

# From the Temisphere to Geographic Administrative Law: The thought of the Geojurist José Nicolau dos Santos in the light of the 21st century

## Da Temisfera ao Direito Administrativo Geográfico: O pensamento do geojurista José Nicolau dos Santos a luz do século XXI

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### Abstract

This article revisits the concept of Temisphere, formulated by José Nicolau dos Santos, in light of the contemporary challenges of Brazilian territorial planning. Far from being merely a historical theory, the Temisphere is reinterpreted here as a critical category capable of revealing the complex coexistence and overlap of legalities across the territory, as well as the structural shortcomings in recognizing legitimate forms of land occupation—such as Indigenous, Quilombola, riverside, and informal urban territories. The analysis adopts a qualitative, hermeneutic-based methodology, combining a chronological reconstruction and bibliographic review of the author's work with a theoretical-propositional reinterpretation grounded in the framework of Geographic Administrative Law. This approach is further complemented by an exploratory investigation of experiences with Spatial Data Infrastructures (SDIs), highlighting the potential of law to integrate legal, geographic, and socio-territorial data. By identifying Article 21, item XV, of the 1988 Brazilian Constitution as the legal foundation for this perspective, the paper proposes a methodological reconfiguration of legal reasoning aligned with 21st-century demands for territorial transparency, institutional interoperability, and spatial justice.

### Keywords:

Geospatial data, Spatial data, Legal cartography, Interoperability, Territorial governance.

### Resumo

Este artigo revisita o conceito de *temisfera*, formulado por José Nicolau dos Santos, à luz dos desafios contemporâneos do ordenamento territorial brasileiro. Longe de constituir apenas uma teoria histórica, a *temisfera* é aqui reinterpretada como uma categoria crítica, capaz de revelar a complexa coexistência e sobreposição de legalidades no território, bem como as fragilidades estruturais no reconhecimento de formas legítimas de ocupação — como os territórios indígenas, quilombolas,

ribeirinhos e urbanos informais. A análise adota uma metodologia qualitativa de base hermenêutica, combinando reconstrução cronológica e análise bibliográfica das obras do autor com uma releitura teórico-propositiva ancorada nos marcos do Direito Administrativo Geográfico. A abordagem é complementada por uma investigação exploratória de experiências com Infraestruturas de Dados Espaciais (IDEs), evidenciando o potencial do Direito para integrar dados jurídicos, geográficos e socioterritoriais. Ao identificar no art. 21, XV, da Constituição de 1988 a base jurídica inaugural para essa perspectiva, o trabalho propõe uma reconfiguração metodológica do Direito, alinhada às exigências de transparência territorial, interoperabilidade institucional e justiça espacial no século XXI.

**Palavras-chave:**

Geodados, Dados Espaciais, Cartografia jurídica, Interoperabilidade, Governança territorial.

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## I. INTRODUCTION

The debate on the relationship between space and norm has gained increasing prominence in contemporary legal scholarship, particularly in light of the rise of territorialized public policies, data-driven regulation, and the digital transformation of the state. Within this context, a critical reassessment of the origins of spatial-legal thought in Brazil becomes imperative. The relationship between law and territory has rarely been addressed with the conceptual depth and methodological boldness found in the work of José Nicolau dos Santos, a professor who held dual chairs at what is now the Federal University of Paraná (UFPR) and served as the university's rector (1964–1967). Active between the 1930s and 1950s, Santos developed an original theory on the spatiality of law, laying the foundations for a pioneering geojuridical framework in Brazil. At the core of this theory lies the concept of the *Themisphere*, understood as the normative layer of the Earth—a domain where legal norms become territorialized, interact, conflict, and reorganize themselves in space.

The investigation adopts a qualitative, hermeneutic-based methodology, emphasizing a bibliographic analysis of Santos' original works alongside a specialized literature review in the fields of Human Geography, Administrative Law, and Legal Geography. The empirical material includes a systematic examination of Santos' principal texts published in the *Revista da Faculdade de Direito da UFPR*, as well as the development of a comparative table of Spatial Data Infrastructures (SDIs) across three levels of the Brazilian federation, with the aim of identifying contemporary institutionalizations of normative spatialization.

Santos' writings—ranging from manuals and theses to theoretical essays—trace a conceptual trajectory that weaves together human geography, statistics, state theory, and public international law. His proposal of the *Themisphere* (Dos Santos, 1954; 1956) emerges as a response to disciplinary fragmentation and to the lack

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of a language capable of describing the multiple ways in which law occupies space and is, in turn, conditioned by it. Simultaneously, it constitutes a critical reaction to abstract normativism, which overlooks the geography of conflicts and institutions.

