

Individual Journal Strategy Assessment: *Space Weather*

1. Evaluate competition and current standing of your journal.
 - a. Where does your journal stand in comparison to competitors in terms of impact, number of top papers, representation of the field in quality, size, and distribution of papers, and reputation?
 - (i) The SWOT Analysis provides the details.
 - (ii) The Impact Factor for *SW* has hovered around 1.5 since the journal's inception. The reasons for this value and the little change in the value are likely the result of several factors. (a) One factor is that some of the *SW* papers, given the nature of the applied field, do not build substantially upon prior work in *SW*. (b) Another factor is that many readers (policy, industry) do not publish and yet use the information published. (c) Yet another factor (perhaps a major factor) is that basic science research journals (including *JGR-Space Physics* and its major competitors, as well as the journals included in the Thomson Reuters categories "Astronomy and Astrophysics", "Geochemistry and Geophysics", and "Meteorology and Atmospheric Sciences") have little if any reason to reference applications papers published in a journal such as *SW*.
 - (iii) There is currently no journal/magazine in the market like *SW*. The closest approximation is *J. Spacecraft and Rockets*, published by the AIAA (I am a Fellow of the AIAA). This journal, like all others mentioned in this document, publishes only technical articles (and not Features, News, Editorials, etc.). The categories from Thomson Reuters ("Astronomy and Astrophysics", "Geochemistry and Geophysics", and "Meteorology and Atmospheric Sciences") have little relation to the scope of *SW*. "Peer Journals", *Advances in Space Research* and *J. Space Weather and Space Climate* (new European journal not included in this SWOT), are hybrids (covering both basic and applied space-related research) between *JGR-Space Physics* and *SW*. The *J. Space Weather and Space Climate* recently accepted and published a paper that was twice rejected by *SW* due to quality considerations.
 - (iv) *SW* has published many excellent and important applications papers.
 - b. How do pricing and fee models vary among your competition?

I am not an expert in pricing and fees. The European *J. Space Weather and Space Climate* is Gold Open Access, with free publication in 2012. *Advances in Space Research* is a subscription Elsevier journal. *J. Spacecraft and Rockets* is a professional society subscription journal. Within this parameter space, *SW* would appear to be competitive.
 - c. To what degree is your journal cost-effective?

Not sure how to address this. *SW* itself would appear to be quite cost-effective. *SW Quarterly* is free to readers. Cost-effectiveness in the context of this "free" aspect is likely dependent upon the assessor of the effectiveness. As noted below, the Quarterly is viewed as important for outreach and policy, as well as for applications research.
2. Evaluate where the field(s) covered by your journal are going.

a. How is the field and journals within it likely to evolve in the future?

(i) The field will grow slowly – but grow – as the engineered technologies that can be affected by solar-terrestrial processes continue to grow in number and type, and as more nations become more reliant upon these engineered technologies. History has shown, from the time of the telegraph (where the initial instances of the effects of geomagnetic storms on electrical technologies were first seen) to today, that new technologies developed for communications, navigation, electrical power, and numerous others always must be evaluated for their potential susceptibility to solar-terrestrial effects. I have witnessed this slow growth in my nearly five decade career, where in the early 1960s the discovery of the radiation belts and the advent of communication satellites meant that the space environment of Earth had to be taken seriously if the new technology was to survive and grow. When I was asked in the 1970s to testify to a Senate committee on the effects of space processes on technologies (the first such testimony that this committee had heard), I was one of the very few members of the AGU who were active in this applied field (other AGU members were largely a few employees of the Aerospace Corporation).

(ii) The “evolution” of the journal will revolve around the new technologies that can be impacted by solar-terrestrial processes, and increases of the need for more reliable predictions of adverse space weather conditions. I would wager that competing journals that could arise would likely be of the nature of the new European journal, *J. Space Weather and Space Climate*, publishing both basic research and applied research under one cover. The AGU decided that this was not the path to follow. Applied researchers, members of the AGU, had no place to publish their applied papers other than *J. Spacecraft and Rockets*.

b. Is there room for additional journals that may be competitors, or expansion of scope or size?

