

# GEODETSKI VESTNIK NA POTI BOLJŠE MEDNARODNE PREPOZNAVNOSTI

# GEODETSKI VESTNIK AND ITS PATH TO BETTER INTERNATIONAL RECOGNITION

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## IZVLEČEK

Uredniški odbor *Geodetskega vestnika*, vodilne slovenske znanstvene in strokovne revije na področjih geodezije, zemljemerstva, geoinformatike in upravljanja zemljišč, je v preteklem desetletju izvedel več dejavnosti za zvišanje kakovosti revije. Pri tem velja izpostaviti spremembo postopka recenziranja člankov z uvedbo recenzij dveh neodvisnih recenzentov, pri čemer se zagotavlja anonimnost tako avtorjev kot recenzentov. Nadalje sta se z mednarodno prepoznavnimi raziskovalci razširila uredniški odbor in seznam recenzentov, revija je bila vključena v različne mednarodne bibliografske podatkovne zbirke, elektronske različice člankov pa so objavljene na spletni strani revije, kjer so članki vse od leta 2000 odprtodostopni. Namen študije je bil analizirati vpliv uredniške politike na mednarodno prepoznavnost (citiranost) *Geodetskega vestnika* in kakovost literature, ki je citirana v reviji. Analizirani so citati *Geodetskega vestnika* v obdobju 2009–2013 po podatkih zbirke WoS. Rezultati raziskave kažejo, da je vključitev revije v različne informacijske sisteme in podatkovne zbirke, kot so COBISS.SI, DOAJ, WoS, DRUGG in CrossRef, povečala prepoznavnost *Geodetskega vestnika* in člankov, objavljenih v reviji, tako na nacionalni kot mednarodni ravni.

## KLJUČNE BESEDE

znanstvena komunikacija, geodezija, *Geodetski vestnik*, citiranost, indeksiranje revije, WoS, repozitorij DRUGG

## ABSTRACT

The editorial board of *Geodetski vestnik*, the leading Slovenian scientific and professional journal in the fields of geodesy, land surveying, geoinformatics and land management, has taken many actions to increase the quality of the journal over the past decade. Among others, the reviewing procedures were improved by introducing double-blind peer review of articles, internationalisation of editorial and review boards has been done, the journal has been included in several international bibliographic databases, and open access to full-text papers at the journal's website since 2000 onwards has been provided. The main aim of the study has been to analyse the influence of editorial policy on the international recognition (citations) of *Geodetski vestnik* as well as on the quality of the literature cited in the journal. Citations of *Geodetski vestnik* in the period 2009–2013 are analysed in this article, based on the data from the WoS database. It has been shown that indexation in many information systems and databases, such as COBISS.SI, DOAJ, WoS, DRUGG and CrossRef, has increased the visibility of the journal and its articles at both national and international levels.

## KEY WORDS

scientific communication, geodesy, *Geodetski vestnik*, citation, indexation of journal, WoS, DRUGG repository

## 1 INTRODUCTION

Geodetski vestnik is the leading Slovenian scientific and professional journal in the fields of geodesy and geoinformatics, land management and related fields, published by the Slovenian Surveying Association. It has been published regularly since 1959. In 4 issues per volume, around 25 reviewed articles are published each year. To increase the visibility of the journal, the editorial board took many actions, such as open access to full-text papers through the journal's website since 2000 onward. Geodetski vestnik is nowadays indexed in bibliographic databases, e.g. GEOBASE (Elsevier database supplying bibliographic information and abstracts for development studies, the Earth sciences, ecology, geomechanics, human geography, and oceanography), GeoRef (database of the American Geosciences Institute providing access to the geoscience literature), ICONDA (the international construction database), and is part of information systems COBISS.SI (the Slovenian Co-operative Online Bibliographic System and Services), dLib (Slovenian digital library), DOAJ (Directory of Open Access Journals), WoS (Web of Science), and CrossRef (a citation-linking backbone for online publications). When studying the journal's international recognition, special attention has to be given to the efforts of the institutional library at the University of Ljubljana, Faculty of Civil and Geodetic Engineering, which has enabled archiving of full-text articles of the journal in the institutional repository DRUGG since 2012.

Electronic archiving of documents became a highly important part of scientific communication at the end of the 20<sup>th</sup> century, and at the end of 2014, the Registry of Open Access Repository (ROAR, 2015) listed more than 3,500 digital repositories worldwide. The study from Björk and Turk (2000) shows that contemporary researchers prefer to use the electronic version of publications rather than the printed version. The situation is the same in Slovenia (Vilar et al., 2013). Many studies found out that open access increased paper citation; among the first was Lawrence (2001) who announced that open access papers were cited 3 times as much as non-open access papers. Koler-Povh et al. (2014a) realised that in the field of civil engineering, open access scientific papers received more citations than the non-open access papers from the same journal. Many studies have shown that repositories increase the visibility of scientific publications and make their higher citation more probable (Harnad and Brody, 2004; Antelman, 2004; Kurtz et al., 2005; Moed, 2007; Xia et al., 2011). Brody et al. (2006) confirmed that open access of publications allowed for greater visibility and emphasized the importance of articles' archiving in the repositories for higher recognition and citation. Furthermore, the European Commission has required archiving of research articles in institutional repositories in order to grant international project funding since August 2008 for publications from social sciences, and since 2014 for publications in all subject fields, including technical and natural sciences. According to the *General Multi-beneficiary Model Grant Agreement* for the Horizon 2020, authors are required to ensure open access to publications from projects financed by European Commission, regardless of publishers' policy (see SHERPA/RoMEO, 2015). The commitment is realised by depositing a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications as soon as possible and at the latest on publication, particularly for those from Horizon 2020 (Research Framework Programme Horizon 2020 and open access, 2015).

Regarding the aforementioned facts we decided to analyse the visibility of Geodetski vestnik and its published articles through analysis of cited and citing journals in the period 2009–2013. Consistent with

the results of the analysis, together with presenting the efforts of the journal's editorial board to enhance the quality of the journal, the aim of the article is to emphasize the importance of using high-quality information sources and archiving of the articles in the repository, such as DRUGG (repository of the Faculty of Civil and Geodetic Engineering at the University of Ljubljana), and indexing of articles in databases, such as WoS (Web of Science).

## 2 METHODS AND MATERIALS

To analyse the rise of Geodetski vestnik we researched its citation. We analysed both the journals that cited Geodetski vestnik (Geodetski vestnik is a cited journal) and the journals that are cited in Geodetski vestnik (Geodetski vestnik is a citing journal) for 2009 when Geodetski vestnik reached its first impact factor (IF), and until JCR (Journal Citation Report) 2013. The data were accessed from the JCR list in the Web of Science (WoS) database on January 10, 2015. We used indexes SCI (Sciences Citation Index) and SSCI (Social Science Citation Index) for data collection.

### 2.1 Web of Science data source

The main data source for the research was the Web of Science (WoS) database, which is a citation database that covers over 12,000 of the highest impact journals worldwide, including open access journals, and over 160,000 conference proceedings with current and retrospective coverage in the sciences, social sciences, arts, and humanities, with coverage dating back to 1900. The journals are grouped by subject in more than 250 subject categories. Geodesy is not classified as a unique subject category, as recognized also by Stojanovski, Frančula and Lapaine (2015). It is rather a part of subject categories geography – physical, geology, geosciences – multidisciplinary, mathematics – interdisciplinary applications, engineering multidisciplinary, physics, remote sensing, astronomy and astrophysics (Thomson Reuters, 2015). The JCR list in WoS is a list of more than 11,000 peer reviewed journals from over 3,300 publishers in over 60 nations and includes virtually all areas of science, technology, and social sciences. As a comprehensive and unique resource that allows to evaluate and to compare journals using citation data it shows the relationship between citing and cited journals as well (JCR, 2015). There are three citation indexes in the WoS database, built on the basis of all the journals and their articles (WoS, 2015):

- Science Citation Index Expanded® (SCI-EXPANDED), which includes over 8,500 major journals across 150 disciplines from 1900 to present;
- Social Sciences Citation Index® (SSCI), which includes over 3,000 journals across 55 social science disciplines, as well as selected items from 3,500 of the world's leading scientific and technical journals from 1900 to present, and
- Arts & Humanities Citation Index® (A&HCI), which indexes over 1,700 arts and humanities journals, as well as selected items over 250 scientific and social sciences journals from 1975 to present.

Geodetski vestnik is part of the Social Sciences Citation Index (SSCI).

Here, the JCR year is the year in which the journal impact factor was calculated. Each JCR year contains one year of citation data. The impact factor (IF) is a measure reflecting the average number of citations to recent articles published in a particular journal publication. It is frequently, albeit controversially, used

as a metric for the relative importance of a journal within its field, with those journals possessing higher impact factors deemed more noteworthy and important than those with lower impact factors. Journal's impact factor is often used as an indicator of relative importance of analysed journal among journals in the same subject group: the journals with higher IF are treated as more important journals than those with lower IF (Seglen, 2006).

## 2.2 DRUGG data source

In this research, the importance of institutional repositories is outlined for the case of Geodetski vestnik, since the institutional repository has been considerably contributing to its recognition as an open-access journal at national and international levels. The institutional repository of the Faculty of Civil and Geodetic Engineering at the University of Ljubljana (UL FGG) was established in 2011; it is known as the Digital Repository of UL FGG, DRUGG in short (DRUGG, 2015). As the leading research and academic institution in Slovenia in the scientific fields covered by the journal, the Faculty of Civil and Geodetic Engineering at the University of Ljubljana is strongly connected with Geodetski vestnik. This is also why the journal got the opportunity to be included in its repository.

Since April 2012, DRUGG has been listed in the Directory of Open Access Repositories (OpenDOAR) and in the Registry of Open Access Repositories (ROAR). The DRUGG repository follows the instructions of OpenAIRE, thus meeting the conditions of the EC that publications from projects co-financed from the funds of the EC shall be uploaded in one of the internationally connectible institutional repositories (OpenAIRE, 2015). Here, it has to be emphasized that in August 2008 the European Commission announced mandatory storing in open access institutional repositories for publications from projects financed from the funds of the Seventh Research Framework Programme (FP7) for some scientific areas, and in October 2013 for publications from the Research Framework Programme Horizon 2020 for all scientific fields (see also Koler Povh et al., 2014b). All these are additional reasons that the articles from Geodetski vestnik were included in DRUGG right after its establishment in 2012.

The institutional repository as an open access provider of publications allows uploading and storing of different types of materials, such as diploma and master theses, doctoral dissertations, reviewed articles, study materials, multimedia articles, etc. This is the argument for popularisation of institutional repositories among researchers and teachers, also at UL FGG. At the end of 2014, around 280 articles published by UL FGG teachers and researchers in different scientific journals were archived in DRUGG (Table 1).

Table 1: Overview of documents archived in the DRUGG repository at the end of 2014.

Document type	December 2011	December 2012	December 2013	December 2014
<b>Theses</b>	1,000	1,444	1,763	2,104
<b>Monographs</b>	0	31	39	58
<b>Papers</b>	0	0	227	280
<b>Total</b>	<b>1,000</b>	<b>1,475</b>	<b>2,029</b>	<b>2,442</b>

At the same time, all UL FGG employees were encouraged to deliver to the library the latest reviewed author's version of publications in pdf format, to be uploaded to the repository, after prior checking of the copyright law provisions in the SHERPA/RoMEO list ([www.sherpa.ac.uk/romeo/](http://www.sherpa.ac.uk/romeo/)). The archived units

can be seen in the bibliography on the personal web pages of each researcher or teacher. When sending scientific papers to the repository it is required by the publisher as well as in the interest of the author that the publication clearly shows where the work was originally published. For this reason, DRUGG editors designed a cover page with references formatted according to the rules of the Harvard system of referencing with the added Digital Object Identifier (DOI) or electronic address of the publication at the publisher’s web page, if DOI does not exist.

After three years of operation more than approximately 16,000 downloads of different publications per month were observed through the Google Analytics system, on the average around 500 per day, 100 of them from abroad. During the first three years, DRUGG was used in more than 90 countries on all continents. Most visitors come from Slovenia. 89% of all visits are from public domains, while only 11% are from the home domain of the University of Ljubljana. We are convinced that not only students who are specialists of information and communication technologies (Istenič Starčič and Turk, 2010) use the DRUGG repository as a user-friendly information source. The DRUGG repository became part of the Repository of the University of Ljubljana (RUL), which was established in October 2013 as part of Consortium of four repositories of four Slovenian universities (Table 2). The RUL assembled institutional repositories of its members into a unified system. It also encourages other faculties to create conditions for inclusion of their scientific publications into RUL (Ojsteršek et al., 2014).

Table 2: The number of archived documents at the end of 2014 for four Slovenian universities.

