

Appendix table 5-28

**S&E articles in astronomy, by region/country/economy: 1997–2011**

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
World	7,084.0	7,554.0	7,788.0	7,392.0	8,359.0	7,891.0	8,607.0	8,756.0	8,546.0	8,766.0	9,415.0	9,302.8	9,983.0	9,844.6	10,560.9
North America															
Canada	169.6	180.5	195.7	191.2	158.3	176.3	207.6	217.4	206.8	211.5	237.4	246.4	233.0	260.2	255.4
Mexico	72.7	75.3	95.7	78.8	99.7	83.8	95.6	100.2	100.5	81.9	113.3	96.9	102.7	100.0	82.1
United States	2,445.5	2,491.9	2,602.1	2,557.0	2,783.5	2,612.9	2,771.3	2,916.8	2,838.9	2,796.1	2,997.5	2,862.4	3,186.7	2,996.3	3,040.8
Central America/Caribbean															
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.1
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Costa Rica	0.0	0.0	0.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	1.3	0.4	0.8	1.3	0.0
Cuba	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.2	1.2	2.3	0.7	1.1	1.5	0.3
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
Jamaica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nicaragua	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0
St. Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	0.5	0.5	0.0	0.0	0.0	0.3	0.0	0.2	0.5	0.5	0.5	0.2	0.0	0.1	0.0
West Indies Associated States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2
South America															
Argentina	35.2	51.7	48.0	44.4	60.9	64.4	61.0	65.9	53.5	61.9	66.6	67.7	65.8	67.9	85.9
Bolivia	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.6	0.1	0.5	0.1	0.4	0.3
Brazil	87.8	82.2	86.3	112.6	82.5	83.1	83.1	86.2	87.2	107.0	109.7	110.8	100.7	106.4	124.9
Chile	62.2	48.3	53.6	60.3	68.3	94.9	85.9	96.4	93.1	113.7	103.9	104.7	105.5	116.3	128.4
Colombia	0.5	4.5	0.0	0.1	1.5	1.0	0.6	1.3	1.0	1.3	0.3	2.0	0.5	2.3	0.3
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0
Guyana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paraguay	0.0	0.8	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peru	0.0	0.0	1.5	0.0	0.2	0.9	1.3	0.3	0.0	0.0	0.7	0.0	0.6	0.5	0.3
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uruguay	2.1	1.0	0.7	0.7	0.8	0.4	0.3	0.6	1.2	0.0	0.0	1.7	1.2	0.1	2.0
Venezuela	4.7	26.7	9.0	5.0	7.0	6.0	5.9	9.1	11.0	3.8	5.5	4.6	6.4	3.3	4.3

