



Impact factor 2008 of *Polish Polar Research* the highest ever

Each year, Thomson Reuters (formerly the Institute for Scientific Information, ISI) calculates the impact factor (IF) for the world's leading scholarly periodicals indexed in citation databases, and publishes the statistics as *Journal Citation Reports* (JCR). The impact factor, a number that provides an assessment of the frequency with which the “average article” has been cited yearly, is the most popular bibliometric proxy in the scientific-scholarly communication system. It has become the principal indicator in the estimation of international prestige and visibility, in particular the usefulness of published results and concepts in the research community. It is also used frequently to uphold particular titles. Regardless of the considerable criticism of the IF as a measure of research quality, its susceptibility to editorial manipulation and the biases promoted by its common uncritical use (see reviews in Moed 2005; Garfield 2006; Marszakowa-Szajkiewicz 2009; Racki 2009b; and also on http://en.wikipedia.org/wiki/Impact_factor), this easily-available tool is conventionally utilized as a fundamental guide to the assessment of research performance, especially in developing countries (Łomnicki 2003). Despite the review of governmental policy regarding the subsidization of research institutions (Żylicz 2006; Racki 2009b), this motivational approach is also much used in Poland.

The standard IF is calculated annually by dividing the number of recently-received citations to citable items published during the previous two years. The IF of *Polish Polar Research* (PPRes) was previously quite modest (<0.375), presumably due to being strongly biased by the frequency of journal self-citations (Racki 2002, 2005). Although listed on the Thomson-ISI homepage as the “master journal” since 2004, PPRes has formally been included in its coverage in 2008, and, consequently, its IF will be published in 2010. As noted previously, however, PPRes and every other science and technical journal may easily be impact-rated using citation data from *Science Citation Index Expanded* (SCI Ex). The bibliometric statistics quickly reveal a growing citation number of the most recent PPRes articles, which is a key to the rapidly-increasing IF, the indicator calculated for the two-years window using the conventional ISI formula (Table 1). Its highest ever value, **0.778** in 2008 (Fig. 1), closely compares with the more prominent Polish journals (Racki 2009a). Also, the use of the more sophisticated “real” impact factor (RIF), based exclusively on

Table 1

The IF calculation for 2008, with specified documentation of PPRes citations
(compare table 2 in Racki 2002)

Cited paper from <i>Polish Polar Research</i> 2006–2007 (vol. 27–28) as recorded in SCI Ex	Citing SCI Ex source in 2008 (in abbreviated form)	Country affiliation of citing authors
External citations		
Birkenmajer K-2006-POL-POLAR-RES-V27-P107	Krawczyk W.E.; Bartoszewski S.A.: <i>Journal of Hydrology</i> 362 (3–4), 206–219	Poland
Jadwiszczak P-2006-POL-POLAR-RES-V27-P287	Jadwiszczak P.: <i>Antarctic Science</i> 20 (6), 589–590 Hospitaleche C.A.; Castro L.; Tambussi C.; Scasso R.A.: <i>Journal of Paleontology</i> 82 (3), 565–575	Poland Argentina
Jadwiszczak P-2006-POL-POLAR-RES-V27-P3	Jadwiszczak P.: <i>Antarctic Science</i> 20 (6), 589–590	Poland
	Hospitaleche C.A.; Castro L.; Tambussi C.; Scasso R.A.: <i>Journal of Paleontology</i> 82 (3), 565–575	Argentina
	Ksepka D.T.; Clarke J.A.; DeVries T.J.; Urbina M.: <i>Journal of Anatomy</i> 213 (2), 131–147	USA-Peru
	Jadwiszczak P.; Gaździcki A.; Tatur A.: <i>Antarctic Science</i> 20 (4), 413–414	Poland
Krajewskii (<i>sic!</i>) KP-2007-POL-POLAR-RES-V28-P79	Mork A.; Bromley R.G.: <i>Polar Research</i> 27 (3), 339–359	Norway-Denmark
	Vigran J.O.; Mork A.; Forsberg A.W.; We H.M.; Weitschat W.: <i>Polar Research</i> 27 (3), 360–371	Norway-Germany
	Nakrem H.A.; Orchard M.J.; Weitschat W.; Hounslow M.W.; Beatty T.W.; Mork A.: <i>Polar Research</i> 27 (3), 523–539	Norway-Canada-Germany-England
Uchman A-2006-POL-POLAR-RES-V27-P153	Singh R.H.; Rodriguez-Tovar F.J.; Ibotombi S.: <i>Turkish Journal of Earth Sciences</i> 17 (4), 821–834	India-Spain
	Carmona N.B.; Buatois L.A.; Mangano M.G.; Bromley R.G.: <i>Ameghiniana</i> 45 (1), 93–122	Argentina-Canada-Denmark
Majewski W-2007-POL-POLAR-RES-V28-P187	Gibson J.A.E.; Quilty P.G.; Swadling K.M.; Newman L.; Paterson K.S.: <i>Journal of Foraminiferal Research</i> 38 (4), 292–297	Australia
	Pawlowski J.; Majewski W.; Longet D.; Guidard J.; Cedhagen T.; Gooday A.J.; Korsun S.; Habura A.A.; Bowser S.S.: <i>Polar Biology</i> 31 (10), 1205–1216	Switzerland-Poland-Denmark-England-Russia-USA
Ciaputa P-2006-POL-POLAR-RES-V27-P181	Daneri G.A.; Carlini A.R.; Harrington A.; Balboni L.; Hernandez C.M.: <i>Polar Biology</i> 31 (11), 1365–1372	Argentina
Komarek J-2007-POL-POLAR-RES-V28-P211	Komarek J.; Elster J.; Komarek O.: <i>Polar Biology</i> 31 (7), 853–865	Czech Rp.
Węśławski JM-2006-POL-POLAR-RES-V27-P259	Godet L.; Toupoint N.; Olivier F.; Fournier J.; Retiere C.: <i>Ambio</i> 37 (5), 347–355	France-Canada
	Harding A.M.A.; Hobson K.A.; Walkusz W.; Dmoch K.; Karnovsky N.J.; Van Pelt T.I.; Lifjeld J.T.: <i>Polar Biology</i> 31 (6), 725–733	Norway-USA-Canada-Poland
Osyczka P-2006-POL-POLAR-RES-V27-P207	Kinalioglu K.: <i>Mycotaxon</i> 103, 123–126	Turkey
Burzyk M-2006-POL-POLAR-RES-V27-P327	Zwolinski Z.; Mazurek M.; Paluszkiwicz R.; Rachlewicz G.: <i>Zeitschrift für Geomorphologie</i> 52, 79–101	Poland
Fukui K-2007-POL-POLAR-RES-V28-P13	Monnier S.; Camerlynck C.; Rejiba F.: <i>Permafrost and Periglacial Processes</i> 19 (1), 19–30	France

