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Evolving international impact of *Acta Geologica Polonica* 1995-1999

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The international reputation of scientific journals as a mean of communication may be tested in different ways (see ZITT & BASSECOULARD 1998), but the most significant calculations are based on citation analysis of included articles. This is an obvious record of the truly world-wide circulation of the journal, coupled with the proven utility of published results (GARFIELD 1990), i.e., successes in the increasing 'competition for attention' in modern science (FRANCK 1999). The most comprehensive and reliable source of such data is the system of indexation of science and technology journals created by the Institute for Scientific Information (*ISI*) in Philadelphia. In principle, to find the position of a journal in the *ISI* ranking it is enough to consult the annually published statistical database *Journal Citation Reports - 1999 Science Edition* (*JCR*), where bibliometric characters are presented for the 5550 source 'master' journals (see the *ISI* Homepage http://www.isinet.com). *Acta Geologica Polonica* (*AGP*) has not been included in the coverage by the online *Science Citation Index* (*SCI*) *Expanded*. Consequently, *AGP* is not rated by *ISI*.

The well-known citation-based measure is the impact factor (*IF*), an indication of how often the articles in a journal are cited. The value of *IF* equals the average number of citations per article published in the preceding two years in a journal. These *JCR* data are used to promote journals, e.g., in Elsevier's newspaper *SedAbstracts*. In addition, the parameter plays an increasing role when the scientific quality of journals, single publications, scientists and research groups have to be ranked in order to subsidize them. A journal's impact is used as a proxy for the evaluation of recently published works (i.e., a prediction of their citation rate) simply because it takes several years for the average article to be cited. However, the citation rates of the articles within a journal vary strongly and a small fraction of papers will experience almost immediate and high citation; thus, using the journal's average citation impact instead of the actual article impact is always uncertain (GARFIELD 1996). In fact, this indicator can specifically record visibility and diffusion of the works published rather than their scientific quality.

As *AGP* is absent from the authorized *JCR* ranking, its conventional two-year **impact factor** is determined using the standard *ISI* formula (GARFIELD 1990, see RACKI & BALIŃSKI 1999):

$$\mathbf{IF}x = \frac{\mathbf{C}x\text{-}1 + \mathbf{C}x\text{-}2}{\mathbf{A}x\text{-}1 + \mathbf{A}x\text{-}2}$$

where:

If*x* – impact factor for year *x*;

C*x-1*, **C***x-2* – total number of citations received in year *x,* including both citations from *Science Citation Index Expanded* and manually counted self-citations for the non-ISI source journal, to source items published in the two preceding years, *x-1* and *x-2,* respectively;

A*x-1*, **A***x-2* – number of articles published by the journal in years *x-1* and *x- 2* respectively.

It should be emphasized that the journal self-citations may play a dominant role in the *IF* calculations, as has been shown for the Polish geological literature (RACKI 1997). Moreover, this kind of citation is frequently linked to an unchanging author set. Thus, it is essential for the non-*JCR* periodicals to exhibit their 'real' international performance after exclusion of the self-citation counts. This knowledge export is manifested in the reduced **external cited impact factor** (*ECIF*) formula as follows (HJORTGAARD CHRISTENSEN & al. 1997; see also RACKI 1997; STEGMANN 1999):

$$\mathbf{ECIF}x = \frac{\mathbf{EC}x\text{-}1 + \mathbf{EC}x\text{-}2}{\mathbf{A}x\text{-}1 + \mathbf{A}x\text{-}2}$$

where:

ECIF*x* – external cited impact factor for year *x*;

EC*x-1*, **Ec***x-2* – number of 'external' citations received in year *x,* taken from *Science Citation Index Expanded*, to

source items published in the two preceding years, *x-1* and *x-2,* respectively;

A*x-1*, **A***x-2* – number of articles published by the journal in years *x-1* and *x- 2* respectively.

The *AGP* impact factor calculations for the last 5 years (Table 1) show its relatively constant level (between 0.46 and 0.67). However, this score is mostly based on the high number of self-citations, approaching 90% of all of the citations in 1995. A major quantitative change is observable in 1999, when the external citations predominate strongly for the first time. With the increasing participation of foreign authors (Table 1), there are distinct indications of improving international visibility of the leading Polish geoscience journal (see the classification in RACKI 1997).