University	Bachelor Theses	Master Theses	Doctoral Dissertations	Other	Total
Ljubljana	20,472	3,402	409	3,970	28,253
Maribor	23,353	2,626	480	9,772	36,231
Primorska Region	2,152	375	59	1,820	4,406
Nova Gorica	521	110	101	786	1,518
<b>Total</b>	<b>46,498</b>	<b>6,513</b>	<b>1,049</b>	<b>16,348</b>	<b>70,408</b>

### 3 GEODETSKI VESTNIK AND ITS EVOLUTION

The Geodetski vestnik journal has been published since 1953 by the Association of Surveyors of Slovenia (Slov. *Zveza geodetov Slovenije – ZGS*) (Naprudnik, 2006). The purpose of the journal is to provide the basics for exchange of the newest scientific and professional achievements among the scientists and professionals in the region and at the broader international level, who work in the fields of geodesy, land surveying, photogrammetry and remote sensing, cartography, geographic information systems, spatial data infrastructure, land evidencing and land management, real property management and valuation, recording and management of public infrastructure, spatial planning and development, and in other related fields. Beside the scientific and professional double-blind peer-reviewed papers, Geodetski vestnik publishes professional discussions, reports and reviews, terminological professional articles and other similar works. As bulletin of the Association of Surveyors of Slovenia it publishes also reports of the Slovenian Surveying and Mapping Authority, professional informative articles, polemics, documents of the association, communications to members, memorial and similar records, advertisements and tenders, in short, articles of popular character.

When defining the article category, the Typology of documents/works for managing bibliographies within the COBISS system, the Co-operative Online Bibliographic System and Services in Slovenia (COBISS, 2015) is used. Peer-reviewed articles are published in Slovenian, in English, or in English and Slovenian languages. The scientific and professional articles are subject to double-blind review. Published are only articles which have not been published previously, are not under consideration for publication elsewhere, and have been accepted for publication from the side of the editorial board and two independent reviewers.

To increase the quality of the journal, the editorial board took some important decisions over the last 10 years. Among others, the efforts were given to increase the accessibility and recognition of its articles. The first step was taken in 2005 when all the issues back to 2000 were published retrospectively, on the journal's website. Since then, all articles are available in printed and e-version where open access to full-papers is guaranteed. Digital versions of the articles published in previous volumes are important for cultural and technical heritage preservation, which was also observed by Zorn and Komac (2010) for the journal *Acta geographica Slovenica*.

### 3.1 Indexation in the COBISS.SI system

Geodetski vestnik has been indexed in the Slovenian information system COBISS.SI since this system was established. Its subsystem, co-operative library catalogue COBIB, has been an important provider of the literature, since the librarians started to include links to internet pages with full texts. However, this is not a repository; it is a bibliographic database which provides abstracts for most documents and links to full texts, if they are available. Geodetski vestnik is one among 100,000 journals indexed in the COBISS.SI system. The number and COBISS.SI classification of all articles published in the period 2005–2014 in Geodetski vestnik are presented in Table 3.

Table 3: Number and classification of all articles published in Geodetski vestnik in a publishing year for the period 2005–2014 (COBISS, 2015).

Classification	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
1.01 - Original scientific article	4	7	12	13	9	8	6	12	17	12	100
1.02 - Review article	5	7	14	8	9	11	11	6	9	7	87
1.03 - Short scientific article	0	1	0	0	0	1	2	0	0	1	5
1.04 - Professional article	17	16	13	17	7	7	3	3	7	14	104
1.05 - Popular article	5	5	6	5	7	8	8	9	11	3	67
1.08 - Published scientific conf. contribution	0	0	0	0	0	0	6	8	0	0	14
1.09 - Published prof. conf. contribution	0	0	2	0	0	0	8	7	0	0	17
1.19 - Review, book review, critique	2	1	0	1	1	1	0	0	0	2	8
1.20 - Preface, afterword	4	4	5	4	4	7	7	4	4	6	49
1.21 - Discussion	0	0	0	0	0	0	0	0	2	0	2
1.22 - Interview	1	0	1	0	0	0	0	1	0	0	3
1.25 - Other articles	10	15	13	12	28	24	28	22	11	44	207
<b>Total</b>	<b>48</b>	<b>56</b>	<b>66</b>	<b>60</b>	<b>65</b>	<b>67</b>	<b>79</b>	<b>72</b>	<b>61</b>	<b>89</b>	<b>663</b>

As shown in the table (Table 3), mainly scientific (COBISS.SI classifications 1.01, 1.02, 1.03, and 1.08) and professional articles (COBISS.SI classifications 1.04, 1.05, and 1.09) are published in Geodetski vestnik. 206 scientific articles present 31.07% of the articles while 188 professional articles present 28.36%; together they make up 59.43% of all articles published in Geodetski vestnik in the period 2005–2014.

### 3.2 Introduction of indexation in the DOAJ system (2006)

In June 2006, Geodetski vestnik was included in DOAJ (Directory of Open Access Journals) as one among 1,785 journals, and, at the same time, as one of only 8 Slovenian journals included in DOAJ. At the end of 2014, there were 10,456 scientific and professional journals from 135 countries indexed in DOAJ, 43 of them from Slovenia. Around 6,000 journals provided open access at the article level (DOAJ, 2015), as does Geodetski vestnik. The Geodetski vestnik journal is also member of project EUROPEANA 2012–2014. Its articles are included in the European Digital Library through their metadata.

### 3.3 Inclusion in the ISI/Thomson Reuters database Web of Science (2009)

In June 2007, Geodetski vestnik was invited by Thomson Reuters, and after two years of monitoring and evaluation processes, it was classified on the Journal Citation Report (JCR) list among 1,600 peer-reviewed scientific and professional journals from all over the world, and became part of the well-known bibliographic system Web of Science (WoS) and its index of citation, i.e. Social Sciences Citation Index.

Calculation of an impact factor is based upon the average number of citations received per paper published in a particular journal during the preceding two years. The impact factor for the year 2013 is calculated as (IF, 2015):

$$IF(2013) = \alpha / \beta, \quad (1)$$

where  $\alpha$  is the number of times that articles published by a particular journal in 2011 and 2012 were cited by other indexed journals in 2013, and  $\beta$  is the number of articles and other works published by that journal in 2011 and 2012. The evolution of impact factor (IF) over time since 2009 is shown in Table 4. Geodetski vestnik is classified in the fourth quartile, which is normal for new non-English journals.

Table 4: The evolution of impact factor for Geodetski vestnik since 2009 (Thomson Reuters, 2015).

JCR Year	Impact Factor (SSCI)
2009	0.227
2010	0.215
2011	0.212
2012	0.367
2013	0.288

### 3.4 Inclusion in the DRUGG repository (2012)

As it is in the interest of all participants of Geodetski vestnik (editorial board, authors, readers from professional and academic spheres) to increase the articles' and journal's visibility, in 2012 the decision was

made to include Geodetski vestnik in the DRUGG repository. In line with the policy of the DRUGG repository, most of the articles archived in the repository are published by the authors from the University of Ljubljana, rather than all the articles published in the journal. The inclusion of Geodetski vestnik into the CrossRef system in the summer 2014 increased the possibilities of citation checking and gave the authors the possibility for monitoring citation of each published article. Furthermore, the COBISS.SI identifier is today connected to the repository of the University of Ljubljana, where DRUGG presents a sub-system.

### 3.5 Introduction of the Digital Object Identifier (DOI) through the Crossref system (2014)

Introduction of the Digital Object Identifier (DOI) for the articles published in Geodetski vestnik through the CrossRef system in the summer 2014 increased the possibilities of citation checking and broadened the platform, where researchers might find and access the articles published in the journal. The system also contributes to the transparency in the field of scientific and professional publications. Among others, authors have the possibility to get real data of citation for each article published in Geodetski vestnik. The citation data are shown in the Web of Science (WoS) system. The DOI identifier was assigned to all scientific and professional articles published from 2010 onwards by registering all these articles in the CrossRef system and by archiving their metadata. Consequently, a new front page for each of these 143 articles was prepared and new archiving in the DRUGG system was done. The DOI identifier was also added in COBISS.SI to fulfil the basic conditions for interoperability of databases.

## 4 RESULTS AND DISCUSSION

When studying the international recognition of Geodetski vestnik and the influence of editorial policy on international visibility of the articles published in this journal, we researched the citation of the articles. In the first part of this chapter, the results of the analysis of the citation frequency for the articles published in Geodetski vestnik are presented for the period JCR 2009–JCR 2013. In continuation, the results of the analysis of articles (journals) that are cited in Geodetski vestnik are presented for the same period. Additionally, a short comparative analysis of selected bibliographic databases and repositories has been conducted in the conclusion of the research, where the frequency of the articles in the databases was analysed.

### 4.1 Geodetski vestnik as a cited journal in WoS

The results of the analyses of the cited articles published in Geodetski vestnik according to the data in the Web of Science (WoS) database on January 10, 2015, are presented in Table 5. The journals that cited the articles published in Geodetski vestnik are listed according to the individual year of the Journal Citation Report (2009–2013). For each JCR year the frequency of the cited articles from Geodetski vestnik in the individual journal is given. Data are given for the last 10 years (for single years when the article concerned was published in Geodetski vestnik), while for elder citations the data are summarized. For the journal titles, internationally recognized abbreviations are used. From Table 5, it can be ascertained which journal cited the articles from Geodetski vestnik (by JCR year) and how often, separately for the



journals indexed in SCI (written in bold) and those indexed in SSCI (written in italics). Additionally, impact factor (IF) of each journal is added.

Table 5: List of journals that cited Geodetski vestnik (by JCR year) with the number of cited articles per year of publication (Data Source: JCR, 2015).

<b>JCR 2009</b>													
IF	Citing Journal	Total	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	Rest
0.227	<i>GEOD VESTN</i>	33	0	10	4	6	3	0	6	1	0	3	0
<b>0.288</b>	<b>ACTA GEOD GEOPHYS HU</b>	2	0	1	0	0	0	0	0	0	0	0	1
	<i>LEX LOCALIS</i>	2	0	2	0	0	0	0	0	0	0	0	0
<b>0.714</b>	<b>ACTA GEOGR SLOV</b>	1	0	0	0	0	0	0	0	0	1	0	0
1.110	<i>PHOTOGRAMM ENG REM S</i>	1	0	0	0	0	0	0	1	0	0	0	0
<b>Total</b>	<b>5</b>	<b>39</b>	<b>0</b>	<b>13</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>
<b>JCR 2010</b>													
IF	Citing Journal	Total	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	Rest
0.215	<i>GEOD VESTN</i>	38	5	4	6	7	3	2	3	5	0	0	3
<b>0.346</b>	<b>ACTA GEOGR SLOV</b>	3	0	2	1	0	0	0	0	0	0	0	0
	10 INT MULT SCIENT	1	0	1	0	0	0	0	0	0	0	0	0
2.139	<i>BRIT J EDUC TECHNOL</i>	1	1	0	0	0	0	0	0	0	0	0	0
<b>0.678</b>	<b>ENVIRON EARTH SCI</b>	1	0	0	0	0	0	0	0	0	0	0	1
1.016	<i>TURK ONLINE J EDUC T</i>	1	1	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>45</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>JCR 2011</b>													
IF	Citing Journal	Total	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	Rest
0.212	<i>GEOD VESTN</i>	32	3	6	4	9	1	2	0	1	2	1	3
<b>0.484</b>	<b>CENT EUR J OPER RES</b>	1	0	0	0	0	0	0	0	0	0	0	1
<b>0.082</b>	<b>GRADEVINAR</b>	1	0	0	0	1	0	0	0	0	0	0	0
0.317	<i>LEX LOCALIS</i>	1	0	1	0	0	0	0	0	0	0	0	0
1.009	<i>MACH VISION APPL</i>	1	0	0	0	0	0	0	0	1	0	0	0
1.098	<i>PHOTOGRAMM REC</i>	1	0	0	0	0	0	0	1	0	0	0	0
<b>Total</b>	<b>7</b>	<b>37</b>	<b>3</b>	<b>7</b>	<b>4</b>	<b>10</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>4</b>
<b>JCR 2012</b>													
IF	Citing Journal	Total	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	Rest
0.367	<i>GEOD VESTN</i>	42	0	7	10	2	9	7	1	0	2	1	3
	ACTUAL PROBL ECON	3	0	1	2	0	0	0	0	0	0	0	0
0.972	<i>INZ EKON</i>	2	0	0	0	0	2	0	0	0	0	0	0
<b>0.347</b>	<b>ACTA GEOD GEOPHYS HU</b>	1	0	0	0	0	0	0	1	0	0	0	0
0.049	<i>DVE DOMOVINI</i>	1	0	0	1	0	0	0	0	0	0	0	0
1.138	<i>INT J REMOTE SENS</i>	1	0	1	0	0	0	0	0	0	0	0	0
<b>0.517</b>	<b>SENSOR LETT</b>	1	0	0	0	0	1	0	0	0	0	0	0
<b>0.290</b>	<b>SURV REV</b>	1	0	0	0	0	1	0	0	0	0	0	0
<b>Total</b>	<b>8</b>	<b>52</b>	<b>0</b>	<b>9</b>	<b>13</b>	<b>2</b>	<b>13</b>	<b>7</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>

