

Table SPBS-9

S&amp;E articles in geosciences, atmospheric sciences, and ocean sciences, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	34,871.00	35,256.00	37,232.00	37,022.00	38,255.00	39,201.00	39,691.00	41,838.00	46,191.00	49,293.00	50,246.00	52,987.00	52,635.00	56,682.00	58,286.00	62,066.00	62,803.00	69,611.00	72,196.00	71,110.00	76,767.00	77,102.00	82,542.00	83,424.00	85,857.00
North America	11,905.23	11,740.14	11,931.96	11,511.88	12,160.55	12,208.85	12,743.49	13,422.76	15,588.59	15,534.99	15,787.05	15,991.74	14,863.68	15,680.34	16,155.03	16,448.51	16,634.37	18,144.28	18,076.95	17,110.87	18,304.38	17,610.80	18,643.78	17,192.93	16,408.04
Canada	1,727.13	1,664.50	1,525.87	1,516.44	1,632.78	1,561.22	1,654.82	1,557.91	1,861.62	1,844.07	1,986.22	2,047.22	1,995.21	2,105.48	2,086.42	2,265.90	2,218.75	2,335.79	2,364.05	2,286.88	2,359.54	2,174.81	2,403.11	2,218.02	2,173.97
Greenland	0.40	1.09	0.00	0.50	1.63	0.38	2.00	2.18	0.46	2.25	3.14	6.63	4.76	3.09	8.91	8.82	9.33	6.96	9.53	14.78	8.10	7.96	9.69	6.58	8.25
Mexico	253.35	310.53	315.77	339.45	372.27	335.00	364.66	448.00	406.86	426.47	436.37	465.52	468.35	489.98	539.32	499.71	579.90	601.11	588.94	583.11	651.39	726.84	756.60	702.32	729.48
United States	9,924.36	9,764.02	10,090.32	9,655.49	10,153.87	10,312.26	10,722.01	11,414.67	13,319.65	13,262.20	13,361.32	13,472.38	12,395.36	13,081.80	13,520.38	13,674.08	13,826.38	15,200.42	15,114.42	14,226.11	15,285.35	14,701.19	15,474.38	14,266.00	13,496.34
Central America and Caribbean	132.57	141.69	173.82	102.28	81.86	122.85	88.91	119.49	167.60	151.07	150.67	105.09	158.86	145.91	154.62	118.15	151.01	119.32	156.52	156.28	176.25	147.48	181.07	145.31	200.21
Antigua and Barbuda	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.17	0.00	0.20	0.00	0.00	0.00	0.10	0.50	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.50	0.00
Bahamas, The	1.00	2.75	2.42	0.25	0.50	0.33	0.24	0.92	0.17	0.73	0.45	1.38	0.67	0.33	0.60	1.80	1.51	1.09	3.02	1.49	2.33	3.78	4.49	3.37	4.63
Barbados	1.67	0.50	0.25	5.67	0.50	1.75	1.03	0.92	1.50	2.75	1.83	0.14	2.11	0.83	1.10	1.66	3.67	3.08	2.53	1.80	3.47	0.34	1.53	1.31	6.01
Belize	0.00	0.50	0.00	0.00	0.00	2.00	0.12	0.71	0.25	1.06	1.00	0.00	1.48	0.20	1.14	0.42	2.51	1.01	0.70	0.44	0.80	2.28	0.93	1.29	0.53
Costa Rica	52.63	61.07	50.01	26.17	23.31	52.20	34.15	35.17	73.00	23.37	58.56	28.17	43.16	58.74	44.16	32.05	58.56	25.72	42.96	54.67	53.27	42.64	59.99	60.08	70.01
Cuba	19.24	25.88	58.10	23.93	14.06	20.67	11.76	5.76	13.35	19.00	18.07	12.78	19.55	16.12	20.61	17.86	14.58	12.44	21.47	18.62	23.92	21.29	33.03	16.74	31.26
Dominica	0.00	0.00	0.00	0.00	0.00	0.10	0.00	1.50	0.00	1.25	0.75	0.00	1.00	0.00	2.51	0.00	0.60	0.00	0.58	0.00	0.00	0.17	0.00	0.09	0.00
Dominican Republic	0.50	0.08	0.80	1.00	0.17	0.20	0.24	0.45	0.00	1.38	2.65	0.53	1.44	0.09	0.95	0.00	0.70	1.49	0.94	0.88	0.63	3.56	2.86	1.48	2.79
El Salvador	0.75	1.01	0.31	1.50	0.00	1.00	0.87	1.75	11.41	1.34	2.40	2.27	0.50	1.17	1.75	3.93	1.48	1.50	0.51	1.18	3.14	3.22	1.65	1.94	1.35
Grenada	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.67	0.00	0.03	0.38	0.00	0.20	0.27	0.20	0.28
Guatemala	0.45	1.92	0.00	0.25	0.42	0.50	0.00	0.62	3.93	1.98	1.38	0.78	0.62	0.89	0.62	1.51	1.97	0.74	0.46	1.79	2.08	4.31	2.56	2.67	4.95
Haiti	0.00	0.00	0.00	0.13	0.20	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.11	0.00	1.30	1.15	0.33	0.78	0.73	0.55	1.22	0.38	2.88	1.00	2.34
Honduras	0.50	0.00	0.23	0.08	0.50	0.00	0.00	0.17	0.00	0.50	0.00	0.17	0.25	0.84	0.13	0.40	1.40	0.25	0.29	1.19	0.25	1.48	0.54	1.30	1.08
Jamaica	10.25	9.43	6.06	8.42	6.25	6.27	10.31	21.45	12.12	11.66	5.42	5.50	11.44	8.92	8.85	4.66	4.17	8.05	13.84	6.73	7.94	3.09	7.10	5.41	4.12
Nicaragua	2.03	2.31	2.27	0.27	1.97	0.89	0.53	2.50	2.23	2.42	2.78	1.81	6.42	1.72	1.77	0.46	0.93	2.84	4.28	2.68	1.82	5.48	2.29	0.84	2.67
Panama	9.45	10.67	5.92	5.04	2.17	6.79	4.59	6.06	6.81	16.11	6.75	12.10	17.33	11.93	15.23	10.04	17.82	19.57	15.37	15.60	12.33	14.07	13.34	15.05	24.55
Puerto Rico	26.64	22.35	39.23	22.74	28.07	27.37	21.09	32.52	28.90	42.18	40.44	29.32	37.32	38.39	39.17	31.31	23.29	27.33	33.16	36.66	39.61	28.42	28.17	19.88	26.97
Saint Kitts and Nevis	0.00	0.00	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.67	0.00	0.03	0.00	0.00	0.45	0.86	1.08	1.38
Saint Lucia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.03	0.45	0.00	0.00	0.00	0.25	0.00
Saint Vincent and the Grenadines	0.00	0.67	0.00	0.50	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.10	0.00	0.00	0.20	0.03	0.00	0.00	0.00	0.00	0.00	0.11
Trinidad and Tobago	7.45	2.56	7.23	6.33	3.50	2.78	2.63	8.92	13.76	25.33	8.00	10.08	15.48	5.73	14.24	10.42	16.17	13.24	15.51	11.15	23.46	12.33	18.57	10.80	15.18
South America	715.13	837.70	874.54	926.44	913.56	970.61	1,104.26	1,340.61	1,277.25	1,448.06	1,471.72	1,632.01	1,754.40	2,040.30	2,000.32	2,300.34	2,431.76	2,811.37	2,784.33	2,780.70	3,057.02	3,178.53	3,473.49	3,649.45	4,289.64
Argentina	238.78	304.26	319.15	318.21	279.87	302.59	346.97	346.24	390.84	443.79	402.37	449.33	535.38	626.25	596.77	638.93	666.07	675.88	612.74	737.89	670.94	720.92	754.80	733.72	802.73
Bolivia	6.52	3.34	3.45	4.57	2.26	6.05	4.25	4.76	3.30	3.96	3.60	4.93	5.21	5.68	3.71	5.29	7.32	4.99	8.16	8.10	10.83	6.91	9.02	6.19	9.34
Brazil	275.14	322.54	345.49	341.05	368.50	365.46	446.03	700.80	547.34	617.03	635.80	765.59	748.09	918.69	881.50	1,113.35	1,140.07	1,546.31	1,502.32	1,423.05	1,687.44	1,734.35	1,933.39	2,061.42	2,550.88
Chile	101.86	80.25	78.51	136.03	115.97	141.85	129.79	142.29	170.71	169.34	211.48	225.91	218.96	240.51	259.67	264.26	316.56	271.02	331.47	325.21	318.25	346.21	352.59	391.99	420.78
Colombia	18.15	39.63	29.33	34.05	37.22	34.24	52.78	43.86	40.57	50.09	80.78	74.39	98.21	123.78	125.85	124.67	155.35	163.44	178.98	135.55	181.80	181.72	223.59	256.87	269.20
Ecuador	6.17	6.52	5.28	3.62	3.92	4.39	7.36	10.11	7.58	10.30	10.30	9.01	19.08	10.20	11.11	12.63	12.91	19.46	21.84	27.71	51.40	55.71	59.51	56.40	81.44
Guyana	1.00	0.13	0.00	0.60	0.13	0.50	0.25	0.00	0.00	2.17	1.06	0.50	0.00	0.40	0.00	0.00	0.93	0.44	0.58	0.01	0.02	0.77	0.83	0.34	0.49