PPRes self-citations		
Krajewskii (<i>sic!</i>) KP-2007-POL-POLAR-RES-V28-P79	Krajewski K.P.: <i>PPR</i> 29 (4), 319–364	Poland
Rachlewicz G-2007-POL-POLAR-RES-V28-P159	Rachlewicz G.; Szczuciński W.: <i>PPR</i> 29 (3), 261–278	Poland
	Zagorski P.; Siwek K.; Gluza A.; Bartoszewski S.A.: <i>PPR</i> 29 (2), 163–185	Poland
Grabiec M-2006-POL-POLAR-RES-V27-P309	Zagorski P.; Siwek K.; Gluza A.; Bartoszewski S.A.: <i>PPR</i> 29 (2), 163–185	Poland
Majewski W-2007-POL-POLAR-RES-V28-P187	Sinniger F.; Lecroq B.; Majewski W.; Pawlowski J.: <i>PPR</i> 29 (1), 5–15	Switzerland-Japan -Poland
Komarek J-2007-POL-POLAR-RES-V28-P211	Komarek J.; Elster J.: <i>PPR</i> 29 (1), 17–32	Czech Rp.
Maciejowski W-2007-POL-POLAR-RES-V28-P123	Migala K.; Nasiołkowski T.; Pereyma J.: <i>PPR</i> 29 (1), 73–91	Poland

$$\text{IF 2008} = C/A = 28/36 = 0.778$$

where:

C – the number of times PPRes articles published in 2006 and 2007 were cited in SCI Ex during 2008

A – the total number of PPRes articles published in 2006 and 2007.

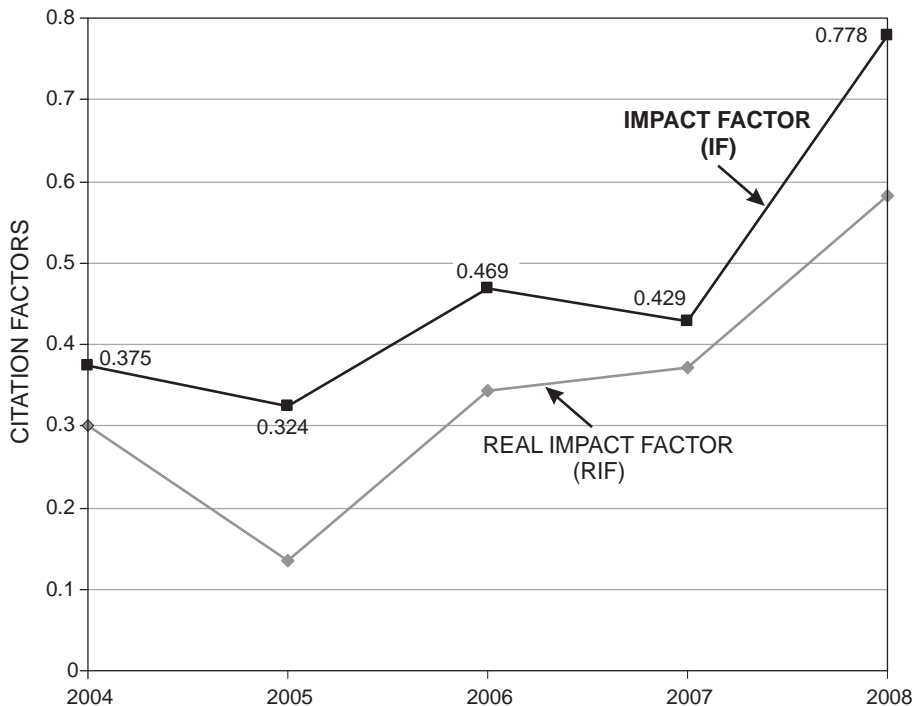


Fig. 1. Citation factors of *Polish Polar Research* estimated for 2004–2008 (see fig. 1 in Racki 2005 for RIFs of older annals).