**JCR 2013**

IF	Citing Journal	Total	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	Rest
<i>0.288</i>	<i>GEOD VESTN</i>	48	1	4	12	5	3	8	7	2	0	1	5
<i>0.750</i>	<i>ACTA GEOGR SLOV</i>	4	0	1	1	0	0	1	0	1	0	0	0
<i>3.134</i>	<i>LAND USE POLICY</i>	4	0	0	0	0	2	0	1	1	0	0	0
<b>0.577</b>	<b>SURV REV</b>	4	0	0	0	1	0	0	2	0	0	0	1
<i>2.696</i>	<i>HYDROL PROCESS</i>	1	0	1	0	0	0	0	0	0	0	0	0
<i>0.995</i>	<i>FUTURES</i>	1	0	1	0	0	0	0	0	0	0	0	0
<i>2.068</i>	<i>ADV ENG INFORM</i>	1	0	0	0	0	0	0	0	1	0	0	0
<i>0.600</i>	<i>LEX LOCALIS</i>	1	0	0	0	0	1	0	0	0	0	0	0
<i>0.124</i>	<i>SCRIPTA NOVA</i>	1	0	0	1	0	0	0	0	0	0	0	0
<b>0.892</b>	<b>J APPL REMOTE SENS</b>	1	0	0	0	1	0	0	0	0	0	0	0
<b>Total</b>	<b>10</b>	<b>66</b>	<b>1</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>6</b>	<b>9</b>	<b>10</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>6</b>

As shown in Table 5, the articles published in Geodetski vestnik in the period from 2000 to 2009 were cited in JCR 2009 in total 39 times in 5 journals. Most citations (33) were in the same journal, i.e. Geodetski vestnik. The remaining 6 citation were reached by four journals; two of them are indexed in SCI (written in bold), one in SSCI, while one was without impact factor (IF) in 2009 (Lex localis). Most (13) cited articles from Geodetski vestnik were published in 2008.

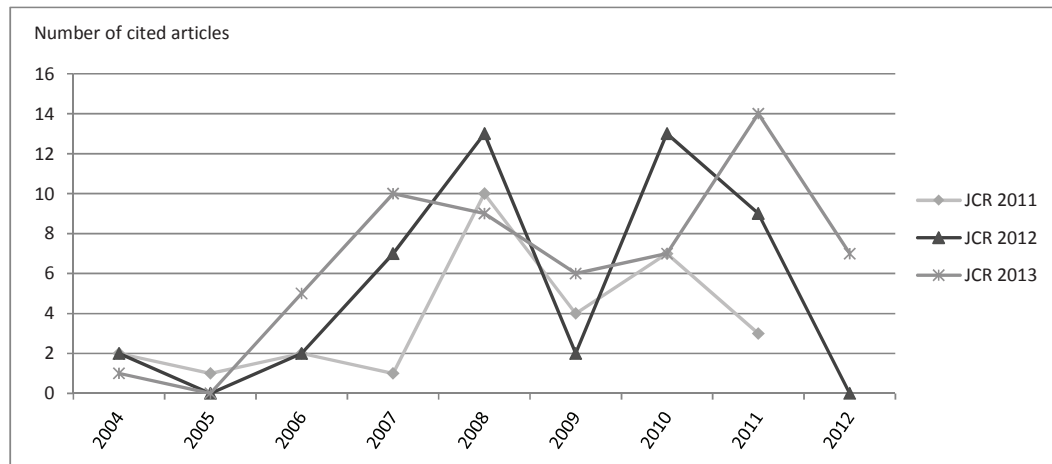


Figure 1: Frequency of citation of articles, published in Geodetski vestnik in different volumes (years), for JCR 2011 to JCR 2013 (by JCR year).

The results of the study show that in the study period (JCR 2009 until JCR 2013) the number of journals that cited the articles published in Geodetski vestnik increased from 5 in JCR 2009 to 10 in JCR 2013. There were in total 39 citations of the articles published in Geodetski vestnik according to the report JCR 2009, while the number in JCR 2013 increased up to 66. Among the cited journals, the share of foreign journals is growing each year. The share of journals indexed by SSCI is on average higher than that of the journals indexed by SCI. The level of article citation published in Geodetski vestnik cited in the same journal is of concern. Namely, it is high in the whole period (more than 80% of all citations),

when finally in JCR 2013 it dropped to 73%. It is also apparent that in the 10-year cited period for JCR 2009 until JCR 2013 the most cited articles from Geodetski vestnik are those published in 2008, and in JCR 2013 those published in 2011 (Figure 1).

#### 4.2 Geodetski vestnik as a citing journal in WoS

Focusing on the articles that have been cited in Geodetski vestnik, the number of articles from different international journals has increased significantly in the past decade. According to the JCR, there was further a growing number of journals cited in the articles published in Geodetski vestnik in a single JCR year, with the exception of 2013: there were 105 different journals (sources) cited in Geodetski vestnik in JCR 2009, 181 in JCR 2012, but 81 in JCR 2013. In Table 6–8, 20 most cited sources (journals and other sources) are given for selected JCR years, i.e. JCR 2009, JCR 2011 and JCR 2013. Based on the results of the analyses (the analyses were conducted for each JCR year in the period JCR 2009–2013), it can be ascertained that in the JCR period 2009–2011 there was a prevalence of journals without impact factor (IF) cited in Geodetski vestnik, while in latest years the share of journals with impact factor has been increasing at the same rate as for those without impact factor. The share of journals indexed in SCI (written in bold) is higher than that those indexed in SSCI (written in *italic*). The increase in the number of articles published by international groups of authors is recognized. Bartol et al. (2014) found out that international co-authorship increases the importance of an article or a journal. The same can be drawn for Geodetski vestnik.

The most cited articles in Geodetski vestnik are those published in Geodetski vestnik. The frequency of cited articles from Geodetski vestnik is 48 in JCR 2013, when Geodetski vestnik had the highest frequency. However, there are in total 812 articles cited in Geodetski vestnik in JCR 2013. This means that the share of cited articles from Geodetski vestnik is not high (5.9%). The second most cited journal is Uradni list Republike Slovenije (Official Gazette of the Republic of Slovenia). It was cited 19 times, in JCR 2009 and JCR 2012.

The most cited professional journals are Photogrammetric Engineering and Remote Sensing, cited 19 times in JCR 2010 and JCR 2013. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Science also had a high citation rate; it was cited 11 times in JCR 2013. This is a journal without impact factor. ISPRS Journal of Photogrammetry (11 citations in JCR 2011) is among the highly-cited journals with impact factor. Regarding the frequency of journal's citation in the whole period (2009–2013), only one journal, i.e. Regional Studies, is cited in three JCR years: 2010 with 2 citations, 2012 with 10 citations, and 2013 with 6 citations. Regional studies is a journal without impact factor. In JCR 2012, there were 8 cited articles that were published more than 10 years ago, which is not in accordance with the well-known Harnad's claim that most citations are made in the first 4 years after publication.

There are more journals cited in two JCR years in the period 2009–2013. Among the journals with impact factor there are two journals: ISPRS Journal of Photogrammetry was cited in JCR 2010 (7 times) and JCR 2011 (10 times); the same trend shows the journal International Journal of Remote Sensing that reached 5 citations in JCR 2010 and 7 in JCR 2011. Interestingly, all 5 citations from JCR 2010 were older than 10 years. It is also evident that "pure" survey journals are barely cited in JCR 2013, i.e. Survey

Review with 9 citations and Journal of Surveying Engineering with 4 citations. Most citations of these two journals are from 2006. Among Slovenian journals Uradni list RS (Official Gazette of the Republic of Slovenia) was cited in three JCR years and always reached high citation rates. Other more frequently cited Slovenian journals are Gradbeni vestnik, Urbani izziv, and Geologija, each in two JCR years.

Table 6: List of journals whose articles were cited in Geodetski vestnik with the citations' frequency per year of publication – JCR 2009 (Data Source: JCR, 2015).

JCR 2009													
IF	Cited Journal	Total	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	Rest
0.227	GEOD VESTN	33	0	10	4	6	3	0	6	1	0	3	0
	URADNI LIST RS	19	0	1	4	4	0	5	2	3	0	0	0
	URADNI LIST	10	0	0	1	1	0	3	1	3	0	0	1
2.170	LANDSCAPE URBAN PLAN	6	0	0	0	2	2	0	0	0	2	0	0
	GEOLOGIJA	6	0	0	0	2	2	0	0	0	2	0	0
	URBANI IZZIV	6	0	0	0	0	2	0	0	0	0	2	2
2.355	LAND USE POLICY	6	0	4	0	0	0	0	0	2	0	0	0
1.871	ECOL MODEL	6	0	0	0	0	4	0	0	0	0	2	0
	S IAG SUBC EUR REF F	5	0	0	0	0	0	0	1	0	0	0	4
	STADT STADTREGION MA	4	0	0	0	3	0	1	0	0	0	0	0
	COMPUTERS ENV URBAN	4	0	0	0	0	0	0	0	0	0	2	2
1.408	ENVIRON MANAGE	4	0	0	0	0	0	2	0	0	2	0	0
	WORKSH LAND READJ LI	4	0	0	0	0	0	0	0	4	0	0	0
0.714	ACTA GEOGR SLOV	4	0	0	2	1	1	0	0	0	0	0	0
	GRADBENI VESTN	4	0	0	2	0	0	0	0	0	0	0	2
0.875	PROG PLANN	4	0	0	0	0	0	0	0	2	0	2	0
1.703	LANDSLIDES	3	0	3	0	0	0	0	0	0	0	0	0
1.212	ENG GEOL	3	0	3	0	0	0	0	0	0	0	0	0
1.301	URBAN STUD	3	0	0	2	0	0	0	0	0	0	0	1
	ALL OTHERS (231)	231	18	31	31	19	16	22	10	15	9	20	40
<b>Total</b>	<b>105</b>	<b>539</b>	<b>30</b>	<b>59</b>	<b>58</b>	<b>62</b>	<b>45</b>	<b>54</b>	<b>28</b>	<b>40</b>	<b>22</b>	<b>37</b>	<b>104</b>

Indexation in international bibliographic databases of the articles published in Geodetski vestnik and inclusion of articles in different repositories by providing open access to full papers have obviously contributed to the international recognition of the journal. There is also the increased number of articles cited in Geodetski vestnik and published in different national and international journal. This might be related to the general improvement of full-paper access via the internet, which definitely contributes to the international communication and research quality. An important issue here is that the publishers provide easily accessible metadata about the articles, which is nowadays also the main demand of international bibliographic databases. Figure 2 shows the correlation between the number of cited articles in Geodetski vestnik, where the articles published in the journals indexed in SCI or SSCI from the 20 most frequently cited sources are considered (see Tables 6–8), and the number of citation of articles published in Geodetski vestnik ( $r^2 = 0.63$ ).

Table 7: List of journals whose articles were cited in Geodetski vestnik with the citations' frequency per year of publication – JCR 2011 (Data Source: JCR, 2015).

