

## PUBLICATION DELAY TIME OF 20 GIS JOURNALS: A CASE STUDY OF NATIONAL INSTITUTE FOR SPACE RESEARCH REMOTE SENSING POSTGRADUATE COURSE

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### ABSTRACT

Publication Delay Time (PDT) is an important factor when publishing a research result. To measure publication lag we investigated most published journals on GIScience according to the publication record of National Institute for Space Research Remote Sensing postgraduate course from January 2013 to June 2018. Metrics such as: PDT, Time of Acceptance (TA), Impact Factor (JCR), CAPES *Qualis* and Open Access Fee were evaluated for 20 most published GIS journals. The average values of TA and PDT for GIScience papers were 185 days and 240 days, respectively. The most published journals were *Revista Brasileira de Cartografia*, *Remote Sensing* and *International Journal of Applied Earth Observation and Geoinformation*. Most Brazilian journals had no publication fees, but also had longer PDT values. Inconsistencies were found comparing JCR and CAPES *Qualis*, concluding that GIS journals are usually underrated by CAPES, prejudicing the evaluation of Remote Sensing courses in Brazil.

**Key words** — GIScience, Editorial delay, Review time.

### 1. INTRODUCTION

Publication Delay Time (PDT) of scientific papers is a wide-known problem of academic researchers. High PDT may impact on how much these papers will contribute to the advancement of science [1], affect on visibility and citation rate [2] and also make results outdated or obsolete [3]. Studies that investigate PDT usually focus on specific areas such as Medicine [1], Biomedicine [4], Food Science [5], but also several areas [6] and department publications [2].

When considering GIScience (Geographic Information Science), few studies were carried out considering different characteristics of scientific publication metrics such as: number of papers per year, country and journal [7] citation analysis [8,9] and impact factor ranking [10]. PDT of some GISjournals was evaluated on 2014 [11]. However, PDT may vary a lot with the fast development of science and recent studies are necessary to keep PDT always up to date. Furthermore, no records on literature were found related to PDT of Brazilian GIScience journals or institutions.

In this sense, National Institute for Space Research (INPE) is one of the leading institutions in Brazil in terms of GIScience. INPE has 7 postgraduate courses and the best

ranked of them, according CAPES<sup>1</sup>, is Remote Sensing [12]. This course has 31 researchers and more than 90 postgraduate students, which were responsible for publishing 465 papers on 175 different journals from January 2013 to June 2018. This publication record can help to evaluate which are the main journals where INPE researchers are submitting their findings.

In this sense, the aim of this paper is to describe the most published journals on GIScience according to the publication record of INPE Remote Sensing postgraduate course. These journals will be evaluated in terms of PDT, Impact Factor (JCR), CAPES Journal Ranking (*Qualis*) and Open Access publication costs.

### 2. MATERIAL AND METHODS

The *Curriculum Lattes* platform (<http://lattes.cnpq.br/>) was used to gather the publication records of INPE Remote Sensing researchers from January 2013 until June 2018. The published papers were listed on a database and were crosschecked in order to remove duplicated instances.

The journals were ranked according to the number of papers published and the top 20 journals were selected for evaluation. From these journals, 15 random selected papers from the last three regular issues were used for computing metrics such as: Journal Citation Reports (JCR), CAPES *Qualis*, Open Access Fee (OAF), Publication Delay Time (PDT), Time of Acceptance (TA) and Accepted to Online (AO). PDT represents the time from submission ( $t_0$ ) to online publication ( $t_1$ ) and TA the time from submission to notification of acceptance ( $t_2$ ) (Figure 1). These metrics were also used on other PDT studies [1-6,10-11].

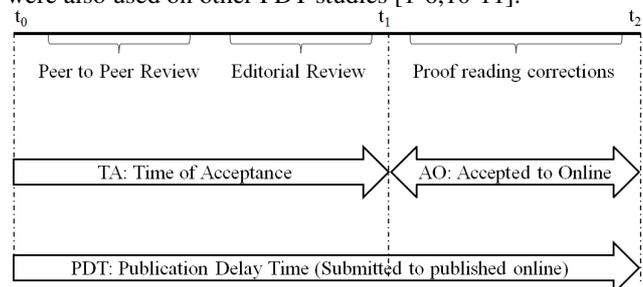


Figure 1. Main stages of a publication process considering Time of Acceptance ( $t_1-t_0$ ) and Publication Delay Time ( $t_2-t_0$ ).

