

Appendix table 5-46

**S&E articles in geosciences, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>World</b>																
Total articles	27,540	29,675	31,085	31,586	32,780	31,397	36,779	35,204	38,799	39,587	40,202	44,838	46,452	43,204	45,040	49,429
with multiple institutions	14,373	15,889	17,143	17,943	18,734	18,637	22,549	21,988	24,746	25,753	26,811	30,659	32,209	31,040	32,810	36,246
with domestic institutions only	21,999	23,492	24,199	24,365	25,025	23,614	27,113	25,787	28,214	28,413	28,528	31,177	32,045	28,948	29,826	32,786
with international institutions	5,541	6,183	6,886	7,221	7,755	7,783	9,666	9,417	10,585	11,174	11,674	13,661	14,407	14,256	15,214	16,643
<b>Canada</b>																
Total articles	2,303	2,370	2,449	2,454	2,396	2,338	2,538	2,580	2,895	2,998	2,926	3,307	3,350	3,193	3,324	3,577
with multiple institutions	1,408	1,526	1,643	1,629	1,613	1,643	1,790	1,918	2,085	2,191	2,184	2,537	2,565	2,549	2,637	2,854
with domestic institutions only	1,488	1,433	1,456	1,533	1,406	1,341	1,410	1,349	1,576	1,605	1,479	1,569	1,651	1,479	1,527	1,627
with international institutions	815	937	993	921	990	997	1,128	1,231	1,319	1,393	1,447	1,738	1,699	1,714	1,797	1,950
<b>Mexico</b>																
Total articles	190	260	306	354	355	363	468	518	456	485	433	479	508	522	494	545
with multiple institutions	110	157	206	254	247	260	331	348	350	372	336	393	419	421	406	452
with domestic institutions only	112	164	183	194	185	197	247	299	246	236	226	208	235	271	228	264
with international institutions	78	96	123	160	170	166	221	219	210	249	207	271	273	251	266	281
<b>United States</b>																
Total articles	10,430	11,242	11,365	11,322	11,762	10,920	13,734	12,595	13,465	13,836	13,826	15,599	15,217	14,584	15,127	15,768
with multiple institutions	6,212	6,922	7,192	7,288	7,597	7,361	9,487	8,821	9,465	9,881	10,140	11,701	11,598	11,388	11,905	12,476
with domestic institutions only	8,037	8,456	8,454	8,274	8,444	7,646	9,373	8,456	8,972	9,074	8,853	9,660	9,199	8,456	8,601	8,964
with international institutions	2,393	2,786	2,911	3,048	3,318	3,274	4,361	4,139	4,493	4,762	4,973	5,939	6,018	6,128	6,526	6,804
<b>Argentina</b>																
Total articles	170	178	195	201	218	242	281	288	335	333	378	457	480	489	522	622
with multiple institutions	113	112	131	150	166	187	205	219	270	264	301	372	398	405	444	526
with domestic institutions only	110	109	113	112	110	134	157	155	177	188	212	241	258	242	269	347
with international institutions	60	69	82	89	108	108	124	133	158	145	166	216	222	247	253	275
<b>Brazil</b>																
Total articles	239	280	358	419	440	431	552	538	650	695	685	780	955	833	940	1,204
with multiple institutions	172	192	238	303	316	304	401	388	504	515	531	641	749	667	769	1,014
with domestic institutions only	110	136	192	211	235	237	281	299	367	372	385	417	553	457	508	663
with international institutions	129	144	166	208	205	194	271	239	283	323	300	363	402	376	432	541
<b>Chile</b>																
Total articles	77	75	140	136	175	176	207	203	229	246	249	290	316	292	348	358
with multiple institutions	58	51	99	103	125	137	165	161	190	213	212	247	284	261	325	333
with domestic institutions only	31	39	63	56	84	71	86	97	81	90	83	115	101	91	112	109
with international institutions	46	36	77	80	91	105	121	106	148	156	166	175	215	201	236	249
<b>Austria</b>																
Total articles	207	195	258	255	335	320	356	344	345	381	397	444	524	461	560	540
with multiple institutions	133	143	162	166	255	243	268	263	290	316	344	383	463	407	487	489
with domestic institutions only	95	71	123	118	119	101	115	134	95	104	86	94	103	88	128	99
with international institutions	112	124	135	137	216	219	241	210	250	277	311	350	421	373	432	441