JCR 2011													
IF	Cited Journal	Total	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	Rest
0.212	GEOD VESTN	32	3	6	4	9	1	2	0	1	2	1	3
2.885	ISPRS J PHOTOGRAMM	10	0	2	0	2	4	0	0	0	2	0	0
	INT ARCH PHOTOGRAMME	9	0	0	0	2	0	2	0	2	0	0	3
1.117	OBJECT BASED IMAGE A	8	0	0	0	8	0	0	0	0	0	0	0
	INT J REMOTE SENS	7	0	0	0	0	0	2	0	0	1	1	3
0.663	ISPRS	5	0	1	0	0	0	0	0	0	0	0	4
	HOUSING STUD	5	0	0	0	0	0	0	1	3	1	0	0
	DIGITAL IMAGE PROCES	4	0	0	0	0	0	0	0	2	0	2	0
4.574	P IGARSS 2005 S SEUL	4	0	0	0	0	0	0	4	0	0	0	0
	REMOTE SENS ENVIRON	4	2	0	0	0	0	0	0	0	0	0	2
	P NARGIS 2005 APPL T	4	0	0	0	0	0	0	4	0	0	0	0
	P ISPRSWG 7 1 HUM SE	4	0	0	0	0	0	0	4	0	0	0	0
	GRADBENI VESTN	4	0	0	0	0	2	0	0	0	0	0	2
2.895	JURSE 2011	4	4	0	0	0	0	0	0	0	0	0	0
	IEEE T GEOSCI REMOTE	4	0	1	0	0	1	0	0	0	0	0	2
	P 26 AS C REM SENS H	4	0	0	0	0	0	0	4	0	0	0	0
	LECT NOTES GEOINFORM	4	0	0	0	4	0	0	0	0	0	0	0
	THESIS FAC CIVIL	4	0	0	2	0	0	0	0	0	0	0	2
	USKLADITEV PODATKOV	4	2	2	0	0	0	0	0	0	0	0	0
	ALL OTHERS (429)	429	18	39	34	34	30	25	26	19	10	12	182
<b>Total</b>	<b>118</b>	<b>760</b>	<b>44</b>	<b>68</b>	<b>52</b>	<b>70</b>	<b>60</b>	<b>43</b>	<b>58</b>	<b>47</b>	<b>22</b>	<b>25</b>	<b>271</b>

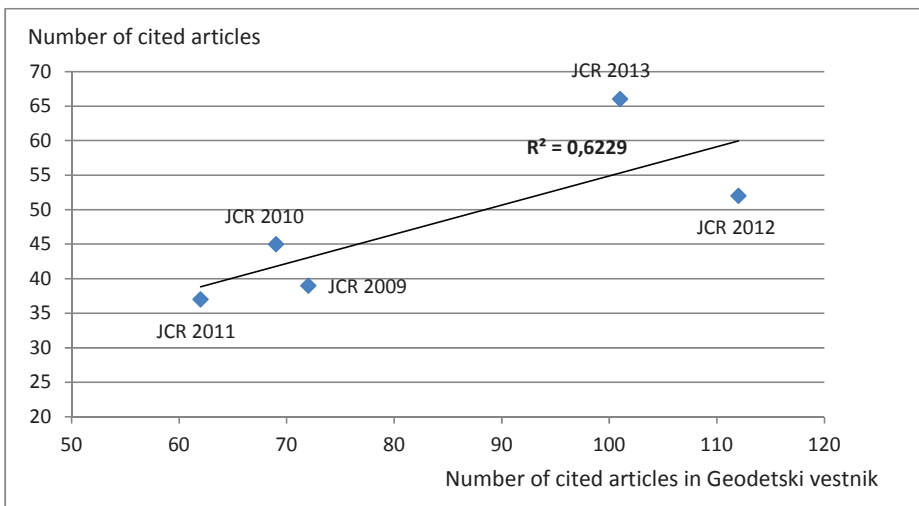


Figure 2: Correlation between the number of cited articles in Geodetski vestnik (only for SCI and SSCI journals from the 20 most cited sources for each JCR year) and the number of cited articles that were published in Geodetski vestnik.

Table 8: List of journals whose articles were cited in Geodetski vestnik with the citations' frequency per year of publication – JCR 2013 (Data Source: JCR, 2015).

JCR 2013													
IF	Cited Journal	Total	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	Rest
0.288	GEOD VESTN	48	1	4	12	5	3	8	7	2	0	1	5
2.071	<b>PHOTOGRAMM ENG REM</b>	12	0	0	0	1	1	0	3	0	2	1	4
	INT ARCH PHOTOGRAMME	11	0	0	0	1	0	2	2	0	0	1	5
<b>0.577</b>	<b>SURV REV</b>	9	1	1	1	1	0	1	0	4	0	0	0
	THESIS	7	0	0	2	0	0	0	1	0	0	0	4
<b>2.902</b>	<b>ISPRS J PHOTOGRAMM</b>	7	0	2	0	0	1	0	0	1	0	1	2
1.756	REG STUD	6	0	0	0	2	2	0	0	0	0	0	2
<b>0.750</b>	<b>ACTA GEOGR SLOV</b>	5	0	0	2	0	0	0	1	0	0	2	0
1.000	T GIS	5	0	2	1	0	1	0	0	0	0	1	0
1.479	INT J GEOGR INF SCI	5	0	0	1	0	0	0	0	0	1	0	3
	SOCIOMETRY	4	0	0	0	0	0	0	0	0	0	0	4
	URADNI LIST REPUBLIK	4	0	1	1	0	0	1	0	1	0	0	0
	GIM INT	4	0	4	0	0	0	0	0	0	0	0	0
	FINANCE	4	4	0	0	0	0	0	0	0	0	0	0
	GEOLGIJA-LJUBLJANA	4	0	0	0	0	1	0	0	2	0	0	1
<b>1.000</b>	<b>J SURV ENG</b>	4	0	0	0	1	0	0	0	3	0	0	0
	MEDN STAND OC VREDN	4	0	0	2	0	0	0	2	0	0	0	0
	REGIONALNI RAZVOJ	4	0	0	3	0	0	0	0	0	0	0	1
	ALL OTHERS (458)	458	22	46	38	35	32	26	21	17	9	19	193
	**NON-TRADITIONAL**	77	0	0	0	0	0	0	0	0	0	0	77
<b>Total</b>	<b>81</b>	<b>812</b>	<b>30</b>	<b>72</b>	<b>85</b>	<b>54</b>	<b>47</b>	<b>45</b>	<b>46</b>	<b>33</b>	<b>15</b>	<b>33</b>	<b>352</b>

### 4.3 Geodetski vestnik in DRUGG

For the purpose of our research we additionally analysed the content of DRUGG repository. The subjects of our analysis were the articles published in Geodetski vestnik, where the analysis of the article type was conducted separately by year of publication (Table 9). There were 663 articles published in Geodetski vestnik in the period 2005–2014, which were indexed by COBISS.SI. Among 206 scientific and 188 professional articles, 81 of them are archived in the DRUGG repository, i.e. 20.55%.

As we see in Table 9, not only scientific and professional articles published in Geodetski vestnik are indexed in WoS, but also letters from the editors and reports of society events, albeit with low possibilities for citation. Furthermore, they are written in Slovene only, while the translation of the titles into English is often inconsistent, i.e. “March Surveyors on the Urslo mountain”. By indexing the articles from 2013 and 2012 some reports of society events are missing in the WoS database. We have to emphasize that in the calculation of impact factor only peer-reviewed scientific and professional articles are considered. However, there are some inconsistencies in the international bibliographic databases, which might also influence the impact factor and rating of the journal at the international level.

Table 9: Number of articles from Geodetski vestnik 2005–2014 archived in the DRUGG repository (January 2015).

Journal	Volume	Year	No. of Articles in COBISS.SI	No. of Articles in WoS	No. of Articles in DRUGG	No. of Articles in CrossRef
Geodetski vestnik	58	2014	89	92	16	18
Geodetski vestnik	57	2013	61	49	18	30
Geodetski vestnik	56	2012	72	51	13	35
Geodetski vestnik	55	2011	79	76	17	34
Geodetski vestnik	54	2010	67	41	11	26
Geodetski vestnik	53	2009	65	63	3	0
Geodetski vestnik	52	2008	60	51	2	0
Geodetski vestnik	51	2007	66	64	1	0
Geodetski vestnik	50	2006	56	0	0	0
Geodetski vestnik	49	2005	48	0	0	0
<b>Total</b>			<b>663</b>	<b>487</b>	<b>81</b>	<b>143</b>

In the DRUGG repository and the CrossRef system, according to the systems' policies, only scientific and professional peer-reviewed articles are included. We are aware that archiving in the DRUGG repository should increase the visibility of Geodetski vestnik, and, indeed, it will be interesting to follow the data on its downloading and citation, which will provide the challenge for our next study.

## 5 CONCLUSIONS

Institutional repositories and bibliographic databases nowadays provide an important interface for the researchers. By inclusion of articles in such databases, the international recognition of journals is increased. Consequently, this contributes to the quality of publications and research since more users (and critics) have access to the articles and a wider international forum is developed. This has been shown also by studying the Geodetski vestnik's international recognition, the results of which are presented in the article.

The efforts of the Geodetski vestnik editorial board for its higher visibility and recognition at the national and international levels have brought good results. Open access to full-text articles through the journal's website, indexing of Geodetski vestnik and its peer-reviewed articles in bibliographic databases, such as Directory of Open Access Journals (DOAJ), Web of Science (WoS) and its Social Sciences Citation Index, increased the visibility of the articles and the journal itself. The benefits of introducing the Digital Object Identifier (DOI) through the solution provided by CrossRef are not known yet since there is always a time-delay when comparing data on published and cited articles with data on citation of the articles concerned. The introduction of DOI in 2014 already contributed to the unique recognition of each article and its citations through a unique indicator of the article's electronic location – DOI. However, it has become a globally recognized fact that everyone profits with repositories. Authors acquire better visibility of their works, are offered the possibility to be part of international networks of researchers in the particular field of interest, and consequently contribute to scientific development at the international level. At the same time, repositories and international bibliographic databases provide a platform for copyright protection. The users are allowed immediate access to the results of scientific and research works at the global level. From this perspective, the requirement of the European Commission has to be understood. Archiving of articles in the institutional repositories, such as DRUGG, became the obligation for all publications of the research results funded by the EU. Here libraries, especially those at higher education institutions and specialized libraries with their knowledge and

skills, can upgrade their role at their institutions, while librarians as IT experts and capable communication experts become an important element in scientific and research work at their institution and beyond. Libraries are given the opportunity to perform their mission as an important part of the system for scientific communication.

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# GEODETSKI VESTNIK NA POTI BOLJŠE MEDNARODNE PREPOZNAVNOSTI

OSNOVNE INFORMACIJE O ČLANKU:

GLEJ STRAN 289

## 1 UVOD

Geodetski vestnik, ki ga izdaja Zveza geodetov Slovenije, je vodilna slovenska znanstvena in strokovna revija na področjih geodezije in geoinformatike, upravljanja zemljišč in sorodnih področjih. Revija redno izhaja od leta 1959. V štirih letnih številkah je objavljeno okrog 25 recenziranih člankov. Za povečanje prepoznavnosti revije je uredniški odbor izvedel več dejavnosti, med drugimi je vzpostavil odprti dostop do celotnega besedila člankov prek spletne strani revije za vse objave od leta 2000 naprej. Geodetski vestnik je danes indeksiran v bibliografskih podatkovnih zbirkah, kot so GEOBASE (Elsevierjeva podatkovna zbirka bibliografskih informacij in izvlečkov objav s področij geoznanosti, geomehanike, humane in fizične geografije, ekologije in oceanografije), GeoRef (podatkovna zbirka Ameriškega inštituta za geoznanosti, angl. *the American Geosciences Institute*, z objavami s področja geoznanosti) in ICONDA (mednarodna podatkovna zbirka za področja tehnike, predvsem gradbeništva in arhitekture). Vključen je v informacijske sisteme, kot so COBISS.SI (Slovenski kooperativni online bibliografski sistem in servisi), dLib (Digitalna knjižnica Slovenije), DOAJ (Imenik odprtodostopnih revij, angl. *Directory of Open Access Journals*), WoS (angl. *Web of Science*) in CrossRef (označevalec elektronske lokacije objavljenega dela). Pri ugotavljanju mednarodne prepoznavnosti revije smo posebno pozornost posvetili vlogi knjižnice na Fakulteti za gradbeništvo in geodezijo Univerze v Ljubljani, ki od leta 2012 omogoča arhiviranje celotnih besedil člankov, objavljenih v Geodetskem vestniku, v institucionalnem repozitoriju DRUGG.

Elektronsko arhiviranje dokumentov je konec 20. stoletja postalo pomemben del znanstvene komunikacije. Konec leta 2014 je bilo v registru odprtodostopnih repozitorijev ROAR (angl. *Registry of Open Access Repository*, ROAR, 2015) vključenih več kot 3500 repozitorijev z vsega sveta. Björk in Turk (2000) ugotavljata, da sodobni raziskovalci raje uporabljajo elektronske različice objav kot tiskane. Podobno stanje so za slovenske razmere ugotovili Vilar et al. (2013). Številne mednarodne raziskave so pokazale, da odprti dostop prispeva k citiranju člankov. Med prvimi je bil Lawrence (2001), ki je ugotovil, da so odprtodostopni članki citirani trikrat več kot članki, ki niso odprtodostopni in katerih elektronski dostop je plačljiv. Kot so v svoji raziskavi ugotovili Koler-Povh et al. (2014a), tudi za področje gradbeništva velja, da so odprtodostopni znanstveni članki pogosteje citirani kot članki iste revije, ki niso odprtodostopni. V mnogih mednarodnih raziskavah je bilo ugotovljeno, da repozitoriji povečajo vidnost objav in s tem prispevajo k njihovi večji citiranosti (Harnad in Brody, 2004; Antelman, 2004; Kurtz et al., 2005; Moed, 2007; Xia et al., 2011). Pri tem je poudarjen pomen arhiviranja člankov v repozitorijih za njihovo boljšo vidnost in citiranje (Brody et al., 2006). Tudi Evropska komisija zahteva arhiviranje znanstvenih člankov v institucionalnih repozitorijih in s tem pogojuje financiranje mednarodnih projektov za področja

družboslovnih ved od avgusta 2008, z letom 2014 pa za vsa znanstvena področja, vključujoč tehniko in naravoslovne znanosti. V skladu s sporazumom o financiranju programa Obzorje 2020 (angl. *General Multi-beneficiary Model Grant Agreement, Horizon 2020*) morajo avtorji zagotoviti odprt dostop do vseh objav rezultatov projektov, ki jih financira Evropska komisija, ne glede na politiko založnika. Ta je preverljiva na strani SHERPA/RoMEO (2015). Zavezi iz sporazuma je mogoče ugoditi tako, da se v repozitorij znanstvenih objav predhodno, hkrati ob tiskani izdaji ali po določenem časovnem odlogu, vedno pa skladno z določili založnika, arhivira strojno čitljiva elektronska različica objavljenega članka ali avtorjev končni recenziran čistopis prispevka, oblika je odvisna od določil založnika (Research Framework Programme Horizon 2020 and open access, 2015).