<sup>1</sup> CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) is a government institution responsible for ranking postgraduate courses and journals in Brazil. Journals are ranked as C, B5 to B1 and A2 to A1, (where A1 is the best rank) according to their relevance on the respective area.

### 3. RESULTS

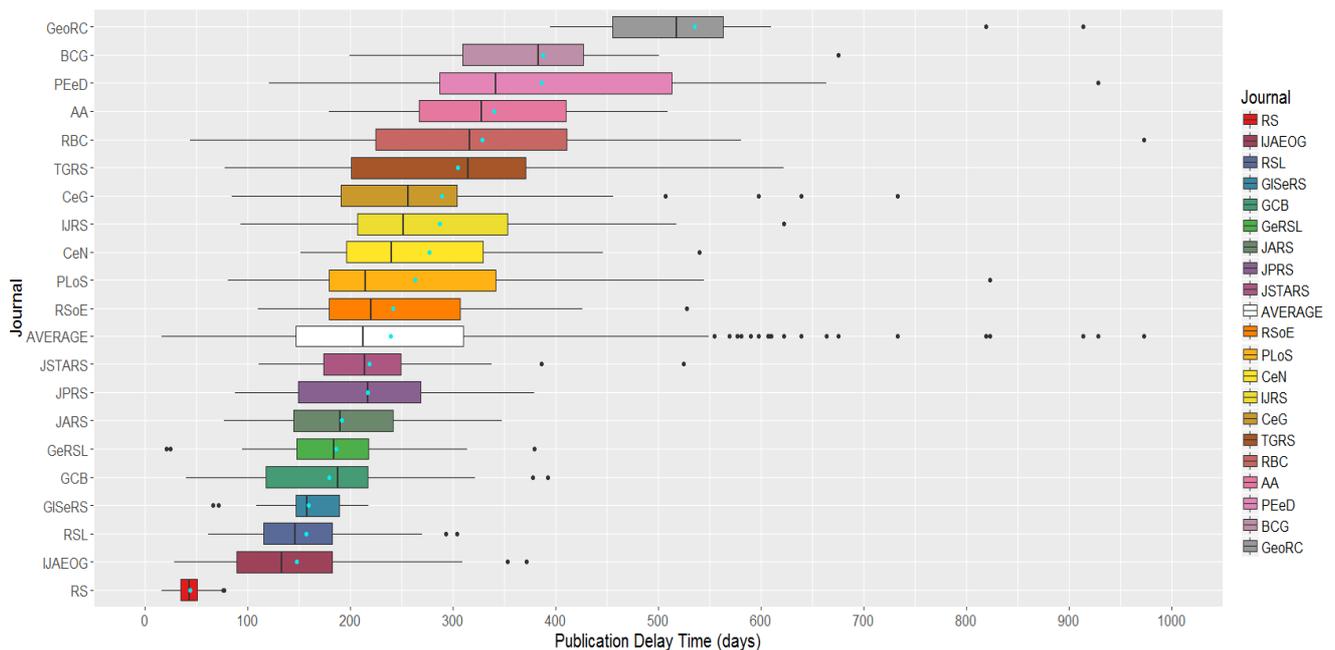
The 20 GIS journals selected, as well the publication metrics, are presented on Table 1. Figure 2 represents the PDT distribution for each one of these journals and also considering all papers evaluated on this study. All selected journals presented submission dates and acceptance dates.

However, few journals did not provide the published online information (GeoRC, BCG, AA, RBC and CeN). For these journals the publication date was considered as the last day of the respective issue, i.e.: Issue from Jul/Aug, 2017 represents a publication date of 08/31/2017. Misinformation was only found on two papers from RBC and they were not considered for the PDT calculations.

