

The South African Journal of Chemistry 1918–2018: A Celebration

T. Anthony Ford,^{a,*} Hendrik G. Kruger^b and Peter Loyson^c

^aSchool of Chemistry and Physics, University of KwaZulu-Natal, Westville Campus, Private Bag X54001, Durban, 4000, South Africa.

^bCatalysis and Peptide Research Unit, School of Pharmacy, University of KwaZulu-Natal, Westville Campus, Private Bag X54001, Durban, 4000, South Africa.

^cDepartment of Chemistry, Nelson Mandela University, PO Box 77000, Port Elizabeth, 6031, South Africa.

Received 30 May 2019, revised 31 July 2019, accepted 2 August 2019.

ABSTRACT

In celebration of the centenary of the first publication of the *South African Journal of Chemistry*, the history of the Journal is traced, with reference to the personalities involved in its development and its relationship with the South African Chemical Institute. The impact of online publishing on the format of the Journal and the ways in which the handling of submitted manuscripts have changed over time are discussed. Some statistics are presented illustrating the changing topicality of the various chemistry disciplines over time, as well as the expansion of the potential pool of authors arising from the internationalization of the scientific publishing field. Reference is also made to the quantitative measures by which the integrity and international acceptance of the Journal are judged.

KEYWORDS

History, personalities, online publishing, statistics.

1. Introduction

The South African Chemical Institute was established, as the South African Association of Analytical Chemists, in 1912.^{1–3} The first issue of any publication aspiring to be a national chemistry journal was that of the Journal of the South African Association of Analytical Chemists, which appeared in January 1918. The first page of the first issue is illustrated in Fig. 1a. The style of the type face is consistent with the age of the document – at that time the First World War still had eleven months to run. The Journal was published half-yearly and it was intended mainly to keep members who lived outside the Witwatersrand updated about the Association's activities, and contained only four technical papers. In January 1922, with the change of name of the organization the Journal also adopted a new name, and the first issue of Volume 5 of the Journal of the South African Chemical Institute appeared, following the numbering sequence initiated in 1918 (see Fig. 1b). Frequency of publication was also half-yearly until 1968, when it increased to three issues per year.

1977 saw the first appearance of the Journal under its present name, the South African Journal of Chemistry, and it moved to a quarterly publication schedule. Fig. 1c illustrates the first page of the new publication. Notable features were that papers could be submitted in either official language of the time and the requirement that abstracts should be submitted in both official languages. The numbers of papers published in Afrikaans remained small throughout the 1970s and 1980s, at a rate of about one paper every three years, most notably emanating from Potchefstroom University for Christian Higher Education. The last Afrikaans paper appeared in 1990. The reference to Kelvin House is a reminder that since 1937 the Institute had established its headquarters at Kelvin House, in the Johannes-

burg CBD, along with sister organizations in the Association of Scientific and Technical Societies of SA, until the building was sold in 1990. It was here that the secretariat was located, and where the Institute's archival material was housed.

2. Management

The management of the production of the Journal was in the hands of a publications committee which oversaw, in addition to the Journal itself, a number of news and general chemical publications such as *The South African Industrial Chemist*, *SA Chemical Processing*, *ChemSA* and *Chemical World*, which flourished briefly. Although these publications provided a limited source of revenue through advertising, their publication was eventually discontinued. Table S1 of the Supplementary Material lists the names of the chairpersons of the publications committee, who were also known as the publications officers.

The responsibility for the content, the appointment of referees and the maintenance of the technical quality of the Journal rested with the editors-in-chief (coordinating editors), initially single-handedly and later, from about 1996, assisted by a team of subject editors for the traditional disciplines analytical, inorganic, organic and physical chemistry, and later also chemistry education. For a short time this *ad hoc* body also managed the editorial functions, the chairmanship of the group rotating annually among the subject editors, until in 2001 the responsibility for the functioning of the Journal once again reverted to a single coordinating editor. The editors-in-chief are listed in Table S2 of the Supplementary Material and some of them are pictured in Fig. S1. The longest-serving editor-in-chief was Professor James Bull, of the CSIR and later of the University of Cape Town, who enjoyed a tenure of some twenty years. He was known for his meticulous attention to detail, as exemplified by the following anecdote. The first paper of one of the present

* To whom correspondence should be addressed. E-mail: ford@ukzn.ac.za



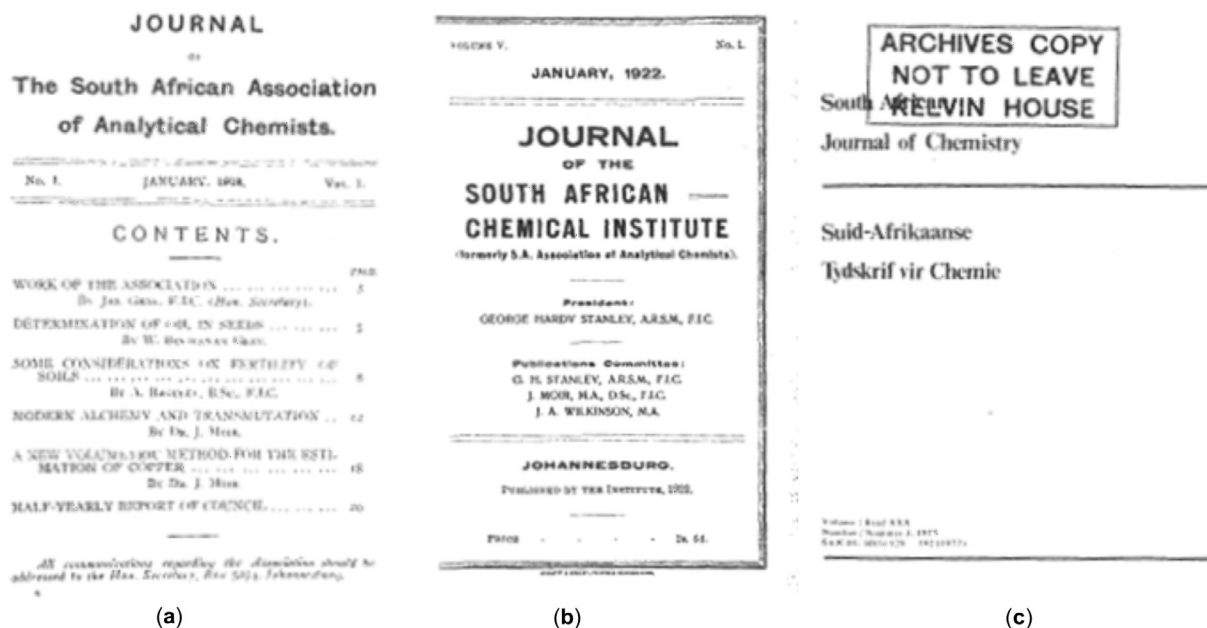


Figure 1 The first pages of (a) the Journal of the South African Association of Analytical Chemists, Volume 1, no. 1, January 1918, (b) the Journal of the South African Chemical Institute, Volume 5, no. 1, January 1922, (c) the South African Journal of Chemistry, Volume 30, no. 1, 1977.