Zaradi vse večjega pomena odprtega dostopa do znanstvenih objav smo se odločili, da proučimo prepoznavnost Geodetskega vestnika ter člankov, objavljenih v tej reviji, in sicer z analizo citiranja objavljenih člankov v reviji in analizo citatov v sami reviji za obdobje 2009–2013. Namen prispevka je proučiti vpliv uporabe visoko kakovostnih informacijskih virov v znanstvenih objavah, vpliv arhiviranja znanstvenih objav v repozitorijih, kot je DRUGG (repozitorij Fakultete za gradbeništvo in geodezijo Univerze v Ljubljani), ter vpliv indeksiranja člankov v informacijskih sistemih, kot je WoS, na kakovost in prepoznavnost revije.

## 2 METODE IN MATERIALI

Napredek Geodetskega vestnika glede prepoznavnosti smo merili z metodo analize citiranosti. Pri tem smo analizirali tako citiranje člankov, ki so bili objavljeni v Geodetskem vestniku (Geodetski vestnik je citirana revija), kot citirane članke v Geodetskem vestniku (Geodetski vestnik je citirajoča revija). V raziskavi smo proučevali citiranost objav od leta 2009, ko je revija pridobila dejavnik vpliva IF (angl. *Impact Factor*), do leta 2013, za katero so še bili na voljo podatki o citiranosti med izvedbo raziskave (v januarju 2015). Podatke smo pridobili s seznama o citiranosti revij JCR (angl. *Journal Citations Report*) v podatkovni zbirki WoS na dan 10. januarja 2015 za vsako proučevano leto citiranosti posebej (leto JCR). Pri tem smo upoštevali revije in članke, indeksirane v citatnih zbirkah SCI (angl. *Sciences Citation Index*) ali SSCI (angl. *Social Sciences Citation Index*).

### 2.1 Informacijski sistem WoS – *Web of Science*

Glavni vir podatkov za raziskavo je bil informacijski sistem WoS (angl. *Web of Science*), ki združuje več različnih bibliografskih podatkovnih zbirk in konec leta 2014 vsebuje prek 12.000 mednarodnih znanstvenih revij z dejavniki vpliva, vključujoč odprtodostopne revije. V bibliografsko zbirko je vključenih tudi več kot 160.000 zbornikov znanstvenih konferenc v inženirstvu in naravoslovju, družboslovju, umetnosti in humanistiki, kjer sega najstarejši vir v leto 1900. Revije so v WoS razporejene v več kot 250 vsebinskih kategorij. Geodezija ni opredeljena kot samostojna vsebinska skupina, kar ugotavljajo tudi Stojanovski, Frančula in Lapaine (2015). Vključena je v skupine fizične geografije, geologije, multidisciplinarnih geoznanosti, matematike – interdisciplinarne rešitve, multidisciplinarnega inženirstva, fizike, daljinskega zaznavanja, astronomije in astrofizike (Thomson Reuters, 2015). Seznam JCR v podatkovni zbirki WoS vključuje prek 11.000 recenziranih revij vseh področij znanosti, ki jih izdaja več kot 3000 založnikov iz prek 60 držav. Kot vir bibliografskih podatkov o citiranju, pridobljenih s povezavo do seznama literature,

omogoča vrednotenje in primerjavo revij ter sledljivost citiranosti (JCR, 2015). Podatkovna zbirka WoS vključuje tri citatne zbirke – indekse citiranosti (WoS, 2015):

- indeks SCI-EXPANDED (angl. *Science Citation Index Expanded*<sup>®</sup>), ki vključuje prek 8500 vodilnih revij z več kot 150 znanstvenih področij tehniških, naravoslovnih, medicinskih in biotehnoških znanosti od leta 1900 do danes;
- indeks SSCI (angl. *Social Sciences Citation Index*<sup>®</sup>), ki vključuje prek 3000 revij z več kot 55 področij družboslovja od leta 1900 do danes, ter
- indeks A&HCI (angl. *Arts & Humanities Citation Index*<sup>®</sup>), ki indeksira več kot 1700 revij s področij umetnosti in humanistike od leta 1975 do danes.

Geodetski vestnik je indeksiran v SSCI. Proučevano leto citiranosti, leto JCR, je leto, za katero je izračunan dejavnik vpliva revije. Vsako leto JCR se nanaša na eno leto citiranja. Dejavnik vpliva IF je kazalnik, ki odraža povprečno število citatov objavljenih člankov obravnavane revije v proučevanem letu. Dejavnik vpliva je pogosto uporabljen kot merilo relativne pomembnosti izbrane revije v skupini revij nekega znanstvenega področja: revije z višjim dejavnikom vpliva se obravnavajo kot pomembnejše od tistih z nižjim dejavnikom vpliva (Seglen, 2006).

## 2.2 Digitalni repozitorij DRUGG

V raziskavi izpostavljamo vlogo institucionalnega digitalnega repozitorija kot medija, ki je pomembno prispeval k nacionalni in mednarodni prepoznavnosti Geodetskega vestnika kot odprtodostopne revije. Institucionalni repozitorij Fakultete za gradbeništvo in geodezijo Univerze v Ljubljani (UL FGG), imenovan DRUGG, je bil vzpostavljen leta 2011 (DRUGG, 2015). Kot vodilna raziskovalna in akademska institucija v Sloveniji na področjih, ki jih vsebinsko pokriva Geodetski vestnik, zagotavlja UL FGG reviji Geodetski vestnik vsestransko podporo, tako je Geodetski vestnik tudi prva revija, katere članki se arhivirajo v repozitoriju DRUGG.

Od aprila 2012 je DRUGG registriran v mednarodnem direktoriju OpenDOAR (angl. *Directory of Open Access Repositories*) in registru odprtodostopnih repozitorijev ROAR (angl. *Registry of Open Access Repositories*). DRUGG je usklajen z infrastrukturo OpenAIRE Evropske komisije in njenim pogodbenim določilom, da morajo biti objave iz projektov, sofinanciranih s sredstvi Evropske komisije, arhivirane v enem od institucionalnih repozitorijev, kompatibilnih s portalom OpenAIRE (OpenAIRE, 2015). Evropska komisija zahteva elektronsko arhiviranje objav iz projektov 7. okvirnega programa EK že od avgusta 2008, predvsem za objave s področij družboslovja, od oktobra 2013 pa tudi za objave o rezultatih evropskih projektov s preostalih znanstvenih področij in za objave o rezultatih projektov iz programa Obzorje 2020 (Koler Povh et al., 2014b). To so bili dodatni razlogi za takojšnjo vključitev revije Geodetski vestnik v repozitorij DRUGG kmalu po njegovi vzpostavitvi, to je v letu 2012.

Institucionalni repozitorij kot elektronski arhiv omogoča arhiviranje različnih objav, kot so visokošolska dela (diplomske naloge, magistrska dela in doktorske disertacije), recenzirani članki, študijska gradiva, multimedijske predstavitve. Zaradi širokega nabora objav, ki so lahko vključene v institucionalni repozitorij, so postali elektronski arhivi priljubljen in razširjen vir znanstvene komunikacije ter pomemben vir za promocijo dela ustanov in posameznikov. Konec leta 2014 je bilo v repozitoriju DRUGG arhiviranih že 280 znanstvenih člankov in konferenčnih objav raziskovalcev in učiteljev UL FGG (preglednica 1).

Preglednica 1: Pregled nad dokumenti, ki so arhivirani v bibliografskem repozitoriju DRUGG konec leta 2014.

Vrsta dokumenta	december 2011	december 2012	december 2013	december 2014
<b>Diplome</b>	1000	1444	1763	2104
<b>Monografije</b>	0	31	39	58
<b>Članki</b>	0	0	227	280
<b>Skupaj</b>	<b>1000</b>	<b>1475</b>	<b>2029</b>	<b>2442</b>

Na pobudo uredništva repozitorija DRUGG jim lahko raziskovalci in učitelji na UL FGG posredujejo zadnjo recenzirano avtorsko različico. Ob predhodnem preverjanju založnikovih avtorskopравnih določil na seznamu SHERPA/RoMEO uredništvo arhivira ustrezno elektronsko različico objave. Avtorjem je omogočeno tudi samoarhiviranje objav ob končnem nadzoru uredništva DRUGG. Arhivirane objave so vidne v sistemih Google in Google Scholar. Zbrane so v osebni bibliografiji vsakega posameznega avtorja na spletni strani UL FGG. Zaradi zahteve založnikov in za potrebe citiranosti je vsaka enota gradiva opremljena z uvodno stranjo z navedbo vira, oblikovano po harvardskem sistemu citiranja. Kjer obstaja, je naveden tudi označevalec elektronske lokacije DOI, pri preostalih virih je naveden elektronski naslov izdajatelja ali/in repozitorija DRUGG. Prek identifikacijske številke COBISS.SI-ID so vzpostavljene povezave v slovenska informacijska sistema COBISS.SI in SICRIS.

Statistiko obiska smo spremljali z orodjem Google Analytics in v treh letih od vzpostavitve repozitorija je bilo iz njega prenesenih v povprečju okrog 16.000 različnih objav na mesec, to je več kot 500 enot gradiva na dan, od tega v povprečju približno 100 iz tujine. Repozitorij DRUGG uporabljajo v več kot 90 državah po vseh celinah. Statistika dostopov po omrežjih kaže, da je 89 % vseh obiskov doseženih z javnih domen, le 11 % pa z domene Univerze v Ljubljani. To kaže, da repozitorij veliko uporablja strokovna javnost in ne zgolj visoko usposobljena akademska javnost z bogatimi znanji tehnologij IKT (Istenič Starčič in Turk, 2010). Uporabnikom prijazna orodja in povezanost s sistemom *Google Scholar* zagotavljajo repozitoriju DRUGG tudi splošno uporabnost. DRUGG je tako del Repozitorija Univerze v Ljubljani (RUL), ki je bil vzpostavljen konec leta 2013 kot del konzorcija repozitorijev štirih slovenskih univerz (preglednica 2). RUL združuje institucionalne repozitorije članic Univerze v Ljubljani v enovit sistem (Ojsteršek et al., 2014).

Preglednica 2: Število arhiviranih enot gradiv konec leta 2014 v repozitorijih štirih slovenskih univerz.

Univerza	Diplomske naloge	Magistrska dela	Doktorske disertacije	Ostalo	Skupaj
<b>v Ljubljani</b>	20.472	3402	409	3970	28.253
<b>v Mariboru</b>	23.353	2626	480	9772	36.231
<b>na Primorskem</b>	2152	375	59	1820	4406
<b>v Novi Gorici</b>	521	110	101	786	1518
<b>Skupaj</b>	<b>46.498</b>	<b>6513</b>	<b>1049</b>	<b>16.348</b>	<b>70.408</b>

### 3 GEODETSKI VESTNIK IN NJEGOV RAZVOJ

Revija Geodetski vestnik (ISSN 0351-0271), ki izhaja pod okriljem Zveze geodetov Slovenije (ZGS), je prvič izšla leta 1953 (Naprudnik, 2006). Namen revije je oblikovati temelj za izmenjavo najnovejših znanstvenih in strokovnih spoznanj v regiji in širše na področjih geodezije, geodetske izmere, fotogrametrije

in daljinskega zaznavanja, kartografije, geoinformatike, geografskih informacijskih sistemov, prostorske podatkovne infrastrukture, evidentiranja in upravljanja zemljišč, upravljanja in vrednotenja nepremičnin, evidentiranja in upravljanja gospodarske javne infrastrukture, prostorskega načrtovanja in razvoja ter njim sorodnih področjih. Geodetski vestnik objavlja recenzirane znanstvene in strokovne članke, strokovne razprave, poročila, recenzije, izsledke visokošolskih del, terminološke strokovne članke in podobna dela. Kot glasilo ZGS objavlja tudi novice državne geodetske službe ter strokovne informativne prispevke, polemike, obvestila članstvu, spominske in podobne zapise, oglase in razpise ter druge poljudne prispevke.

