David C Fritts

List of Publications by Citations

123 papers	8,766 citations	47 h-index	92 g-index
130 ext. papers	9,551 ext. citations	3.4 avg, IF	6.07 L-index

#	Paper	IF	Citations
123	Gravity wave dynamics and effects in the middle atmosphere. *Reviews of Geophysics*, **2003**, 41,	23.1	1562
122	Gravity wave saturation in the middle atmosphere: A review of theory and observations. *Reviews of Geophysics*, **1984**, 22, 275	23.1	465
121	Evidence for a Saturated Spectrum of Atmospheric Gravity Waves. *Journals of the Atmospheric Sciences*, **1987**, 44, 1404-1410	2.1	402
120	CASES-99: A Comprehensive Investigation of the Stable Nocturnal Boundary Layer. *Bulletin of the American Meteorological Society*, **2002**, 83, 555-581	6.1	359
119	Mesospheric Momentum Flux Studies at Adelaide, Australia: Observations and a Gravity Wave□tidal Interaction Model. *Journals of the Atmospheric Sciences*, **1987**, 44, 605-619	2.1	326
118	Convective and dynamical instabilities due to gravity wave motions in the lower and middle atmosphere: Theory and observations. *Radio Science*, **1985**, 20, 1247-1277	1.4	245
117	Sources of Mesoscale Variability of Gravity Waves. Part II: Frontal, Convective, and Jet Stream Excitation. *Journals of the Atmospheric Sciences*, **1992**, 49, 111-127	2.1	198
116	A Climatology of Gravity Wave Motions in the Mesopause Region at Adelaide, Australia. *Journals of the Atmospheric Sciences*, **1987**, 44, 748-760	2.1	195
115	Spectral Estimates of Gravity Wave Energy and Momentum Fluxes. Part I: Energy Dissipation, Acceleration, and Constraints. *Journals of the Atmospheric Sciences*, **1993**, 50, 3685-3694	2.1	157
114	Sources of Mesoscale Variability of Gravity Waves. Part I: Topographic Excitation. *Journals of the Atmospheric Sciences*, **1992**, 49, 101-110	2.1	156
113	A theory of enhanced saturation of the gravity wave spectrum due to increases in atmospheric stability. *Pure and Applied Geophysics*, **1989**, 130, 399-420	2.2	144
112	Observational Evidence of a Saturated Gravity Wave Spectrum in the Troposphere and Lower Stratosphere. *Journals of the Atmospheric Sciences*, **1988**, 45, 1741-1759	2.1	141
111	Mechanism for the Generation of Secondary Waves in Wave Breaking Regions. *Journals of the Atmospheric Sciences*, **2003**, 60, 194-214	2.1	131
110	The Deep Propagating Gravity Wave Experiment (DEEPWAVE): An Airborne and Ground-Based Exploration of Gravity Wave Propagation and Effects from Their Sources throughout the Lower and Middle Atmosphere. *Bulletin of the American Meteorological Society*, **2016**, 97, 425-453	6.1	121
109	Mean and variable forcing of the middle atmosphere by gravity waves. *Journal of Atmospheric and Solar-Terrestrial Physics*, **2006**, 68, 247-265	2	118
108	A review of gravity wave saturation processes, effects, and variability in the middle atmosphere. *Pure and Applied Geophysics*, **1989**, 130, 343-371	2.2	114
107	Gravity wave breaking in two and three dimensions: 2. Three-dimensional evolution and instability structure. *Journal of Geophysical Research*, **1994**, 99, 8109		109

106	Fluxes of Heat and Constituents Due to Convectively Unstable Gravity Waves. *Journals of the Atmospheric Sciences*, **1985**, 42, 549-556	2.1	107
105	Stratified shear turbulence: Evolution and statistics. *Geophysical Research Letters*, **1999**, 26, 439-442	4.9	102
104	Vorticity dynamics in a breaking internal gravity wave. Part 1. Initial instability evolution. *Journal of Fluid Mechanics*, **1998**, 367, 27-46	3.7	98
103	Observational evidence of wave ducting and evanescence in the mesosphere. *Journal of Geophysical Research*, **1997**, 102, 26301-26313		95