authors published in the Journal had a Chilean co-author, Ricardo Aroca, and it was Spanish custom to include, along with a person's surname, the initial letter of his mother's maiden name, in this case Muñoz (see Fig. S2 in Supplementary Material). Puzzled by the unexpected M in the list of authors of the manuscript, and unwilling to agree to publishing something of a dubious nature, Professor Bull took the trouble to phone the author to ascertain the origin of the rogue letter M. Apparently satisfied by the explanation, he agreed to allow publication to go ahead.

With the large increase in the volume of submissions in recent years, the size of the editorial board has increased substantially, and as of July 2018 it now numbers 19 specialist editors covering not only the original subject areas but also the newer interdisciplinary branches such as materials science, nanotechnology and computational chemistry. Also as a result of the increase in the numbers of submissions, and in order to expand the pool of coordinating editors, since 2017 two editors-in-chief have taken charge on a two-year rotational basis. In the first year one editor deals with accepted papers until they are published, while the second editor handles the new incoming submissions until they are accepted. In the second year the two editors exchange roles.

An International Advisory Board was established in 2009, comprising a number of distinguished chemists who have had strong links with South Africa in one way or another. The members of the advisory board are listed in Table S3 of the Supplementary Material.

3. Financial and Technical Support

The costs of production of the Journal were initially largely borne by Institute members, through their normal annual subscriptions, but with some financial assistance from the government of the day through its various agencies. The sources of this support are described in Table S4. The support has also extended to the technical aspects of layout and typesetting, and the distribution of hard copies to members and to external subscribers such as libraries. Since the Journal went online, hard copies and CDs are no longer sold, hence that source of funding has been

lost, and the Institute currently covers all the costs of producing the Journal.

4. Special Issues

In order to encourage submissions with a particular focus, a number of special issues were produced, commemorating notable events, or publishing papers presented at topical local conferences (see Table S5). This had the effect of increasing markedly the numbers of contributions in those themed issues.

5. Covers

For many years since 1977 the front cover of the Journal had a rather eye-catching appearance, with a dusky pink background, as illustrated in Fig. 2a. However, it became quite monotonous for members to receive their copies of this rather lurid document in their pigeon-holes four times a year. On the initiative of Dr Bruce Rae, the Institute president at the time, from issue 2 of 1997 pictorial covers were introduced. These included an illustration of the thermite reaction (courtesy of Professor Michael Laing of the University of KZN), the original AECl laboratory building at Modderfontein, and Professor Jan Albert van den Berg (Potchefstroom University for Christian Higher Education) on the occasion of his 80th birthday. He would have celebrated his own centenary in 2018. These covers are illustrated in Figs. 2b–2d.

6. Prizes

In 1961 AECl sponsored a gold medal and a cash prize, to be awarded to the senior author of the best paper published in the Journal in a specific field, rotating among papers representing the four traditional disciplines on a four-yearly cycle. On the demise of the R & D function of AECl, the medal was placed in abeyance until 2000, when Merck took over the sponsorship of the award. Some of the notable winners of these two awards are presented in Table S6. These three colleagues were selected for mention since they have been multiple winners of one medal or the other. Taking the two medals together, Professor Jan Boeyens (CSIR and later Wits University) and Dr Eric Singleton (CSIR) have both been winners on three occasions, but at the top of the