Appendix table 5-46

**S&E articles in geosciences, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Belgium</b>																
Total articles	292	397	400	416	423	475	525	482	575	580	539	658	684	590	641	672
with multiple institutions	203	279	271	300	301	349	403	379	463	473	452	551	607	512	567	595
with domestic institutions only	128	164	182	175	184	178	215	180	203	200	172	200	191	147	180	177
with international institutions	164	233	218	241	239	297	310	302	372	380	367	458	493	443	461	495
<b>Czech Republic</b>																
Total articles	138	153	130	128	158	173	220	235	249	296	281	341	388	377	407	411
with multiple institutions	108	113	90	99	128	118	168	174	202	238	224	290	325	324	352	339
with domestic institutions only	51	68	61	47	56	91	94	116	102	121	127	136	170	159	151	164
with international institutions	87	85	69	81	102	82	126	119	147	175	154	205	218	218	256	247
<b>Denmark</b>																
Total articles	419	530	492	537	564	581	627	523	583	632	609	646	664	651	658	786
with multiple institutions	271	362	318	357	411	435	467	382	459	515	510	521	558	573	563	696
with domestic institutions only	200	260	226	262	240	235	251	215	217	201	188	205	189	161	192	203
with international institutions	219	270	266	275	324	346	376	308	366	431	421	441	475	490	466	583
<b>Finland</b>																
Total articles	301	356	309	358	405	348	435	405	441	401	439	527	482	468	498	545
with multiple institutions	207	241	212	274	289	265	334	316	350	339	361	429	408	401	441	476
with domestic institutions only	168	198	169	178	218	175	205	198	194	152	185	205	169	159	156	168
with international institutions	133	158	140	180	187	173	230	207	247	249	254	322	313	309	342	377
<b>France</b>																
Total articles	2,145	2,373	2,537	2,541	2,493	2,316	2,825	2,626	3,066	3,027	3,018	3,393	3,682	3,545	3,480	3,767
with multiple institutions	1,603	1,730	1,862	1,960	1,894	1,807	2,247	2,086	2,518	2,504	2,545	2,908	3,223	3,140	3,112	3,418
with domestic institutions only	1,081	1,249	1,334	1,223	1,212	1,067	1,215	1,139	1,255	1,187	1,130	1,241	1,305	1,233	1,151	1,191
with international institutions	1,064	1,124	1,203	1,318	1,281	1,249	1,610	1,487	1,811	1,840	1,888	2,152	2,377	2,312	2,329	2,576
<b>Germany</b>																
Total articles	2,158	2,189	2,470	2,552	2,555	2,501	2,972	2,676	3,095	2,981	3,037	3,486	3,669	3,507	3,748	4,081
with multiple institutions	1,334	1,363	1,564	1,675	1,730	1,751	2,162	2,015	2,337	2,305	2,421	2,823	3,016	2,978	3,208	3,498
with domestic institutions only	1,189	1,188	1,262	1,276	1,192	1,146	1,254	1,048	1,253	1,097	1,075	1,171	1,165	1,048	1,092	1,166
with international institutions	969	1,001	1,208	1,276	1,363	1,355	1,718	1,628	1,842	1,884	1,962	2,315	2,504	2,459	2,656	2,915
<b>Greece</b>																
Total articles	226	243	233	259	269	269	336	319	355	451	408	437	471	407	439	467
with multiple institutions	153	149	152	178	179	153	215	212	243	330	283	311	331	307	336	347
with domestic institutions only	125	142	135	133	132	173	182	177	203	233	224	234	241	195	194	219
with international institutions	101	101	98	126	137	96	154	142	152	218	184	203	230	212	245	248
<b>Hungary</b>																
Total articles	83	95	120	83	86	92	109	131	129	133	151	149	166	165	165	166
with multiple institutions	64	70	87	68	67	70	85	104	102	112	129	129	144	139	144	148
with domestic institutions only	31	45	55	28	32	34	49	71	43	46	42	48	57	47	62	55
with international institutions	52	50	65	55	54	58	60	60	86	87	109	101	109	118	103	111