Journal name	Initials	ISSN	INPE Papers	Qualis CAPES (2013-2016)	JCR (2017)	Open Access Fee (USD)	Average TA (Days)	Average PDT (Days)
Remote Sensing	RS	2072-4292	36	A2	3,406	1870**	41	44
Int. J. of App. Earth Observation and Geoinformation	IJAEOG	0303-2434	16	A2	4,003	3200	119	148
Remote Sensing Letters	RSL	2150-704X	3	B1	1,524	2950	134	157
GIScience & Remote Sensing	GISeRS	1943-7226	8	B1	2,852	2950	146	159
Global Change Biology	GCB	1365-2486	7	A1	8,997	4250	146	179
IEEE Geoscience and Remote Sensing Letters	GeRSL	1545-598X	6	B1	2,892	1950	148	186
J. of App. Remote Sensing	JARS	1931-3195	6	B2	0,976	960	157	192
ISPRS J. of Photogrammetry and Remote Sensing	JPRS	0924-2716	12	A1	5,994	2500	194	217
IEEE J. of Selected Topics in App. Earth Observations and Remote Sensing	JSTARS	1939-1404	7	B1	2,777	1950	179	218
Remote Sensing of Environment	RSoE	0034-4257	9	A1	6,457	3800	225	242
PLoS One	PLoS	1932-6203	8	A2	2,766	1595	231	263
<i>Ciência e Natura*</i>	CeN	2179-460X	6	B4	-	0	116	277
International J. of Remote Sensing	IJRS	1366-5901	12	B1	1,782	2950	262	287
Computers & Geosciences	CeG	0098-3004	3	A2	2,567	3200	277	289
IEEE Transactions on Geoscience and Remote Sensing	TGRS	0196-2892	3	A1	4,662	1950	229	305
<i>Revista Brasileira de Cartografia*</i>	RBC	1808-0936	56	B2	-	0	176	328
Acta Amazonica	AA	1809-4392	9	B2	0,837	0	163	340
Plant Ecology & Diversity	PEeD	1755-1668	9	A2	1,205	2950	358	387
<i>Boletim de Ciências Geodésicas*</i>	BCG	1982-2170	13	B1	-	0	279	388
<i>Geografia (Rio Claro)*</i>	GeoRC	1983-8700	8	B4	-	0	291	578

\* Brazilian GIS Journal \*\*Original value is 1800CHF

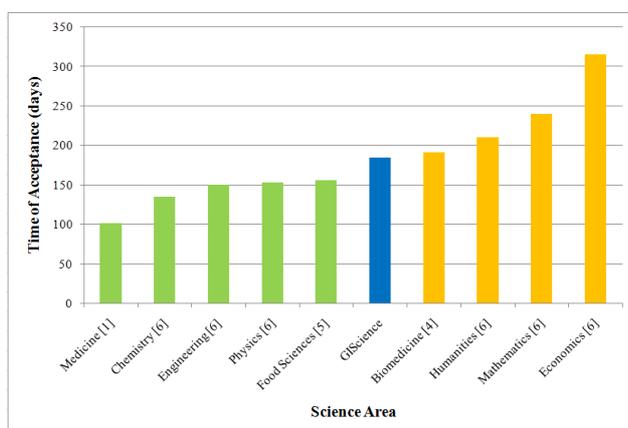
**Table 1. Metrics for the 20 most published journals by INPE Remote Sensing researchers from January 2013 to June 2018.**



**Figure 2. Publication Delay Time distribution for each journal selected on this study and also the average distribution when considering all papers (white boxplot). The boxplots represents the minimum value, lower quartile, median, upper quartile and maximum value. The light blue and black dots are average PDT values and outliers, respectively.**

#### 4. DISCUSSION

The average value of TA and PDT for GIScience papers was of 185 days and 240 days, respectively. When considering TA time, the results obtained on this study show that GIScience is faster than other science areas, such as Biomedicine, Humanities, Mathematics and Economy. On the other hand, areas like Medicine, Chemistry, Physics and Food Sciences had faster records of TA (Figure 3). Regarding to PDT, GIScience and Medicine had faster results than other areas (both tied with 240 days [1]).