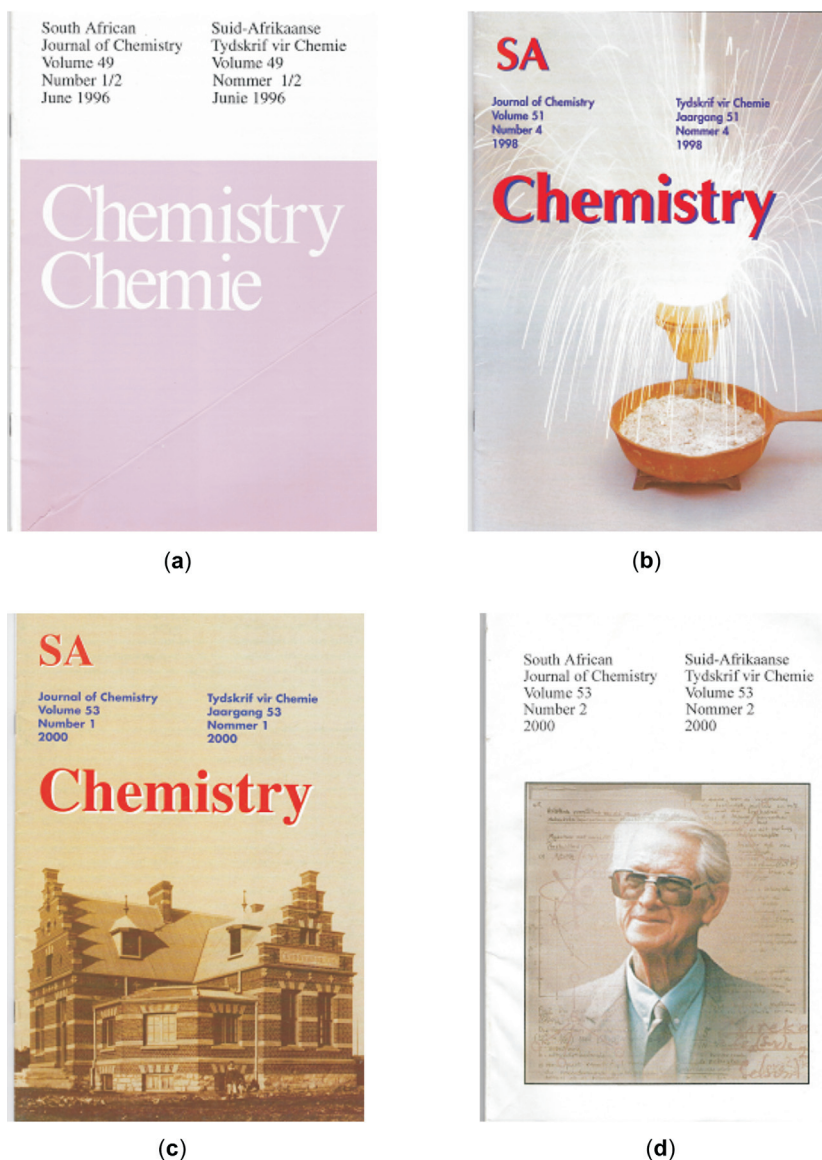


Figure 2 The front covers of the South African Journal of Chemistry, (a) Volume 49, nos. 1/2, 1996, (b) Volume 51, no. 4, 1998, (c) Volume 53, no. 1, 2000, (d) Volume 53, no. 2, 2000.

leader board is Professor Neil Coville (Wits), with four awards. His loyalty to the Journal is commendable. With the availability of accurate statistics relating to citation frequencies, the conditions for the award of the Merck medal have since been changed, and it is now awarded to the senior author of the paper receiving the greatest number of citations in the previous five years, irrespective of the discipline represented by the paper.

7. Non-Research Articles

In order to increase the appeal of the Journal it was decided that from 1996, up to 25 % of published papers could be general or non-research articles. This decision sparked a vigorous debate among members, some of whom supported the appearance of more general articles of a chemical nature (some even going so far as to state that these were the only articles that they enjoyed reading). On the other side were the traditionalists who viewed the Journal as a national repository of serious academic research, and who were concerned that the integrity of the Journal as a genuine international research vehicle would be damaged by the inclusion of non-research material. Volumes 50 (issues 2 and 3, 1997), 51 (issues 1, 2 and 4, 1998) and 52 (issue 2, 1999) contained a total of eight non-research articles, mainly reporting on

the current Nobel prize-winners in Chemistry, and general information reproduced from IUPAC. Issue 4 of volume 51 of 1998 caused some confusion at the Bureau for Scientific Publications, which was responsible for the layout and typesetting of the Journal, between non-research articles and short communications. The authors of some short communications which were classified erroneously in the Journal as non-research articles were justifiably aggrieved at this misrepresentation, not least since they realized that they would not be able to claim subsidy for such papers, since general articles were not subject to peer review. The publication of non-research articles was discontinued from 2000.

8. Electronic Publishing

In 2000 the Bureau for Scientific Publications indicated that it was no longer prepared to subsidize the continued production of the Journal, and the Institute was faced with the prospect of carrying the entire cost of publication, which was unsustainable. A debate then took place over whether the Journal should move to electronic publishing – the alternative being to cease publication altogether. Again, members were divided in their opinions, but by a small majority the decision was made to discontinue the

print version with issue 2 of volume 53, and to publish all subsequent articles online as soon as they were finalized. The Professor van den Berg special issue was the last hard copy issue to be produced (see Fig. 2d).

Traditionally, authors would submit three hard copies of their articles to the secretariat, where Miss Efty Tsimas and later Mrs Lily Giacobazzi would log the submissions and forward the package to the coordinating editor, who would then send the individual copies to the selected referees. By 2003, however, most manuscripts were submitted by e-mail directly to the editor-in-chief. This system had obvious advantages as it avoided the labour of redirecting hard copy manuscripts from the secretariat through the editor-in-chief to the reviewers, thereby saving postage and photocopying charges and, in principle, shortening the time to publication. However, this system also had its disadvantages, as it made it too easy for unscrupulous authors to recycle manuscripts which had obviously been rejected by other journals with very little extra effort on their parts. As a result an early rejection system was introduced in 2005, which enabled the editor-in-chief to filter out those manuscripts which stood very little chance of passing successfully through the refereeing process, thereby saving the subject editors and their referees the embarrassment of having to deal with large numbers of sub-standard submissions.

In 2011 the Journal experienced its first case of fraud. A student, without the knowledge of his co-authors, submitted a paper which had already been published elsewhere, citing himself as the primary author. Fortunately the attempted fraud was uncovered and the paper was black-listed.

By 2012 throughput was streamlined still further by the introduction of an online submission system. This too had the disadvantage that, while it automated the processing of manuscripts, it still did not overcome the large volume of unsuitable submissions. As part of the present online submission process, potential articles are automatically subjected to scrutiny by TurnItIn; hopefully future attempts at plagiarism and other unethical practices will be detected at source.

In line with modern practice, the Journal has been open access since 2014, and is registered with the Directory of Open Access Journals. It is also registered with the Scientific Library Online (SciELO SA). The Journal is accredited by the Department of Higher Education and Training, and by the Arts and Humanities Citation Index (Web of Science Core Collection). Since its inception it has been abstracted by the usual abstracting services, including Chemical Abstracts, Current Web Contents and Web of Knowledge. It is one of only two African chemistry journals which are ISI-accredited, the other being the Bulletin of the Chemical Society of Ethiopia. All published papers dating right back to 1918 are now accessible electronically.⁴

9. Statistics

The numbers of papers published, year by year, have shown some fluctuations. The early 1990s, in particular, were subject to some noticeable variations in numbers of papers processed. As a result of problems at the Bureau, the publication schedules were severely disrupted, such that several times issues had to be combined; for seven years between 1990 and 1999 only two or three issues appeared per year, with fewer than 100 journal pages being produced in 1993 and 1996. This was a matter of great concern to the publications officer, Mr Percy Bloom, who expressed extreme dissatisfaction with the performance of the publishing house. A lack of confidence on the part of authors became apparent, mainly due to uncertainties as a result of the erratic appearance of the issues of the Journal, leading to a

consequent decline in submissions. The numbers of papers published by year, from 1977 to 2000, and the number of journal pages, are illustrated graphically in Fig. 3, and are listed in detail in Table S7. Another significant slump occurred between 2001 and 2004. Once authors had become familiar with the use of the electronic publication system, however, numbers of submissions recovered again, and from 2006 the editor-in-chief was regularly receiving over 100 manuscripts per year, with a record 243 papers being submitted in 2014. From 2001, when the editors-in-chief started recording the numbers of submissions received per year in their annual reports, it was possible accurately to monitor the throughput of manuscripts. The numbers of manuscripts received and papers published, and numbers of journal pages per year from 2001 to 2018 are presented in graphical form in Fig. 4 and are shown in Table S8.