**S&E articles in astronomy, by region/country/economy: 1997–2011**

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe															
European Union															
Austria	44.0	38.1	35.2	32.1	30.7	30.9	49.0	41.2	43.3	42.7	45.8	44.8	50.6	46.7	49.7
Belgium	48.1	61.7	50.2	49.9	59.6	55.7	70.3	58.6	82.6	62.9	84.9	80.5	84.6	86.4	91.7
Bulgaria	13.0	14.7	23.5	11.9	18.2	12.2	8.1	11.6	5.5	7.8	17.8	16.2	16.3	13.0	15.1
Cyprus	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.2	0.7	1.3	0.1	0.3	1.1	0.2	0.5
Czech Republic	30.1	27.3	36.9	29.5	30.6	25.4	26.7	27.3	45.4	44.0	47.4	53.8	54.8	49.5	52.2
Denmark	49.6	61.5	48.2	48.5	51.4	42.1	49.8	41.7	30.8	34.6	29.0	27.8	32.9	43.0	52.0
Estonia	5.6	5.9	9.1	6.7	7.7	11.5	6.5	2.1	8.1	8.5	5.7	4.3	5.4	5.6	6.7
Finland	30.7	37.3	38.4	39.8	47.5	47.6	40.9	48.6	39.1	45.7	40.6	41.4	47.8	37.3	48.5
France	418.5	414.7	440.1	450.6	501.3	467.6	506.7	506.1	495.4	498.7	543.3	576.2	581.6	608.3	609.7
Germany	592.8	579.7	565.2	525.7	639.9	601.6	704.0	679.3	593.4	632.1	712.7	726.4	709.9	757.8	829.0
Greece	27.9	27.6	34.5	34.2	54.1	43.0	45.0	48.4	51.4	62.3	40.7	46.3	60.0	43.0	48.6
Hungary	14.6	20.7	18.7	22.2	21.8	23.3	20.7	24.2	16.2	26.5	47.2	22.0	29.7	22.0	29.9
Ireland	8.7	11.0	17.0	12.1	6.1	11.9	16.0	17.8	26.3	15.7	24.7	30.1	30.2	24.5	34.7
Italy	381.9	396.2	434.0	386.6	478.6	454.6	546.9	519.0	497.5	532.3	573.7	526.3	573.3	577.9	584.8
Latvia	4.7	4.1	4.0	1.8	1.0	0.0	0.5	0.0	0.8	0.5	0.2	2.0	0.7	2.9	0.9
Lithuania	3.3	2.6	2.6	2.1	3.1	14.0	2.5	2.2	1.1	0.9	1.2	2.0	1.1	1.1	2.0
Luxembourg	1.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3	0.7
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Netherlands	178.4	166.7	211.3	167.4	198.2	183.5	209.9	188.8	199.5	186.1	180.8	178.3	186.2	188.3	205.5
Poland	77.5	87.4	100.9	103.0	96.4	85.6	123.2	112.9	109.6	105.4	103.0	103.4	113.0	104.2	116.0
Portugal	7.7	32.2	9.1	18.8	15.2	15.0	28.2	25.1	22.1	26.8	28.2	30.0	30.0	29.0	33.4
Romania	7.5	3.0	3.6	3.4	3.9	4.0	5.4	5.7	4.5	4.9	6.8	6.3	9.7	9.5	9.5
Slovakia	8.1	9.3	5.9	7.6	9.9	8.6	10.0	6.7	10.0	12.3	11.1	18.9	13.8	16.3	19.6
Slovenia	2.3	0.8	0.0	1.3	1.0	1.5	3.2	1.6	4.1	2.0	1.9	3.3	2.3	3.7	5.9
Spain	225.9	281.0	211.3	194.7	277.6	208.7	236.7	248.6	243.7	269.0	285.7	284.9	334.8	375.1	348.9
Sweden	61.3	55.5	55.7	60.8	60.7	75.1	62.6	66.3	62.3	64.9	62.2	64.7	68.7	83.5	88.9
United Kingdom	591.3	679.1	681.0	597.6	722.6	717.3	792.6	770.9	750.9	766.6	782.7	743.9	802.0	817.6	845.8
Other Europe															
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.5	0.0
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0 *	0.0
Belarus	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	1.0	0.3	0.0	0.0	0.3
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	1.3	2.4	3.1	4.6	5.3	5.8	2.5	5.8	5.1	3.9	9.3	5.9	6.7	6.5	11.0
Iceland	0.0	0.2	0.0	2.0	0.7	1.5	0.1	2.9	1.1	2.2	2.1	0.0	0.4	0.9	3.5
Kosovo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.0
Moldova	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.5	0.3	0.0	0.0	0.0



Appendix table 5-28

**S&E articles in astronomy, by region/country/economy: 1997–2011**

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Eritrea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.5	1.2
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.5	0.0	0.0	0.0	0.0
Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Libya	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Madagascar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malawi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritius	0.0	0.3	0.0	1.0	1.5	7.8	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Morocco	0.7	1.0	0.1	4.8	1.9	1.5	0.8	3.5	2.2	2.1	2.5	2.8	0.7	2.2	1.3
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Namibia	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.3	0.3	0.4	0.5	0.2	0.3
Niger	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	2.0	4.2	1.5	0.3	0.3	2.5	1.0	0.0	0.5	1.3	2.5	4.6	4.3	12.2	8.8
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	37.7	42.8	43.5	29.4	33.9	40.0	39.2	31.9	33.2	35.6	44.3	39.1	44.9	53.5	46.9
Sudan	1.5	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.5	0.0	0.7	1.0	1.0	6.5	0.6
Swaziland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tanzania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Togo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tunisia	0.5	0.5	0.0	0.0	0.0	0.0	0.0	2.0	0.8	2.2	2.3	1.0	1.8	1.2	0.7
Uganda	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.2
Zambia	0.0	0.0	0.0	0.1	0.1	0.0	0.0 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Zimbabwe	0.0	1.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia															
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Armenia	7.9	3.9	26.2	6.7	6.8	6.4	12.2	10.0	6.2	7.6	9.4	6.5	9.7	7.3	7.1
Azerbaijan	1.2	2.0	0.0	1.0	3.0	1.0	2.3	2.3	1.8	3.0	2.3	1.8	2.8	2.7	2.0
Bangladesh	0.0	2.0	0.5	0.5	0.0	0.0	0.0	1.5	0.0	1.0	0.0	1.0	1.0	0.0	1.5



Appendix table 5-28

**S&E articles in astronomy, by region/country/economy: 1997–2011**

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\* = rounds to zero. NA = not available; country did not exist as such.

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 their year of publication and are assigned to a region/country/economy on the basis of the institutional address(es) listed in the article. Articles are credited on a fractional-count basis (i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on the basis of the proportion of its participating institutions). Detail may not add to total because of rounding.

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/).

*Science and Engineering Indicators 2014*