

2019 IAC Paper Status

Title: Impact of The International Space Station Research Results

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PSF – Sept 12, 2019

IAC 2019 Paper – Milestones



- IAC Oct 21-25 2019 in Washington DC:
 - Abstract: submitted on March 8, 2019
 - Full Paper due date: October 4, 2019
 - Oral Presentation due date: October 11, 2019
 - **IAC Presentation Date: Oct. 22, 2019 @ 14:45 PM**
- **Tentative Plan for full paper:**
 - Inputs/Ideas/ Suggestions from PSF members: April 30, 2019
 - Tentative date for full draft completion: June 14, 2019
 - Draft to PSF members for review: June 21, 2019
 - Input back from PSF members: July 12, 2019
 - **Full paper to PSF members for review: Sept 6, 2019**
 - **Last opportunity to make change to full paper: Sept 16, 2019**
 - Upload full paper to IAC: **Sept 27, 2019**



Takeaway

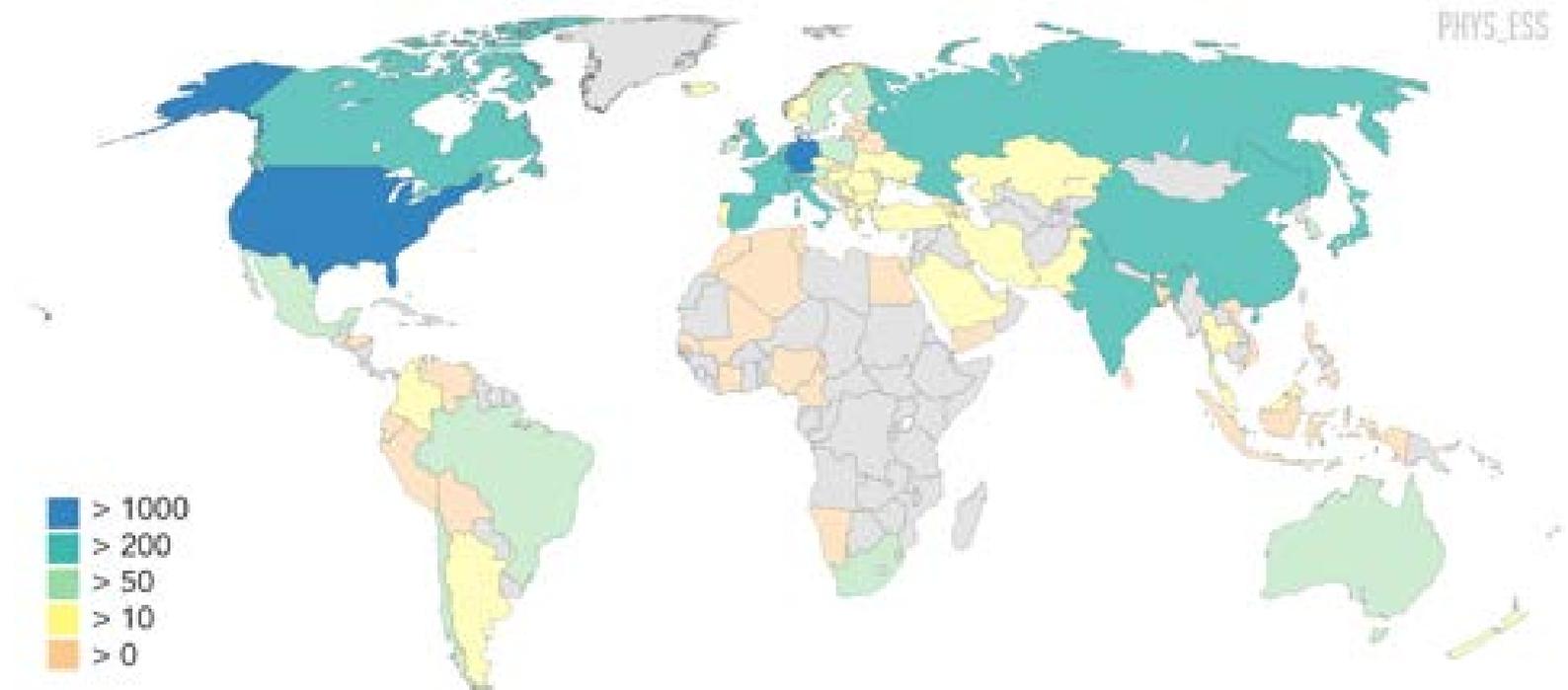
- In this paper, we try to look from users' perspective. So we asked 3 questions
- Who uses our data?
 - Heat maps
- Those who use our data, what do they use it for?
 - VOSviewer maps
- How much do users prefer our pubs vs the peers?
 - Use of the ACPA metrics (Average number of Citations Per Article) to compare ISS to its peers