With increased numbers of submissions being received there was an inevitable rise in the number of rejected manuscripts. Rejection rates varied, but since 2002 these rates were consistently well above 50 % (see Fig. 5 and Table S9). This is a testimony to the diligence of the subject editors and their judicious choices of conscientious referees.

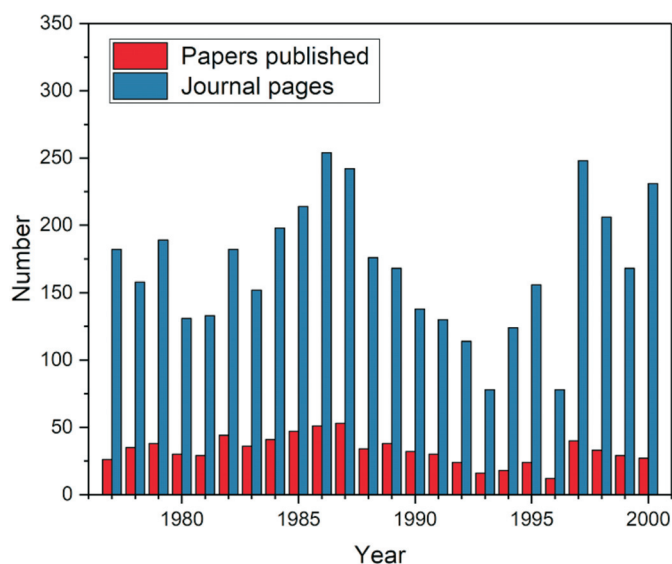


Figure 3 Numbers of papers published, and journal pages, 1977–2000.

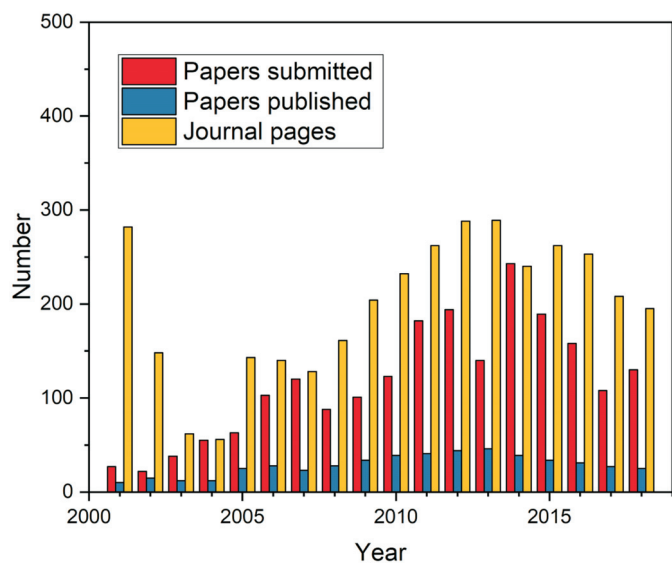


Figure 4 Numbers of papers submitted and published, and journal pages, 2001–2018.

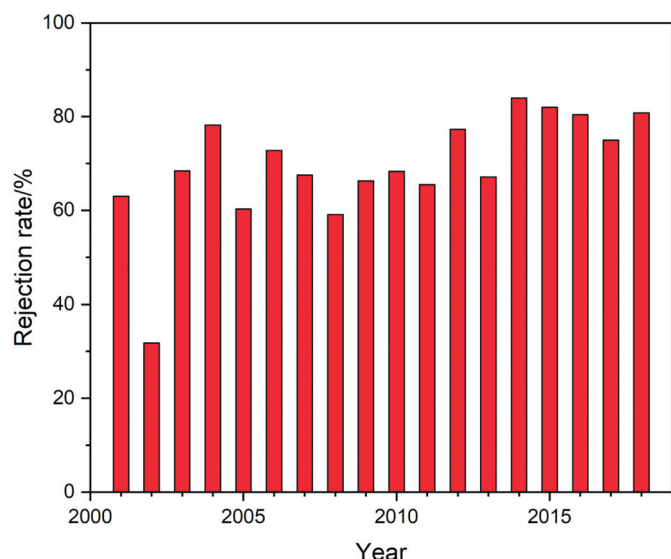


Figure 5 Rejection rates, 2001–2018.

From 2000, when the Journal started routinely including the dates of submission, revision and acceptance for each paper published, it became easy to record the rates of progress of manuscripts through the publication system. Associated with the streamlining of the publication process, the average times from submission to publication saw a steady reduction and the fastest times to publication indicated some fairly rapid turnovers from 2010 to 2016. These times to publication are reported in Fig. 6 and Table S10. The record for the shortest delay from submission to appearance online, one which may never be broken, was achieved in 2011. This record was enjoyed by a paper reviewing 20 years of research and development of battery technology at the CSIR from 1974 to 1994. It was submitted in response to an invitation by the editor-in-chief to Institute members to celebrate the International Year of Chemistry in 2011. It was accepted 10 days after it was received. At the other end of the scale no fewer than 48 publications have had gestation periods in excess of one year. Most of these submissions were from foreign authors, and the long delays can be largely attributed to the need for successive revisions to be carried out in order to improve the quality of the English. The longest period between submission and publication, 1086 days, was experienced by a

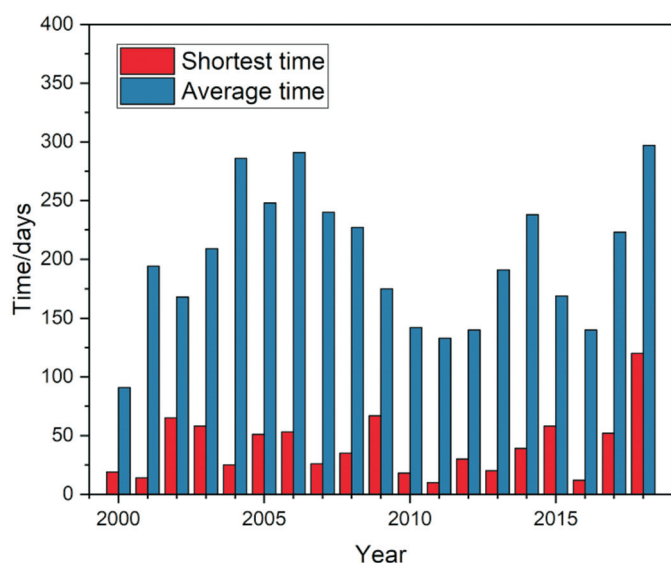


Figure 6 Shortest and average times to publication, 2000–2018.

paper on chemistry education, the revision of which took over two years before the manuscript was resubmitted. The editors are well aware of the need to put pressure on their more tardy reviewers, and to encourage authors to complete the required revisions with the minimum of delay, the alternative being for the editors summarily to withdraw the manuscripts from the publication stream.