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Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Paraguay	0.40	0.00	0.70	0.00	0.00	0.00	0.00	0.00	1.17	0.33	0.48	0.00	0.50	0.33	0.20	0.29	1.56	0.50	2.45	0.43	0.13	0.80	3.61	1.70	2.69
Peru	6.43	8.31	5.92	7.28	4.81	9.29	15.95	6.80	20.02	11.34	23.62	15.63	33.54	22.61	22.76	25.28	29.79	30.15	26.26	22.32	35.65	40.57	53.89	59.70	66.31
Suriname	0.00	0.00	0.00	0.00	0.10	0.50	0.00	0.20	0.13	0.58	1.17	1.13	0.20	0.87	0.00	0.74	0.50	1.27	0.10	1.05	3.51	0.32	0.20	0.91	0.14
Uruguay	8.02	15.34	5.05	7.02	9.88	18.81	15.66	17.79	27.01	22.97	17.38	16.32	29.26	28.81	26.88	34.23	41.22	31.58	38.18	48.72	43.70	50.31	40.88	43.04	51.27
Venezuela	52.67	57.38	81.68	74.02	90.90	86.95	85.23	67.76	68.59	116.15	83.68	69.28	65.98	62.16	71.86	80.67	59.47	66.33	61.24	50.65	53.36	39.94	41.17	37.16	34.36
Europe	15,390.75	15,316.25	16,694.10	16,753.46	17,177.52	16,703.19	16,913.67	17,422.21	17,772.95	19,721.87	19,449.94	20,417.22	21,008.78	22,583.42	23,300.12	23,917.64	24,484.37	25,626.31	26,298.43	26,147.73	27,499.68	27,424.06	28,868.89	28,172.98	27,691.35
EU-27 and UK <sup>a</sup>	11,589.56	12,117.63	13,050.14	13,027.81	13,326.84	13,158.66	13,264.59	13,901.93	13,887.78	15,714.49	15,459.75	16,255.59	16,701.16	17,904.98	18,428.20	18,820.70	19,537.90	19,951.25	20,404.51	20,016.71	20,711.56	20,174.39	20,621.99	19,916.14	19,625.63
UK	2,527.93	2,634.89	2,939.72	2,793.30	3,007.30	2,720.09	2,819.04	2,761.39	2,710.55	3,011.36	3,002.18	3,190.78	2,897.43	3,205.73	3,491.42	3,225.64	3,406.67	3,531.82	3,606.38	3,494.32	3,547.49	3,489.87	3,679.28	3,482.79	3,186.31
EU-27 <sup>b</sup>	9,061.63	9,482.74	10,110.42	10,234.52	10,319.54	10,438.57	10,445.55	11,140.54	11,177.22	12,703.13	12,457.57	13,064.81	13,803.72	14,699.25	14,936.78	15,595.06	16,131.23	16,419.44	16,798.13	16,522.39	17,164.07	16,684.52	16,942.70	16,433.35	16,439.32
Austria	165.80	150.93	172.57	188.60	202.98	259.82	208.32	199.47	242.43	243.72	217.94	258.17	299.23	332.94	291.00	350.40	329.34	337.49	355.61	327.27	408.77	391.86	380.03	363.69	372.75
Belgium	224.45	302.18	243.44	243.67	249.77	237.89	296.46	276.06	276.12	319.65	305.09	343.50	374.97	361.79	374.06	383.13	399.22	408.18	434.78	385.66	374.74	392.54	354.60	357.59	376.70
Bulgaria	53.97	31.05	28.03	32.13	30.94	32.73	50.10	35.27	41.48	49.09	46.20	71.29	57.09	69.96	67.95	60.48	62.23	75.77	68.93	73.73	54.87	67.04	64.70	61.48	49.99
Croatia	109.60	113.50	132.60	117.75	161.52	143.52	166.97	152.36	170.20	198.02	159.79	190.42	166.50	194.31	210.42	251.84	248.17	236.19	168.90	201.52	175.55	199.47	214.58	183.57	227.95
Cyprus	3.15	3.50	1.67	3.62	0.00	1.34	1.28	4.35	4.47	5.04	4.54	6.79	8.16	12.29	19.96	10.10	11.68	13.83	21.13	14.47	23.48	25.49	28.20	28.90	40.46
Czechia	191.00	198.66	193.63	246.58	211.93	190.25	218.67	252.67	252.24	216.11	247.93	263.78	275.12	327.32	334.90	314.29	363.79	377.88	463.82	433.45	478.18	479.28	475.10	464.40	442.36
Denmark	249.92	278.37	337.00	324.28	338.69	342.53	368.48	370.93	297.80	338.89	354.51	343.30	328.25	381.64	398.35	374.97	425.61	420.14	427.82	423.31	413.26	438.28	464.76	410.45	392.48
Estonia	73.74	41.23	65.78	78.17	57.46	60.52	54.32	62.30	75.26	59.32	91.41	90.55	112.93	103.14	128.19	121.93	118.50	107.20	148.83	90.50	94.43	92.49	73.62	67.73	74.36