**Figure 3. Paper Time of Acceptance on different science areas in comparison with GIScience.**

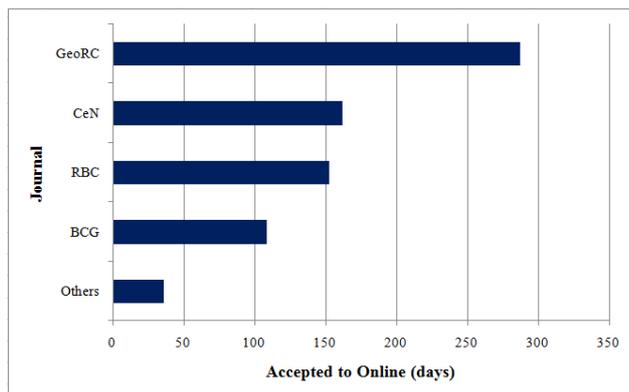
The fastest PDT of a paper was of 16 days, on RS journal, while the longest PDT was of 1549<sup>2</sup> days on GeoRC journal. Considering the PDT distribution of all papers, the lower quartile was of 148 days, while the upper quartile was of 311 days. Journals such as RS and IJAEOG had average PDT lower or equal than 148 days and were considered fast publication journals. On the other hand, journals that had PDT time greater than 311 days (RBC, AA, PEeD, BCG and GeoRC) were considered slow publication journals.

Some of the journals had low PA values while having high values of PDT (CeN, RBC and AA), showing that a lot of time was spent on proof reading corrections and online publication. This issue also affected BCG and GeoRC, emphasizing that all Brazilian GIScience journals spent a lot of time between acceptance to publication (Figure 4). As mentioned on our methodology, these journals did not provided online publication date for each paper, only for the respective issue. This problem may generate high AO values and thus high PDT.

Regarding to JCR impact factor and CAPES *Qualis*, some incoherencies were found. There were no clear breaks observed between JCR value and CAPES *Qualis* rankings, once it was expected that higher JCR values were related to higher CAPES *Qualis* rankings. As an example, journals which are ranked as B1, such as GISeRS, GeRSL and JSTARS have greater values of JCR than journals which are ranked as A2, like PeD, CeG and PLoS. This shows that

<sup>2</sup> This point was hidden on Figure 3 to provide better visualization.

CAPES *Qualis* is a more subjective rank. This rank is usually defined by a committee a major science area and GIScience is included on the area of Geosciences. However, GIScience is a very heterogeneous area and papers are published on most different kinds of journals [7]. These differences may be relevant for the evaluation of the postgraduate programs of Remote Sensing in Brazil, once high impact factor journals are being underrated by CAPES *Qualis*.



**Figure 4. Some Brazilian journals with high values of Accepted to Online time when compared to the average of the others.**

The journals that had more publications were RBC (56), RS (36), IJAEOG (16) and BCG (13). Some of the journals, especially Brazilian ones, such as RBC, BCG, CeN and GeoRC were not listed on JCR impact factor list. This is also a problem for Remote Sensing postgraduate courses and students, because these journals were highly selected by researchers and lack of international relevance according to JCR criteria. This emphasizes the need of these journals to adequate themselves to international guidelines, in order to improve the dissemination of Brazilian GIScience.

Regarding to the publications costs, journals that do not charge for publication are usually the ones that had higher values of PDT (RBC, AA, BCG and GeoRC). The average cost of a publication on GIScience journals was of 2601 USD, which is approximately 10.846 BRL<sup>3</sup> (Brazilian *Reais*). This value can be considered high in terms of Brazilian economy, once it represents 11.37 times the Minimum Wage in Brazil (which is of 954 BRL<sup>4</sup>) or almost the entrance salary of a researcher on federal institute or college (11.323BRL).

## 5. CONCLUSIONS

The Publication Delay Time of a GIScience paper is of 240 days, which can be considered fast in comparison to other science areas. There are incoherencies between CAPES

*Qualis* and JCR values, which are currently underrating GIScience journals in Brazil. The average cost of a publication on GIS journals is of 2601USD, which is very expensive considering Brazilian economic conditions. Brazilian GIS journals usually have no publication fees, but have long publication lags. It is crucial for these journals to adapt themselves to JCR requirements, in order to spread Brazilian GIScience more effectively.

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<sup>3,4</sup> Values considering 1,00USD = 4,17BRL and Minimum Wage of 954 BRL (Brazilian Central Bank on 09/14/2018).