Appendix table 5-46

**S&E articles in geosciences, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Ireland</b>																
Total articles	97	96	84	106	128	123	136	122	178	218	183	244	269	255	280	312
with multiple institutions	55	69	57	68	82	87	96	96	132	171	135	194	224	226	234	272
with domestic institutions only	55	37	37	43	53	48	56	42	64	78	68	73	90	63	81	81
with international institutions	42	59	47	63	75	75	80	80	114	140	115	171	179	192	199	231
<b>Italy</b>																
Total articles	860	973	1,154	1,267	1,292	1,263	1,598	1,567	1,681	1,852	1,883	2,158	2,296	2,140	2,142	2,380
with multiple institutions	590	679	813	907	910	926	1,179	1,160	1,258	1,380	1,439	1,714	1,805	1,702	1,727	1,945
with domestic institutions only	517	553	676	723	747	701	869	858	893	1,005	940	1,040	1,104	984	958	1,087
with international institutions	343	420	478	544	545	562	729	709	788	847	943	1,118	1,192	1,156	1,184	1,293
<b>Netherlands</b>																
Total articles	767	868	814	814	829	844	928	895	1,013	1,020	1,000	1,143	1,174	1,135	1,157	1,277
with multiple institutions	479	516	535	527	553	598	680	660	754	802	806	939	995	994	1,008	1,125
with domestic institutions only	421	521	411	404	393	407	388	380	420	392	334	380	378	304	318	323
with international institutions	346	347	403	410	436	437	540	515	593	628	666	763	796	831	839	954
<b>Poland</b>																
Total articles	192	193	182	222	220	235	291	299	336	345	357	407	499	452	430	566
with multiple institutions	108	133	113	147	136	148	187	196	218	228	236	263	340	320	309	385
with domestic institutions only	112	91	93	105	118	121	140	153	166	173	181	214	258	233	209	306
with international institutions	80	102	89	117	102	114	151	146	170	172	176	193	241	219	221	260
<b>Portugal</b>																
Total articles	80	142	174	183	198	254	304	272	368	458	491	586	710	583	614	803
with multiple institutions	60	104	131	132	132	190	225	204	285	358	400	491	562	517	551	708
with domestic institutions only	35	72	79	92	108	118	144	137	188	247	233	282	374	236	262	353
with international institutions	45	70	95	91	90	136	160	135	180	211	258	304	336	347	352	450
<b>Spain</b>																
Total articles	840	944	1,035	1,030	1,074	1,094	1,274	1,206	1,501	1,623	1,699	2,062	2,181	2,081	2,329	2,559
with multiple institutions	523	595	712	669	716	727	893	850	1,071	1,183	1,223	1,565	1,675	1,679	1,925	2,098
with domestic institutions only	527	575	582	616	620	650	703	671	846	856	917	1,061	1,088	1,012	1,035	1,135
with international institutions	313	369	453	414	454	444	571	535	655	767	782	1,001	1,093	1,069	1,294	1,424
<b>Sweden</b>																
Total articles	518	700	684	657	733	679	784	789	874	885	835	973	977	920	913	1,118
with multiple institutions	330	431	447	451	515	487	576	569	665	684	651	792	827	769	790	967
with domestic institutions only	283	357	358	309	333	301	326	352	363	339	310	311	289	276	243	318
with international institutions	235	343	326	348	400	378	458	437	511	546	525	662	688	644	670	800
<b>United Kingdom</b>																
Total articles	2,877	3,047	3,305	3,504	3,392	3,203	3,632	3,412	3,795	3,980	3,949	4,339	4,399	4,172	4,356	4,668
with multiple institutions	1,735	1,855	2,071	2,253	2,230	2,175	2,611	2,508	2,780	3,064	3,020	3,450	3,525	3,409	3,633	3,873
with domestic institutions only	1,730	1,840	1,937	1,969	1,859	1,669	1,709	1,518	1,708	1,700	1,657	1,685	1,624	1,449	1,514	1,567
with international institutions	1,147	1,207	1,368	1,535	1,533	1,534	1,923	1,894	2,087	2,280	2,292	2,654	2,775	2,723	2,842	3,101

