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USFT Services Assessment RPT Geoscience Impact Environmental Scan 2017.2020

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Environmental Scan 2017-2019
USF School of Geosciences Research Impact and Visibility
and the Role and Preliminary Impact
USF Libraries Geosciences Research Platform Team

By Matt Torrence and Meghan Cook
USF Libraries Geoscience Research Platform Team

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UNIVERSITY of
SOUTH FLORIDA
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Introduction

The USF Libraries Research Platform Team (RPT) for the Geosciences was created in 2017 with the direct charge of helping USG Geoscience faculty and graduate students increase their research impact and visibility. One of the first tasks for the RPT liaisons was to establish a baseline of data using the various impact measurement tools provided through the USF Libraries.

In this report, the Geosciences RPT presents the results from 3 years of measurement of Geoscience faculty, graduate students' publication, citation, grant productivity and impact. The years represented in this report are the 2017/18, 2018/19, and 2019/20 academic years. In some cases, 2-year measures have been included, but there has been an emphasis on consistent reporting to maximize future value and retrospective comparison. Ultimately the purpose of establishing this baseline of data was to be able to ascertain the impact of Geoscience RPT interventions and activities.

By the 2019/20-year, sufficient data had been collected for deeper analysis on how the RPT librarians could better target their liaison activities in support of the USF School of Geoscience. These new projects include 1) adding faculty and graduate student faculty research profiles in the USF Libraries Scholar Commons institutional repository in order to increase research visibility and impact, 2) initiating the Calling Earth: Podcast to promote departmental research visibility, and 3) targeted workshops and consultations with important Geoscience stakeholders in order to raise awareness and usage of library tools and services.

This report presents the environmental scan methodology used to systematically establish a baseline of data, results from three years of data collection, the RPT project response to these findings, and a conclusion about possible areas for RPT programmatic refinement.

Correspondence to University Metrics and Goals

The overall focus is primarily on faculty and graduate student research. The RPT supports the listed metric and goals by carefully and cyclically measuring research impact and productivity via services and library resources. Accordingly, this leads support for student success in STEM, an identified area of emphasis. In addition, the USF Geosciences RPT enhances library integration and collaboration with the USF School of Geosciences, as well as their efforts to support university metrics and goals. These also relate directly to USF metrics and goals, which include:

- USF Performance-Based Funding (PBF) Metric 8: Graduate degrees awarded in areas of strategic emphasis.
- USF Goal 2: To conduct high-impact research and innovation to advance frontiers of knowledge, solve global problems and improve lives.
- USF Goal 4: To provide a safe, inclusive and vibrant community for learning, discovery, creative activities and transformative experiences enabled through adaptive design of physical, social and digital environments.

Methodology

In addition to reviewing faculty activities, annual student degrees and credit hours, and other cumulative information, the USF Libraries Geosciences RPT reviews internal mechanisms, reports, and other resources that are used to measure degrees awarded, Scholar Commons profiles and downloads, and other tracked information

The following academic resources and databases are also utilized for these annual scans, reports, and data, which also relate to the above-referenced overall RPT and USF metrics and goals. These data include, but are not limited to, the following:

- Total publications for Geosciences authors and departments
- Citation counts and other measures for publications and journals
- Subject areas of research publication and concentration
- Various impact and visibility measures by author and subject area

Web of Science/InCites Summary Data Utilized

In order to measure aggregate and individual research and publishing productivity, data is regularly extracted from the Web of Science collection of resources. Emphasis is placed on departmental and institutional data from InCites and the Journal Citation Reports (JCR). These resources allow for the tracking of general and specific publication data. The Web of Science data feeds directly into InCites, which is one of the primary tools used for these annual scans.

Scopus/SciVal Summary of Data Utilized

As with the Web of Science collection of resources, general and individual data is annually reviewed using information available from the Scopus and SciVal suite of resources. These resources allow for the further comparative examination of publication, impact, and other data for cyclical review of productivity and progress related to the above-referenced metrics and goals.

Environmental Scan Findings

Overview of Faculty and Student Information Collection for the School of Geosciences

- Total number of faculty (Fall of year, “Faculty Counts by Rank”, excluding Emeritus (3), Courtesy (3), Geosciences affiliated faculty working in the libraries (2), other faculty (4), and St. Petersburg faculty (to be included in 2020): **44**
- Total number of degrees awarded (full year 2019-2020): 172
 - Doctorate: 2 (GEOG & ENV and POL), 9 (GEO): 11
 - Master’s: 11 (ENV and POL), 2 (GEOG), 5 (GEO): 18
 - Baccalaureate: 102 (ENV and POL), 13 (GEOG), 28 (GEO): 143
 - Certificates/Other: NA

Data tied to individual faculty impact and measures have been excluded for this summary, but names and numbers of faculty are provided for each iteration of the summary.