New competition could come from professional societies in one or more countries in the Asia sector, and from the commercial publishing sector. The European sector initiated a “competing” journal (*J. Space Weather and Space Climate*) a couple of years ago (I was even asked to give start-up advice and to be a member of the editorial board. The AGU corresponded with the journal’s publisher concerning their title and issues of AGU title copy right.). This European journal also publishes more “basic” space research, and thus competes with *JGR-Space Physics* as well. The scope of *Space Weather* is a narrow sub-field of solar-terrestrial research, but one with considerable commercial interest and value. The *J. Space Weather and Space Climate* could see an increase in its impact factor because of its publication of basic research that will be referenced in such journals as *JGR-Space Physics*.

c. Are new areas, science, or data emerging that could be within the scope of your journal? Are these core areas of AGU, or are not yet represented by many members or represented in other societies?

Solar-terrestrial research has generally been considered a “basic” science area of AGU interest. This broad field, from the Sun to the planets, exists in AGU because the physics community was not welcoming to the pioneers at the beginning of the space program. The *JGR* always published articles in terrestrial magnetism and electricity, and even published over the years “applications” papers in these fields as associated with communications and related. However, the advent of the space program opened entirely new horizons of “physics” and “geophysics” research. The young pioneers at the time found that the physics community was not enamored of this new area in the publication scopes of American Physical Society journals, and even the physics community interest in cosmic rays (now largely published in *JGR-Space Physics* and *Astrophysical J.*) was waning because of the advent of accelerators for advancing the frontiers of nuclear physics and elementary particle physics. The AGU was welcoming, and that is why we are here today. Many of the pioneers in the SPA section of AGU were nuclear physicists, and young members still come from these areas of physics. As new technologies that can be impacted by solar-terrestrial processes are developed or invented, and as the needs for reliable system operations become more stringent, the journal’s scope will be adapted to such shifts.

d. Are there new technologies emerging that will or should affect the direction of your journal or the papers therein?

New technologies of GPS and cellular communications have entered into the journal’s scope since the advent of the journal. The ever more intertwining of electrical grids means more susceptibility of such systems, and the journal covers these developments with both technical papers, and with non-technical papers such as Features and News Articles.

e. How are the needs and expectations of readers and authors of your journal changing?

I think we are slowly attracting industry readers and leaders. The interest here is strongly in the mitigation design of systems and in the secure operations of systems.

3. What can be done within your journal or at AGU to promote the science and content better?

(i) This sentence apparently illustrates the mindset of AGU (“promote the science”) that needs to change. *SW* covers the applications of the science that is the scope of *JGR-Space Physics*.

(ii) AGU needs to work with the editor and the applications-oriented community so that *SW* can retain its hard copy Quarterly. The *SW Quarterly* is an invaluable outreach and policy tool for the journal, for AGU, and especially for the applications of geophysical research. I can substantiate these assertions from government and industrial leaders. AGU’s contributions to important policy matters should extend beyond its currently perceived by many members narrow focus on climate matters. *Space Weather* is one of the only (the only?) AGU publications that addresses societal issues with peer-reviewed papers, and with many types of non-technical contributions.

4. What should your journal NOT do, consider, or evolve into?

The most important thing is to not evolve into *JGR-Space Physics*. The editor must constantly ensure this. I consider two of our competitors (*J. Space Weather and Space Climate* and *Advances in Space Research*) to be mini *JGR-Space Physics*. At the moment, there is no journal/magazine identical to *SW* in terms of coverage of only applications of space-related research.

5. Evaluate your mission statement. How would you change it? How does it align with and serve AGU's mission and vision?

I would change the introduction to the "About the Journal" site to read: "*Space Weather: The International Journal of Research and Applications* is an online publication devoted to the field of space weather and its impact on the design and operations of technical and engineered systems, including telecommunications, electric power, and satellite navigation. The journal's readers include engineers, system operators, systems designers, space weather forecasters, space weather modelers, as well as the research community."

I would change other material to the following:

"Since the era of development of the initial electrical telegraph systems in the early 19th century, the solar-terrestrial environment has influenced the design and operations of ever-increasing and sophisticated technical systems. James Van Allen reported in 1958 that the space environment around the Earth was not benign, but rather composed of high-intensity radiation. Engineers and scientists immediately recognized from this discovery that technical systems such as the communications satellites envisioned by Arthur Clark and John Pierce would require design and operations procedures (and therefore costs) that had not been otherwise anticipated. *Space Weather* addresses these and all engineered systems that are affected by solar-produced processes, from ground currents in electrical grids, communication cables, and pipelines, to GPS navigation to HF radio propagation.