102	Gravity Wave Excitation by Geostrophic Adjustment of the Jet Stream. Part I: Two-Dimensional Forcing. *Journals of the Atmospheric Sciences*, **1992**, 49, 681-697	2.1	95
101	Turbulence statistics of a Kelvin–Helmholtz billow event observed in the night-time boundary layer during the Cooperative Atmosphere–Surface Exchange Study field program. *Dynamics of Atmospheres and Oceans*, **2001**, 34, 189-204	1.9	89
100	Gravity Wave Instability Dynamics at High Reynolds Numbers. Part I: Wave Field Evolution at Large Amplitudes and High Frequencies. *Journals of the Atmospheric Sciences*, **2009**, 66, 1126-1148	2.1	87
99	Thermospheric responses to gravity waves arising from mesoscale convective complexes. *Journal of Atmospheric and Solar-Terrestrial Physics*, **2004**, 66, 781-804	2	87
98	Wave breaking signatures in noctilucent clouds. *Geophysical Research Letters*, **1993**, 20, 2039-2042	4.9	86
97	Gravity Wave Radiation and Mean Responses to Local Body Forces in the Atmosphere. *Journals of the Atmospheric Sciences*, **2001**, 58, 2249-2279	2.1	84
96	Gravity wave breaking in two and three dimensions: 1. Model description and comparison of two-dimensional evolutions. *Journal of Geophysical Research*, **1994**, 99, 8095		84
95	Evidence of gravity wave saturation and local turbulence production in the summer mesosphere and lower thermosphere during the STATE experiment. *Journal of Geophysical Research*, **1988**, 93, 7015-7025		84
94	Effects of Doppler shifting on the frequency spectra of atmospheric gravity waves. *Journal of Geophysical Research*, **1987**, 92, 9723		81
93	Influence of solar variability on gravity wave structure and dissipation in the thermosphere from tropospheric convection. *Journal of Geophysical Research*, **2006**, 111,		80
92	Evolution and Breakdown of Kelvin–Helmholtz Billows in Stratified Compressible Flows. Part I: Comparison of Two- and Three-Dimensional Flows. *Journals of the Atmospheric Sciences*, **1996**, 53, 3173-3191	2.1	78
91	Layering accompanying turbulence generation due to shear instability and gravity-wave breaking. *Journal of Geophysical Research*, **2003**, 108,		76
90	Gravity Wave Instability Dynamics at High Reynolds Numbers. Part II: Turbulence Evolution, Structure, and Anisotropy. *Journals of the Atmospheric Sciences*, **2009**, 66, 1149-1171	2.1	75
89	Wave Breaking and Transition to Turbulence in Stratified Shear Flows. *Journals of the Atmospheric Sciences*, **1996**, 53, 1057-1085	2.1	75

88	An Investigation of the Vertical Wavenumber and Frequency Spectra of Gravity Wave Motions in the Lower Stratosphere. *Journals of the Atmospheric Sciences*, **1987**, 44, 3610-3624	2.1	72
87	Vorticity dynamics in a breaking internal gravity wave. Part 2. Vortex interactions and transition to turbulence. *Journal of Fluid Mechanics*, **1998**, 367, 47-65	3.7	71
86	Shear Excitation of Atmospheric Gravity Waves. Part II: Nonlinear Radiation from a Free Shear Layer. *Journals of the Atmospheric Sciences*, **1984**, 41, 524-537	2.1	64
85	Measurement of Momentum Fluxes near the Summer Mesopause at Poker Flat, Alaska. *Journals of the Atmospheric Sciences*, **1989**, 46, 2569-2579	2.1	62
84	An estimate of strong local body forcing and gravity wave radiation based on OH airglow and meteor radar observations. *Geophysical Research Letters*, **2002**, 29, 71-1-71-4	4.9	59
83	Wave breaking signatures in sodium densities and OH nightglow: 2. Simulation of wave and instability structures. *Journal of Geophysical Research*, **1997**, 102, 6669-6684		54