external citations, *i.e.*, not including 7 PPRes self-cites (Table 1), has almost doubled since 2004 (from 0.300 to 0.583). This clearly reflects the diminishing percentage of these self-citations to 25%. Even though it exceeds the worldwide standard of 20%, it is obviously a reasonable level among leading Polish journals (see Racki 2009a).

More importantly, PPRes is surpassing numerous thematically-related journals as rated in JCR Science Edition 2008. The multidisciplinary quarterly is attributed by Thomson Reuters to three subject categories, and, with an IF = 0.778, it occupies a hypothetical 50th position among 72 considered journals in Biology, 108th rank among 144 Geosciences periodicals, and ranks 96th in 125 Ecology titles. The bibliometric practice, which analyses the journal performance across subject categories (Pudovkin and Garfield 2004), rates journals into four rank-normalized IF quality classes (quartiles). It is the basis of a so-called “parametric evaluation” by the Ministry of Science and Higher Education in Poland for a score-based categorization of research institutions (Racki 2009b). From this perspective, though still absent from the authorized inventory of international journals included in the JCR statistics (list A; http://www.nauka.gov.pl/mn/_gAllery/53/02/53022/20090618_ujednolicony_wykaz_opublikowany_w_necie_05_05_2009.xls.pdf), in fact PPRes ranks in the 3rd category (quartile) and should receive 15 parameter points (instead of the actually granted 6 points; list B). This reflects its relatively high rank in the Biology and Geosciences fields.

This improvement in the citation rate of most recent PPRes papers has undoubtedly resulted partly from the increasing output by Polish researchers published in the foreign core literature. It also reflects the continued internationalization of the authorship (Racki 2005), there being several very active foreign contributors. Concomitantly, a distinct improvement in the scientific and editorial quality of the open-access quarterly is confirmed by the no-less than 16 external quotations of PPRes papers by foreign polar investigators, particularly those from Argentina, Norway, Canada, USA and Denmark in such well-established journals as *Polar Biology*, *Polar Research* and *Antarctic Science* (see Table 1; compare Racki 2002). Thus, PPRes is shown to be a worldwide medium for the transmission of knowledge of the dynamically-developing multidisciplinary sciences in the Earth’s high-latitude regions.

References

- GARFIELD E. 2006. The history and meaning of the Journal Impact Factor. *Journal of the American Medical Association* 293: 90–93 (see also <http://garfield.library.upenn.edu/papers/jifchicago2005.pdf>).
- ŁOMNICKI A. 2003. Impact factors reward and promote excellence. The system is unkind but effective. Others would do less good for developing countries. *Nature* 424: 487.
- MARSZAKOWA-SZAJKIEWICZ I. 2009. *Badania ilościowe nauki: podejście bibliometryczne i webometryczne*. Wydawnictwo Naukowe UAM, Poznań: 292 pp.

- MOED H.F. 2005. Citation analysis of scientific journals and journal impact measures. *Current Science* 89: 1990–1996 (www.ias.ac.in/currsci/dec252005/1990.pdf).
- PUDOVKIN A.I. and GARFIELD E. 2004. Rank-normalized Impact Factor: A way to compare journal performance across subject categories. *Proceedings of the 67th Annual Meeting of the American Society for Information Science and Technology* 041: 507–515. (<http://www.garfield.library.upenn.edu/papers/asistranknormalization2004.pdf>).
- RACKI G. 2002. Polish Polar Research as a medium of international scientific communication 1996–2002. *Polish Polar Research* 23: 279–292.
- RACKI G. 2005. Increasing international impact of Polish Polar Research. *Polish Polar Research* 26: 85–86.
- RACKI G. 2009a. Dwuznaczny urok listy czasopism punktowanych. *EBIB Materiały konferencyjne* nr 19: <http://www.ebib.info/publikacje/matkonf/mat19/racki.php>.
- RACKI G. 2009b. Rank-normalized journal impact factor as a predictive tool. *Archivum Immunologiae et Therapiae Experimentalis* 57: 39–43.
- ŻYLICZ M. 2006. Ocena parametryczna dzisiaj i jutro. *Forum Akademickie* 6/2006: http://www.forumakad.pl/archiwum/2006/06/22_ocena_parametryczna.html.

Grzegorz RACKI
*Instytut Paleobiologii
Polska Akademia Nauk
Twarda 51/55
00-818 Warszawa, Poland
e-mail: racki@twarda.pan.pl*