Finland	245.17	259.86	259.21	293.05	262.65	337.13	226.23	266.06	287.05	334.66	314.22	364.89	349.17	341.38	302.54	394.45	376.92	394.70	405.90	387.78	419.83	378.97	361.63	367.70	376.06
France	1,899.05	1,908.18	2,194.10	2,092.94	1,971.81	2,070.67	1,930.33	2,047.93	2,074.22	2,314.25	2,307.02	2,352.77	2,310.57	2,480.96	2,558.29	2,631.04	2,568.10	2,808.03	2,714.76	2,585.13	2,734.74	2,724.18	2,716.12	2,600.61	2,588.97
Germany	1,935.20	2,152.21	2,200.80	2,347.56	2,356.28	2,290.62	2,113.94	2,273.57	2,357.38	2,688.85	2,382.44	2,527.68	2,669.35	2,754.83	2,877.98	2,891.84	3,000.30	3,091.34	3,254.68	3,236.84	3,347.39	3,238.47	3,339.45	3,357.26	3,143.83
Greece	142.01	176.15	191.24	176.53	215.13	186.83	217.72	217.79	227.42	299.16	278.70	299.70	274.86	295.56	310.11	318.68	329.64	340.12	338.57	301.27	342.34	325.08	393.82	367.91	342.79
Hungary	96.11	122.23	137.60	111.07	112.71	116.71	149.34	153.75	178.09	195.17	175.51	182.00	208.14	246.15	243.38	264.91	247.21	195.24	218.47	238.54	242.60	226.88	225.98	192.42	207.28
Ireland	86.50	78.67	69.37	92.62	108.04	108.55	105.39	100.30	107.69	117.44	134.73	143.91	127.27	158.17	145.50	148.15	175.18	160.63	160.96	132.45	182.76	149.85	163.33	162.74	186.39
Italy	1,011.62	1,107.25	1,169.56	1,173.38	1,332.53	1,308.91	1,372.43	1,626.46	1,598.21	1,741.28	1,835.01	1,922.66	2,269.67	2,271.71	2,241.91	2,276.30	2,656.68	2,433.45	2,171.36	2,487.95	2,552.76	2,336.72	2,384.84	2,351.89	2,448.85
Latvia	3.17	3.57	2.04	12.44	4.02	6.93	2.53	3.95	6.09	7.77	8.85	7.08	9.15	11.34	13.21	16.99	21.58	15.39	18.06	14.00	18.77	19.23	15.47	14.84	20.24
Lithuania	28.27	35.86	27.72	38.90	48.59	39.18	45.63	36.08	75.49	70.00	75.82	72.75	48.85	55.83	52.32	75.61	57.25	52.06	68.08	57.94	52.29	54.67	53.30	46.59	56.19
Luxembourg	0.00	1.33	2.58	0.43	2.28	2.27	3.29	1.48	11.91	12.64	6.21	5.60	4.23	9.53	9.94	12.28	10.58	14.59	14.38	18.51	10.86	21.49	18.43	9.42	11.11
Malta	1.70	0.67	0.07	1.50	0.50	0.53	5.95	3.63	0.78	5.90	5.06	4.56	9.00	10.25	6.85	14.30	8.73	8.04	5.23	13.70	18.48	12.75	21.33	8.95	12.43
Netherlands	557.87	639.01	684.82	584.98	658.34	617.24	637.32	712.90	638.47	744.92	681.14	765.95	708.17	849.83	811.35	798.75	847.66	827.10	930.97	887.22	840.98	850.57	935.62	821.05	821.24
Poland	599.85	514.13	613.45	559.01	552.55	525.71	626.02	669.46	630.03	712.81	678.46	645.41	836.74	883.39	947.72	935.37	952.05	877.89	914.24	985.91	1,042.18	1,035.82	1,049.36	1,093.31	1,122.54
Portugal	77.72	71.94	112.57	146.13	134.11	160.74	191.19	199.08	190.58	255.35	302.03	337.19	361.21	470.30	363.68	459.56	405.78	522.79	689.94	514.24	494.94	483.48	433.72	427.60	549.00
Romania	33.78	38.21	20.46	39.10	35.74	34.20	35.63	45.94	33.51	57.24	40.78	51.20	53.22	68.29	90.54	133.05	129.35	156.82	147.93	159.55	169.98	172.65	165.92	180.64	134.48
Slovakia	49.33	50.32	52.84	46.93	56.51	47.84	64.84	66.49	54.23	69.43	85.01	66.71	85.77	85.10	75.18	80.09	77.27	91.53	109.69	116.80	135.29	119.65	167.27	114.77	109.00
Slovenia	39.36	41.48	46.56	29.78	22.85	35.79	30.24	63.74	55.11	94.65	76.85	107.87	83.26	87.18	102.56	94.55	106.16	88.97	101.07	105.31	106.23	95.94	115.35	104.52	103.04
Spain	739.59	794.20	734.28	795.13	800.76	862.14	940.66	902.72	850.49	1,097.12	1,207.75	1,190.18	1,286.75	1,325.31	1,455.30	1,674.11	1,666.32	1,785.80	1,887.00	1,765.04	1,821.22	1,778.48	1,748.34	1,691.01	1,680.69