One of the measures of the international standing of a scientific publication is its impact factor. Since 1983, accurate statistics relating to annual impact factors have become available. With a few exceptions these numbers have varied in a band between 0.3 and 0.5, but since 2014 they have regularly exceeded 0.6 and the latest figure available, that for 2017, is close to 1.0 (see Fig. 7 and Table S11).

As a non-specialist periodical, the Journal has always accepted papers from all branches of chemistry. While the popularity of the four traditional disciplines has been subject to unpredictable fluctuations, over the period from 1977 to 2018 analytical, inorganic and particularly organic chemistry have been consistently the most strongly represented areas. In the case of organic chemistry, the popularity of this field among local authors can be attributed chiefly to the long-standing tradition of research in natural product chemistry in South Africa. In recent years, however, papers in catalysis, computational chemistry, green chemistry, materials science and nanochemistry, for example, have reflected international trends in the upsurge of interest in those newer branches of chemistry. These branches are grouped together as 'other' in Fig. 8 and Table S12. Chemistry education has been consistently under-represented over many years.

In its early years, apart from the odd submission mainly from the UK, USA, Germany and India, the Journal published papers exclusively from South African authors. Due mainly to the new political dispensation, the position changed in 1994, with the start of an influx of papers from other countries, notably from elsewhere in Africa. In that year for the first time the percentage of South African manuscripts fell below 80 % of the total and in 2007 the percentage reached its lowest level of 30 %. Since then, the percentage of South African papers published has exceeded 50 % only in 2009, 2011 and 2016. A breakdown of published papers according to countries of origin is given in Fig. 9 and Table S13. These data show the spread of regions of the world from which potential authors have found the Journal to be an agreeable vehicle in which to showcase their work. In the period

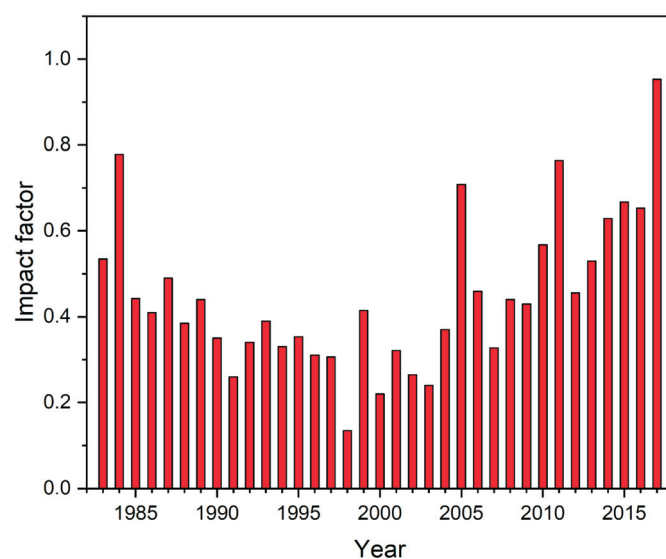


Figure 7 Impact factors, 1983–2017.

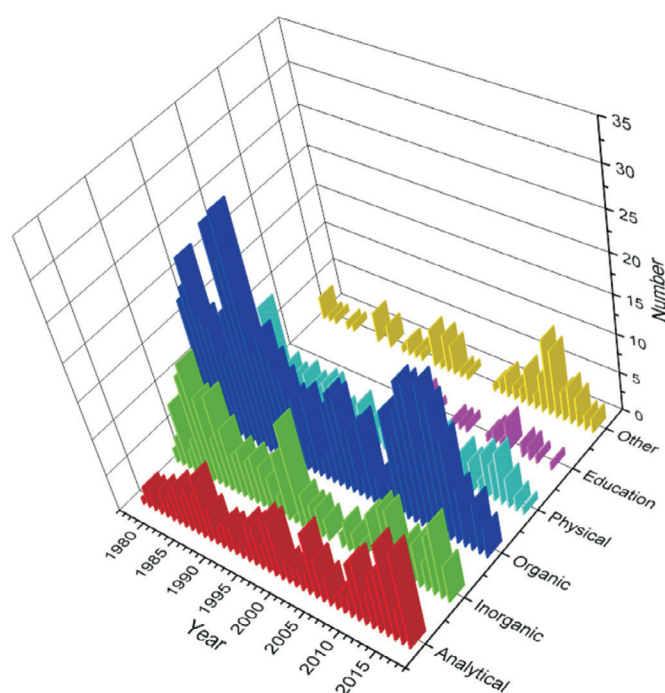


Figure 8 Breakdown of numbers of papers published by discipline, 1977–2018.

from 2000 to 2018 the leading countries from which foreign manuscripts originated have been Iran, India and China, while a small number have been received from such exotic locations as Oman, Guyana, Yemen and Macedonia.

The *South African Journal of Chemistry* continues to provide an avenue for the publication of quality work in all fields of chemistry, not only for local researchers, but increasingly for those from other countries, giving the Journal a truly international profile. The dedication of the editorial team in maintaining the high standards expected of a national flagship publication is to be commended, and it is hoped that future editors-in-chief and subject editors will continue to preserve this legacy. Provided the funding model of the Journal is maintained through the Institute, there is no reason why it cannot look forward to a further 100 years of successful promotion of internationally competitive chemistry research.

Supplementary Material

Supplementary information is provided in the online supplement.