IAC - Introduction

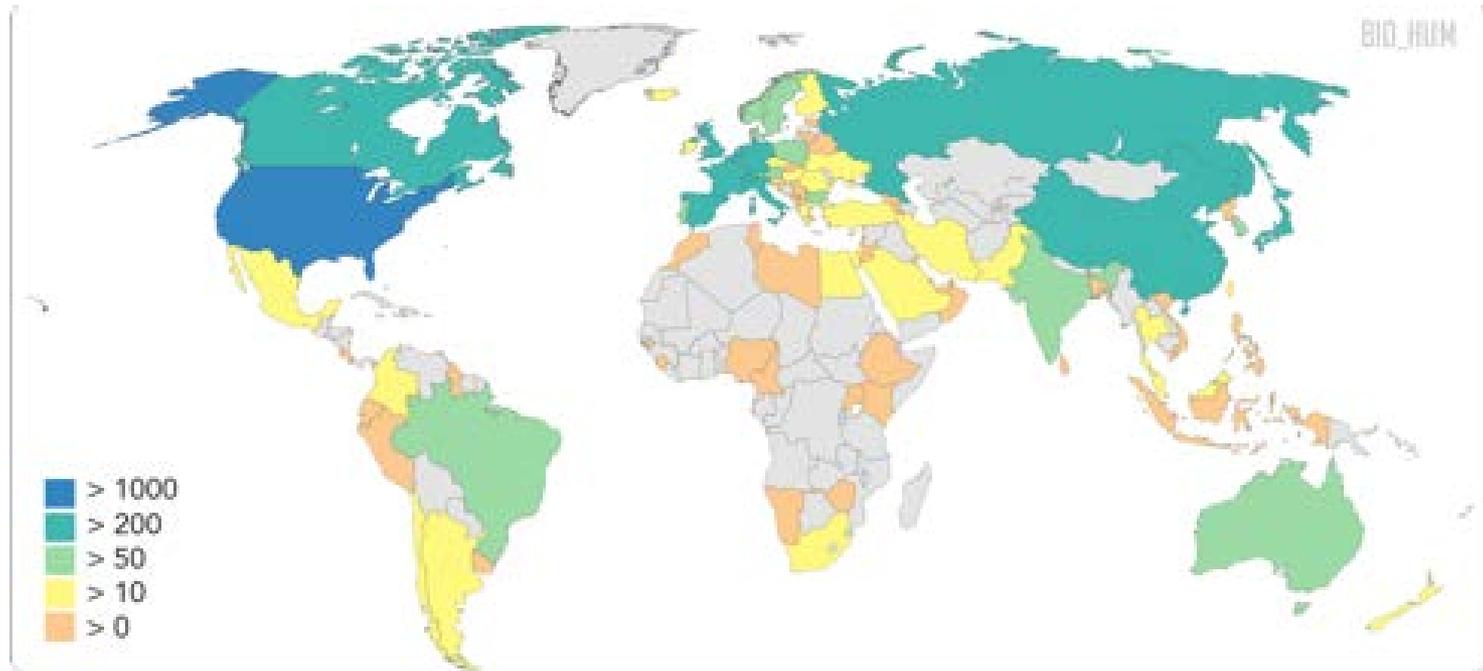
- In the past the PSF members' publications on the ISS impact have been focused on ISS research output to gauge its impact on the scientific community.
- In this paper, ISS impact is measured through the perspective of use of ISS research publications by the scientific community:
 - Assuming the influence of a peer-reviewed publication can be measured by the number of citation
 - Who?
 - What for?
- Over 1400 ISS research publications were pulled dated from the beginning of the ISS program to April 19, 2019.
 - Collectively those 1400+ publications were cited over 13000 times in peer-reviewed literatures including journal articles, conferences proceeding articles, and books.