Table SPBS-9

**S&E articles in geosciences, atmospheric sciences, and ocean sciences, fractional count, by region, country, or economy: 1996–2020**

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sweden	443.71	368.06	416.45	458.25	390.86	417.98	382.27	395.79	440.47	454.65	434.58	448.92	486.10	510.73	503.58	507.89	535.91	578.26	557.03	564.30	607.19	573.20	577.82	582.30	548.14
Other Europe	3,801.19	3,198.63	3,643.97	3,725.64	3,850.68	3,544.53	3,649.08	3,520.29	3,885.17	4,007.37	3,990.19	4,161.63	4,307.63	4,678.45	4,871.92	5,096.94	4,946.47	5,675.06	5,893.93	6,131.01	6,788.11	7,249.66	8,246.90	8,256.84	8,065.72
Other Europe, 2020 <sup>b</sup>	6,329.11	5,833.51	6,583.69	6,518.94	6,857.98	6,264.61	6,468.12	6,281.68	6,595.72	7,018.74	6,992.37	7,352.41	7,205.06	7,884.18	8,363.34	8,322.58	8,353.13	9,206.87	9,500.30	9,625.33	10,335.61	10,739.54	11,926.19	11,739.63	11,252.03
Albania	5.18	3.58	5.38	5.83	3.67	3.98	3.18	4.57	2.95	5.50	2.87	3.02	9.11	5.04	9.21	9.01	7.52	7.37	1.89	9.94	5.51	3.34	3.65	4.47	2.63
Andorra	0.00	0.00	0.25	0.00	0.00	0.00	0.50	0.50	0.50	0.25	0.33	0.07	0.00	0.27	0.41	0.00	0.28	1.27	0.14	0.47	1.03	0.20	0.27	0.29	1.46
Belarus	25.39	19.00	21.83	24.86	25.80	14.42	8.13	11.10	20.66	12.79	12.58	10.77	14.50	9.66	15.49	15.86	9.87	28.01	43.13	15.70	17.06	8.79	38.57	20.62	45.52
Bosnia and Herzegovina	0.00	0.10	0.00	0.50	1.00	1.00	1.50	2.25	1.64	3.59	1.06	4.20	1.34	2.13	5.61	7.68	7.38	2.56	3.88	6.04	4.73	8.21	11.56	14.07	13.57
Holy See (Vatican City)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.33	0.25	0.00	0.00	0.00	0.00	0.33	0.50	0.81	0.11
Iceland	22.99	23.97	31.74	21.17	29.22	32.61	46.47	35.32	51.01	72.59	39.82	61.34	46.55	44.77	54.44	54.78	59.18	53.71	77.51	67.76	70.71	72.38	84.88	66.73	88.85
Kosovo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	1.46	0.00	0.00	1.90	1.39	1.30	1.63	4.45	3.34	6.85	3.95	6.28
Liechtenstein	0.17	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.17	0.11	0.00	0.00	0.00	0.25	0.33	0.13	0.13	0.67	0.00	1.63	0.00	0.00	0.12	0.00	2.33
Moldova	0.42	0.50	7.25	3.33	2.13	0.33	1.56	0.17	1.88	0.00	1.71	1.50	2.53	0.36	2.11	3.63	2.00	3.19	5.60	1.37	4.39	2.62	3.50	4.48	3.36
Monaco	7.15	7.53	9.23	4.57	4.08	6.27	8.45	11.13	14.94	13.38	12.25	9.27	14.21	13.44	9.84	12.97	5.29	7.37	5.97	5.41	6.28	5.76	6.37	7.45	9.79
Montenegro <sup>c</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	1.25	1.35	3.33	1.98	4.14	3.51	7.96	5.21	4.53	6.97	5.07	7.98	9.76
North Macedonia	0.33	1.33	0.83	0.00	0.00	2.00	2.00	1.00	2.90	1.70	5.99	3.89	5.85	5.09	6.40	2.62	3.73	7.89	5.16	6.09	6.30	5.14	6.73	7.83	4.65
Norway	390.93	422.50	452.28	422.25	466.12	433.75	515.96	446.10	500.83	586.42	512.21	641.71	624.91	778.83	758.10	803.90	796.75	898.99	887.27	838.60	1,015.56	990.91	1,068.18	942.56	896.24
Russia	2,694.59	2,010.87	2,325.24	2,475.50	2,542.36	2,222.16	2,271.78	2,156.45	2,347.39	2,275.66	2,321.37	2,298.00	2,414.49	2,595.67	2,751.12	2,780.32	2,670.66	3,162.97	3,362.45	3,512.95	4,042.17	4,367.94	5,139.39	5,375.13	5,103.29
San Marino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00
Serbia <sup>c</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.90	33.79	30.19	50.10	49.50	63.26	58.09	63.11	78.23	74.25	77.42	79.07	78.42	84.38
Serbia and Montenegro <sup>d</sup>	18.64	21.00	20.93	16.74	18.65	11.11	13.10	22.37	24.77	17.38	36.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Switzerland	330.69	375.70	425.98	393.94	432.53	420.44	392.74	454.10	502.42	521.81	579.60	558.77	641.81	676.13	602.47	719.19	712.69	747.14	760.12	782.15	787.79	839.81	856.76	828.31	791.35
Turkey	115.25	114.61	133.27	171.25	132.70	217.84	226.06	216.34	233.04	322.71	308.84	367.95	333.56	323.78	322.87	377.98	380.12	443.31	462.43	546.34	523.37	575.72	609.94	620.02	722.81
Ukraine	189.45	197.93	209.76	185.69	192.42	178.37	157.66	158.89	180.09	173.51	155.42	166.91	163.39	190.03	279.86	257.06	221.31	247.62	206.02	251.51	219.97	279.79	324.51	273.74	279.33
Middle East	316.26	281.15	367.09	289.15	341.68	378.59	361.48	394.52	412.03	522.53	567.06	653.32	626.50	940.29	883.61	1,039.80	1,253.40	1,524.46	1,716.89	1,793.91	1,973.73	2,025.39	2,119.81	2,519.50	2,558.06
Armenia	3.00	3.79	4.33	2.85	0.04	4.00	5.19	3.19	5.38	7.25	5.44	0.97	2.13	6.15	5.87	7.48	4.60	11.03	6.87	6.39	17.91	14.17	11.09	8.64	19.06
Azerbaijan	6.17	3.90	3.31	0.93	9.50	6.73	6.19	7.05	11.98	12.66	8.77	4.88	22.58	13.95	16.27	30.19	14.55	18.54	17.78	17.68	20.85	21.39	32.11	38.05	41.79
Bahrain	1.50	0.00	3.33	3.00	1.00	3.00	4.50	4.60	1.20	4.63	3.78	7.75	1.98	7.25	5.18	3.50	2.32	5.65	3.87	3.98	2.00	10.49	3.25	10.83	6.92
Gaza Strip <sup>e</sup>	0.00	0.00	0.50	0.00	0.50	0.00	2.33	1.50	0.00	1.00	0.00	0.33	1.83	0.00	4.17	4.47	2.17	1.00	4.37	2.42	4.38	3.21	2.33	1.67	4.18
Georgia	7.18	4.50	9.89	13.73	7.44	7.43	9.61	15.51	14.55	6.96	16.89	23.08	16.84	13.13	13.09	17.41	10.89	17.67	13.24	9.60	16.10	12.44	13.45	14.21	27.78
Iran	13.68	21.39	16.83	12.09	27.98	21.31	21.78	38.94	59.87	93.87	106.33	156.08	130.72	311.27	311.30	416.02	523.01	605.91	655.86	783.73	819.30	915.01	977.00	1,085.89	1,242.88
Iraq	3.17	1.00	6.42	0.92	3.00	1.07	2.00	2.50	0.00	3.17	3.42	4.67	8.00	14.08	13.64	17.62	13.63	49.11	48.81	74.22	57.93	51.53	80.41	109.14	169.41
Israel	173.73	156.19	178.62	182.15	186.74	195.82	181.58	167.60	190.95	179.06	237.52	201.98	207.00	212.37	198.58	190.56	176.29	191.69	254.05	220.95	255.50	235.69	256.50	251.24	265.71
Jordan	9.81	7.08	13.50	7.73	12.75	13.13	6.90	15.55	11.07	29.53	18.80	20.67	26.48	11.70	11.78	13.27	10.77	21.52	20.18	35.07	26.62	18.00	23.47	25.29	35.64
Kuwait	27.12	13.75	21.38	23.53	12.93	20.31	11.16	13.52	12.85	25.69	18.73	45.72	23.00	66.20	19.51	49.83	91.73	77.60	65.06	93.83	68.21	65.59	78.56	90.63	78.13
Lebanon	2.00	6.62	4.58	4.23	8.25	4.25	5.61	3.25	6.74	9.41	10.47	13.48	5.71	10.14	8.93	4.25	11.45	16.54	16.14	17.68	20.04	21.33	21.58	29.48	17.41