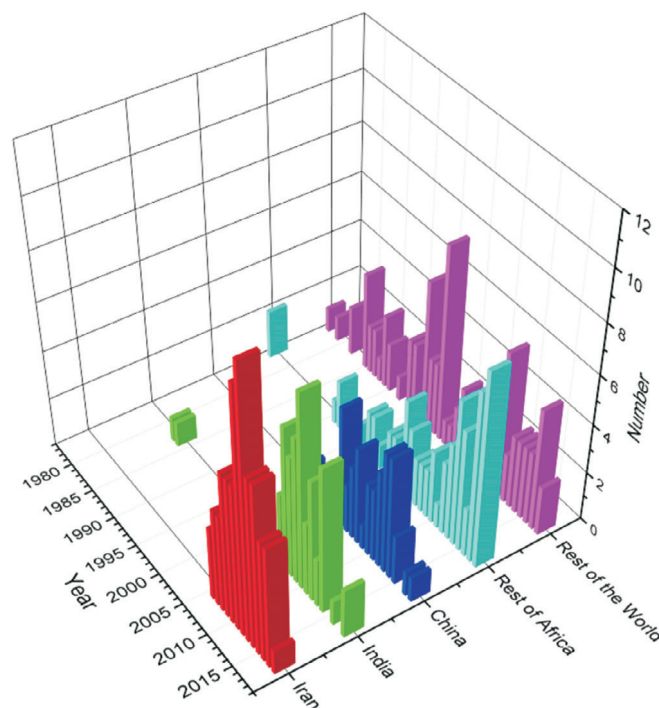


Figure 9 Breakdown of numbers of papers published by country of origin, 1977–2018.

Acknowledgements

The authors have relied heavily for material for this paper on the two official histories of the Institute, by Mr Douglas Gray (1987) and Professor Ivan Green (2012). Mrs Laila Smith, of the Institute secretariat, has also generously made available the Institute's annual reports and other valuable documents relating to the history of the Journal. The authors thank them most sincerely.

*ORCID iDs

T.A. Ford:  orcid.org/0000-0002-8896-794X
H.G. Kruger:  orcid.org/0000-0003-0606-2053
P. Loyson:  orcid.org/0000-0003-5487-2037

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4. <https://journals.co.za/content/journal/chem>

Supplementary material to:

T.A. Ford, H.G. Kruger and P. Loyson,

The South African Journal of Chemistry 1918–2018: A Celebration,

S. Afr. J. Chem., 2019, **72**, 201–206.

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T. Anthony Ford, Hendrik G. Kruger and Peter Loyson

Table of Contents

Figure S1. Some of the editors-in-chief and coordinating editors of the South African Journal of Chemistry.

Figure S2. Extract from the paper S. Afr. J. Chem., **30**, 95 -104 (1977).

Table S1. Publications committee chairpersons and publications officers.

Table S2. Editors-in-chief and coordinating editors.

Table S3. International advisory board.

Table S4. Financial and technical support.

Table S5. Special issues.

Table S6. AECl and Merck Medal winners.

Table S7. Numbers of papers published, and journal pages, 1977 – 2000.

Table S8. Numbers of papers submitted and published, and journal pages, 2001 – 2018.

Table S9. Rejection rates, 2001 – 2018.

Table S10. Times to publication, 2000 – 2018.

Table S11. Impact factors, 1983 – 2018.

Table S12. Breakdown of numbers of papers published by discipline, 1977 – 2018.

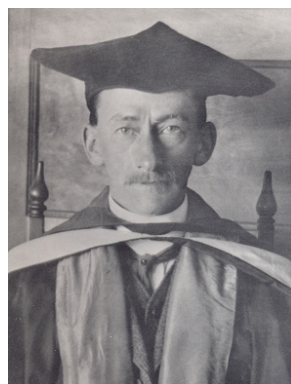
Table S13. Breakdown of numbers of papers published by country of origin, 1977 – 2018.



J. A. Wilkinson



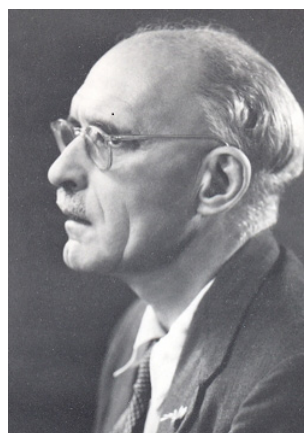
G. H. Stanley



J. Moir



J. McCrae



F. W. Fox



H. A. E. Mackenzie



D. E. A. Rivett



J. R. Bull

Figure S1. Some of the editors-in-chief and coordinating editors of the South African Journal of Chemistry.

MOLECULAR VIBRATIONAL CONSTANTS OF SOME SIMPLE POLYATOMIC MOLECULES. DIHALOGENOMETHANES

T.A. FORD*

Department of Chemistry, University of the Witwatersrand,
Johannesburg 2001

R. AROCA M. and E.A. ROBINSON

Erindale College, University of Toronto,
Mississauga, Ontario, L5L 1C6, Canada

Opsomming Die kragkonstantes en meegaande konstantes van die dihaloogenmetane is bereken deur die iteratiewe konsistensie-metode. Deur die kragvelde te gebruik wat sodoende verkry is, is die sentrifugale distorsiekonstantes, Coriolis-koppelingskonstantes en gemiddelde vibrasieamplitudes bereken en vergelyk met die beskikbare eksperimentele gegewens.

Summary The force constants and compliance constants of the dihalogenomethanes have been calculated by the iterative consistency method. The force fields so obtained were used to calculate the centrifugal distortion constants, Coriolis coupling constants and mean amplitudes of vibration which were compared with the available experimental data.

Figure S2. Extract from the paper S. Afr. J. Chem., **30**, 95-104 (1977).

Table S1. Publications committee chairpersons and publications officers.

J. A. Wilkinson	1918 – 1924	S. Goodman	1961 – 1965
J. Moir	1925	R. E. Robinson	1966
C. C. Frye	1926 – 1929	S. Goodman	1967 – 1974
O. L. Ochse	1930 – 1932	R. R. Arndt	1975 - 1977
J. A. McLachlan	1933 – 1939	F. E. Malherbe	1977 – 1983
B. Segal	1940	J. R. Bull	1983 – 1984
S. S. Israelstam	1941 – 1947	C. J. H. Schutte	1984 – 1989
H. Stephen	1948	P. Bloom	1989 – 1999
A. W. Lategan	1949 – 1952	W. H. Meyer	2000 – 2006
S. S. Israelstam	1953 – 1960		

Table S2. Editors-in-chief and coordinating editors.