Heat Map – Physical Sciences



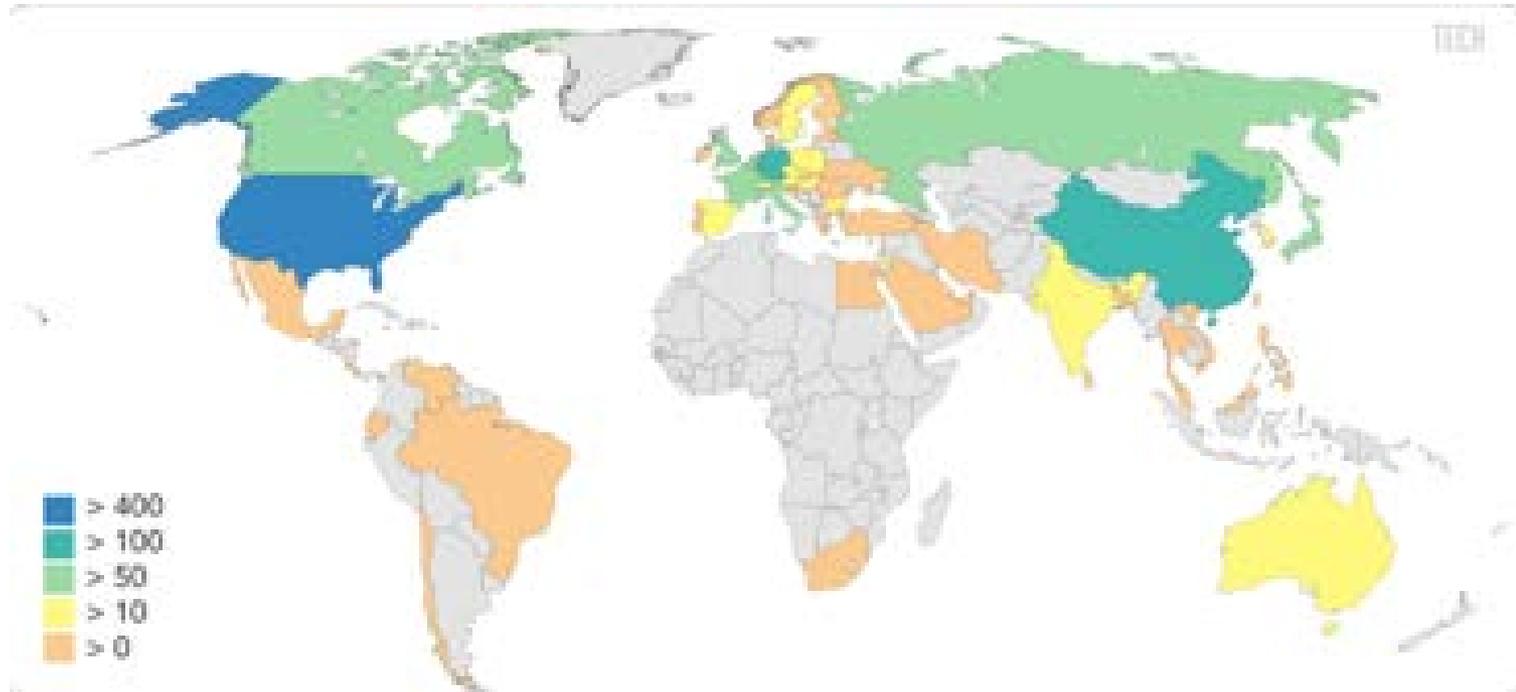
- Global Reach of ISS pubs - using the national origin of authors who cited ISS work
- Distribution and concentration of authors who published in Physical Sciences field (Physical Sciences + Earth & Space Science)
- Global distribution and concentration of authors who cited a ISS publication
 - Over 10400 authors and co-authors cited ISS pubs as a reference in their pubs in the fields
 - Authors from 105 countries and territories
 - 1790 authors from USA; 1179 authors from Germany