82	An analysis of gravity wave ducting in the atmosphere: EckartS resonances in thermal and Doppler ducts. *Journal of Geophysical Research*, **1989**, 94, 18455		53
81	Comparison of mesospheric wind spectra with a gravity wave model. *Radio Science*, **1985**, 20, 1331-1338	1.4	52
80	Production of Turbulence in the Vicinity of Critical Levels for Internal Gravity Waves. *Journals of the Atmospheric Sciences*, **1975**, 32, 2125-2135	2.1	51
79	A Quasi-Linear Study of Gravity-Wave Saturation and Self-Acceleration. *Journals of the Atmospheric Sciences*, **1984**, 41, 3272-3289	2.1	50
78	Gravity Wave 1-leat Fluxes: A Lagrangian Approach. *Journals of the Atmospheric Sciences*, **1988**, 45, 1770-1780	2.1	47
77	Shear Excitation of Atmospheric Gravity Waves. *Journals of the Atmospheric Sciences*, **1982**, 39, 1936-1952	2.1	47
76	Gravity-Wave Excitation by Geostrophic Adjustment of the Jet Stream. Part II: Three-Dimensional Forcing. *Journals of the Atmospheric Sciences*, **1993**, 50, 104-115	2.1	46
75	Analysis of Ducted Motions in the Stable Nocturnal Boundary Layer during CASES-99. *Journals of the Atmospheric Sciences*, **2003**, 60, 2450-2472	2.1	45
74	Evolution and Breakdown of KelvinHelmholtz Billows in Stratified Compressible Flows. Part II: Instability Structure, Evolution, and Energetics. *Journals of the Atmospheric Sciences*, **1996**, 53, 3192-3212	2.1	45
73	Influences of source conditions on mountain wave penetration into the stratosphere and mesosphere. *Geophysical Research Letters*, **2015**, 42, 9488-9494	4.9	43
72	The importance of spatial variability in the generation of secondary gravity waves from local body forces. *Geophysical Research Letters*, **2002**, 29, 45-1-45-4	4.9	43
71	Two-day wave structure and mean flow interactions observed by radar and High Resolution Doppler Imager. *Journal of Geophysical Research*, **1999**, 104, 3953-3969		42

70	Quantifying Kelvin-Helmholtz instability dynamics observed in noctilucent clouds: 1. Methods and observations. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 9324-9337	4.4	41
69	Gravity Wave Variability and Interaction with Lower-Frequency Motions in the Mesosphere and Lower Thermosphere over Hawaii. *Journals of the Atmospheric Sciences*, **1996**, 53, 37-48	2.1	41
68	Stratospheric Gravity Wave Fluxes and Scales during DEEPWAVE. *Journals of the Atmospheric Sciences*, **2016**, 73, 2851-2869	2.1	40
67	Momentum flux estimates accompanying multiscale gravity waves over Mount Cook, New Zealand, on 13 July 2014 during the DEEPWAVE campaign. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 9323-9337	4.4	40
66	Gravity Wave Influences in the Thermosphere and Ionosphere: Observations and Recent Modeling **2011**, 109-130		39
65	Gravity Wave–Fine Structure Interactions. Part I: Influences of Fine Structure Form and Orientation on Flow Evolution and Instability. *Journals of the Atmospheric Sciences*, **2013**, 70, 3710-3734	2.1	37
64	Dynamical and radiative forcing of the summer mesopause circulation and thermal structure: 1. Mean solstice conditions. *Journal of Geophysical Research*, **1995**, 100, 3119		36
63	Secondary gravity wave generation over New Zealand during the DEEPWAVE campaign. *Journal of Geophysical Research D: Atmospheres*, **2017**, 122, 7834-7850	4.4	35
62	The transient critical-level interaction in a Boussinesq fluid. *Journal of Geophysical Research*, **1982**, 87, 7997		35
61	Quantifying gravity wave momentum fluxes with Mesosphere Temperature Mappers and correlative instrumentation. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 13,583-13,603	4.4	33
60	The initial value problem for Kelvin vortex waves. *Journal of Fluid Mechanics*, **1997**, 344, 181-212	3.7	33