J. A. Wilkinson	1918 – 1921	D. E. A. Rivett	1958 – 1966
G. H. Stanley	1922 – 1923	O. G. Backeberg	1966 – 1971
J. Moir	1924 – 1927	J. R Bull	1972 – 1992
J. McCrae	1928	A. T. Hutton	1993 – 1996
F. W. Fox	1929 – 1939	(ad hoc)	1997 – 2000
H. D. Barnes	1940 – 1947	W. H. Meyer	2001 – 2007
H. Stephen	1947 – 1948	T. A. Ford	2007 – 2010
K. A. Murray	1948 – 1952	G. E. Jackson	2010 – 2014
H. A. E. Mackenzie	1953 – 1955	H. G. Kruger	2014 – 2017
L. J. Dry	1956 – 1957	L. Chimuka and T. Naicker	2017 – 2018

Table S3. International advisory board.

E. Alessio	Trieste	Italy
A. J. Barnes	Salford	U.K.
R. Bucat	Perth	Australia
U. Domanska-Zelazna	Warsaw	Poland
H. G. M. Edwards	Bradford	U.K.
I. Fleming	Cambridge	U.K.
L. Glasser	Perth	Australia
G. J. Hutchings	Cardiff	U.K.
T. M. Letcher	Bath	U.K.
R. Simoyi	Portland, OR	U.S.A.
C. J. van der Schyff	Rootstown, OH	U.S.A.
R. van Eldik	Erlangen-Nürnberg	Germany
R. M. A. von Wandruska	Moscow, ID	U.S.A.

Table S4. Financial and technical support.

FINANCIAL

Department of Education, Arts and Sciences

(later the Department of Cultural Affairs)

(later the Department of National Education)

SA Chemical Foundation (1972-1975)

Bureau for Scientific Publications of the Foundation for

Education, Science and Technology (1977-2000)

(became SA Scientific Publications 1995)

TECHNICAL

Sabinet (hosting of on-line publishing) (2000 to date)

Isteg Scientific Publications (technical editing and layout) (2002 to date)

Table S5. Special issues.

Year	Volume	Issue	Celebration
1970	23	2	Papers presented at the IUPAC International Symposium on the Chemical Control of the Human Environment, Johannesburg, 14-18 July 1969
1972	25	3	Papers presented at the Symposium on the Analytical Chemistry of the Platinum Group Metals, Johannesburg, 2-4 February 1972
1982	35	4	Diamond Jubilee of the University of the Witwatersrand
1984	37	3	50 th Anniversary of the Council for Mineral Technology
1985	38	3	75 th Anniversary of the University of Natal
1986	39	3	Papers presented at the 2 nd International Symposium on Analytical Chemistry in the Exploration, Mining and Processing of Minerals, Pretoria, 15-19 April 1985
1986	39	4	90 th Birthday of Professor O. G. Backeberg (University of the Witwatersrand)
1987	40	1	Retirement of Professor D. E. A. Rivett (Rhodes University)
1994	47	3/4	Papers presented at the 32 nd SACI Convention, Halfway House, 30 January – 3 February 1994
1995	48	1/2	
1995	48	3/4	
1997	50	4	Papers presented at the 4 th International Symposium on Applied Bioinorganic Chemistry, incorporating the Carman National Physical Chemistry Symposium, Cape Town, 1-4 April 1997
2000	53	2	80 th Birthday of Professor J. A. van den Berg (Potchefstroom University for Christian Higher Education)

Table S6. AECI and Merck Medal winners.

AECI Medal, 1961 – 1998

Jan Boeyens (CSIR and Wits University)	1973, 1980
Eric Singleton (CSIR)	1981, 1986, 1990
Neil Coville (Wits University)	1994

Merck Medal, 2000 to date

Neil Coville (Wits University)	2002, 2010, 2015
Jan Boeyens (Wits University)	2003

Table S7. Numbers of papers published, and journal pages, 1977 - 2000.

Year	Number of papers published	Number of journal pages	Year	Number of papers published	Number of journal pages	Year	Number of papers published	Number of journal pages
1977	26	182	1985	47	214	1993	16	78
1978	35	158	1986	51	254	1994	18	124
1979	38	189	1987	53	242	1995	24	156
1980	30	131	1988	34	176	1996	12	78
1981	29	133	1989	38	168	1997	40	248
1982	44	182	1990	32	138	1998	33	206
1983	36	152	1991	30	130	1999	29	168
1984	41	198	1992	24	114	2000	27	231

Table S8. Numbers of papers submitted and published, and journal pages, 2001 - 2018.

Year	Number of papers submitted	Number of papers published	Number of journal pages	Year	Number of papers submitted	Number of papers published	Number of journal pages
2001	27	10	282	2010	123	39	232
2002	22	15	148	2011	182	41	262
2003	38	12	62	2012	194	44	288
2004	55	12	56	2013	140	46	289
2005	63	25	143	2014	243	39	240
2006	103	28	140	2015	189	34	262
2007	120	23	128	2016	158	31	253
2008	88	28	161	2017	108	27	208
2009	101	34	204	2018	130	25	195

Table S9. Rejection rates, 2001 - 2018.

Year	Rejection rate/%	Year	Rejection rate/%	Year	Rejection rate/%
2001	63.0	2007	67.5	2013	67.1
2002	31.8	2008	59.1	2014	84.0
2003	68.4	2009	66.3	2015	82.0
2004	78.2	2010	68.3	2016	80.4
2005	60.3	2011	65.5	2017	75.0
2006	72.8	2012	77.3	2018	80.8

Table S10. Times to publication, 2000 - 2018.

Year	Time/days			Year	Time/days		
	Shortest	Longest	Average		Shortest	Longest	Average
2000	19	241	91	2010	18	621	142
2001	14	410	194	2011	10	388	133
2002	65	430	168	2012	30	330	140
2003	58	386	209	2013	20	345	191
2004	25	1086	286	2014	39	591	238
2005	51	470	248	2015	58	398	169
2006	53	742	291	2016	12	363	140
2007	26	731	240	2017	52	572	223
2008	35	543	227	2018	120	622	297
2009	67	491	175				

Table S11. Impact factors, 1983 – 2018.

Year	Impact factor	Year	Impact factor	Year	Impact factor
1983	0.534	1995	0.353	2007	0.327
1984	0.778	1996	0.310	2008	0.44
1985	0.442	1997	0.306	2009	0.429
1986	0.409	1998	0.135	2010	0.567
1987	0.49	1999	0.414	2011	0.764
1988	0.385	2000	0.22	2012	0.455
1989	0.44	2001	0.321	2013	0.53
1990	0.35	2002	0.265	2014	0.629
1991	0.26	2003	0.24	2015	0.667
1992	0.34	2004	0.37	2016	0.653
1993	0.39	2005	0.708	2017	0.953
1994	0.33	2006	0.459	2018	– ^a

^a Not yet available.