Twelve citations in 1999 to *AGP* refer to seven original papers out of the total of 26 citable items published in 1997-1998 (Table 2). Just three of them are *AGP* self-citations, and this is a self-citation rate similar to that in prestigious *ISI*-source journals (see HJORTGAARD CHRISTENSEN & al. 1997, NISONGER 1998, STEGMANN 1999). The most effective paper in this context is that by KAPLAN & KENNEDY (1997) on the Upper Turonian and Coniacian ammonite stratigraphy of Westphalia, which has received 4 citations. Among 15 citing *ISI* journals in 1995-1999, the recent *AGP* articles were most frequently cited in *Acta Palaeontologica Polonica*, *Comptes Rendus de l'Academie des Sciences*, *Facies* and *Neues Jahrbuch fŁr Geologie und Pal0ontologie.* Papers from all of its 49 volumes were most frequently cited in 1999 in *Geologia Carpathica* (13 times), *Palaeogeography Palaeoclimatology Palaeoecology* (6), *Palaeontology* (5) and *Acta Palaeontologica Polonica* (5). This clearly demonstrates the impact of *AGP* on the European geological literature.

Based on these calculations, the rank of *AGP* can be established with respect to the other thematically more or less comparable, mostly general geology *ISI*-source journals, which concentrate on sedimentary research (stratigraphy, paleontology and facies analysis). *Acta Geologica Polonica* with IF = 0.462 occupies 40th position among 52 classified periodicals (Table 3), and compares well with several well known scientific journals, such as *International Journal of Coal Geology*, *Comptes Rendus de l'Academie des Sciences*, *Carbonates and Evaporites* and *Geologie en Mijnbouw*, which come below it (see Table 3). On the other hand, the highest ranked geoscience journals have an impact factor above 2. This highest impact rate for 1999 is exemplified by Elsevier's *Earth-Science Reviews,* the American core triad *Geological Society of America Bulletin*, *Geology*, and *Journal of Geology*, as well as by *Journal of the Geological Society* and *Terra Nova* in 1999.

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TABLE 1
Number of papers published in *AGP* in the particular years, their internationalisation, and calculated impact factors

Year	Numbers of the *AGP*	Number of articles	*% of international articles**	Impact factor **IF**	External cited impact factor **ECIF**
1999	**48/4, 49/1- 4**	**22**	*87,0*	0.462	0.346
1998	**47/3-4; 48/1-3**	**19**	*52,6*	0.667	0.167
1997	**46/3-4; 47/1-2**	**7**	*28,6*	0.478	0.261
1996	**45/3-4; 46/1-2**	**11**	*45,5*	0.464	0.286
1995	**44/3-4; 45/1-2**	**12**	*16,7*	0.500**	0.050**

* Articles by foreign authors and co-authors

** Number of citations based on the *SCI 1995 CD Edition*, possibly too low when compared with the 1996-1999 data derived from *SCI Expanded*

