

A Call to Draw on Existing Social Science Scholarship to Understand Professional Communities at the Science-Diplomacy Nexus Better: Using the Case of Space Governance

[George Salter](#)

University College London, London, UK

<https://doi.org/10.38126/JSPG200306>

Corresponding author: george.salter.16@ucl.ac.uk

Keywords: social science; science diplomacy nexus; space governance

Executive Summary: Global governance arrangements are produced and sustained by an array of professionals who sometimes compete and sometimes collaborate over policy construction. Where trained scientists fit into this picture and how they influence policy formation is a question of great importance for stakeholders vested in the science-diplomacy nexus, given the role of technical knowledge in complex and uncertain diplomatic challenges. However, this Op-Ed argues that understanding the social dynamics that constitute science diplomacy in practice requires the use of concepts and theory from Science and Technology Studies and practice-theoretical work in global governance scholarship that can accommodate the contingency of professional life in this field of action. Using the arena of outer space governance to illustrate this point, I contend that using this scholarship can open up conceptual space to consider inter-professional contestation and intra-professional reimagination at the science-diplomacy interface. In turn, this approach can enhance understanding for science diplomacy practitioners as to what it means to be a scientist engaging at this nexus and what cycles of professional stasis and change are taking place.

I. Introduction

What role did scientists, and their knowledge, play in the shaping of the recent Artemis Accords initiated by the United States to manage future collaborations to and on the Moon? What kinds of scientists are invited to a space sustainability symposium hosted by a middle power with high ambitions for their space sector and how do they input to policy discussions? How did the United Kingdom's delegation to the United Nations Conference on Disarmament consult and include scientists before tabling their resolution on a behavior-based approach to reducing space threats? How does a scientific research organization like the European Southern Observatory (ESO) engage with national and international policymakers to help them understand space governance challenges? Taking science diplomacy (SD) to broadly refer to the ways in which scientists and scientific ideas meet

diplomatic agendas and practices in the formation of global governance arrangements, the questions above fall firmly within the remit of SD research.

The core argument in this Op-Ed, illustrated using the policy domain of outer space governance, is that answering these kinds of questions about how science diplomacy works in action requires research efforts that draw on existing social science theory from Science and Technology Studies (STS) and practice theoretical work in Global Governance (GG) scholarship. The former provides an array of insights into how "science" is used outside the lab in policymaking settings. The latter attempts to tackle the professional lives of individuals working in foreign policy frontiers and transgovernmental systems. To understand what value science diplomacy (SD) brings to national, international, and transnational actors alike we first need to consider

its actual doing in practice and how professionals learn (or not) from each other, rather than falling back on preconceived categories such as “scientist” or “diplomat” which may obscure the finer details of this professional nexus.

An STS- and GG-derived sociological approach will allow scholars to consider more explicitly how scientists are implicated in processes of professional adaptation and transformation at the SD nexus. Specifically, opening up conceptual space to consider *inter-professional contestation* and *intra-professional reimagination* with sociological concepts and theory will take social scientists, and by extension policymakers and scientists, nearer to the task of understanding how states are, or are not, changing their diplomatic capabilities in the 21st Century, who possesses decision-making authority in this milieu, and the role of scientists in shaping our understanding of complex policy issues. The policy challenges of outer space, an inherently technical arena with numerous cross-cutting implications for life on Earth ranging from military intelligence to positioning and navigation for autonomous vehicles, provides fertile ground with which to illustrate this approach.

II. Two potential case studies

One of the primary steps in any research project is to consider what kinds of data are useful for answering the question and how those data are going to be collected. The following are illustrative examples of sites where data collection would illuminate the core focus of professional stasis and change at the science-diplomacy nexus:

1) In 2020 the United Kingdom tabled a resolution to the UN’s First Committee on Reducing Space Threats Through Norms, Rules and Principles of Responsible Behaviours, which was then adopted by the General Assembly (A/RES/75/36) and includes the creation of an Open Ended Working Group (OEWG) on this challenge (Liddle 2021, 2020b, 2020a). This process represents an attempt to acknowledge and define ongoing issues with Earth’s orbital environment and develop an intergovernmental dialogue to ultimately, in theory, produce new governance regimes for the policy domain. Clearly scientists and their data, infrastructures, and knowledge

have an ongoing role to play in shaping the governance of this environment.