Heat Map – Biological Sciences



- Distribution and concentration of authors who published in Biological field (Human Research + Biology & Biotech)
- Global distribution and concentration of authors who cited a ISS publication
 - Over 10600 authors and co-authors cited ISS pubs as a reference in their pubs
 - Authors from 95 countries and territories
 - USA has the highest concentration with 3250 authors

Heat Map – Tech Demo



- Distribution and concentration of authors who published in Tech Demo
- Global distribution and concentration of authors who cited a ISS publication
 - Over 1700 authors and co-authors cited ISS pubs as a reference in their pubs
 - Authors from 60 countries and territories
 - USA has the highest concentration with 450 authors – Followed by china with ~200 authors

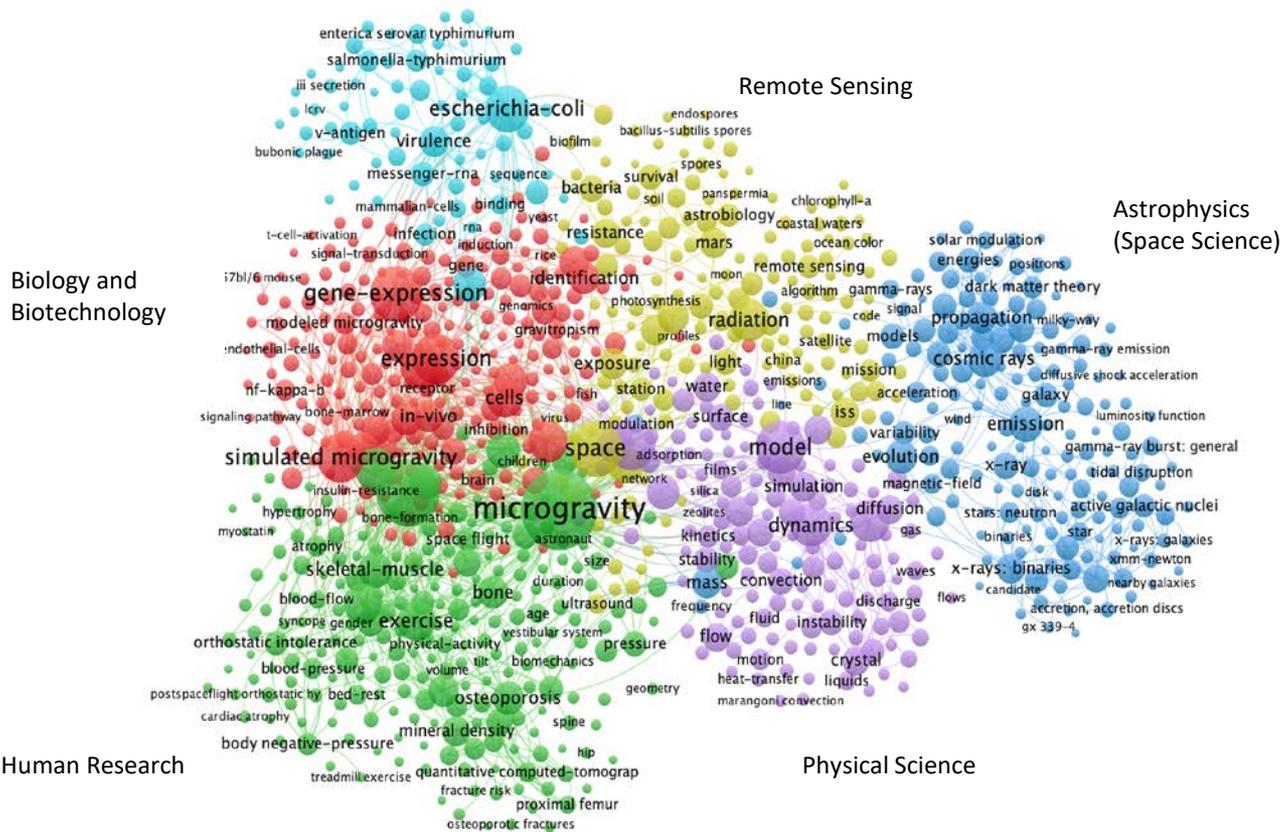


Term Map

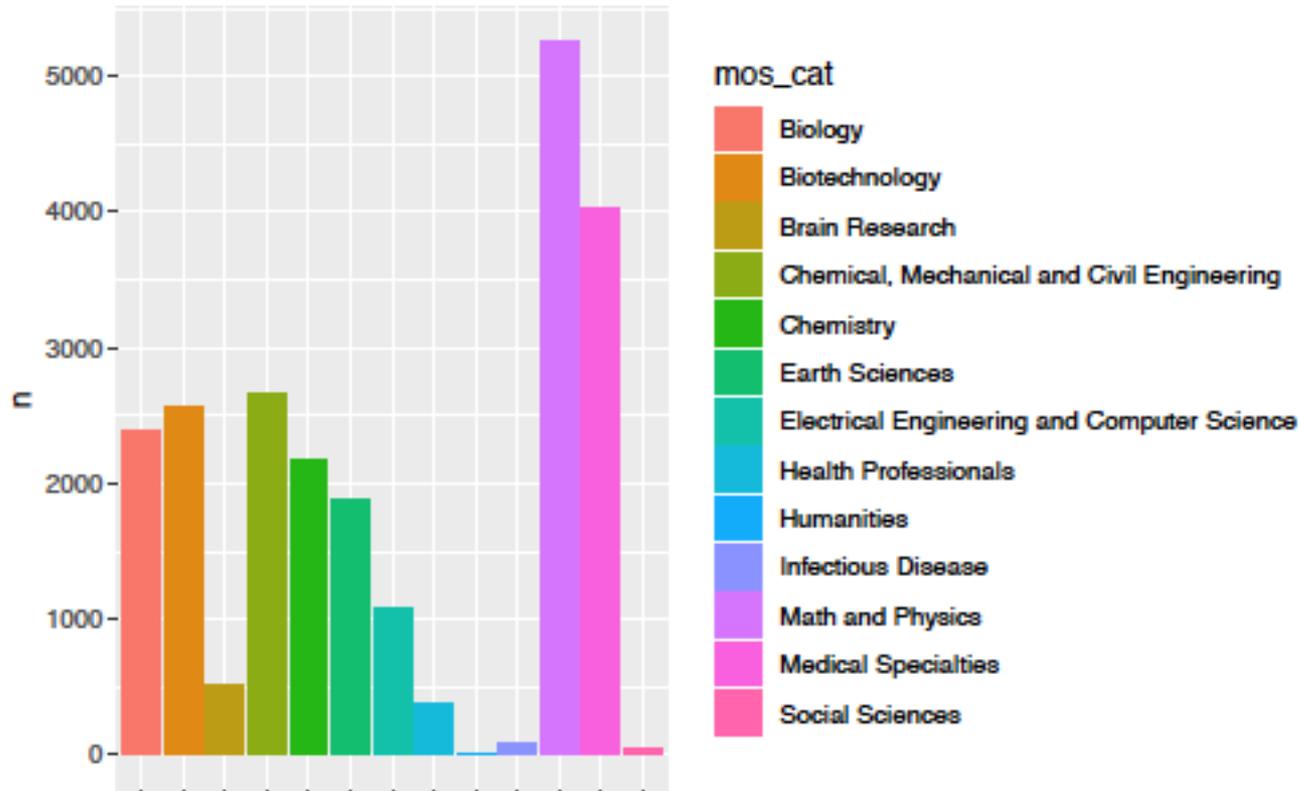
- Colors represents cluster
 - 5 clusters representing major disciplines
- The size of circle: represents the weight (number of items or number of citations)
- The distance between two circles (areas of research) represents the relatedness of the research areas in terms of co-citations links