Appendix table 5-46

**S&E articles in geosciences, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Norway</b>																
Total articles	521	626	574	607	628	685	742	789	772	891	909	1,045	1,087	1,005	1,157	1,297
with multiple institutions	361	434	422	451	464	511	562	609	634	734	752	902	952	871	1,021	1,154
with domestic institutions only	295	331	270	285	302	317	338	345	310	343	336	376	330	326	365	380
with international institutions	226	295	304	322	326	368	404	444	462	548	573	669	757	679	792	917
<b>Russia</b>																
Total articles	957	980	982	1,164	1,273	1,235	1,332	1,305	1,327	804	1,663	1,376	1,340	1,254	1,120	1,431
with multiple institutions	514	591	553	676	738	771	834	842	888	616	996	899	856	828	759	989
with domestic institutions only	547	514	532	670	747	669	743	675	695	286	1,082	742	753	708	599	778
with international institutions	410	466	450	494	526	566	589	630	632	518	581	634	587	546	521	653
<b>Switzerland</b>																
Total articles	506	539	599	581	716	636	772	759	871	866	970	1,120	1,197	1,120	1,267	1,341
with multiple institutions	353	364	423	428	496	484	571	576	678	685	823	937	996	981	1,089	1,169
with domestic institutions only	243	259	266	244	315	229	295	270	319	290	291	337	326	259	332	325
with international institutions	263	280	333	337	401	407	477	489	552	576	679	783	871	861	935	1,016
<b>Iran</b>																
Total articles	16	22	17	20	35	36	61	78	103	138	235	213	394	304	397	478
with multiple institutions	14	15	11	16	29	24	48	59	75	97	159	141	276	216	293	336
with domestic institutions only	5	10	7	6	10	16	24	30	48	70	130	122	233	182	225	302
with international institutions	11	12	10	14	25	20	37	48	55	68	105	91	161	122	172	176
<b>Israel</b>																
Total articles	291	256	245	327	288	280	304	300	307	316	316	350	357	321	333	309
with multiple institutions	177	172	159	216	191	198	221	222	221	232	241	260	283	245	266	246
with domestic institutions only	176	145	139	193	154	161	143	153	154	158	153	180	151	157	142	130
with international institutions	115	111	106	134	134	119	161	147	153	158	163	170	206	164	191	179
<b>Saudi Arabia</b>																
Total articles	31	28	21	31	18	22	22	33	25	31	28	39	44	83	138	228
with multiple institutions	12	14	12	18	7	10	17	16	14	16	17	27	31	71	125	198
with domestic institutions only	23	18	11	17	13	13	6	18	11	18	12	17	19	21	23	42
with international institutions	8	10	10	14	5	9	16	15	14	13	16	22	25	62	115	186
<b>Turkey</b>																
Total articles	146	175	241	210	233	333	371	418	448	522	540	639	682	538	514	603
with multiple institutions	79	96	143	122	143	188	212	230	264	292	323	397	451	353	323	419
with domestic institutions only	93	123	155	142	150	209	247	308	313	381	410	477	493	358	351	401
with international institutions	53	52	86	68	83	124	124	110	135	141	130	162	189	180	163	202
<b>Egypt</b>																
Total articles	78	57	80	69	73	72	112	83	101	101	101	137	178	152	150	176
with multiple institutions	54	33	55	49	45	45	68	52	62	65	55	84	116	114	111	145
with domestic institutions only	39	33	37	34	39	38	54	41	49	49	52	74	93	63	61	54
with international institutions	39	24	43	35	34	34	58	42	52	52	49	63	85	89	89	122