59	Numerical Modeling of Multiscale Dynamics at a High Reynolds Number: Instabilities, Turbulence, and an Assessment of Ozmidov and Thorpe Scales. *Journals of the Atmospheric Sciences*, **2016**, 73, 555-578	2.1	33
58	Dynamics of Orographic Gravity Waves Observed in the Mesosphere over the Auckland Islands during the Deep Propagating Gravity Wave Experiment (DEEPWAVE). *Journals of the Atmospheric Sciences*, **2016**, 73, 3855-3876	2.1	33
57	Dynamics of the Equatorial Mesosphere Observed Using the Jicamarca MST Radar during June and August 1987. *Journals of the Atmospheric Sciences*, **1992**, 49, 2353-2371	2.1	32
56	Self-acceleration and instability of gravity wave packets: 1. Effects of temporal localization. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 8783-8803	4.4	31
55	Gravity wave–fine structure interactions: A reservoir of small-scale and large-scale turbulence energy. *Geophysical Research Letters*, **2009**, 36,	4.9	30
54	Numerical simulation of gravity wave breaking in the lower thermosphere. *Journal of Geophysical Research*, **2012**, 117, n/a-n/a		29
53	Transient Gravity Wave-Critical Layer Interaction. Part I: Convective Adjustment and the Mean Zonal Acceleration. *Journals of the Atmospheric Sciences*, **1984**, 41, 992-1007	2.1	29

52	Stability Analysis of Inertio□Gravity Wave Structure in the Middle Atmosphere. *Journals of the Atmospheric Sciences*, **1989**, 46, 1738-1745	2.1	27
51	High-resolution observations and modeling of turbulence sources, structures, and intensities in the upper mesosphere. *Journal of Atmospheric and Solar-Terrestrial Physics*, **2017**, 162, 57-78	2	26
50	A Numerical Study of Gravity Wave Saturation: Nonlinear and Multiple Wave Effects. *Journals of the Atmospheric Sciences*, **1985**, 42, 2043-2058	2.1	26
49	Radar observations of gravity waves over Jicamarca, Peru, during the CADRE campaign. *Journal of Geophysical Research*, **1997**, 102, 26263-26281		25
48	Gravity wave spectra, directions and wave interactions: Global MLT-MFR network. *Earth, Planets and Space*, **1999**, 51, 543-562	2.9	25
47	Gravity wave momentum flux in the upper mesosphere derived from OH airglow imaging measurements. *Earth, Planets and Space*, **2007**, 59, 421-428	2.9	24
46	Influence of a Mean Shear on the Dynamical Instability of an Inertio□Gravity Wave. *Journals of the Atmospheric Sciences*, **1989**, 46, 2562-2568	2.1	24
45	Quantifying Kelvin-Helmholtz instability dynamics observed in noctilucent clouds: 2. Modeling and interpretation of observations. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 9359-9375	4.4	23
44	Does Strong Tropospheric Forcing Cause Large-Amplitude Mesospheric Gravity Waves? A DEEPWAVE Case Study. *Journal of Geophysical Research D: Atmospheres*, **2017**, 122, 11,422	4.4	23
43	Three-dimensional evolution of Kelvin-Helmholtz billows in stratified compressible flow. *Geophysical Research Letters*, **1994**, 21, 2287-2290	4.9	23
42	Computation of clear-air radar backscatter from numerical simulations of turbulence: 3. Off-zenith measurements and biases throughout the lifecycle of a Kelvin-Helmholtz instability. *Journal of Geophysical Research*, **2012**, 117, n/a-n/a		22
41	Large-Amplitude Mountain Waves in the Mesosphere Accompanying Weak Cross-Mountain Flow During DEEPWAVE Research Flight RF22. *Journal of Geophysical Research D: Atmospheres*, **2018**, 123, 9992	4.4	21
40	Computation of clear-air radar backscatter from numerical simulations of turbulence: 2. Backscatter moments throughout the lifecycle of a Kelvin-Helmholtz instability. *Journal of Geophysical Research*, **2011**, 116,		21