TABLE 2
Citation documentation for the calculation of the *IF* for 1999

Cited paper from *Acta Geologica Polonica* 1997 - 1998 [v. 46 (3-4) - v. 48 (3)]	**Citing paper** in 1999 (including the journal self-citations)
Fraaye, R.H.B.: Late Cretaceous swimming crabs: radiation, migration, competition, and extinction; 46 (3-4),	— Jagt, J.W.M., van der Ham, R.W.J.M., Meuris, R. & Indeherberge, L.: A note on *Salenia* Gr. *nutrix* Peron and Gauthier, 1881 (Echinoidea) from the Maastrichtian type area (southeastern Netherlands, northeastern Belgium). ***Journal of Paleontology*** 73 (4), 663-666, JUL 1999
Bałuk, W. & Radwański, A.: Stomatopod predation upon gastropods from the Korytnica Basin, and from other classical Miocene localities in Europe; 46 (3-4)	— Cadee, G.C.: Shell damage and shell repair in the Antarctic limpet *Nacella concinna* from King George Island. ***Journal of Sea Research*** 41 (1-2), 149-161, MAR 1999
Kaplan, U. & Kennedy, W.J.: Upper Turonian and Coniacian ammonite stratigraphy of Westphalia, NW-Germany; 46 (3-4)	— Wiese. F.: Stable isotope data (delta C-13, delta O-18) from the Middle and Upper Turonian (Upper Cretaceous) of Liencres (Cantabria, northern Spain) with a comparison to northern Germany (Sohlde & Salzgitter-Salder). ***Newsletters on Stratigraphy*** 37 (1-2), 37-62, 1999 — Wiese, F. &Wilmsen, M.: Sequence stratigraphy in the Cenomanian to Campanian of the North Cantabrian Basin (Cantabria, N-Spain). ***Neues Jahrbuch für Geologie und Paläontologie - Abhandlungen*** 212 (1-3), 131-173, JUN 1999 — Walaszczyk, I. & Cobban, W.A.: The Turonian-Coniacian boundary in the United States Western Interior. *Acta Geologica Polonica* 48 (4), 495-507 — Niebuhr, B., Baldschuhn, R., Ernst, G., Walaszczyk, I., Weiss, W. & Wood, C.J.: The Upper Cretaceous succession (Cenomanian & Santonian) of the Staffhorst Shaft, Lower Saxony, northern Germany: integrated biostratigraphic, lithostratigraphic and downhole geophysical log data. *Acta Geologica Polonica* 49 (3), 175-213

Kaufmann, B.: Facies, stratigraphy and diagenesis of Middle Devonian reef- and mud-mounds in the Mader (eastern Anti-Atlas, Morocco); 48 (1)	— Kaufmann, B., Schauer, M. & Reinhold, C.: Concentric-zoned calcite cements of Middle Devonian carbonate mounds of the Mader Basin (eastern Anti-Atlas, Morocco) - a combined cathodoluminescence and microprobe study. ***Neues Jahrbuch für Geologie und Paläontologie - Abhandlungen*** 214 (1-2), 95-110, NOV 1999 — Belka, Z., Klug, Ch., Kaufmann, B., Korn, D., Döring, S., Feist, R. & Wendt, J.: Devonian conodont and ammonoid succession of the eastern Tafilalt (Ouidane Chebbi section), Anti-Atlas, Morocco. *Acta Geologica Polonica* 49 (1),
Küchler, T.: Upper Cretaceous of the Barranca (Navarra, northern Spain); integrated litho-, bio- and event stratigraphy. Part I: Cenomanian through Santonian; 48 (2)	— Wiese F.: ***Newsletters on Stratigraphy*** 37 (1-2), 37-62, 1999
Wiese, F. & Kröger, B.: Evidence for a shallowing event in the Upper Turonian (Cretaceous) Mytiloides scupini Zone of northern Germany; 48 (3)	— Wray, D.S.: Identification and long-range correlation of bentonites in Turonian-Coniacian (Upper Cretaceous) chalks of northwest Europe. ***Geological Magazine*** 136 (4), 361-371, JUL 1999 — Wiese, F.: ***Newsletters on Stratigraphy*** 37 (1-2), 37-62, 1999
Studencka, B., Gontsharova, I.A. & Popov, S.V.: The bivalve faunas as a basis for reconstruction of the Middle Miocene history of the Paratethys; 48 (3)	— Rogl F., Mediterranean and Paratethys. Facts and hypotheses of an Oligocene to Miocene paleogeography (short overview). ***Geologica Carpathica*** 50 (4), 339-349, AUG 1999

$$\mathbf{IF}\textit{1999} = \frac{\mathbf{C}\textit{1997} + \mathbf{C}\textit{1998}}{\mathbf{A}\textit{1997} + \mathbf{A}\textit{1998}} = \frac{6+6}{7+19} = \frac{12}{26} = \mathbf{0.462}$$

$$\mathbf{ECIF}\textit{1999} = \frac{\mathbf{EC}\textit{1997} + \mathbf{EC}\textit{1998}}{\mathbf{A}\textit{1997} + \mathbf{A}\textit{1998}} = \frac{4+5}{7+19} = \frac{9}{26} = \mathbf{0.346}$$

