Geophysical Journal International*, **2017**,	2.6	5
15	Analysis of real vector fields on the sphere using Slepian functions **2012**,		5
14	Generation of secondary microseism Love waves: effects of bathymetry, 3-D structure and source seasonality. *Geophysical Journal International*, **2021**, 226, 192-219	2.6	5
13	On the robustness of estimates of mechanical anisotropy in the continental lithosphere: A North American case study and global reanalysis. *Earth and Planetary Science Letters*, **2015**, 419, 43-51	5.3	4
12	A spatiospectral localization approach for analyzing and representing vector-valued functions on spherical surfaces **2013**,		4
11	Potential-Field Estimation Using Scalar and Vector Slepian Functions at Satellite Altitude **2013**, 1-47		3
10	Multi-physics adjoint modeling of Earth structure: combining gravimetric, seismic, and geodynamic inversions. *GEM - International Journal on Geomathematics*, **2020**, 11, 1	2.7	2
9	The changing mass of glaciers on the Tibetan Plateau, 2002–2016, using time-variable gravity from the GRACE satellite mission. *Journal of Geodetic Science*, **2018**, 8, 83-97	1	2
8	One year of sound recorded by a mermaid float in the Pacific: hydroacoustic earthquake signals and infrasonic ambient noise. *Geophysical Journal International*, **2021**, 228, 193-212	2.6	2
7	Full-waveform adjoint tomography in a multiscale perspective **2014**,		1
6	Potential-Field Estimation Using Scalar and Vector Slepian Functions at Satellite Altitude **2015**, 2003-2055		1
5	A MERMAID Miscellany: Seismoacoustic Signals beyond the P Wave. *Seismological Research Letters*,	3	1
4	Mantle Transition Zone Receiver Functions for Bermuda: Automation, Quality Control, and Interpretation. *Journal of Geophysical Research: Solid Earth*, **2021**, 126, e2020JB020177	3.6	1
3	Instrument Response Removal and the 2020 MLg 3.1 Marlboro, New Jersey, Earthquake. *Seismological Research Letters*,	3	1

2	Scalar and Vector Slepian Functions, Spherical Signal Estimation and Spectral Analysis **2013**, 1-42		0
1	Recording earthquakes for tomographic imaging of the mantle beneath the South Pacific by autonomous MERMAID floats. *Geophysical Journal International*, **2021**, 228, 147-170	2.6	0