39	Medium-frequency radar studies of gravity-wave seasonal variations over Hawaii (22□N, 160□W). *Journal of Geophysical Research*, **2003**, 108,		21
38	Gravity waves and momentum fluxes in the mesosphere and lower thermosphere using 430 MHz dual-beam measurements at Arecibo: 1. Measurements, methods, and gravity waves. *Journal of Geophysical Research*, **2006**, 111,		19
37	Investigation of a mesospheric gravity wave ducting event using coordinated sodium lidar and Mesospheric Temperature Mapper measurements at ALOMAR, Norway (69□N). *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 9765-9778	4.4	18
36	High-resolution numerical studies of stable boundary layer flows in a closed basin: Evolution of steady and oscillatory flows in an axisymmetric Arizona Meteor Crater. *Journal of Geophysical Research*, **2010**, 115,		18
35	Wave-wave interactions in a compressible atmosphere: 1. A general formulation including rotation and wind shear. *Journal of Geophysical Research*, **1992**, 97, 9975-9988		18

34	PMC Turbo: Studying Gravity Wave and Instability Dynamics in the Summer Mesosphere Using Polar Mesospheric Cloud Imaging and Profiling From a Stratospheric Balloon. *Journal of Geophysical Research D: Atmospheres*, **2019**, 124, 6423-6443	4.4	17
33	Dynamical and radiative forcing of the summer mesopause circulation and thermal structure: 2. Seasonal variations. *Journal of Geophysical Research*, **1995**, 100, 3129		17
32	Gravity Wave Dynamics in a Mesospheric Inversion Layer: 1. Reflection, Trapping, and Instability Dynamics. *Journal of Geophysical Research D: Atmospheres*, **2018**, 123, 626-648	4.4	17
31	Gravity Wave–Fine Structure Interactions. Part II: Energy Dissipation Evolutions, Statistics, and Implications. *Journals of the Atmospheric Sciences*, **2013**, 70, 3735-3755	2.1	16
30	Equatorial dynamics observed by rocket, radar, and satellite during the CADRE/MALTED campaign: 2. Mean and wave structures, coherence, and variability. *Journal of Geophysical Research*, **1997**, 102, 26191-26216		16
29	Modeling the implications of Kelvin-Helmholtz instability dynamics for airglow observations. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 8858-8871	4.4	15
28	High-resolution measurements of vertical velocity with the European incoherent scatter VHF radar: 2. Spectral observations and model comparisons. *Journal of Geophysical Research*, **1995**, 100, 16827		15
27	Gravity Wave Dynamics in a Mesospheric Inversion Layer: 2. Instabilities, Turbulence, Fluxes, and Mixing. *Journal of Geophysical Research D: Atmospheres*, **2018**, 123, 649-670	4.4	12
26	Large-Amplitude Mountain Waves in the Mesosphere Observed on 21 June 2014 During DEEPWAVE: 2. Nonlinear Dynamics, Wave Breaking, and Instabilities. *Journal of Geophysical Research D: Atmospheres*, **2019**, 124, 10006-10032	4.4	12
25	Self-Acceleration and Instability of Gravity Wave Packets: 2. Two-Dimensional Packet Propagation, Instability Dynamics, and Transient Flow Responses. *Journal of Geophysical Research D: Atmospheres* , **2020**, 125, e2019JD030691	4.4	11
24	Fine Structure, Instabilities, and Turbulence in the Lower Atmosphere: High-Resolution In Situ Slant-Path Measurements with the DataHawk UAV and Comparisons with Numerical Modeling. *Journal of Atmospheric and Oceanic Technology*, **2018**, 35, 619-642	2	11
23	Large-Amplitude Mountain Waves in the Mesosphere Observed on 21 June 2014 During DEEPWAVE: 1. Wave Development, Scales, Momentum Fluxes, and Environmental Sensitivity. *Journal of Geophysical Research D: Atmospheres*, **2019**, 124, 10364-10384	4.4	11