TABLE 3

Geology journals ranked by Impact Factors after *Journal Citation Reports* (*JCR*) *Science Edition 1999* (based on category Geology, supplemented by selected periodicals from Geosciences-Interdisciplinary, Paleontology and Mineralogy)

Rank	**Journal title**	**Impact factor (IF) 1999**	**Source items in 1999**
1	*Earth-Science Reviews*	**3.286**	27
2	*Geological Society of America Bulletin*	**2.587**	119
3	*Journal of the Geological Society*	**2.272**	105
4	*Geology*	**2.217**	328
5	*Terra Nova*	**2.154**	28
6	*Journal of Geology*	**2.010**	45
7	*Palaeogeography Palaeoclimatology Palaeoecology*	**1.601**	180

8	*Sedimentology*	**1.508**	48
9	*Schweizerische Mineralogische und Petrographische Mitteilungen*	**1.456**	27
10	*Geological Magazine*	**1.377**	45
11	*Palaios*	**1.306**	44
12	*Journal of Sedimentary Research*	**1.262**	105
13	*International Journal of Earth Sciences* (ex *Geologische Rundschau)*	**1.157***	55*
14	*Transactions of the Royal Society of Edinburgh – Earth Sciences*	**1.136**	15
15	*Sedimentary Geology*	**1.116**	100
16	*Canadian Journal of Earth Sciences*	**1.093**	104
17	*Norsk Geologisk Tidsskrift*	**1.059**	20
18	*Australian Journal of Earth Sciences*	**1.058**	61
19	*Earth Surface Processes and Landforms*	**1.040**	87
20	*Lethaia*	**0.987**	20
21	*Journal of South American Earth Sciences*	**0.972**	41
22	*Cretaceous Research*	**0.925**	49
23	*Proceedings of the Geologists' Association*	**0.917**	25
24	*Journal of African Earth Sciences*	**0.901**	108
25	*GFF*	**0.869**	43
26	*Acta Palaeontologica Polonica*	**0.851****	20
27-	*Facies*	**0.844**	22
28	*South African Journal of Geology*	**0.844**	28
29	*Bulletin de la Societe Geologique de France*	**0.832**	79
30	*Journal of Paleontology*	**0.828**	105
31	*New Zealand Journal of Geology and Geophysics*	**0.814**	37
32	*Newsletters on Stratigraphy*	**0.750**	10
33	*Eclogae Geologicae Helvetiae*	**0.738**	23
34	*Geobios*	**0.736**	65
35-	*Geoscience Canada*	**0.677**	16
36	*Scottish Journal of Geology*	**0.677**	17
37	*Rivista Italiana di Paleontologia e Stratigrafia*	**0.588**	25
38	*Geological Journal*	**0.531**	22
39	*Geologica Carpathica*	**0.486**	149
40	***Acta Geologica Polonica***	**0.462**	**22**
41	*International Journal of Coal Geology*	**0.432**	60
42	*Comptes Rendus de l'Academie des Sciences Serie II Fascicule A – Sciences de la Terre*	**0.429**	237
43	*Journal of Asian Earth Sciences*	**0.427**	48
44	*Gondwana Research*	**0.415**	58
45	*Science in China Series D – Earth Sciences*	**0.414**	87
46-	*Journal of the Geological Society of India*	**0.355**	129
47	*Revista Geologica de Chile*	**0.355**	15
48	*Stratigrafia i Geologicheskaya Korelatsya – Stratigraphy and Geological Correlation*	**0.274**	48
49	*Carbonates and Evaporites*	**0.245**	15
50	*Proceedings of the Indian Academy of Sciences-Earth and Planetary Sciences*	**0.229**	17
51	*Geologie en Mijnbouw*	**0.190**	32
52	*Neues Jahrbuch fur Mineralogie-Monatshefte*	**0.121**	47

* Combined scores for the both tittles

** This IF estimate is too high, probably due to erronous incorporation of citations for *Acta Palaeontologica Sinica*; the real IF 1999 for *APP* is 0.755