Table SPBS-9

## S&amp;E articles in geosciences, atmospheric sciences, and ocean sciences, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Oman	10.39	10.44	11.82	8.93	6.39	10.37	8.73	16.96	10.41	25.21	18.31	36.04	24.55	34.98	45.92	52.75	49.43	35.03	51.21	26.95	39.82	40.11	50.67	70.70	34.73
Qatar	5.50	4.25	3.67	3.21	4.00	4.25	5.17	9.00	1.70	5.21	2.75	9.83	7.76	28.44	17.58	10.25	17.20	7.56	59.81	14.67	32.51	18.61	21.96	36.19	29.32
Saudi Arabia	21.70	27.21	50.56	15.18	42.62	65.73	56.77	64.23	62.19	66.30	71.01	83.92	85.25	145.96	124.57	166.20	220.67	385.61	365.35	363.79	417.10	437.74	429.36	553.50	463.74
Syria	2.41	6.32	3.23	0.50	5.63	1.11	6.12	4.91	4.50	11.49	3.60	6.45	3.36	2.95	9.98	8.72	7.16	7.63	9.48	5.16	13.97	8.75	11.41	9.37	8.74
United Arab Emirates	27.01	10.21	31.11	9.67	12.56	17.82	26.84	24.77	17.50	37.36	37.57	34.64	57.73	56.74	70.96	39.41	89.45	59.57	109.59	103.32	146.29	144.29	93.21	174.91	101.76
West Bank <sup>e</sup>	0.00	0.00	0.83	0.00	0.03	0.00	1.00	0.11	0.80	1.45	1.47	0.98	1.08	2.08	1.13	1.23	1.58	2.12	0.18	2.83	1.45	0.38	2.64	2.95	1.52
Yemen	1.88	4.50	3.18	0.50	0.33	2.27	0.00	1.32	0.33	2.28	2.20	1.86	0.50	2.89	5.16	6.65	6.50	10.69	15.05	11.63	13.75	6.67	10.81	6.82	9.33
Africa	519.23	536.50	603.65	607.62	560.58	619.66	651.15	679.80	675.49	780.99	772.26	822.61	819.76	914.15	948.73	999.74	1,093.16	1,281.22	1,357.80	1,357.98	1,613.54	1,690.95	1,809.71	1,957.98	2,168.35
Algeria	16.97	10.62	20.75	14.68	10.85	22.02	18.47	24.44	25.67	47.01	22.63	36.62	34.94	38.35	44.92	50.83	65.81	86.42	88.37	75.69	107.69	131.44	107.94	137.87	139.36
Angola	0.00	0.70	2.34	1.32	0.95	1.58	8.07	4.79	1.83	2.25	1.56	3.53	3.23	1.36	2.95	6.43	5.51	8.18	5.94	2.91	4.49	4.56	3.13	4.72	4.57
Benin	0.92	0.88	1.17	1.00	0.50	0.00	0.67	1.63	0.00	1.63	0.25	0.60	1.07	2.82	2.66	1.53	3.46	5.38	6.04	6.64	9.20	10.55	9.81	17.65	12.99
Botswana	2.62	4.00	8.97	5.28	12.80	6.00	4.78	8.68	10.99	12.18	16.03	17.01	9.87	8.25	7.69	8.45	4.30	5.34	9.78	6.03	6.31	10.23	28.15	19.18	20.51
Burkina Faso	1.17	0.72	0.79	0.25	2.50	0.37	1.00	2.67	2.43	1.00	0.84	1.67	0.77	3.21	2.72	2.59	5.33	6.94	2.52	6.20	5.18	5.66	11.42	8.27	8.49
Burundi	0.56	0.61	0.00	0.87	0.25	0.42	0.00	0.70	0.00	0.55	0.00	0.61	0.75	0.00	0.83	0.17	0.00	2.00	3.81	0.36	0.10	0.17	0.86	1.23	1.01
Cabo Verde	0.00	0.00	0.00	0.14	0.00	0.17	0.00	1.24	0.25	0.00	1.00	0.50	0.13	0.63	0.58	0.17	0.20	1.28	2.47	4.13	1.76	3.62	2.06	0.82	3.40
Cameroon	3.46	5.14	2.88	2.05	7.64	4.40	4.50	13.13	8.30	8.27	16.66	11.16	15.40	15.15	22.15	18.04	27.26	31.68	27.38	29.69	26.61	43.63	46.13	64.39	53.13
Central African Republic	0.50	0.58	0.00	0.25	0.00	0.00	0.00	0.00	0.50	0.00	0.04	1.50	1.18	0.08	1.00	0.00	0.38	0.90	0.14	0.17	0.48	0.11	0.14	0.44	0.80
Chad	0.00	0.50	0.30	0.00	0.54	0.90	0.25	0.00	0.67	2.54	1.86	0.98	1.59	1.67	1.78	0.91	0.77	0.98	0.58	0.36	0.51	0.71	0.86	0.61	0.84
Comoros	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.34
Congo, Democratic Republic of the	0.11	0.00	1.93	0.00	0.80	0.33	0.00	0.10	0.25	1.18	3.46	4.35	1.42	1.83	2.48	2.19	1.01	3.25	3.42	3.24	5.81	5.79	2.56	8.19	8.42
Congo, Republic of the	2.36	0.17	0.25	0.17	0.00	0.93	0.00	2.60	0.00	1.06	2.06	1.76	4.73	1.17	1.71	3.17	3.29	2.91	2.90	1.45	2.46	8.49	2.25	4.93	3.75
Côte d'Ivoire	3.79	4.60	7.94	2.30	4.03	0.31	0.58	3.61	3.25	4.09	2.80	2.14	5.13	2.30	4.59	6.26	6.00	5.27	5.58	4.33	8.97	4.34	11.74	14.61	13.21
Djibouti	0.00	0.00	0.33	0.17	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.28	0.00	0.21	0.73	0.66	0.36	0.00	1.30	1.32	0.26	1.74	0.54	0.54	0.92
Egypt	64.02	84.09	71.04	86.85	87.60	101.51	90.87	117.13	92.16	116.95	127.52	149.75	120.14	138.64	162.42	181.91	201.03	253.48	226.35	271.37	311.30	295.89	329.53	351.46	364.55
Equatorial Guinea	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.08	0.00
Eritrea	1.00	0.63	1.14	1.58	2.32	0.51	2.78	1.83	5.70	2.17	5.38	2.73	0.33	0.89	1.77	0.27	0.25	0.95	0.40	0.87	0.33	0.26	0.76	0.93	0.88
Eswatini	0.17	0.00	0.50	0.10	0.00	0.00	1.00	0.67	2.00	1.00	1.57	0.13	1.00	0.72	3.25	0.13	1.00	0.10	0.00	0.00	0.00	0.08	0.13	0.46	0.69
Ethiopia	11.19	4.18	5.33	7.08	3.35	5.03	8.80	7.18	10.21	8.49	15.22	17.38	11.85	10.31	26.94	12.62	19.19	17.21	25.37	29.09	27.59	40.27	56.30	79.99	115.27
Gabon	1.03	0.53	0.14	0.03	0.42	1.33	1.75	1.00	1.17	1.22	0.20	0.31	1.88	1.13	0.08	0.66	1.37	4.82	3.40	2.63	1.88	7.43	1.44	3.15	1.68
Gambia, The	1.17	0.00	0.00	0.50	0.00	0.00	0.00	0.30	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.20	0.18	0.64	0.20	0.00
Ghana	3.53	2.44	4.46	3.48	3.72	3.40	2.25	0.38	4.92	6.01	4.92	3.86	12.19	8.33	7.83	9.78	12.72	16.24	14.29	21.06	28.47	27.30	30.64	39.09	52.08
Guinea	0.75	1.53	0.06	0.29	0.33	0.73	0.37	0.13	0.20	0.00	0.00	0.00	0.00	1.10	0.20	1.00	0.10	0.00	0.25	0.17	0.60	0.48	0.95	0.00	1.26
Guinea-Bissau	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.08	0.14	0.49	1.01	1.39	0.45	0.00
Kenya	15.91	15.87	12.42	21.03	14.71	22.36	21.73	22.61	12.89	21.47	12.51	29.70	13.91	21.57	28.28	34.07	30.98	41.22	40.82	33.36	29.13	57.58	38.45	29.81	58.09
Lesotho	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.33	0.11	0.00	0.05	0.50	0.58	1.00	0.00	0.33	0.00	0.00	0.93	0.00	0.00	1.42	1.33	0.57	0.17