2) An alternative site to consider the dynamics of scientific input to space governance is the Secure World Foundation’s (SWF) annual Summit for Space Sustainability. Some commonality exists in terms of the policy challenge: shared management of the Earth’s orbital environment is under consideration, albeit with less of an explicit security orientation on “space threats” or the state-focussed lens of intergovernmental organizations. Additionally, while the UN is a relatively hierarchical organization with established roles, responsibilities, and procedures for involved personnel, civil society summitry sponsored by organizations such as the SWF could present a more networked and informal environment for scientists to input on policy dialogues, whether working with or outside of state sponsorship.

Against this backdrop some key questions emerge. What narratives and knowledge do involved trained scientists draw on? Are these ideas sustained by technical detail and data or more explicitly normative arguments? Do they defer to the agendas of policymakers or challenge them directly? Crucially, what issues are scientifically trained personnel at liberty to comment on, and do they ever transgress these boundaries? What other technical, diplomatic, military, security, or legal professionals do they interface with and how do their expert capabilities differ?

To develop a picture of these dynamics, and how they differ across contexts, data collection could involve a mixture of participant observation and an examination of the talk and textual outputs of involved professionals, depending on the extent of access available to the research site. However, concepts and theory are also necessary to organize, analyze, and make sense of this data. The next section reviews some of these conceptual resources available from STS and GG scholarship before briefly considering their application to the examples raised above.

III. Categorisation vs contingency

i. Categorisation

Research focussed on professional activity at the SD nexus often attempts to understand science diplomacy in action by labeling and categorizing actors involved (e.g., Melchor 2020, 413). An example of this approach comes from Moomaw, who questions whether scientists who come to act as diplomats through circumstance or diplomats who happen to have or gain scientific training best enable the effective practice of SD (Moomaw 2018, 79). This approach highlights the mix of political and technical expertise utilized by individuals engaging in SD and raises the important question of how central hybrid skill sets are to its operation.

Yet starting with generic concepts like “scientist” and “diplomat” runs the risk of biasing, through expectations about what a scientist does versus what a diplomat does, the process of analysis (Kuus 2018). While it is natural as practitioners of global affairs to want to set the logical boundaries between different kinds of actors, this endeavor would have the most explanatory power, like any attempt to create a taxonomy in research, if it is able to accommodate the messiness of real life through inductive engagement rather than screening it out of academic dialogue. To this end, it is worth being open to using concepts and theory that can entertain the potentially eclectic way in which trained scientists engage in global affairs.

ii. Bricolage as a starting point

The analogy of the bricoleur and the concept of bricolage has been used to “capture the improvisatory, haphazard and combinatorial” nature of policymaking in global governance (Thérien and Pouliot 2019). A bricoleur takes the potentially scarce and eclectic resources available to them and uses their creativity to meld them into something useful, often traversing the techniques of several more formalized crafts or professions. Taking this idea and then relating it to the notion of professional practice indicates the potential challenge in unpacking the complex and contingent reality of being a professional in global governance.

What is it like to be an individual engaging with the “know-what” and “know-why” of science and the political “know-how” of diplomacy in settings tasked with solving complex and uncertain challenges, such

as the tracking and management of orbital debris (Bogner and Menz 2009)? In some situations it may simply be that roles are straightforward and defined: “scientists” advise and “diplomats” negotiate, as is ostensibly the case for the International Panel on Climate Change (IPCC) and the Conference of Parties (COP) process. However, there may also conceivably be fluidity in professional responsibilities and influence; hence, it is worth being receptive to contested and ambiguous constellations of professional relationships from the beginning of the research process.

iii. Inter vs intra professional change

If the concept of bricolage opens our eyes to contingency in professional roles, it is still necessary to find ways to describe and explain this possibility. Work drawn from STS and GG that conceptualizes both science and diplomacy as professional practices provides the means to consider at least two avenues in this vein.