Microbiology

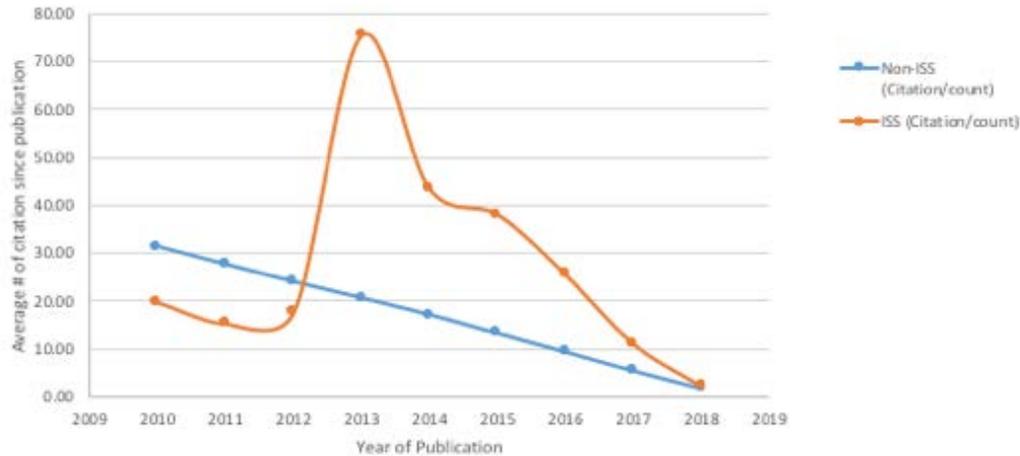


Number of Citation of ISS publication per Discipline

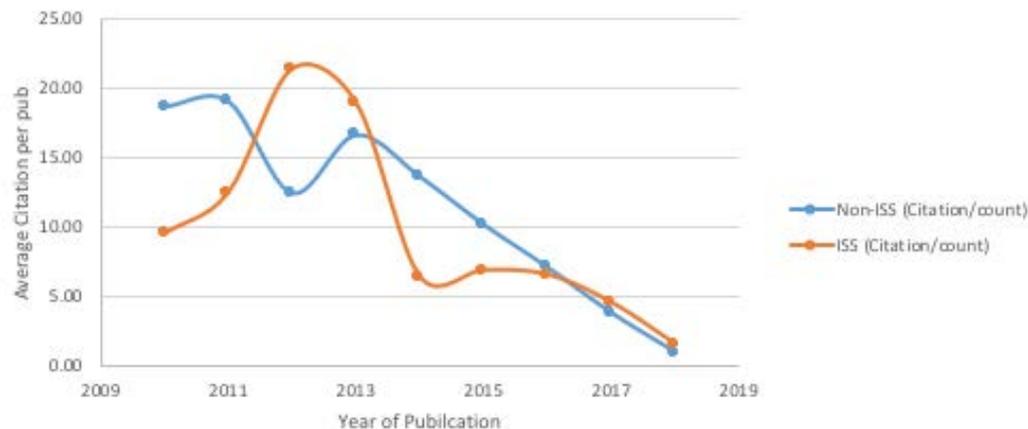


Quality of ISS Pubs vs. Non-ISS

Earth & Space Science

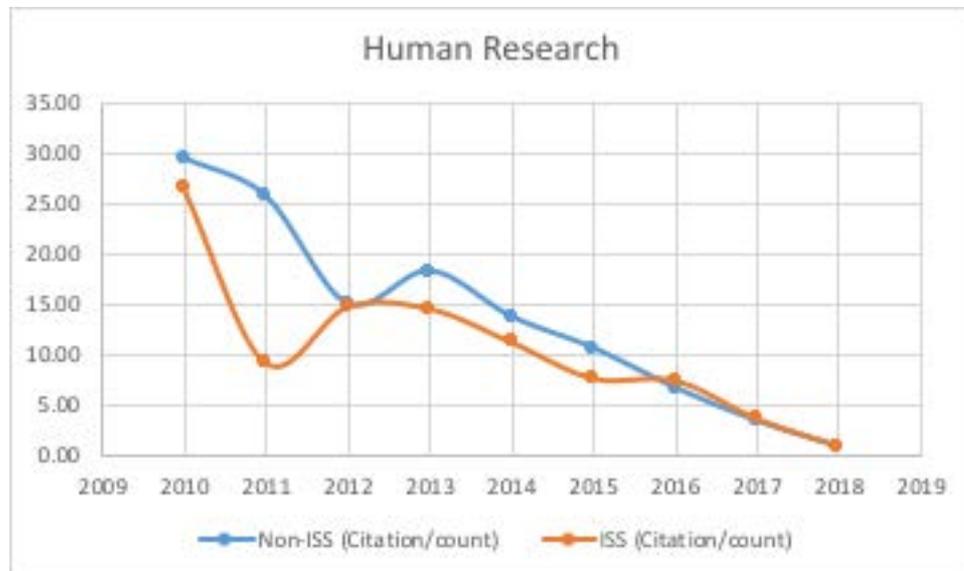
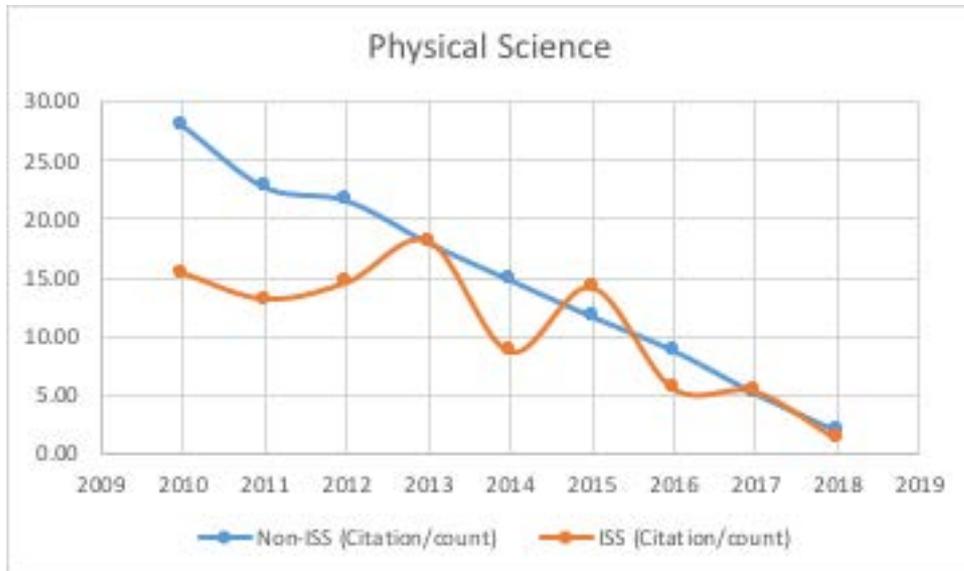


Biology & Biotech



- Quality of ISS pubs compared to ISS research publications versus non-ISS peer-reviewed pubs in the same journals
- Average number of citation per publication
- For Earth & Space science, ISS pubs are clearly more citation on average per pubs than non-ISS peers' pubs
- Biology & BioTech, average number of citation/pub for ISS is on par with non-ISS peers'

ISS Quality of Pubs vs. Non-ISS



- Physical Science, average number of citation/pub for ISS is similar to non-ISS peers'
- Human Research, average number of citation/pub for ISS is similar to non-ISS peers'
- Graphs imply:
 - Earth & Space Science, ISS research publication are more valuable to the scientific community than non-ISS pubs
 - For Biology & Biotech, Physical Sciences, and Human Research the quality of ISS publications is on par with non-ISS peers' publications



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BACKUP SLIDES



Paper Outline

- Challenge to assess ISS impact quantitatively and qualitatively
- Paper broken into 4 main parts:
 - Global reach of ISS Physical Science research (Earth & Space Science + Physical Science)
 - Heat map showing the national origin of authors who cited ISS work
 - Global reach of ISS Biological Science Disciplines (Human Research + Biology & Biotech)
 - Heat map showing the national origin of authors who cited ISS work
 - Influence of ISS research publication on scientific community
 - Visualization to show area that cited ISS pubs (Term Map)
 - Quality of ISS pubs vs. non-ISS peer
 - Average number of ISS pubs citation per publication vs. peers'