Table SPBS-9

## S&amp;E articles in geosciences, atmospheric sciences, and ocean sciences, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Liberia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	1.09	0.05	0.03
Libya	1.75	0.00	4.21	0.94	3.00	2.83	1.10	0.78	5.46	7.52	4.80	7.89	4.50	13.33	14.95	6.17	3.96	8.91	3.25	11.26	9.07	8.03	5.24	8.58	13.99
Madagascar	1.28	2.17	4.13	4.67	2.89	4.00	1.73	4.54	1.93	0.63	2.47	3.24	1.93	5.13	4.31	3.27	3.58	4.01	4.69	4.38	5.00	3.47	4.69	6.49	3.26
Malawi	2.11	1.00	0.20	2.00	0.00	1.00	3.00	2.67	2.33	4.82	2.25	3.09	3.50	2.91	3.03	9.33	4.30	3.76	4.43	1.93	6.17	4.97	9.92	6.98	6.39
Mali	0.14	0.92	1.00	0.14	0.33	1.00	2.13	1.80	0.73	0.00	0.65	0.67	1.79	0.50	1.21	0.87	0.99	1.57	1.11	0.95	2.53	2.07	3.88	3.15	4.00
Mauritania	0.83	0.00	0.33	0.67	0.00	0.17	0.48	0.00	0.70	0.89	0.27	1.52	0.13	0.25	0.14	0.25	0.14	0.91	1.18	0.84	1.59	0.86	1.29	1.61	1.59
Mauritius	0.00	0.00	0.25	1.42	2.50	0.17	0.20	1.17	1.29	2.25	1.40	1.83	0.00	0.58	2.31	1.27	1.14	2.56	5.77	2.16	3.83	2.54	4.25	4.01	5.63
Morocco	23.43	28.34	38.14	52.57	50.13	65.49	39.61	37.37	59.38	38.79	47.69	39.04	55.71	39.28	38.80	38.78	59.92	61.23	64.19	52.09	85.62	99.80	101.98	122.54	147.63
Mozambique	0.20	0.67	0.64	2.50	3.00	3.21	0.87	1.55	5.32	8.03	4.34	2.45	6.74	3.36	3.53	4.86	3.84	2.30	8.58	7.67	5.22	8.52	4.80	7.34	9.32
Namibia	4.09	2.00	5.74	6.46	3.20	21.16	4.83	5.01	4.02	10.47	6.51	8.44	6.43	7.29	4.56	2.38	6.50	8.94	8.90	7.27	8.77	7.50	11.96	10.86	13.43
Niger	0.67	2.33	0.83	1.50	1.83	0.40	2.00	1.68	0.50	2.59	1.51	0.66	2.89	9.32	2.37	3.63	3.29	3.99	2.51	3.75	2.55	3.54	12.27	3.85	2.66
Nigeria	28.01	31.43	56.30	47.38	43.79	35.37	37.51	30.01	49.68	54.61	63.70	66.78	69.58	80.91	88.47	74.47	96.26	129.90	158.02	165.68	176.74	191.86	208.56	225.32	258.69
Rwanda	0.17	0.00	0.00	0.33	0.00	0.00	0.00	0.50	2.00	0.00	0.50	1.00	1.75	0.50	1.04	0.04	0.92	0.00	1.95	1.42	0.71	4.38	2.52	5.71	5.39
São Tomé and Príncipe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.23	0.40	0.63
Senegal	4.10	5.67	5.15	6.13	2.92	4.28	6.76	6.00	5.03	9.19	5.32	3.95	8.93	5.60	7.39	8.57	12.45	12.84	10.56	7.98	14.23	14.19	14.82	10.62	10.33
Seychelles	1.33	0.00	2.00	0.00	0.50	1.00	2.64	0.50	0.56	1.45	0.78	1.08	2.48	1.10	0.58	0.29	0.59	2.60	0.68	2.52	1.11	2.51	1.11	0.70	4.98
Sierra Leone	0.00	0.17	3.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.26	1.08	1.41	0.51
Somalia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.20	0.00	0.00	0.48
South Africa	286.48	283.00	295.20	264.40	237.45	259.21	327.18	299.15	287.59	291.87	302.90	289.38	287.94	356.74	324.46	361.33	353.73	367.18	424.73	408.64	517.83	478.03	523.60	542.40	616.13
South Sudan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
Sudan	0.53	3.78	1.55	1.77	1.21	1.27	0.13	0.90	0.00	1.82	2.33	2.32	3.00	0.70	5.72	9.29	4.84	3.67	3.35	3.97	5.04	2.98	6.00	4.42	4.50
Tanzania	6.91	7.48	4.63	19.04	10.23	7.02	7.70	19.15	16.40	20.69	11.68	22.54	19.64	12.97	16.99	13.12	10.82	10.57	23.86	13.32	20.86	23.42	20.41	30.96	22.79
Togo	0.00	1.42	0.00	0.50	0.67	0.17	0.00	0.63	1.33	1.50	1.20	0.57	0.28	1.79	0.00	0.00	0.75	0.53	0.11	1.34	0.34	1.48	1.92	1.16	1.58
Tunisia	11.19	14.10	24.70	20.06	27.63	21.97	28.68	24.71	22.65	64.71	43.71	51.12	77.77	96.85	80.33	96.42	112.73	139.35	127.76	132.98	133.24	138.85	148.35	136.29	129.54
Uganda	1.94	3.50	0.45	2.25	2.91	3.14	1.83	2.18	3.07	4.03	7.64	7.18	4.68	4.29	11.29	5.98	9.00	8.05	10.79	13.07	16.70	7.17	9.81	13.72	15.41
Zambia	0.13	0.50	2.46	5.12	1.53	2.67	1.75	3.54	2.18	5.12	3.55	0.80	2.62	1.24	1.07	1.57	1.83	0.73	2.90	4.40	3.56	3.13	4.03	2.86	6.39
Zimbabwe	12.71	10.28	9.50	17.15	10.53	11.85	13.17	20.81	19.82	10.96	19.71	20.01	14.39	8.45	8.61	15.53	10.82	13.06	15.95	8.83	12.26	18.15	17.89	16.91	16.53
Asia	4,217.45	4,604.16	4,679.62	4,906.31	5,078.26	6,302.43	6,045.29	6,525.78	8,235.30	8,754.96	9,621.32	10,628.47	10,978.09	11,856.41	12,425.88	14,463.98	14,263.96	17,306.83	18,981.66	18,821.60	21,117.39	22,163.40	24,541.98	26,588.48	29,204.17
Afghanistan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.13	2.78	0.00	0.00	0.00	2.00	0.38	1.00	0.89	14.74	4.90	3.60
Bangladesh	7.96	8.00	9.49	11.00	12.85	11.58	13.01	12.63	13.88	8.86	10.08	9.70	18.65	18.70	14.61	12.81	23.37	28.93	25.44	35.81	37.96	47.88	51.15	61.64	103.67
Bhutan	0.00	0.00	0.00	0.00	0.33	0.00	0.73	0.00	0.50	0.50	0.40	0.05	0.25	0.94	0.43	1.78	0.42	4.44	0.99	0.76	2.58	1.78	1.07	0.63	3.52
Brunei	3.96	3.50	2.64	9.28	11.25	3.68	5.83	13.20	5.11	2.73	3.48	2.74	2.83	2.67	2.63	1.48	12.29	8.33	9.29	5.13	14.25	15.88	22.26	19.61	18.12
Burma	0.00	0.00	1.10	1.13	1.34	0.59	2.68	1.83	2.74	2.04	1.95	2.79	4.39	2.17	1.83	6.21	2.70	1.97	3.78	4.52	5.87	6.21	7.58	10.44	9.15
Cambodia	0.00	0.00	0.00	0.25	0.00	1.50	0.00	0.20	0.00	0.55	0.00	1.65	4.08	2.63	0.69	0.30	0.70	0.42	2.83	4.53	0.72	4.23	4.26	5.22	3.49
China	1,683.21	1,774.00	1,897.82	2,075.39	2,104.43	3,044.88	2,626.86	3,015.78	4,045.37	4,778.72	5,297.10	6,083.95	5,999.14	6,854.41	6,964.15	8,392.69	8,645.78	10,929.31	12,167.69	12,500.68	14,249.00	14,982.41	16,635.97	18,588.48	20,504.52
India	682.94	715.61	650.20	644.68	610.70	642.59	675.47	669.14	729.57	782.41	873.59	1,008.18	1,038.52	1,119.28	1,135.81	1,561.05	1,421.41	1,612.70	1,838.55	1,865.54	1,935.06	1,977.81	2,161.10	2,378.65	2,671.59