Pri bibliografski kategorizaciji objav se upošteva tipologija dokumentov/del za vodenje bibliografij v okviru sistema COBISS.SI (COBISS, 2015). Recenzirani znanstveni in strokovni članki so lahko objavljeni v slovenskem jeziku, angleškem jeziku ali obeh. Za znanstvene in strokovne članke je zagotovljena dvojna strokovna recenzija, ter pri tem anonimnost avtorjev in recenzentov. Objavljeni so lahko samo znanstveni in strokovni članki, ki še niso bili objavljeni, niso v postopku za objavo v drugih publikacijah ter jih je sprejel uredniški odbor in sta jih pozitivno recenzirala dva neodvisna recenzenta.

Za povečanje kakovosti revije je uredniški odbor v zadnjih desetih letih sprejel več pomembnih odločitev in ukrepov. Prvi korak je bil storjen leta 2005, ko je bil na spletni strani revije vzpostavljen odprti dostop do člankov, objavljenih od leta 2000 naprej. Odtlej so, hkrati ob objavi v tiskani obliki, vsi članki s celotnim besedilom javnosti brezplačno dostopni v elektronski obliki. Elektronske različice člankov starejših letnikov revije pomembno prispevajo k ohranjanju kulturne in tehniške dediščine, kar ugotavljata tudi Zorn in Komac (2010) za revijo Acta geographica Slovenica.

### 3.1 Indeksacija v sistemu COBISS.SI

Preglednica 3: Število člankov Geodetskega vestnika po letih in vrsti objave za obdobje 2005–2014 (COBISS, 2015).

Vrsta objave	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Skupaj
1.01 – Izvirni znanstveni članek	4	7	12	13	9	8	6	12	17	12	100
1.02 – Pregledni znanstveni članek	5	7	14	8	9	11	11	6	9	7	87
1.03 – Kratki znanstveni prispevek	0	1	0	0	0	1	2	0	0	1	5
1.04 – Strokovni članek	17	16	13	17	7	7	3	3	7	14	104
1.05 – Poljudni članek	5	5	6	5	7	8	8	9	11	3	67
1.08 – Objavljeni znanstveni prisp. na konf.	0	0	0	0	0	0	6	8	0	0	14
1.09 – Objavljeni strokovni prisp. na konf.	0	0	2	0	0	0	8	7	0	0	17
1.19 – Recenzija, prikaz knjige, kritika	2	1	0	1	1	1	0	0	0	2	8
1.20 – Predgovor, spremna beseda	4	4	5	4	4	7	7	4	4	6	49
1.21 – Polemika	0	0	0	0	0	0	0	0	2	0	2
1.22 – Intervju	1	0	1	0	0	0	0	1	0	0	3
1.25 – Drugi sestavni deli	10	15	13	12	28	24	28	22	11	44	207
<b>Skupaj</b>	<b>48</b>	<b>56</b>	<b>66</b>	<b>60</b>	<b>65</b>	<b>67</b>	<b>79</b>	<b>72</b>	<b>61</b>	<b>89</b>	<b>663</b>

Geodetski vestnik je indeksiran v slovenskem kooperativnem bibliografskem sistemu in servisih COBISS.SI, od kar je ta vzpostavljen (1996). Njegov podsistem, vzajemni knjižnični katalog COBIB, je pomemben bibliografski informacijski vir, zlasti zaradi povezave do celotnih besedil, kjer te obstajajo, ali vsaj do izvlečkov. Geodetski vestnik je ena izmed 100.000 revij, indeksiranih v sistemu COBISS.SI. Podatki o

objavah Geodetskega vestnika, ki so izšle v obdobju 2005–2014 in so indeksirane v sistemu COBISS.SI, so v preglednici 3.

Kot je razvidno iz preglednice 3, prevladujejo v Geodetskem vestniku znanstveni (COBISS.SI tipologija 1.01, 1.02, 1.03 in 1.08) in strokovni članki (COBISS.SI tipologija 1.04, 1.05 in 1.09). Znanstveni članki (216 v obravnavanem obdobju) pomenijo 31,07 % objav, strokovni članki (188) pa 28,36 %, kar je skupaj 59,43 % vseh člankov, objavljenih v Geodetskem vestniku v obdobju 2005–2014.

### 3.2 Vključitev in indeksacija v sistemu DOAJ (2006)

Junija 2006 je bil Geodetski vestnik vključen v zbirko DOAJ (angl. *Directory of Open Access Journals*) kot ena od 1785 revij in ena od takrat vključenih osmih slovenskih revij. Konec leta 2014 je bilo v DOAJ indeksiranih 10.456 znanstvenih in strokovnih revij iz 135 držav, 43 iz Slovenije. Približno 6000 revij omogoča odprti dostop do celotnih besedil člankov (DOAJ, 2015), med njimi tudi Geodetski vestnik. Kot odprtodostopna revija je Geodetski vestnik prek projekta EUROPEANA 2012–2014 dostopen tudi v Evropski digitalni knjižnici (angl. *European Digital Library*).

### 3.3 Vključitev v informacijski sistem ISI/Thomson Reuters – Web of Science (2009)

Leta 2007 je bil Geodetski vestnik povabljen, da se vključi v sistem *Web of Science*, ki ga danes gradi in vzdržuje korporacija Thomson Reuters, Inc. Po dveh letih opazovanja in vrednotenja se je Geodetski vestnik leta 2009 uvrstil na seznam JCR (angl. *Journal Citation Report*), in sicer je bil uvrščen v skupino 1600 mednarodnih znanstvenih revij, vključenih v citatni indeks za družboslovne vede (angl. *Social Sciences Citation Index*), ter tako postal del sistema WoS. Ta za vrednotenje kakovosti revije uporablja kazalnik dejavnika vpliva (angl. *Impact factor*, kratko IF), izračunan kot povprečje števila citatov znanstvenih in strokovnih člankov revije, objavljenih v zadnjih dveh letih pred proučevanim letom citiranosti (leto JCR). IF za 2013 je izračunan kot (IF, 2015):

$$IF(2013) = \alpha / \beta, \quad (1)$$

kjer je  $\alpha$  vsota citatov znanstvenih in strokovnih člankov, objavljenih v Geodetskem vestniku v letih 2011 in 2012, doseženih v letu 2013 v revijah, indeksiranih v WoS, in  $\beta$  je število znanstvenih in strokovnih člankov, objavljenih v Geodetskem vestniku v letih 2011 in 2012. Gibanje dejavnika vpliva (IF) za Geodetski vestnik od leta 2009 je prikazano v preglednici 4. Revija je razvrščena v 4. kvartil, kar je za novo uvrščene revije neangleškega govornega območja običajno.

Preglednica 4: Dejavnik vpliva za Geodetski vestnik od leta 2009 (Thomson Reuters, 2015).

Leto JCR	Dejavnik vpliva (SSCI)
2009	0,227
2010	0,215
2011	0,212
2012	0,367
2013	0,288

### 3.4 Vključitev v digitalni repozitorij DRUGG (2012)

Skladno s prizadevanji vseh deležnikov Geodetskega vestnika (uredniškega odbora, avtorjev, bralcev) za večjo vidnost člankov in revije je bila v letu 2012 sprejeta odločitev o arhiviranju člankov v digitalnem repozitoriju DRUGG. Skladno s politiko institucionalnega repozitorija DRUGG so v njem arhivirani članki, katerih avtorji so zaposleni na UL FGG, in ne vsi članki, objavljeni v reviji Geodetski vestnik. Po vzpostavitvi univerzitetnega repozitorija RUL leta 2013 je bila vzpostavljena povezava med fakultetnim repozitorijem DRUGG in univerzitetnim RUL prek sistema COBISS.SI s prenosom metapodatkov ob upoštevanju protokola OAI-PMH.

### 3.5 Registracija v sistemu CrossRef in označevalec Digital Object Identifier DOI (2014)

Vključitev Geodetskega vestnika v sistem CrossRef poleti 2014 in posledična pridobitev označevalca elektronske lokacije DOI (angl. *Digital Object Identifier*) sta prispevala k bibliografski urejenosti revije in člankov, objavljenih v Geodetskem vestniku. Z uvedbo označevalca elektronske lokacije DOI, ki je enolična in stalna oznaka za elektronska gradiva, je omogočena preglednost in sledljivost citiranosti znanstvenih in strokovnih objav. Posledično lahko avtorji spremljajo citiranost člankov, podatki o citiranosti so objavljeni v sistemu WoS. Z registracijo vseh znanstvenih in strokovnih člankov Geodetskega vestnika od leta 2010 naprej v sistemu CrossRef in arhiviranjem njihovih metapodatkov so bili za 143 člankov ustvarjeni označevalci DOI (preglednica 9). Za interoperabilnost bibliografskih informacijskih sistemov so označevalci DOI objavljeni na spletni strani revije, v sistemu COBISS.SI in repozitoriju DRUGG.

## 4 REZULTATI IN RAZPRAVA

Za analizo mednarodne prepoznavnosti Geodetskega vestnika in vpliva uredniške politike na večjo vidnost člankov, objavljenih v reviji, smo proučili citiranost člankov Geodetskega vestnika. V prvem delu raziskave smo analizirali citiranost Geodetskega vestnika in člankov, objavljenih v reviji, za proučevana leta citiranosti JCR od 2009 do 2013, kjer smo upoštevali vse citate objav v Geodetskem vestniku za desetletno obdobje. V drugem delu raziskave smo za isto obdobje proučili članke in druga objavljena dela, ki so bili citirani v člankih Geodetskega vestnika. V sklepnem delu je primerjalna analiza izbranih informacijskih sistemov s podatki o indeksaciji člankov Geodetskega vestnika v njih (preglednica 9).

### 4.1 Geodetski vestnik kot citirana revija v sistemu WoS

Podatki za analizo citiranosti člankov, objavljenih v Geodetskem vestniku, so bili pridobljeni iz zbirke WoS na dan 10. januarja 2015. Rezultati analize so predstavljeni v preglednici 5. Revije, v katerih je citiran Geodetski vestnik, so razvrščene po posameznem proučevanem letu citiranosti (JCR 2009–2013). Za vsako leto JCR so zajeti vsi citati proučevane revije v proučevanem letu, neodvisno od leta objave. Podatki so prikazani za objave zadnjih deset let, za starejše pa skupaj kot vsota v stolpcu »ostalo«, ločeno za posamezno od navedenih revij. Imena slednjih so zapisana z mednarodno uveljavljenimi krajšavami. Tako je iz preglednice 5 za posamezno leto JCR razvidno, v katerih revijah so bili citirani članki, objavljeni v Geodetskem vestniku, in kako pogosto, ločeno za revije, indeksirane v indeksu za naravoslovne in tehniške vede ter medicino in biotehnologijo (SCI, zapisano poudarjeno) in indeksu za družboslovne vede (SSCI, zapisano v kurzivi). Naveden je tudi dejavnik vpliva revije (IF), kjer obstaja.

Preglednica 5: Seznam revij, ki so citirale Geodetski vestnik (glede na leto JCR), s frekvenco citatov po letih objave člankov (vir podatkov: JCR, 2015).