Table S12. Breakdown of numbers of papers published by discipline, 1977 – 2018.

Volume	Year	Discipline							Total
		Analytical	Computational	Education	Inorganic	Organic	Physical	Other	
30	1977		3		2	17	4		26
31	1978	1	1		4	19	10		35
32	1979	3	1		9	23	2		38
33	1980	3			3	16	8		30
34	1981	1	1		5	15	7		29
35	1982	4	1		14	12	13		44
36	1983	3			16	12	5		36
37	1984	5			12	18	6		41
38	1985	6			7	29	5		47
39	1986	5	4		13	25	4		51
40	1987	7			9	31	6		53
41	1988	6	3		6	14	5		34
42	1989	9			7	17	5		38
43	1990	5	1		6	14	6		32
44	1991	3	2		7	12	6		30
45	1992	4	1		6	10	3		24
46	1993	4	1		5	4	2		16
47	1994	2			3	11	2		18
48	1995	2	3		9	3	5	2	24

49	1996	6	1		1	4			12
50	1997	6	2		14	11	4	3	40
51	1998	4		4	5	13	3	4	33
52	1999	8		3	4	13		1	29
53	2000	8	1	1	4	9	4		27
54	2001	3			3	3	1		10
55	2002	3				11	1		15
56	2003	3		1	2	4	2		12
57	2004	3		1	4	1	2	1	12
58	2005	9	1	1	3	4	6	1	25
59	2006	6	3		2	14	3		28
60	2007	4				11	6	2	23
61	2008	2	2	1	7	15	1		28
62	2009	3	3	2	4	19	1	2	34
63	2010	3	1	1	9	19	5	1	39
64	2011	8	1	4	9	11	4	4	41
65	2012	9	2		3	20	2	8	44
66	2013	5	4	2	6	18	6	5	46
67	2014	8		2	6	14	5	4	39
68	2015	9	1	1	4	8	7	4	34
69	2016	13			8	2	4	4	31
70	2017	5	1	1	10	7	2	1	27
71	2018	13	1		5	4	1	1	25

Table S13. Breakdown of numbers of papers published by country of origin, 1977 – 2018.

Volume	Year	Country of origin		Total number of papers published	Percentage South African
		South Africa	Other		
30	1977	23	Rhodesia 2, UK 1	26	88
31	1978	35		35	100
32	1979	37	UK 1	38	97
33	1980	30		30	100
34	1981	29		29	100
35	1982	42	Chile 1, France 1	44	95
36	1983	35	India 1	36	97
37	1984	40	India 1	41	98
38	1985	43	UK 4	47	91
39	1986	49	Canada 1, USA 1	51	96
40	1987	51	Germany 1, UK 1	53	96
41	1988	33	USA 1	34	97
42	1989	35	Germany 2, UK 1	38	92
43	1990	30	Germany 1, UK 1	32	94
44	1991	29	Swaziland 1	30	97
45	1992	21	Botswana 1, Swaziland 1, Switzerland 1	24	88
46	1993	16		16	100
47	1994	14	China 1, Germany 2, Poland 1	18	78

48	1995	21	UK 1, USA 2	24	88
49	1996	10	Germany 1, Nigeria 1	12	83
50	1997	31	Australia 1, China 3, Czech Republic 1, Germany 1, Japan 1, UK 1, USA 1	40	78
51	1998	27	China 1, Namibia 1, UK 1, USA 2, Zimbabwe 1	33	82
52	1999	24	Egypt 2, Romania 2, Turkey 1	29	83
53	2000	18	Australia 1, Germany 1, Nigeria 1, Oman 1, Romania 1, Turkey 1, UK 1, USA 2	27	67
54	2001	9	Oman 1	10	90
55	2002	12	Botswana 1, Kenya 1, Romania 1	15	80
56	2003	8	Austria 1, Botswana 1, Egypt 1, Turkey 1	12	67
57	2004	6	Algeria 1, Austria 1, China 2, Mauritius 1, UK 1	12	50
58	2005	13	Botswana 2, China 5, India 1, Kenya 1, Korea 1, Nigeria 1, USA 1	25	52
59	2006	16	China 2, Cote d'Ivoire 1, India 3, Iran 3, Macedonia 1, Nigeria 2	28	57
60	2007	7	Algeria 1, China 3, India 6, Iran 4, Kenya 1, Turkey 1	23	30
61	2008	11	Algeria 1, China 4, Egypt 1, India 5, Iran 4, Romania 1, Turkey 1	28	39
62	2009	18	China 1, Egypt 1, India 6, Iran 6, Kenya 1, Serbia 1	34	53
63	2010	15	China 3, Guyana 1, India 8, Iran 6, Nigeria 1, Tunisia 1, Turkey 2, USA 1, Zimbabwe 1	39	38
64	2011	22	Belgium 1, Brazil 1, China 3, India 3, Iran 6, Jordan 1, Malaysia 1, Poland 1, USA 1, Yemen 1	41	54
65	2012	20	Algeria 2, Botswana 1, China 4, India 5, Iran 10, Mexico 1, Turkey 1	44	45
66	2013	21	Botswana 1, China 5, DRC 1, India 2, Iran 11, Nigeria 2, Pakistan 1, Turkey 2	46	46
67	2014	12	Botswana 1, China 5, India 6, Iran 7, Lesotho 2, Nigeria 1, Poland 1, Saudi Arabia 1, Serbia 1, Tanzania 1, Zimbabwe 1	39	31

68	2015	17	Botswana 1, China 2, Ethiopia 1, Iran 7, Kenya 1, Nigeria 2, Pakistan 1, Saudi Arabia 2	34	50
69	2016	20	Egypt 1, India 1, Iran 5, Nigeria 1, Pakistan 1, Poland 1, USA 1	31	65
70	2017	9	Botswana 1, Brazil 1, China 1, Iran 5, Kenya 1, Lesotho 2, Malaysia 1, Mexico 1, Nigeria 2, Pakistan 1, Saudi Arabia 1, Senegal 1	27	33
71	2018	11	Algeria 1, China 1, Ethiopia 1, India 2, Iran 1, Kenya 1, Korea 1, Lesotho 1, Nigeria 2, Pakistan 1, Tanzania 1, Tunisia 1	25	44