Table SPBS-9

## S&amp;E articles in geosciences, atmospheric sciences, and ocean sciences, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Indonesia	24.20	38.39	20.98	40.26	26.67	16.29	25.34	21.09	27.59	36.24	37.36	62.27	47.50	52.53	61.69	80.28	91.23	97.90	118.13	111.57	131.41	142.86	256.68	254.03	282.18
Japan	1,359.38	1,549.68	1,540.33	1,514.96	1,668.14	1,819.85	1,920.95	2,023.95	2,389.06	2,224.54	2,286.09	2,266.28	2,603.97	2,414.13	2,589.83	2,586.49	2,185.55	2,367.29	2,378.52	2,077.65	2,318.96	2,426.38	2,308.36	2,200.78	2,223.21
Kazakhstan	8.00	9.52	13.58	8.98	14.48	14.44	8.79	10.85	6.17	10.81	13.66	7.85	13.07	11.68	23.08	18.16	16.75	29.85	56.85	38.67	26.91	33.14	86.66	68.26	87.46
Kyrgyzstan	2.47	3.59	2.25	2.20	3.87	1.44	1.03	1.83	3.24	4.15	9.48	9.16	6.81	2.60	6.66	7.15	4.52	10.50	5.21	8.29	24.51	11.23	16.43	9.11	12.92
Laos	0.33	0.30	0.50	0.75	0.00	0.00	0.33	0.75	0.10	3.00	1.50	0.17	1.33	0.18	0.00	1.37	2.26	1.78	2.31	1.81	2.14	3.24	3.57	2.99	1.52
Malaysia	26.37	20.32	11.14	20.18	21.30	26.62	19.61	24.61	31.49	36.33	66.59	72.74	127.80	128.30	152.19	213.32	166.76	285.39	364.87	262.82	261.37	260.14	322.04	472.94	361.14
Maldives	2.50	0.00	1.00	0.50	0.00	2.08	0.00	0.80	0.25	0.10	1.13	2.14	0.31	0.00	0.25	0.75	5.59	0.59	1.00	2.37	2.53	2.14	2.26	2.02	4.49
Mongolia	4.94	2.92	1.87	3.17	6.32	4.59	2.68	5.94	5.51	7.04	5.75	8.76	8.49	13.38	10.23	10.50	8.05	15.62	14.87	11.75	21.45	17.74	15.19	18.28	21.93
Nepal	1.83	2.72	1.88	6.34	6.99	4.48	4.17	3.09	3.32	7.92	7.02	4.80	4.97	5.43	4.67	16.13	7.71	10.04	15.86	16.50	22.71	29.13	19.08	38.87	39.24
North Korea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.37	0.33	0.00	0.96	0.00	0.17	0.51	0.00	1.17	0.54	1.96	1.17	5.78	5.77	9.53
Pakistan	12.92	9.66	9.93	12.70	12.56	19.37	16.73	11.21	11.21	10.97	22.61	22.80	18.83	30.98	34.15	45.29	56.17	84.70	108.12	136.32	135.68	132.81	197.16	191.65	258.38
Papua New Guinea	1.25	2.92	3.63	2.37	2.64	2.66	1.59	5.60	3.72	2.94	2.58	2.81	4.67	1.47	1.49	0.95	4.38	2.16	1.33	4.62	4.80	3.20	1.33	2.53	3.33
Philippines	31.21	39.10	17.92	32.12	29.77	27.66	29.94	27.17	33.84	31.39	30.56	36.88	30.61	46.85	43.79	57.64	37.10	52.35	51.65	67.51	84.88	125.14	135.12	151.49	226.12
Singapore	20.89	19.53	21.43	29.23	27.47	34.72	29.28	30.80	51.24	37.58	48.89	42.74	41.26	55.53	88.36	81.41	66.24	102.04	124.17	109.64	126.12	120.47	146.78	160.18	161.48
South Korea	96.12	141.76	179.96	188.89	186.67	293.36	327.58	326.05	452.34	382.99	458.06	461.06	519.47	537.21	674.47	768.05	798.16	937.36	954.26	915.88	1,030.48	1,107.17	1,133.06	1,144.43	1,311.99
Sri Lanka	3.85	4.29	2.83	6.22	7.55	10.58	2.50	3.92	6.91	10.04	10.64	7.96	13.24	9.18	12.68	11.74	14.09	10.80	19.94	13.35	21.08	29.04	27.81	25.80	38.54
Taiwan	211.95	213.23	241.85	254.65	273.00	265.25	286.37	270.21	348.15	314.16	354.01	430.66	390.04	452.50	484.03	481.41	555.60	540.09	562.64	470.83	470.74	473.02	683.74	463.69	455.28
Tajikistan	5.98	3.33	5.00	10.49	5.68	5.10	4.67	8.02	5.68	5.27	4.00	4.50	0.00	1.10	4.34	0.09	2.17	10.02	5.32	5.16	3.59	3.25	3.44	4.66	8.04
Thailand	12.80	19.45	26.01	21.60	26.46	32.92	29.58	28.87	29.38	38.10	56.16	56.80	57.63	60.40	68.50	69.85	93.73	94.76	90.12	100.83	123.12	121.72	157.59	150.83	181.22
Timor-Leste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.50	0.50	0.00	0.00	0.00	0.21	0.39	0.25	0.16	0.25	0.27	0.30	0.08	1.26	0.73
Turkmenistan	1.67	1.17	0.48	0.00	1.53	0.00	0.25	0.17	1.00	0.00	0.07	0.33	0.00	1.00	2.17	0.33	1.40	1.17	1.73	0.19	0.27	0.67	0.00	0.00	0.00
Uzbekistan	4.93	8.37	8.67	3.40	2.49	3.80	2.99	1.43	9.38	2.58	4.84	1.08	1.23	8.92	6.95	8.16	4.77	24.54	3.28	5.58	7.54	17.25	26.29	12.17	31.44
Vietnam	5.80	12.82	7.11	5.58	13.77	12.39	6.33	6.64	18.56	12.60	12.87	16.78	18.78	21.17	33.44	28.22	34.14	41.53	49.58	42.12	48.46	65.09	95.40	137.17	166.34
Australia and Oceania	1,476.25	1,631.71	1,719.97	1,688.58	1,783.82	1,779.55	1,601.95	1,769.84	1,870.12	2,069.39	1,976.34	2,296.90	2,025.59	2,274.15	2,314.91	2,695.61	2,408.13	2,676.98	2,744.60	2,896.78	2,964.41	2,797.66	2,821.09	2,882.31	2,923.17