Space Weather is a research resource that also provides news and information for space weather professionals. *Space Weather* publishes:

- peer-reviewed articles presenting the latest engineering and science research in the field, including studies of the response of technical systems to specific space weather events, predictions of detrimental space weather impacts, and effects of natural radiation on aerospace systems;
- feature articles that describe specialized topics in space weather, from history to new developments to national activities to interviews with space weather professionals. Feature Articles are 2000 words in length and can contain three figures;
- news articles and book reviews. News articles provide up-to-date coverage of government agency initiatives worldwide and space weather activities of the commercial sector. These articles can be 500 to 1000 words and can contain one figure;
- letters and opinion articles offering an exchange of ideas; these articles are 500 words or less;
- editorial comments on current issues facing the community."

- a. Are there different types of papers that should be included?
Contributions in the above-modified “mission statement” are currently all covered by *SW*. *Space Weather* has been active in promoting modeling papers that can contribute to practical applications (including space weather forecasting) of space-related research. The journal has received plaudits for this from readers.
 - b. How does it serve or align with the evolving needs of readers and authors?
I think that alignment of readers and authors currently exists. I view this as one of my prime continuing responsibilities.
6. What is needed to improve the competitiveness of your journal within your mission?
- a. What changes are needed in the journal or editorial process to attract more of the better papers, the best papers, and better serve the community?
 - (i) Retain the hard copy Quarterly. (ii) Provide some limited in-house writing support for non-technical articles, especially interview-type articles. This could be accomplished by the encouragement of an NSF grant support. This could also be encouraged by a better cooperation across AGU business units. To have me suggest a topic for a news article for *SW*, and then to have *Eos* support a writer for this topic for *Eos* and not inform me is very poor business practice and does not enhance the over-all business of the AGU. My extensive experience in industry demonstrates that when business units cooperate the over-all business benefits. AGU has yet to learn this simple fact. Competition should be with the external world, not internal. The encouragement for collaboration across business units has to come from the very top leadership. I look forward to seeing this leadership demonstrated. (iii) I believe that we are attracting and publishing the best “applications” papers now. But continued hard work by the editor and the editorial advisory board is required.
 - b. How should the journal evolve in scope, content, size, business model, or format?
 - (i) Retain the hard copy Quarterly. This is one aspect of the “business model” that does not fit the cookie cutter mold for web sites and on-line publishing that I am led to understand that AGU and Wiley is seeking for all AGU journals. If a mold and format are to be defined, then asking editors for a “business model” for a specific journal is a waste of time.
 - (ii) Fix the *SW* home web page so that “Just Published Articles” are identified by category: Technical Articles, Opinion Articles, News Articles, etc.
 - (iii) Develop a web app for *SW* and *SW Quarterly*. *SW Quarterly* had a wonderful web app; all that work, including resources used, was thrown out with the transition to Wiley.
 - c. What is needed to improve its value proposition?
 - (i) Recognition by the AGU and its publishing partner that *SW* is not a pure science journal, and is more than a technical publication. (ii) Recognition by AGU and its publishing partner that the hard copy *SW Quarterly* is an

important out-reach publication, used importantly by policy and industry leaders who would not otherwise have reason to download a web-based version (if one existed), and would certainly not download any individual non-technical article. (iii) Recognition by AGU that reaching policy influencers is more than organizing policy meetings and Congressional visits, and also includes providing materials such as the *SW Quarterly* that actually demonstrate AGU's commitment to societal issues. (iv) Continued mailing of *SW Quarterly* to key policy makers and executives in the Executive and Legislative branches of the Federal Government, as well as to relevant industrial leaders.

7. Editor Responsibilities

Editor responsibilities include those for all the AGU technical journals. Perhaps more so as a percentage of technical papers submitted in comparison to other journals, the editor is often asked to comment and make suggestions on technical papers before they are formally submitted as to the content suitability for the scope of *SW*.

The editor is responsible for recruiting all of the non-technical contributions and for responding to enquiries about possible non-technical contributions. The editor edits all non-technical contributions before they are formally submitted. The editorial process can involve several, sometimes lengthy, iterations with authors before the authors are invited to submit formally through GEMS.

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