Firstly, established ways of managing global relations (e.g., diplomats sponsored by foreign ministries embedded in embassies or formal delegations to intergovernmental conferences) are challenged directly. This leads to the accommodation of new players and their practices, the marking of old territories via the signaling of eminent specialism in a particular problem space, or indeed likely somewhere in between, depending on the policy domain. Fortunately, theoretical tools already exist for engaging with this competition over professional territories in the abundant STS scholarship on “boundary work” (Hilgartner 2000; Gieryn 1983; Jasanoff 2016).

This body of research demonstrates how scientists may use rhetorical techniques to manage indeterminacies in their knowledge bases (e.g., large-scale toxicity studies for agricultural practices in the United States) during the making of domestic regulatory policy, which in turn affects their influence over decision-making. Applying this approach to empirical sites where scientific personnel interact with state diplomats provides ample conceptual resources to explore how scientists and their outputs move through diplomatic institutions and networks, what kinds of roles and responsibilities they are permitted to inhabit, and the influence of their ideas, discourses, and practices on bilateral and multilateral

engagements. Indeed, taking this approach also raises the question of whether new networks are created and operate outside the authority structures of state-sponsored entities. This approach speaks to *inter-professional contestation* over policy construction and focuses on who claims to have the competency to form governance arrangements.

Secondly, instead of boundaries being drawn by incumbents and new actors, entirely new professional practices and roles are constituted by the interaction of old and new practices in the field of diplomacy. Again, completely reinventing the wheel is not necessary to fashion appropriate conceptual lenses for this possibility. Recent GG scholarship points to the “transprofessionalization” of diplomacy, where the clubs made and sustained in the 20th Century are forced to innovate or be disrupted by new challenges and conditions in an increasingly globalized political milieu (Legrand and Stone 2018). This includes considering the dual dimensions of the:

“new’ skills and knowledges that non-state actors bring to the diplomatic realm and how non-state diplomats seek to ‘learn the game’ of diplomacy” (Constantinou, Cornago, and McConnell 2016, 6).

The onus is then on understanding how state-sponsored diplomats are reinforcing their skill sets in light of exposure to outsider practices and different form of expertise propagated by scientists, and alternatively, whether scientific actors are capable of effectively mimicking the existing grammar of state-sponsored diplomacy whilst incorporating their own approaches to diplomatic challenges, thus producing hybridized or expanded competencies.

Seabrooke provides a good exposition of this mode of analysis focused on economic consultancies in global governance, demonstrating how consultants move fluidly between institutional settings brokering different “pools of professional knowledge” that he terms “diplomatic tacit, economic systematic, and programming-managerial” (Seabrooke 2015, 203 and 204). Instead of inter-professional contestation, this approach focuses more on *intra-professional reimagination* where existing professional competencies are refashioned through learning, thus changing the ways in which governance arrangements are formed

by practitioners. Self-professed “science diplomats” operating via NGOs and philanthropic ventures, or career “tech diplomats” embedded in silicon valley on behalf of states represent an explicit instance of this. However, locating this phenomena purely where it is named would miss the opportunity to capture changes in professional practice that are not self-evident in the provision or adoption of new titles.

There may be a lack of clear delineation between inter-professional contestation and intra-professional reimagination in practice since the transformation of one profession may necessarily require contesting the responsibilities and competencies of another, and vice versa. However, using this terminology as a heuristic device directs attention to the hierarchies and collaborations between expert professionals in diplomatic settings, how these hierarchies and collaborations are sustained, and how organizational context shapes the playing out of these social dynamics and the extent of learning between individuals.

IV. Case studies reconsidered

Returning now to the case studies identified in section 2, we can now engage in a brief thought experiment to consider the potential value of the conceptual tools presented above.

The SWF’s annual conference and the UK’s sponsorship of A/RES/75/36 at the UNGA are both, broadly speaking, social events intended to inform governance arrangements for space systems, and in particular Earth’s orbital environment. Through the lens of inter-professional contestation and intra-professional reimagination, the focus is on how astronomers, astrophysicists, and others, perform and are asked to perform in these networks. This includes who they are working for, what their ideas are, how they present these ideas at deliberative moments, what networking they have to do to get in the room (virtual or physical), how dialogue plays out between themselves and other expert professionals, what kinds of learning and persuasion takes place between professionals, and ultimately to what ends. Looking at the detail of these interactions at the micro level rather than baking in preconceptions about what it means to be a scientist would allow an open-ended consideration of what the practice of science diplomacy consists of.