22	Kelvin twist waves in the transition to turbulence. *European Journal of Mechanics, B/Fluids*, **1998**, 17, 595-604	2.4	10
21	Turbulence Dynamics and Mixing Due to Gravity Waves in the Lower and Middle Atmosphere. *Geophysical Monograph Series*, **2000**, 143-159	1.1	10
20	Self-Acceleration and Instability of Gravity Wave Packets: 3. Three-Dimensional Packet Propagation, Secondary Gravity Waves, Momentum Transport, and Transient Mean Forcing in Tidal Winds. *Journal of Geophysical Research D: Atmospheres*, **2020**, 125, e2019JD030692	4.4	10
19	Dual-beam measurements of gravity waves over Arecibo: Reevaluation of wave structure, dynamics, and momentum fluxes. *Journal of Geophysical Research*, **2008**, 113, n/a-n/a		9
18	Momentum Flux Spectra of a Mountain Wave Event Over New Zealand. *Journal of Geophysical Research D: Atmospheres*, **2018**, 123, 9980-9991	4.4	8
17	Simple Stability Limits for Vertically Propagating Unstable Modes in a tanh(z) Velocity Profile with a Rigid Lower Boundary. *Journals of the Atmospheric Sciences*, **1980**, 37, 1642-1648	2.1	8

16	Mesospheric Bore Evolution and Instability Dynamics Observed in PMC Turbo Imaging and Rayleigh Lidar Profiling Over Northeastern Canada on 13 July 2018. *Journal of Geophysical Research D: Atmospheres*, **2020**, 125, e2019JD032037	4.4	7
15	Observations of Reduced Turbulence and Wave Activity in the Arctic Middle Atmosphere Following the January 2015 Sudden Stratospheric Warming. *Journal of Geophysical Research D: Atmospheres*, **2018**, 123, 13259-13276	4.4	7
14	The vorticity dynamics of instability and turbulence in a breaking internal gravity wave. *Earth, Planets and Space*, **1999**, 51, 457-473	2.9	6
13	A Review of Gravity Wave Saturation Processes, Effects, and Variability in the Middle Atmosphere **1989**, 343-371		6
12	Stratospheric Gravity Wave Products from Satellite Infrared Nadir Radiances in the Planning, Execution, and Validation of Aircraft Measurements during DEEPWAVE. *Journal of Applied Meteorology and Climatology*, **2019**, 58, 2049-2075	2.7	5
11	Numerical Simulation of Mountain Waves over the Southern Andes. Part I: Mountain Wave and Secondary Wave Character, Evolutions, and Breaking. *Journals of the Atmospheric Sciences*, **2020**, 77, 4337-4356	2.1	5
10	Gravity Wave Sources, Source Variability and Lower and Middle Atmosphere Effects **1993**, 191-208		5
9	Kelvin-Helmholtz Billow Interactions and Instabilities in the Mesosphere Over the Andes Lidar Observatory: 2. Modeling and Interpretation. *Journal of Geophysical Research D: Atmospheres*, **2021**, 126, e2020JD033412	4.4	4
8	Modeling Responses of Polar Mesospheric Clouds to Gravity Wave and Instability Dynamics and Induced Large-Scale Motions. *Journal of Geophysical Research D: Atmospheres*, **2021**, 126, e2021JD034643	4.4	3
7	Atmospheric Turbulence Forecasts for Air Force and Missile Defense Applications **2010**,		2
6	Gravity Waves in the Middle Atmosphere of the Southern Hemisphere **1990**, 171-189		2
5	Recent Progress in Gravity Wave Saturation Studies **1987**, 31-46		1
4	Numerical simulation of mountain waves over the southern Andes, Part 2: Momentum fluxes and wave/mean-flow interactions. *Journals of the Atmospheric Sciences*, **2021**,	2.1	1
3	Direct Numerical Simulation Guidance for Thorpe Analysis to Obtain Quantitatively Reliable Turbulence Parameters. *Journal of Atmospheric and Oceanic Technology*, **2019**, 36, 2247-2255	2	0
2	A Theory of Enhanced Saturation of the Gravity Wave Spectrum Due to Increases in Atmospheric Stability **1989**, 399-420		
1	Spectral Estimates of Gravity Wave Energy and Momentum Fluxes **1993**, 261-290		