Faculty Impact and Productivity: Web of Science InCites and Scopus/ SciVal

In addition to establishing benchmarks for publication targets and citation counts, this baseline of data has helped the Geoscience RPTs track faculty advancement and visibility.

Publications by Geoscience Faculty as found in the Web of Science/InCites database (all years):

Name	Rank	Web of Science Documents	Category Normalized Citation Impact	Times Cited	% Docs Cited
ENVIRONMENTAL SCIENCES	1	1376	1.67	31325	87.21
GEOSCIENCES, MULTIDISCIPLINARY	2	959	1.5	29585	90.2
GEOLOGY	3	208	1.16	6172	85.1
GEOGRAPHY, PHYSICAL	4	252	1.01	6087	91.67
ENVIRONMENTAL STUDIES	5	239	1.48	2941	66.11
GEOGRAPHY	6	153	0.91	1997	66.67
Benchmark		2,698	1.58	67,695	85.17
Research Area: [GEOGRAPHY, GEOGRAPHY, PHYSICAL, GEOLOGY, GEOSCIENCES, MULTIDISCIPLINARY, ENVIRONMENTAL SCIENCES, ENVIRONMENTAL STUDIES]					

One highlight is the Category Normalized Citation Impact (CNIP) measure from InCites/Web of Science data (all years included):

- 2017 - Category Normalized Citation Impact: 1.25
- 2018 - Category Normalized Citation Impact: 1.27
- 2019 - Category Normalized Citation Impact: 1.58

There was a considerable jump from 2018 to 2019 (19.4%), showing that the works in which the Geoscience students and faculty are publishing are demonstrating a higher rate of citations and impact.

Top journals, by rank, for 2019-2020 (to better replicate previous scans) by “Times Cited” for USF Geosciences authors:

Name	Rank	WoS Docs.	Times Cited	% Docs Cited
FRONTIERS IN MARINE SCIENCE	1	20	91	75
JOURNAL OF CLEANER PRODUCTION	2	9	52	89
REMOTE SENSING OF ENVIRONMENT	3	12	42	67
GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS	4	2	37	100

JOURNAL OF HYDROLOGY	4	1	37	100
NATURE CLIMATE CHANGE	6	3	36	67
SCIENCE OF THE TOTAL ENVIRONMENT	7	9	22	56
INTERNATIONAL JOURNAL OF SUSTAINABLE TRANSPORTATION	7	2	22	100
NATURE COMMUNICATIONS	7	5	22	80
GLOBAL CHANGE BIOLOGY	10	3	20	67
CHEMICAL GEOLOGY	11	2	18	100
RESOURCES CONSERVATION AND RECYCLING	12	1	17	100
ENVIRONMENTAL SCIENCE & TECHNOLOGY	12	2	17	50
EARTH AND PLANETARY SCIENCE LETTERS	14	5	15	80
SUSTAINABILITY	15	9	14	44
NATURE SUSTAINABILITY	15	3	14	100
IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING	15	5	14	60
ECOLOGICAL APPLICATIONS	18	3	10	100
NATURE GEOSCIENCE	18	2	10	100

Publications by Geoscience Faculty as found in the Scopus/SciVal database:

Scopus data also shows a generally positive trend in the H-index for Geosciences faculty publications and the H-index for the journals in which they are published, with a considerable jump (24.4%) in said H-index from 2018 to 2019.

2017

- (Scopus) Total for last 15 years (2002-2017):
 - Total of indexed works published: 1,378
 - H-index for works in this area: 78

2018

- (Scopus) Total for last 15 years (2003-2018):
 - Total of indexed works published: 1,892
 - H-index for works in this area: 72

2019

- (Scopus) Total for last 15 years (2004-2019):
 - Total of indexed works published: 1,456
 - H-index for works in this area: 86

Scopus also demonstrates a sizeable increase (39.2%) in total numbers of indexed works published from 2018 to 2019 (looking back 4 years for each measurement)

Subject Areas	Publications (2016-2020)	Total Citations (2016-2020)	Ave. Citations/ Publication
Earth & Planetary Sciences	844	8,323	9.9
Environmental Sciences	999	10,061	10.1
Benchmark	1,456	18,384	

The 2019 scan also shows an overall increase for the last year (compared to 2018 scan) in “Citations per publication” of 45.6% for Earth & Planetary Sciences and an increase of 40.3% for Environmental Science.

Research Subject Areas and Sub-Categories

In terms of Subject areas and Sub-categories of USF Geosciences published works indexed in Scopus/SciVal, there has been a great deal of consistency for the three years of measurement. Here are the major Sub-categories for both of the major groups and subject areas, which are “Earth and Planetary Sciences” and “Environmental Sciences”:

Earth and Planetary Sciences (Sub-categories):

- Oceanography
- General Earth and Planetary Sciences
- Geochemistry and Petrology
- Earth-Surface Processes
- Geophysics

Environmental Sciences (Sub-categories):

- Ecology
- Water Science and Technology
- General Environmental Science
- Environmental Chemistry
- Pollution

The ranked order of these areas has varied slightly from year to year, but these have consistently been the major areas of focus for USF Geosciences journal publications.