Following scientists as they move through governance fora would allow a greater understanding of how scientifically informed ideas and practices, from the Kessler syndrome and space debris modeling through to astronomical engineering, are managed by competing professionals and shape understandings of complex problems in global governance (Haas 1992; Dunlop 2009).

Dichotomies such as state vs non-state, insider vs outsider, scientist vs non-scientist, may serve to constrain our view of professional change at this nexus. Following Wedel, it is worth keeping an open mind as to *how* professional practices have influence, not just *where* individuals formally sit within organizations or *what* qualifications they have. As she writes, professional elites are not always identifiable by their titles and may:

‘intermesh hierarchies and networks, serve as connectors, and coordinate influence from multiple, moving perches, inside and outside official structures’ (Wedel 2017, 153).

V. What is to gain from this approach?

Discussion of the value science diplomacy generates for national governments and global initiatives oscillates between near advocacy by involved practitioners (e.g. Hayes et al. 2007; Lord and Turekian 2007) and scholarly skepticism of this rhetoric (e.g. Flink 2020, 2021; Rungius and Flink 2020). Thinking about how professional practices at the science-diplomacy nexus are competing and changing has three potential benefits: 1) teaching future scientists and science diplomats what skills are necessary to engage with other expert professionals in global governance, 2) understanding where scientific input is missing from global governance arrangements, and 3) acknowledging the power relationships that sustain current modes of diplomatic practice.

i. Learning from the status quo

The world of diplomacy and global governance is extensive and, in some cases, opaque. At the same time, demand is evident from major research initiatives (e.g., InsSciDE, S4D4C) and scholars alike to develop curricula so that scientists may enter this world prepared to maximize their influence (Mauduit and Gual Soler 2020). Examining existing competition and collaboration between expert professionals, including scientists, can enhance

understandings of what it really means to be a scientist engaging in this milieu and support the articulation of core competencies for future science diplomats.

ii. Assessing the role of science

Policymakers who want to assess whether foreign policy institutions and international organizations are fit for purpose in terms of functional policy outcomes with respect to the management of complex global challenges should be vested in this program of enquiry, given the role of scientific knowledge and technical input in policy domains such as outer space, climate, and cybersecurity (Kreienkamp and Pegram 2021). This agenda focuses on the question of whether scientifically trained individuals feature enough and in the right ways currently, or if there is an extant deficit in analytical capacity for understanding trans-border challenges (Parrado 2014). Further, this leads into discussion of how and by whom governance objects, such as the climate, are rendered knowable over time and therefore become governable (Allan 2017; Bicchi 2013).

iii. Understanding who currently defines governance arrangements

On the other hand, scholars vested in the analysis of power in global politics may use inter- and intra-professional change to theorize what kinds of expertise are seen as authoritative in diplomatic practice and therefore how state and non-state institutions are likely to set and manage agendas in global policymaking (Kuus 2014; Sending, Pouliot, and Neumann 2011).

Ultimately, these two approaches, functional outcomes and power relationships, are interrelated since attempting to move more of a certain kind of expert practice into diplomatic arenas may be enhanced by understanding what the existing practices are, why they are authoritative in the first place, and how the legitimacy of these practices is sustained by diplomatic networks over time (Bueger 2015, 2014; Adler-Nissen and Pouliot 2014).

VI. Conclusion

This Op-Ed is a call for the consideration of the empirical reality behind science diplomacy taxonomies informed by pre-existing sociological theory. Taking an open-ended approach and viewing science diplomacy as a space to explore professional stasis and change in global governance can only

enhance our understanding of what is really taking place at this nexus and what cycles of transformation are taking place. The major challenge may not in fact be the application of theory to this problem but rather the opening up of diplomatic institutions and networks to analysis, depending on the policy domain at stake and its attendant issues of diplomatic sensitivity. However, while diplomatic

communities may have good reason to insulate themselves from outsider perspectives, this Op-Ed has argued that there is no reason why scholars and policymakers vested in science diplomacy should turn their backs on rich bodies of work in established and relevant academic disciplines which can refine our understanding of the SD phenomenon.

