

# FIG Working Week 2023

## Paper no.12212

### Hydrospatial, the Blue Geospatial<sup>+</sup>!

**Denis HAINS, Canada; Rafael PONCE, USA; Karen COVE, Canada; Maria Emanuela MIHAILOV, Romania; and Victoria OBURA, Kenya**

**Key words:** hydrospatial, hydrospatial sciences, hydrography, terminology, geospatial

#### SUMMARY

The term hydrospatial first emerged in the early 2000's in the UK. Since February 2020, the term hydrospatial has been reenergized, promoted and mentioned in many fora; and in international publications. This Paper and the presentation will provide the status of this term with respect to its usage, endorsement and meaning.

The term hydrospatial has now reached a level of common usage and maturity in the global ocean and water science community. The fact that the Hydrospatial Movement Club and Community (HMCC), established at the end of 2020, has grown to over 5,350 members in March 2023 and is continuously growing, notably supports this. It also formalizes how the term is used and what it really means. There is no debate on the term hydrospatial itself. It refers to “all the Blue of our Blue Planet and its contiguous zones” (Hains et al., 2022, 2021, 2020). However, clarification with respect to terminological aspects such as the part of speech (noun vs. adjective) and a clearer definition were needed.

#### SOMMAIRE (Français)

Le terme hydrospatiale est d'abord apparu au début des années 2000 au R.U. Depuis 2020, ce terme a été redynamisé, il a été mentionné et utilisé dans plusieurs événements et dans des publications internationales. Le présent document et la présentation fourniront une mise à jour sur ce terme, son usage, son endossement et sa signification.

Le terme hydrospatiale est maintenant utilisé couramment et a atteint une maturité dans la communauté des océans et des sciences de l'eau. Le fait qu'une Communauté et un club du mouvement hydrospatiale a été établis à la fin de 2020, et n'a cessé de croître depuis, à plus de 5,350 membres en mars 2023 est remarquable. Il n'y a plus de débat sur le terme lui-même. Il réfère à « tout le bleu de notre planète bleue et ses zones contiguës » (Hains et al., 2022, 2021, 2020). Cependant, une clarification était de mise sur son aspect terminologique dans le langage (nom versus adjectif) et une définition plus claire.

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## **A critical look back**

When first commented on the term hydrosatial in May 2020, the initial approach was to define the new term similarly to hydrography (Hains, 2020). This was based on the International Hydrographic Organization (IHO) definition of hydrography: “a branch of applied sciences which deals with (...)”. In hindsight, this was not such a good idea, and it was misleading, suggesting the possible replacement or re-definition of hydrography. There has never been an intent to replace hydrography. It was recognized that using the definition of hydrography to first define the hydrosatial space was not adequate. But it was a starting point for a conversation and further develop the definition.

As a result, a simpler definition was submitted to the Hydrographic Dictionary Working Group (HDWG) in December 2021 with the objective of including the term in the *IHO Hydrographic Dictionary (S-32)*. However, the proposal was rejected by the HDWG because the definition did not clarify if the term was to be used as an adjective and left rightly so the impression that it was suggested as a noun.

The goal of this paper is to present a new and better-articulated definition. Furthermore, the aim is to be clear about what the new term is not intended to be. The term hydrosatial is not intended to replace the term hydrography. Nor did the objective to call hydrography into question with the newly introduced term. It was not the intention to defy the hydrographic community. But there was a firm commitment to maintain and to advocate that the new term bolsters today’s and future use of a vocabulary that supports and elevates the relevance that Blue data has among ocean sciences in the geospatial community.

## **Clarifying the concept**

After reading Lars Schiller’s Paper (2022), the term and the concept was more clearly refined. In summary, the term hydrosatial is an adjective whose meaning is about data’s information and knowledge in the water and contiguous environment that has a spatial and temporal reference. The adjective refers to this water and contiguous zone data, information and knowledge.

Schiller compared the adjective hydrosatial with the adjective geospatial built on the same pattern. “The differentiation between geospatial and hydrosatial information is much better than between geographic and hydrographic information or that between topographic and hydrographic information.” Geospatial and hydrosatial could be complementary like dry and wet; referring to emergent and submerged environments in a standardized way. However, it is understood that hydrosatial is a part of geospatial. The hydrosphere with its oceans, lakes and rivers is a part of the whole earth system.