Australia	1,148.36	1,279.34	1,383.09	1,308.55	1,438.82	1,378.69	1,242.44	1,392.90	1,505.26	1,654.95	1,576.79	1,860.41	1,642.29	1,818.27	1,850.29	2,187.15	1,913.76	2,206.56	2,217.43	2,343.25	2,437.43	2,297.07	2,333.52	2,384.52	2,365.66
Cook Islands	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.30	0.78	0.59	0.38	1.58	0.42	0.60	1.08	0.71	0.83	0.25
Fiji	2.92	5.00	3.04	5.40	4.63	5.58	1.83	1.46	4.37	11.76	7.37	7.31	4.07	5.11	2.25	4.03	4.51	5.08	8.85	7.54	8.78	6.91	7.35	9.29	18.60
Kiribati	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.33	0.00	0.00	0.07	0.56	0.50	1.00	0.33	0.00	0.00	0.00
Marshall Islands	0.00	0.14	0.00	0.00	0.13	0.00	0.00	1.00	0.00	0.00	0.56	0.00	0.44	0.33	1.00	0.00	1.25	0.00	0.09	0.11	0.00	0.00	0.00	0.63	0.20
Micronesia, Federated States of	0.00	0.00	2.00	0.00	0.00	0.67	0.00	1.00	0.73	1.33	0.26	2.64	2.08	1.00	3.00	2.50	1.33	1.60	0.54	2.50	0.65	1.27	1.10	0.48	1.24
Nauru	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
New Zealand	322.49	343.92	330.34	371.30	337.39	390.79	356.67	369.97	358.09	394.21	386.57	422.38	372.97	446.20	455.97	496.93	483.24	459.59	510.65	538.93	511.57	486.29	471.98	479.77	529.56
Niue	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.11	0.22	0.00	0.00
Palau	0.00	0.58	0.00	0.00	0.00	2.17	0.00	0.46	1.00	2.28	0.36	2.22	2.38	0.75	0.00	0.60	1.06	1.18	2.13	1.59	1.63	1.91	3.95	2.71	2.28
Samoa	0.00	0.00	0.00	0.00	0.00	0.37	1.00	0.50	0.00	1.26	0.06	1.00	0.13	0.17	0.58	1.10	0.58	0.90	0.49	0.25	0.21	0.18	0.58	0.25	1.41
Solomon Islands	2.49	2.03	1.00	2.32	1.47	0.62	0.00	2.24	0.17	1.72	2.82	0.83	0.80	0.41	0.11	1.12	0.14	0.62	0.17	0.49	0.37	0.22	0.28	1.79	1.09

Table SPBS-9

**S&E articles in geosciences, atmospheric sciences, and ocean sciences, fractional count, by region, country, or economy: 1996–2020**

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tonga	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.31	0.00	0.20	0.15	0.00	0.00	0.14	0.13	0.57	0.00	0.00	0.09	0.20	0.25	0.71	0.25	0.51	1.01
Tuvalu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.75	0.00	0.20	0.25	0.00	0.08	0.00
Vanuatu	0.00	0.69	0.50	1.00	1.32	0.17	0.00	0.00	0.50	1.68	1.33	0.00	0.44	1.10	0.94	0.82	1.66	0.68	1.15	1.01	1.73	1.32	1.15	1.49	1.87
Unassigned	198.14	166.69	187.25	236.29	157.18	115.28	180.78	162.98	191.69	309.13	449.65	439.63	399.34	247.03	102.78	82.22	82.84	120.23	78.81	44.15	60.60	63.72	82.18	315.06	414.01

EU = European Union; UK = United Kingdom.

<sup>a</sup> The UK was a part of the EU for data purposes from 1973 to 2019.<sup>b</sup> Beginning in 2020, the UK was no longer a member of the EU.<sup>c</sup> Beginning in 2006, Serbia and Montenegro represented individual countries.<sup>d</sup> Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.<sup>e</sup> West Bank and Gaza Strip are separate entities in this list but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.**Note(s):**

Article counts refer to publications from a selection of conference proceedings and peer-reviewed journals in S&E fields from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Articles are credited on a fractional count basis (i.e., for articles produced by authors from different countries, each country receives fractional credit on the basis of the proportion of its participating authors). Data are not directly comparable to *Science and Engineering Indicators 2020*; see the Technical Appendix for information on data filters. The sum of the fractional count for regions, countries, and economies may not add to the world total because of rounding. Some publications have incomplete address information for coauthored publications in the Scopus database. The Unassigned category count is the sum of fractional counts for publications that cannot be assigned to a region, country, or economy.

**Source(s):**

National Center for Science and Engineering Statistics; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed May 2021.

*Science and Engineering Indicators*