References

- Adler-Nissen, Rebecca, and Vincent Pouliot. 2014. "Power in Practice: Negotiating the International Intervention in Libya." *European Journal of International Relations* 20 (4): 889–911. <https://doi.org/10.1177/1354066113512702>.
- Allan, Bentley B. 2017. "Producing the Climate: States, Scientists, and the Constitution of Global Governance Objects." *International Organization* 71 (1): 131–62. <https://doi.org/10.1017/S0020818316000321>.
- Bicchi, Federica. 2013. "Information Exchanges, Diplomatic Networks and the Construction of European Knowledge in European Union Foreign Policy." <http://dx.doi.org/10.1177/0010836713482871> 49 (2): 239–59. <https://doi.org/10.1177/0010836713482871>.
- Bogner, Alexander, and Wolfgang Menz. 2009. "The Theory-Generating Expert Interview: Epistemological Interest, Forms of Knowledge, Interaction." *Interviewing Experts*, 43–80. https://doi.org/10.1057/9780230244276_3.
- Bueger, Christian. 2014. "From Expert Communities to Epistemic Arrangements: Situating Expertise in International Relations." In , 1:39–54. *Global Power Shift*. https://doi.org/10.1007/978-3-642-55007-2_2.
- . 2015. "Making Things Known: Epistemic Practices, the United Nations, and the Translation of Piracy." *International Political Sociology* 9 (1): 1–18. <https://doi.org/10.1111/ips.12073>.
- Constantinou, Costas M., Noé Cornago, and Fiona McConnell. 2016. "Transprofessional Diplomacy." *Brill Research Perspectives in Diplomacy and Foreign Policy* 1 (4): 1–66. <https://doi.org/10.1163/24056006-12340005>.
- Dunlop, Claire A. 2009. "Policy Transfer as Learning: Capturing Variation in What Decision-Makers Learn from Epistemic Communities." 30 (3): 289–311. <https://doi.org/10.1080/01442870902863869>.
- Flink, Tim. 2020. "The Sensationalist Discourse of Science Diplomacy: A Critical Reflection." *The Hague Journal of Diplomacy*. Brill Nijhoff. <https://doi.org/10.1163/1871191X-BJA10032>.
- . 2021. "Taking the Pulse of Science Diplomacy and Developing Practices of Valuation." *Science and Public Policy* 00 (November): 1–10. <https://doi.org/10.1093/SCIPOL/SCAB074>.
- Gieryn, Thomas F. 1983. "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists." *American Sociological Review* 48 (6): 781. <https://doi.org/10.2307/2095325>.
- Haas, Peter M. 1992. "Introduction: Epistemic Communities and International Policy Coordination." *International Organization* 46 (1): 1–35. <https://doi.org/10.1017/S0020818300001442>.
- Hayes, Peter, Scott Bruce, Christina McCain, Norman Neureiter, and Eileen S. Vergino. 2007. "Science as Diplomacy." *Bulletin of the Atomic Scientists* 63 (4): 22–23. <https://doi.org/10.2968/063004007>.
- Hilgartner, Stephen. 2000. "Science on Stage: Expert Advice as Public Drama," 213.
- Jasanoff, Sheila S. 2016. "Contested Boundaries in Policy-Relevant Science." <http://dx.doi.org/10.1177/030631287017002001> 17 (2): 195–230. <https://doi.org/10.1177/030631287017002001>.
- Kreienkamp, Julia, and Tom Pegram. 2021. "Governing Complexity: Design Principles for the Governance of Complex Global Catastrophic Risks." *International Studies Review* 23 (3): 779–806. <https://doi.org/10.1093/ISR/VIAA074>.
- Kuus, Merje. 2014. *Geopolitics and Expertise: Knowledge and Authority in European Diplomacy*. Wiley-Blackwell.
- Kuus, Merje. 2018. "The Terroir of Bureaucratic Practice: Everyday Life and Scholarly Method in the Study of Policy." <https://doi.org/10.1177/0263774X18802954> 37 (4): 617–33. <https://doi.org/10.1177/0263774X18802954>.