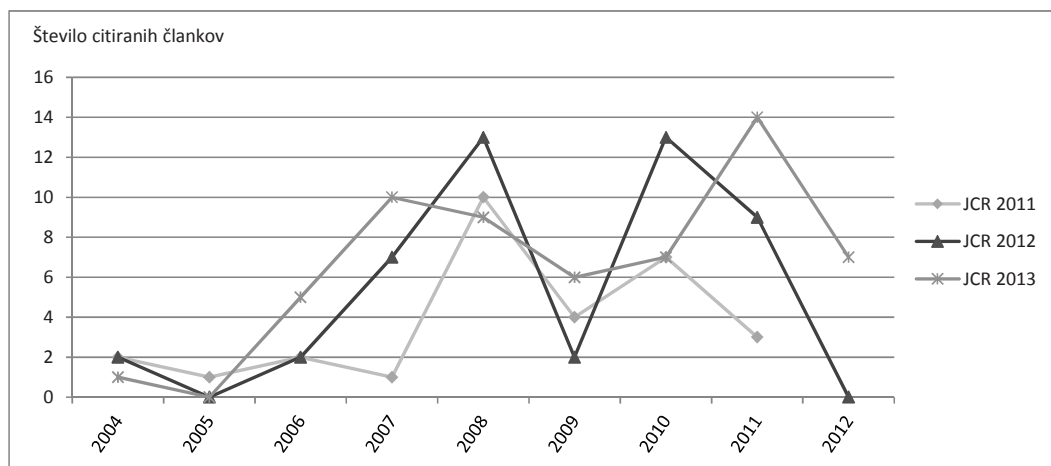
JCR 2009													
IF	Citirajoča revija/citati	Skupaj	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	Ostalo
0.227	GEOD VESTN	33	0	10	4	6	3	0	6	1	0	3	0
0.288	ACTA GEOD GEOPHYS HU	2	0	1	0	0	0	0	0	0	0	0	1
	LEX LOCALIS	2	0	2	0	0	0	0	0	0	0	0	0
0.714	ACTA GEOGR SLOV	1	0	0	0	0	0	0	0	0	1	0	0
1.110	PHOTOGRAMM ENG REM S	1	0	0	0	0	0	0	1	0	0	0	0
<b>Skupaj</b>	<b>5</b>	<b>39</b>	<b>0</b>	<b>13</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>
JCR 2010													
IF	Citirajoča revija/citati	Skupaj	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	Ostalo
0.215	GEOD VESTN	38	5	4	6	7	3	2	3	5	0	0	3
0.346	ACTA GEOGR SLOV	3	0	2	1	0	0	0	0	0	0	0	0
	10 INT MULT SCIENT	1	0	1	0	0	0	0	0	0	0	0	0
2.139	BRIT J EDUC TECHNOL	1	1	0	0	0	0	0	0	0	0	0	0
0.678	ENVIRON EARTH SCI	1	0	0	0	0	0	0	0	0	0	0	1
1.016	TURK ONLINE J EDUC T	1	1	0	0	0	0	0	0	0	0	0	0
<b>Skupaj</b>	<b>6</b>	<b>45</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>4</b>
JCR 2011													
IF	Citirajoča revija/citati	Skupaj	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	Ostalo
0.212	GEOD VESTN	32	3	6	4	9	1	2	0	1	2	1	3
0.484	CENT EUR J OPER RES	1	0	0	0	0	0	0	0	0	0	0	1
0.082	GRADEVINAR	1	0	0	0	1	0	0	0	0	0	0	0
0.317	LEX LOCALIS	1	0	1	0	0	0	0	0	0	0	0	0
1.009	MACH VISION APPL	1	0	0	0	0	0	0	0	1	0	0	0
1.098	PHOTOGRAMM REC	1	0	0	0	0	0	0	1	0	0	0	0
<b>Skupaj</b>	<b>7</b>	<b>37</b>	<b>3</b>	<b>7</b>	<b>4</b>	<b>10</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>4</b>
JCR 2012													
IF	Citirajoča revija/citati	Skupaj	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	Ostalo
0.367	GEOD VESTN	42	0	7	10	2	9	7	1	0	2	1	3
	ACTUAL PROBL ECON	3	0	1	2	0	0	0	0	0	0	0	0
0.972	INZ EKON	2	0	0	0	0	2	0	0	0	0	0	0
0.347	ACTA GEOD GEOPHYS HU	1	0	0	0	0	0	0	1	0	0	0	0
0.049	DVE DOMOVINI	1	0	0	1	0	0	0	0	0	0	0	0
1.138	INT J REMOTE SENS	1	0	1	0	0	0	0	0	0	0	0	0
0.517	SENSOR LETT	1	0	0	0	0	1	0	0	0	0	0	0
0.290	SURV REV	1	0	0	0	0	1	0	0	0	0	0	0
<b>Skupaj</b>	<b>8</b>	<b>52</b>	<b>0</b>	<b>9</b>	<b>13</b>	<b>2</b>	<b>13</b>	<b>7</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>



JCR 2013													
IF	Citirajoča revija/citati	Skupaj	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	Ostalo
0.288	GEOD VESTN	48	1	4	12	5	3	8	7	2	0	1	5
0.750	ACTA GEOGR SLOV	4	0	1	1	0	0	1	0	1	0	0	0
3.134	LAND USE POLICY	4	0	0	0	0	2	0	1	1	0	0	0
0.577	SURV REV	4	0	0	0	1	0	0	2	0	0	0	1
2.696	HYDROL PROCESS	1	0	1	0	0	0	0	0	0	0	0	0
0.995	FUTURES	1	0	1	0	0	0	0	0	0	0	0	0
2.068	ADV ENG INFORM	1	0	0	0	0	0	0	0	1	0	0	0
0.600	LEX LOCALIS	1	0	0	0	0	1	0	0	0	0	0	0
0.124	SCRIPTA NOVA	1	0	0	1	0	0	0	0	0	0	0	0
0.892	J APPL REMOTE SENS	1	0	0	0	1	0	0	0	0	0	0	0
<b>Skupaj</b>	<b>10</b>	<b>66</b>	<b>1</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>6</b>	<b>9</b>	<b>10</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>6</b>

Kot je razvidno iz preglednice 5, so bili članki, objavljeni v Geodetskem vestniku v obdobju od 2000 do 2009, v letu JCR 2009 citirani 39-krat v petih revijah. Največkrat (33-krat) so bili citirani v Geodetskem vestniku, preostalih šest citatov pa je bilo objavljenih v štirih revijah, dve od njih sta indeksirani v indeksu SCI, ena je v indeksu SSCI. Večina (13) citiranih člankov Geodetskega vestnika je bila objavljena leta 2008.

Rezultati analize kažejo povečanje števila citirajočih revij s 5 v letu JCR 2009 na 10 v letu JCR 2013. Skupno število citatov Geodetskega vestnika se je z 39 v letu JCR 2009 povečalo na 66 v letu JCR 2013. Med citirajočimi revijami je delež tujih revij vsako leto večji. Med njimi je večji delež revij, indeksiranih v indeksu SSCI. Opaziti je visoko stopnjo samocitiranosti Geodetskega vestnika, saj ta presega 80 % vseh citatov v posameznem letu. V letu JCR 2013 se je ta delež nekoliko znižal (73 %). Iz podatkov je razvidno, da so v desetletnem obdobju citiranosti (za proučevano obdobje objav 2009–2013) najpogosteje citirani članki Geodetskega vestnika iz leta 2008, v proučevanem letu 2013 pa tisti, objavljeni leta 2011 (slika 1).



Slika 1: Frekvenca citiranih člankov glede na leto objave za leta JCR od 2011 do 2013.

## 4.2 Geodetski vestnik kot revija, ki citira članke v sistemu WoS

Rezultati analize citiranih člankov v objavah v Geodetskem vestniku v proučevanem obdobju 2009–2013 kažejo na veliko povečanje števila citiranih revij v zadnjih desetih letih. Po podatkih JCR se je v vsakem obravnavanem letu, z izjemo leta 2013, povečalo število revij, v katerih so bili objavljeni citirani članki. Število v Geodetskem vestniku citiranih revij narašča – s 105 v letu 2009 na 181 v letu 2012, v letu 2013 se je število revij znižalo na 81. V preglednicah od 6 do 8 je navedenih po 20 najpogosteje citiranih revij in drugih citiranih informacijskih virov v Geodetskem vestniku za leta 2009, 2011 in 2013. V raziskavi smo analizirali citirane vire vsakega posameznega leta iz proučevanega obdobja (2009–2013) ter ugotovili, da so v obdobju 2009–2011 prevladovali citati del, ki so bila objavljena v revijah brez dejavnika vpliva IF, v kasnejšem obdobju pa se je delež citiranih del, objavljenih v revijah z dejavnikom vpliva, povečal, saj so med citiranimi začele pojavljati tuje vplivne revije. Med slednjimi prevladujejo revije, indeksirane v indeksu SCI (v preglednicah pisano poudarjeno), manj pa je citiranih del, ki so bila objavljena v revijah, indeksiranih v indeksu SSCI. Ugotovljeno je tudi povečanje števila člankov z mednarodno avtorsko zasedbo. Po ugotovitvah Bartola et al. (2014) mednarodna zasedba avtorjev poveča vpliv članka in revije. Podobno bi lahko ugotovili za revijo Geodetski vestnik.

Preglednica 6: Seznam najpogosteje citiranih virov v Geodetskem vestniku s frekvenco citatov po letih objave člankov za proučevano leto citiranosti JCR 2009 (vir podatkov: JCR, 2015).

JCR 2009													
IF	Citirana revija/citati	Skupaj	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	Ostalo
0.227	<i>GEOD VESTN</i>	33	0	10	4	6	3	0	6	1	0	3	0
	URADNI LIST RS	19	0	1	4	4	0	5	2	3	0	0	0
	URADNI LIST	10	0	0	1	1	0	3	1	3	0	0	1
2.170	<i>LANDSCAPE URBAN PLAN</i>	6	0	0	0	2	2	0	0	0	2	0	0
	GEOLOGIJA	6	0	0	0	2	2	0	0	0	2	0	0
	URBANI IZZIV	6	0	0	0	0	2	0	0	0	0	2	2
2.355	<i>LAND USE POLICY</i>	6	0	4	0	0	0	0	0	2	0	0	0
1.871	<b>ECOL MODEL</b>	6	0	0	0	0	4	0	0	0	0	2	0
	S IAG SUBC EUR REF F	5	0	0	0	0	0	0	1	0	0	0	4
	STADT STADTREGION MA	4	0	0	0	3	0	1	0	0	0	0	0
	COMPUTERS ENV URBAN	4	0	0	0	0	0	0	0	0	0	2	2
1.408	<b>ENVIRON MANAGE</b>	4	0	0	0	0	0	2	0	0	2	0	0
	WORKSH LAND READJ LI	4	0	0	0	0	0	0	0	4	0	0	0
0.714	<b>ACTA GEOGR SLOV</b>	4	0	0	2	1	1	0	0	0	0	0	0
	GRADBENI VESTN	4	0	0	2	0	0	0	0	0	0	0	2
0.875	<i>PROG PLANN</i>	4	0	0	0	0	0	0	0	2	0	2	0
1.703	<b>LANDSLIDES</b>	3	0	3	0	0	0	0	0	0	0	0	0
1.212	<b>ENG GEOL</b>	3	0	3	0	0	0	0	0	0	0	0	0
1.301	<i>URBAN STUD</i>	3	0	0	2	0	0	0	0	0	0	0	1
	ALL OTHERS (231)	231	18	31	31	19	16	22	10	15	9	20	40
<b>Skupaj</b>	<b>105</b>	<b>539</b>	<b>30</b>	<b>59</b>	<b>58</b>	<b>62</b>	<b>45</b>	<b>54</b>	<b>28</b>	<b>40</b>	<b>22</b>	<b>37</b>	<b>104</b>

Največkrat citirani članki v Geodetskem vestniku so tisti, ki so tudi objavljeni v Geodetskem vestniku. Največ (48) samocitatorjev je revija Geodetski vestnik dosegla v letu 2013, ker pa je bilo takrat doseženo tudi najvišje skupno število vseh citatorjev (812), je delež samocitatorjev relativno nizek (5,9 %). Drugi največkrat citirani vir je Uradni list Republike Slovenije, in sicer po 19-krat v letih 2009 in 2012.

Preglednica 7: Seznam najpogostejše citiranih virov v Geodetskem vestniku s frekvenco citatorjev po letih objave člankov za proučevano leto JCR 2011 (vir podatkov: JCR, 2015).

JCR 2011													
IF	Citirana revija/citati	Skupaj	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	Ostalo
0.212	GEOD VESTN	32	3	6	4	9	1	2	0	1	2	1	3
2.885	ISPRS J PHOTOGRAMM	10	0	2	0	2	4	0	0	0	2	0	0
	INT ARCH PHOTOGRAMME	9	0	0	0	2	0	2	0	2	0	0	3
	OBJECT BASED IMAGE A	8	0	0	0	8	0	0	0	0	0	0	0
1.117	INT J REMOTE SENS	7	0	0	0	0	0	2	0	0	1	1	3
	ISPRS	5	0	1	0	0	0	0	0	0	0	0	4
0.663	HOUSING STUD	5	0	0	0	0	0	0	1	3	1	0	0
	DIGITAL IMAGE PROCES	4	0	0	0	0	0	0	0	2	0	2	0
	P IGARSS 2005 S SEUL	4	0	0	0	0	0	0	4	0	0	0	0
4.574	REMOTE SENS ENVIRON	4	2	0	0	0	0	0	0	0	0	0	2
	P NARGIS 2005 APPL T	4	0	0	0	0	0	0	4	0	0	0	0
	P ISPRSWG 7 1 HUM SE	4	0	0	0	0	0	0	4	0	0	0	0
	GRADBENI VESTN	4	0	0	0	0	2	0	0	0	0	0	2
	JURSE 2011	4	4	0	0	0	0	0	0	0	0	0	0
2.895	IEEE T GEOSCI REMOTE	4	0	1	0	0	1	0	0	0	0	0	2
	P 26 AS C REM SENS H	4	0	0	0	0	0	0	4	0	0	0	0
	LECT NOTES GEOINFORM	4	0	0	0	4	0	0	0	0	0	0	0
	THESIS FAC CIVIL	4	0	0	2	0	0	0	0	0	0	0	2
	USKLADITEV PODATKOV	4	2	2	0	0	0	0	0	0	0	0	0
	ALL OTHERS (429)	429	18	39	34	34	30	25	26	19	10	12	182
<b>Skupaj</b>	<b>118</b>	<b>760</b>	<b>44</b>	<b>68</b>	<b>52</b>	<b>70</b>	<b>60</b>	<b>43</b>	<b>58</b>	<b>47</b>	<b>22</b>	<b>25</b>	<b>271</b>

Največkrat citirana strokovna revija je *Photogrammetric Engineering and Remote Sensing*, ki je citirana po 12-krat v JCR 2010 in JCR 2013 ter ima dejavnik vpliva. Med pogosto citiranimi strokovnimi revijami sta po 11 citatorjev dosegli reviji *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Science* (v JCR 2013, revija je brez dejavnika vpliva IF) in *ISPRS Journal of Photogrammetry* (v JCR 2011, revija z dejavnikom vpliva IF). Večkrat je bila citirana tudi revija *Regional Studies* (revija brez dejavnika vpliva IF), v JCR 2010 je bila citirana dvakrat, v JCR 2012 desetkrat in v JCR 2013 šestkrat. V JCR 2012 je bilo citiranih osem njenih člankov, starejših od deset let, kar je v nasprotju z znano trditvijo Eysenbacha (2006), da so članki največkrat citirani v prvih štirih letih po objavi.