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**S&E articles in geosciences, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>South Africa</b>																
Total articles	273	250	327	264	334	322	332	346	365	362	357	381	476	446	440	548
with multiple institutions	137	152	192	151	202	204	216	238	245	243	251	289	351	350	358	432
with domestic institutions only	188	155	210	165	190	177	167	160	185	172	177	154	229	159	150	220
with international institutions	85	95	117	99	144	145	165	186	180	190	180	227	247	287	290	328
<b>China</b>																
Total articles	684	638	784	868	1,091	1,273	1,629	1,812	2,215	2,754	3,052	3,719	4,563	4,679	5,307	6,167
with multiple institutions	401	385	486	562	718	892	1,179	1,327	1,683	2,050	2,378	2,887	3,494	3,689	4,254	4,937
with domestic institutions only	424	382	454	491	633	750	905	1,010	1,269	1,641	1,758	2,099	2,749	2,692	3,043	3,664
with international institutions	260	256	330	377	458	523	724	802	946	1,113	1,294	1,620	1,814	1,987	2,264	2,503
<b>India</b>																
Total articles	431	402	469	474	507	551	644	661	829	902	916	1,117	1,214	1,123	1,310	1,409
with multiple institutions	173	175	180	236	240	250	315	328	427	458	491	622	679	704	829	860
with domestic institutions only	357	293	373	350	385	400	463	491	626	655	689	800	883	769	860	952
with international institutions	74	109	96	124	122	151	181	170	203	247	227	317	331	354	450	457
<b>Japan</b>																
Total articles	1,550	1,891	1,855	1,997	2,253	2,113	2,479	2,555	2,736	2,814	2,536	2,932	2,878	2,529	2,609	2,689
with multiple institutions	941	1,181	1,148	1,280	1,505	1,438	1,784	1,863	1,978	2,085	1,953	2,227	2,256	2,049	2,094	2,220
with domestic institutions only	1,135	1,374	1,332	1,461	1,564	1,449	1,596	1,651	1,760	1,754	1,548	1,781	1,668	1,423	1,433	1,448
with international institutions	415	517	523	536	689	664	883	904	976	1,060	988	1,151	1,210	1,106	1,176	1,241
<b>Singapore</b>																
Total articles	57	66	50	76	88	93	122	109	118	104	96	126	107	117	152	180
with multiple institutions	17	25	28	38	51	53	67	64	78	66	68	95	83	82	127	145
with domestic institutions only	44	45	30	49	49	52	67	59	56	61	47	56	51	47	51	54
with international institutions	13	21	20	27	39	41	55	50	62	43	49	70	56	70	101	126
<b>South Korea</b>																
Total articles	135	219	220	259	423	440	552	669	636	710	675	855	922	944	940	1,195
with multiple institutions	102	155	153	178	302	328	411	514	528	559	548	688	725	768	753	1,002
with domestic institutions only	68	128	112	153	271	253	323	380	334	391	350	448	482	482	480	618
with international institutions	67	91	108	106	152	187	229	289	302	319	325	407	440	462	460	577
<b>Taiwan</b>																
Total articles	316	350	361	401	522	478	578	532	650	703	763	858	989	815	814	862
with multiple institutions	138	162	206	236	324	297	390	344	444	503	587	677	778	670	688	748
with domestic institutions only	241	279	261	300	353	353	426	390	447	494	521	522	615	475	413	431
with international institutions	75	71	100	101	169	125	152	142	203	209	242	336	374	340	401	431
<b>Australia</b>																
Total articles	1,286	1,472	1,690	1,597	1,694	1,603	1,875	1,835	2,119	2,046	2,102	2,498	2,435	2,415	2,690	3,011
with multiple institutions	725	861	1,013	974	1,091	1,051	1,294	1,276	1,493	1,488	1,597	1,904	1,877	1,946	2,203	2,496
with domestic institutions only	830	944	1,104	1,031	1,055	931	1,046	1,000	1,169	1,092	1,056	1,266	1,139	1,098	1,159	1,249
with international institutions	456	528	586	566	639	672	829	835	950	954	1,046	1,232	1,296	1,317	1,531	1,762

## Appendix table 5-46

**S&E articles in geosciences, by coauthorship attribute and selected country/economy: 1997–2012**

Country/economy and coauthorship attribute	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
New Zealand																
Total articles	384	448	448	427	427	503	542	492	558	556	532	601	559	654	654	786
with multiple institutions	218	254	272	263	253	309	348	337	385	423	410	461	431	529	543	620
with domestic institutions only	222	262	258	237	254	284	298	236	265	226	215	241	233	224	223	306
with international institutions	162	186	190	190	173	219	244	256	293	330	317	360	326	430	431	480

NOTES: Article counts are from the set of journals covered by the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles are classified by the year they entered the database, rather than the year of publication, and are assigned to a country/economy on the basis of the institutional address(es) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating country/economy is credited with one count). Countries/economies with less than 1% of internationally coauthored articles in 2012 are omitted. Articles with multiple institutions are counts of articles with two or more institutional addresses. Articles with domestic institutions only are counts of articles with one or more institutional addresses all within the country/economy. Articles with international institutions are counts of articles with one or more institutional addresses outside the country/economy.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2013) from Thomson Reuters, SCI and SSCI, [http://thomsonreuters.com/products\\_services/science/](http://thomsonreuters.com/products_services/science/).

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