- Legrand, Timothy, and Diane Stone. 2018. "Science Diplomacy and Transnational Governance Impact." *British Politics* 13 (3): 392–408. <https://doi.org/10.1057/s41293-018-0082-z>.
- Liddle, Aidan. 2020a. "Disarmament Blog: A New Initiative on Outer Space Security." Foreign, Commonwealth & Development Office. 2020. <https://blogs.fcdo.gov.uk/aidanliddle/2020/08/27/disarmament-blog-a-new-initiative-on-outer-space-security/>.
- . 2020b. "Disarmament Blog: Space Resolution Adopted | Foreign, Commonwealth & Development Office Blogs." Foreign, Commonwealth & Development Office. 2020. <https://blogs.fcdo.gov.uk/aidanliddle/2020/12/10/disarmament-blog-space-resolution-adopted/>.
- . 2021. "Responsible Behaviours in Outer Space: Towards UNGA 76 | Foreign, Commonwealth & Development Office Blogs." Foreign, Commonwealth & Development Office. 2021. <https://blogs.fcdo.gov.uk/aidanliddle/2021/06/08/reducing-space-threats-towards-unga-76/>.
- Lord, Kristin M., and Vaughan C. Turekian. 2007. "Time for a New Era of Science Diplomacy." *Science* 315 (5813).
- Mauduit, Jean-Christophe, and Marga Gual Soler. 2020. "Building a Science Diplomacy Curriculum." *Frontiers in Education* 5 (August): 138. <https://doi.org/10.3389/feduc.2020.00138>.
- Melchor, Lorenzo. 2020. "What Is a Science Diplomat." *The Hague Journal of Diplomacy* 15 (3): 409–23. <https://doi.org/10.1163/1871191X-BJA10026>.
- Moomaw, William R. 2018. "Scientist Diplomats or Diplomat Scientists: Who Makes Science Diplomacy Effective?" *Global Policy* 9 (November): 78–80. <https://doi.org/10.1111/1758-5899.12520>.
- Parrado, Salvador. 2014. "Analytical Capacity." *The Problem-Solving Capacity of the Modern State*, December, 86–104. <https://doi.org/10.1093/ACPROF/OSO/9780198716365.003.0005>.
- Rungius, Charlotte, and Tim Flink. 2020. "Romancing Science for Global Solutions: On Narratives and Interpretative Schemas of Science Diplomacy." *Humanities and Social Sciences Communications* 7 (1): 1–10. <https://doi.org/10.1057/s41599-020-00585-w>.
- Seabrooke, Leonard. 2015. "Diplomacy as Economic Consultancy." *Diplomacy and the Making of World Politics*, January, 195–219. <https://doi.org/10.1017/CBO9781316162903.008>.
- Sending, Ole Jacob, Vincent Pouliot, and Iver B. Neumann. 2011. "The Future of Diplomacy: Changing Practices, Evolving Relationships." *International Journal* 66 (3): 527–42. <https://doi.org/10.1177/002070201106600301>.
- Thérien, Jean-Philippe, and Vincent Pouliot. 2019. "Global Governance as Patchwork: The Making of the Sustainable Development Goals." <https://doi.org/10.1080/09692290.2019.1671209> 27 (3): 612–36. <https://doi.org/10.1080/09692290.2019.1671209>.
- Wedel, Janine R. 2017. "From Power Elites to Influence Elites: Resetting Elite Studies for the 21st Century." <https://doi.org/10.1177/0263276417715311> 34 (5–6): 153–78. <https://doi.org/10.1177/0263276417715311>.

George Salter is an EPSRC-funded Ph.D. Researcher and political sociologist at University College London studying science diplomacy. His primary research interest concerns how states use science and scientists in their foreign policy initiatives and the interplay between technical knowledge, political action, and governance in global politics. George is using the policy domain of space governance as the empirical focus of this project. He is currently working with the Foreign, Commonwealth, and Development Office (FCDO) of the UK government to engage in data collection and understand more about science diplomacy in action.