Revij, ki so v proučevanem obdobju 2009–2013 citirane vsaj v dveh posameznih letih, je več. Med revijami

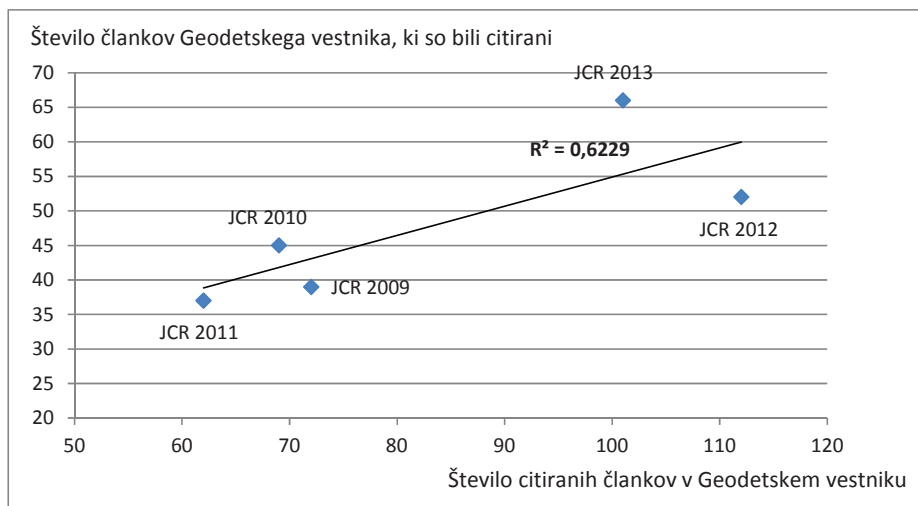
z dejavnikom vpliva IF sta *ISPRS Journal of Photogrammetry*, ki je bila v JCR 2010 citirana sedemkrat, v JCR 2011 pa desetkrat, ter revija *International Journal of Remote Sensing*, ki je dosegla pet citatov v letu 2010 in sedem citatov v letu 2011. Vseh pet citatov v JCR 2010 je starejših od deset let. Zanimivo je tudi, da je zelo nizek delež citatov iz »čistih« geodetskih revij; v JCR 2013 sta takšni le reviji *Survey Review* z devetimi citati in *Journal of Surveying Engineering* s štirimi citati. Najpogosteje so citirani njuni članki iz leta 2006. Med slovenskimi viri je bil Uradni list Republike Slovenije citiran v treh posameznih letih JCR, vedno z visokim številom citatov. Preostali pogosto citirani slovenski viri so Gradbeni vestnik, Urbani izziv in Geologija, vsak v dveh posameznih letih JCR.

Preglednica 8: Seznam najpogosteje citiranih virov v Geodetskem vestniku s frekvenco citatov po letih objave člankov za proučevano leto JCR 2013 (vir podatkov: JCR, 2015).

JCR 2013													
IF	Citirana revija/citati	Skupaj	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	Ostalo
0.288	GEOD VESTN	48	1	4	12	5	3	8	7	2	0	1	5
2.071	PHOTOGRAMM ENG REM	12	0	0	0	1	1	0	3	0	2	1	4
	INT ARCH PHOTOGRAMME	11	0	0	0	1	0	2	2	0	0	1	5
0.577	SURV REV	9	1	1	1	1	0	1	0	4	0	0	0
	THESIS	7	0	0	2	0	0	0	1	0	0	0	4
2.902	ISPRS J PHOTOGRAMM	7	0	2	0	0	1	0	0	1	0	1	2
1.756	REG STUD	6	0	0	0	2	2	0	0	0	0	0	2
0.750	ACTA GEOGR SLOV	5	0	0	2	0	0	0	1	0	0	2	0
1.000	T GIS	5	0	2	1	0	1	0	0	0	0	1	0
1.479	INT J GEOGR INF SCI	5	0	0	1	0	0	0	0	0	1	0	3
	SOCIOMETRY	4	0	0	0	0	0	0	0	0	0	0	4
	URADNI LIST REPUBLIK	4	0	1	1	0	0	1	0	1	0	0	0
	GIM INT	4	0	4	0	0	0	0	0	0	0	0	0
	FINANCE	4	4	0	0	0	0	0	0	0	0	0	0
	GEOLGIJA-LJUBLJANA	4	0	0	0	0	1	0	0	2	0	0	1
1.000	J SURV ENG	4	0	0	0	1	0	0	0	3	0	0	0
	MEDN STAND OC VREDN	4	0	0	2	0	0	0	2	0	0	0	0
	REGIONALNI RAZVOJ	4	0	0	3	0	0	0	0	0	0	0	1
	ALL OTHERS (458)	458	22	46	38	35	32	26	21	17	9	19	193
	**NON-TRADITIONAL**	77	0	0	0	0	0	0	0	0	0	0	77
<b>Skupaj</b>	<b>81</b>	<b>812</b>	<b>30</b>	<b>72</b>	<b>85</b>	<b>54</b>	<b>47</b>	<b>45</b>	<b>46</b>	<b>33</b>	<b>15</b>	<b>33</b>	<b>352</b>

Indeksiranje revije Geodetski vestnik v mednarodnih podatkovnih zbirkah in arhiviranje člankov v repozitoriju DRUGG ter zagotavljanje odprtega dostopa do celotnih besedil člankov je zagotovo prispevalo h kakovosti in mednarodni prepoznavnosti Geodetskega vestnika. V obdobju 2009–2013 je opazno povečanje števila citiranih virov v objavah Geodetskega vestnika, prav tako se povišuje delež citatov znanstvenih objav iz recenziranih znanstvenih revij, objavljenih v domačih in mednarodnih revijah. To bi lahko bila tudi posledica odprtega dostopa, ki zagotovo pozitivno prispeva

k mednarodni znanstveni komunikaciji. K večji vidnosti revij pomembno prispeva upoštevanje protokolov za prenos metapodatkov, ki so pogoj medobratovalnosti različnih sistemov v sodobnem tehnološko razvitem sistemu znanstvene komunikacije. Na sliki 2 je prikazana korelacija med številom citiranih del v člankih Geodetskega vestnika, pri čemer so upoštevana le dela, objavljena v revijah z dejavnikom vpliva IF (indeksiranih v indeksih SCI ali SSCI) s seznama 20 najpogosteje citiranih virov (glej preglednice 6–8), in številom citatov člankov, ki so bili objavljeni v Geodetskem vestniku ( $r^2 = 0,63$ ).



Slika 2: Korelacija med številom člankov, ki so citirani v Geodetskem vestniku (le za revije z dejavnikom vpliva s seznama 20 najbolj citiranih revij za posamezno leto JCR), in številom citatov člankov, objavljenih v Geodetskem vestniku.

### 4.3 Geodetski vestnik v repozitoriju DRUGG

Za potrebe raziskave smo proučili zastopanost Geodetskega vestnika v repozitoriju DRUGG ter drugih bibliografskih informacijskih sistemih. Predmet raziskave so članki, objavljeni v Geodetskem vestniku v obdobju 2005–2014. Proučili smo njihovo vključenost v posamezno podatkovno zbirko za vsako posamezno leto objave (preglednica 9). V sistemu COBISS.SI, kjer so indeksirani vsi objavljeni članki Geodetskega vestnika, je v proučevanem obdobju indeksiranih 663 člankov. Od 206 znanstvenih in 188 strokovnih člankov jih je v repozitoriju DRUGG arhiviranih 81 oziroma 20,55 % vseh objavljenih člankov.

Kot je razvidno iz preglednice 9, v sistemu WoS niso indeksirani le recenzirani znanstveni in strokovni članki, temveč tudi druge nerecenzirane objave, kot so uvodniki, poročila o društvenih dejavnostih, ki pa imajo majhno možnost, da bodo citirane. Dodatna ovira je jezik teh objav, saj so izključno slovenske, prevod naslovov v angleški jezik pa je pogosto neustrezen (na primer: *March Surveyors on the Uršljo mountain*, ki naj bi pomenil Pohod geodetov na Uršljo goro). Pri tem v sistemu WoS manjkajo nekatere objave iz rubrike društvenih dejavnosti v letih 2012 in 2013. Poudariti velja, da se pri izračunu dejavnika vpliva revije upoštevajo le recenzirani znanstveni in strokovni članki.

V repozitoriju DRUGG in sistemu CrossRef so skladno s pravili registrirani samo recenzirani znanstveni in strokovni članki Geodetskega vestnika. Prepričani smo, da so članki Geodetskega vestnika z arhiviranjem v repozitoriju DRUGG postali bolj vidni (predvsem za akademsko strokovno javnost).

Preglednica 9: Podatki o številu indeksiranih člankov Geodetskega vestnika 2005–2014 v različnih informacijskih sistemih (januar 2015)

Revija	Letnik	Leto	Št. člankov v COBISS.SI	Št. člankov v WoS	Št. člankov v DRUGG	Št. člankov v CrossRef
Geodetski vestnik	58	2014	89	92	16	18
Geodetski vestnik	57	2013	61	49	18	30
Geodetski vestnik	56	2012	72	51	13	35
Geodetski vestnik	55	2011	79	76	17	34
Geodetski vestnik	54	2010	67	41	11	26
Geodetski vestnik	53	2009	65	63	3	0
Geodetski vestnik	52	2008	60	51	2	0
Geodetski vestnik	51	2007	66	64	1	0
Geodetski vestnik	50	2006	56	0	0	0
Geodetski vestnik	49	2005	48	0	0	0
<b>Skupaj</b>			<b>663</b>	<b>487</b>	<b>81</b>	<b>143</b>

## 5 SKLEPNE UGOTOVITVE

Institucionalni repozitoriji in bibliografske podatkovne zbirke so sodobni informacijski sistemi, ključni za sodobno znanstveno komunikacijo. Vključenost revij v sodobne bibliografske informacijske sisteme poveča njihovo vidnost, jih usmerja k višji kakovosti in prispeva k mreženju v znanosti. To smo ugotovili tudi pri preučevanju mednarodne prepoznavnosti Geodetskega vestnika.

V članku smo predstavili nekaj ukrepov uredniškega odbora revije v zadnjih desetih letih, da bi povečali kakovost in vidnost, s tem pa tudi vpliv na znanstvenoraziskovalno in strokovno delo. Med ukrepi velja izpostaviti odprti dostop do celotnih besedil člankov prek spletne strani revije, vključenost revije v mednarodne informacijske sisteme, kot sta DOAJ (angl. *Directory of Open Access Journals*) in WoS (angl. *Web of Science*) z indeksom SSCI (angl. *Social Sciences Citation Index*), kar je zagotovo prispevalo k vidnosti revije in njenih objav. Prednosti vključenosti Geodetskega vestnika v sistem CrossRef (poleti 2014) in pridobitev označevalca elektronske lokacije DOI še ni mogoče ovrednotiti, saj je za citiranost člankov potreben časovni zamik. Dejstvo je, da uvedba označevalca DOI kot enoličnega označevalca (elektronske lokacije) članka prispeva k prepoznavnosti revije Geodetski vestnik.

Splošno spoznanje preteklih let je, da so prednosti in koristi urejenih in transparentnih bibliografskih informacijskih sistemov ter repozitorijev večplastne. Avtorji dosežejo večjo vidnost objavljenih del, kar jim omogoča, da se lažje vključijo v mednarodne znanstvene-raziskovalne mreže, s tem pa tudi lažje prispevajo k znanstvenemu napredku. Urejeni bibliografski informacijski sistemi nadalje prispevajo k zaščiti avtorskih pravic na mednarodni ravni, kar je izrednega pomena. S teh vidikov je tudi mogoče razumeti zahteve Evropske komisije, da morajo biti objave rezultatov evropskih projektov vključene v repozitorije, kot je DRUGG. Repozitorij kot elektronski arhiv je postal pomemben za izpolnjevanje

pogodbenih določil projektov, ki jih financira Evropska komisija. Visokošolski knjižničarji kot specialisti informacijskih ved in informacijsko-komunikacijskih tehnologij lahko v tem vidijo izziv za svojo novo dejavno vlogo v sistemu znanstvene komunikacije.

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Glej literaturo na strani 304.

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