Response to Environmental Scan Findings

With two years of data collected, the Geoscience Research Platform Team began implementing projects designed to increase faculty and graduate student research impact and visibility. These projects, along with some initial measurements of RPT impact, are outlined below.

USF Libraries Scholar Commons Research Profiles

In April of 2019, the Geosciences RPT initiated a major effort to obtain faculty and graduate student CVs and related academic efforts for Scholar Commons, the official repository for USF. This table from the 2019 summary shows the statistical measures and successes of this effort*:

Selected Works profile creation counts (before April 15th 2019) versus (April 15th and on)				
	before April 15th 2019	April 15th and on	Total	Percent change
Faculty	10	31	41	76
Grad Student	3	19	22	86

Scholar Commons total items (before April 15th 2019) versus (April 15th and on)				
	before April 15th 2019	April 15th and on	Total	
Faculty	1,477	2755	4,232	65
Grad Student	44	235	279	84
Total	1,521	2990	4,511	66

Scholar Commons total downloads (before April 2019) versus (April 2019 and on)[1]				
	before April 2019	April 15th 2019 on	Total	
Faculty	26,367	7,338	33,705	22
Grad Student	2	641	643	100
Total	26,369	7,979	34,348	77

*(In the above chart, “April 15 and on” refers to April 15th, 2019 to the end of the calendar year of 2019. The “Percent change” takes into account prior and existing Scholar Commons accounts and downloads measuring the change from RPT initiated requests for CVs and materials for inclusion.)

All of these primary measures for Scholar Commons participation have shown large and positive increases and have a beneficial impact on the visibility of the work by students and faculty.

Calling Earth: Podcast

In 2019, the Geosciences RPT started the Calling: Earth Podcast and the team has interviewed over 30 students and faculty to date. RPT team members were able to correlate this to increases in Scholar Commons downloads for interviewees and hope to continue this trend in future interviews and seasons. Here are some data and anecdotal highlights related to the podcast:

- Marked increase in downloads in the last two months of 2019 (from roughly 1700 to 2200 total, an increase of almost 30%) thanks to increased content and marketing efforts (including Facebook ads provided by the Geoscience Dept. in mid-2019)
- Impact on faculty has also been noteworthy. The SC download totals for faculty participants (when comparing roughly the same amount of time just prior to and following their published interview) showed an average increase of **23%** (participants were also encourage them to post their interviews in Scholar Commons and if they don't, the RPT makes sure it gets entered)
- Dr. Herbert's interview solidified an opportunity to work on a new and important project on Climate Change. The partner that contacted him indicated she discovered him and his work

online and by listening to his interview, she knew he was the correct collaborator. He enthusiastically appreciated this unexpected benefit

- The Geosciences RPT, along with a colleague from the USF Libraries, have an article in press on the podcast and its processes and impact. This will be published in *IATL* in Fall of 2020.

Targeted use of RPT Librarians

In addition to the above notes, the USF Libraries RPT has been integrated into the following Geosciences faculty, student, and staff practices and events:

- Since the inception of the initiative, the USF Geosciences department has invited the library RPT to general faculty events and meetings
- The USF Libraries RPT representatives have attended, and provide informational slides for, the last three (2018-2020) Geoscience Alumni Banquets
- The USF Libraries Geosciences RPT has met annually with the current chair of the department, Mark Rains, to outline and summarize activities and discuss the annual environmental scans. This has further provided the opportunity for informal informational exchange and has helped direct faculty support activities, including podcast interviews and research support

Conclusion

In summary, the USF Libraries Geosciences RPT Environmental Scans show a generally positive correlation to increases in faculty and student research visibility and impact. The team has also collected anecdotal information and praise throughout these years of involvement and have participated in co-teaching several iterations of a graduate course on the History of Geology/Geochemistry. In addition, members of the RPT have provided general instruction and assisted faculty with other library collection and service needs on request.

The above summary demonstrates the USF Geosciences RPT focus on, and support of, STEM: An area of overall emphasis for USF and the related metric of degrees awarded in this area. Additionally, the Geosciences RPT supports overall USF Goals 2 and 4, with regard to high-impact research support and the emphasis on a safe, inclusive and vibrant community for learning, discovery, creative activities and transformative experiences. This is accomplished via high-value research support as service.

Areas for Future RPT Programmatic Consideration include:

- Use the information gleaned from this environmental scan to help Geoscience faculty and graduate students select and target publication titles for their research based on where they might have the greatest visibility and impact.
- Promote the importance of making research available as an open access publication; by supporting OA publication fees or by working with faculty and students to integrate pre- and post-print articles into the Faculty Research Profiles.
- Explore strategies to integrate data into Scholar Commons for open access and increased visibility and impact. Define the capacity, procedures, and promote USF Libraries data management support for grants, articles, and overall faculty careers.