Schiller introduced the idea of “hydrosatial sciences”. He combined the adjective with a noun and he offered a draft definition of hydrosatial: “Hydrosatial denotes data and information related to hydrosatial sciences.”

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It is considered that the hydrospatial sciences are more comprehensive and have a much wider scope than hydrography. However, hydrography will always remain a strong independent science and its definition remains the same.

The hydrospatial sciences are a subset of geospatial sciences. Each of the hydrospatial sciences has water bodies as its object of investigation. In other words: The hydrospatial sciences are focused on all the Blue of our Blue Planet and its contiguous zones. They deal with all the spatio-temporal physical, biological and chemical data, information and knowledge related to their position at a certain time on and in any water body on earth: surface, column, bottom and sub-bottom; of the oceans, the seas, the estuaries, the rivers, the lakes; the coastal zones, wetlands and the flooding areas are also included.



**Figure 1a), b) and c).** Some of the Blue of our Blue Planet domain activities.

*Sources of images: Paola Echeverry, member of the Hydrospatial Movement Club, South American node.*

### **New definitions**

The Hydrospatial Movement Club decided to involve Mr. Lars Schiller, a professional terminologist to help and assist in defining more simply and clearly the terms hydrospatial and hydrospatial sciences.

#### **hydrospatial**

*adjective*

Relating to hydrospatial sciences or denoting data, information and knowledge that is associated with a particular location and time of the earth's waters and their contiguous zones.

#### **hydrospatial sciences**

*plural-only noun (plurale tantum)*

All sciences dealing with the study of the earth's waters and their contiguous zones.

### **Conclusion and next steps**

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It is believed that the above new definitions will lead to a good understanding of the terms. As a result, the terms hydrospatial and hydrospatial sciences will be used even more frequently in the global ocean and water science communities, especially since they underline the importance of this data, information, knowledge and science.

The adoption of the term in the *IHO Hydrographic Dictionary (S-32)* will be a journey, that might take more time. It is important to note that the term geospatial is not in the IHO Hydrographic Dictionary either. In any case, the term hydrospatial is well anchored, it is being used in verbal and written communications; it is there to stay and become an important adjective.

It is believed that hydrographers are one of the best positioned professional group to prepare, manage and present the entirety of hydrospatial data and information – for example in a hydrospatial information system (HIS) commonly called Marine Spatial Data Infrastructure (MSDI).

### **Joining the HMCC**

The Hydrospatial Movement Club and Community (HMCC) is continuously expanding globally. Established at the end of 2020, the HMCC was first started by a “club” of professionals globally in the water domain. The HMCC is currently a club of sixteen volunteers worldwide interested in promoting and advocating the importance of marine and aquatic geospatial or blue geospatial data, information and knowledge, namely the hydrospatial domain. Some of the hydrospatial movement club members published on the topic (Pang & Oei, 2020; Ponce, 2019).

Since August 2021, the community is continuously growing to more than 5,350 members in March 2023. Activities such as posting relevant information, exchanging knowledge and creating linkages between members on the LinkedIn social media group account; Continental Nodes Virtual Workshops will be scheduled on topics related to the hydrospatial domain, science and technology.



**Figure 2.** Hydrospatial Movement Club & Community Logo

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All are encouraged to join the Hydrospatial Movement Community group on the business social media LinkedIn at: <https://www.linkedin.com/groups/12556091/>. And to visit the hydrospatial story map for more details on the origins, activities, members and more: <https://arcg.is/19fiab>. Many members of the hydrospatial movement community are hydrographers, but the majority are from other professionals' expertise interested in all the Blue of our Blue Planet and its contiguous zones that are part of this group growing continuously.

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## **BIOGRAPHICAL NOTES**

N/A

## **CONTACTS**

Mr. Denis HAINS  
President & CEO H2i  
PO Box 91566, Mer Bleue PO  
Ottawa, Ontario  
Canada  
Tel. 1+613-858-3096  
Email: dhains@h2i.ca  
Web site: www.h2i.ca

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