More than a metaphor, the *Themisphere* serves as a foundational category for understanding law as a territorialized phenomenon. Its emergence reflects a process of intellectual maturation that begins with an analysis of transformations within the state and culminates in the formulation of a legal geography with its own structural coherence. Drawing on classical authors, Santos integrates the legal domain into the vocabulary of geographical science, while rejecting determinism and advancing a humanist, plural, and historically grounded interpretation of the relationship between norm and territory.

The analysis of results demonstrates that the concept of the *Themisphere* remarkably anticipates contemporary issues such as geospatial data interoperability, multilevel environmental governance, complex land regularization, and the normative organization of critical infrastructures. The empirical survey of SDIs confirmed that the spatialization of law is a well-established administrative practice in Brazil, albeit still lacking a unified theoretical foundation—thus reaffirming the relevance and timeliness of Santos' intellectual legacy.

The methodology adopted in this study is qualitative and hermeneutic in nature, combining a chronological and bibliographic analysis of José Nicolau dos Santos' work with a critical interpretation of his concepts in light of current regulatory demands. The reconstruction of the *Themisphere* concept's trajectory is conducted through a close reading of the author's major works, situating them historically and extracting categories that remain relevant to contemporary debates on legal-territorial ordering. This framework is further complemented by a theoretical-propositional rereading that incorporates interdisciplinary references, particularly from Legal Geography and Geographic Administrative Law, as well as an exploratory analysis of recent experiences with Spatial Data Infrastructures (SDIs), which enables a verification of the contemporary applicability of Santos' thought to the technical and normative challenges of the twenty-first century.

## **II. THE FEDERAL UNIVERSITY OF PARANÁ AND THE ORIGINS OF BRAZILIAN GEOJURIDICAL THOUGHT**

The Federal University of Paraná (UFPR) holds a singular place in the history of legal-geographic thought in Brazil. Founded in 1912 as a private institution, UFPR, particularly between the 1950s and 1960s, cultivated a transdisciplinary environment that integrated traditions of European public law with emerging debates in French and German human geography, which were gaining traction across the Ibero-American world. Within

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this context, an original articulation emerged between the spatiality of legal phenomena and the geographic constraints of social life.

It is within this intellectual milieu that José Nicolau dos Santos stands out. His academic trajectory reflects the intellectual vitality of UFPR: a full professor holding chairs in both Geography and Law, he taught simultaneously in the Schools of Law, Philosophy, and Economics—at a time when interdisciplinarity was lived as daily academic practice. Active from the 1930s to the 1950s, Santos produced a body of work that blended State Theory, International Law, Human Geography, and Legal Sociology, laying the pioneering foundations for what is now recognized as Geographic Administrative Law.

Throughout his body of work, José Nicolau dos Santos develops an original line of thought that combines the classical humanities with the technical rigor of both Law and Geography. His writings anticipated themes that are now central to debates on spatial justice, territorial governance, and the normative infrastructure of states. Although still relatively unknown outside academic circles in Paraná, his intellectual legacy constitutes a foundational milestone in the development of geojuridical thought in Brazil.

The principal geographic references in Santos' work derive primarily from the tradition of classical European Human Geography, with notable influence from Paul Vidal de La Blache (1979), whose possibilist perspective directly shaped Santos' rejection of physical determinism; Jean Brunhes (1992), with his emphasis on the relationship between society and space; and Albert Demangeon (1981), whose work contributed to understanding regions as cultural and political constructions. Santos also engaged—albeit critically—with the ideas of Friedrich Ratzel (2012) and Rudolf Kjellén (1994), particularly in relation to geopolitics and the notion of *Lebensraum*, which he explicitly rejected as an expansionist justification. He further incorporated concepts from Émile Durkheim (2000) and Lucien Febvre (1983), aligning his approach with the sociological and historical-cultural branches of French geography. This constellation of thinkers grounds his *Legal Geography* in the Franco-German classical tradition, with a strong emphasis on the historicity of territories and the spatialization of legal institutions, framing space both as a condition and as an expression of normative forms.

Table 1 – Evolution of Geojuridical Thought in the Work of José Nicolau dos Santos.

Year	Work	Main Contribution	Key Concepts	Geojuridical Framing
1939	<i>Race and Nationality</i>	Articulates ethnicity, territory, and legal ordering, linking cultural diversity to the construction of the nation-state.	Collective identity, ethnicity, cultural diversity, state	Beginning of the association between cultural factors and territorial legal ordering

1940	<i>Elements of Methodological and Applied Statistics</i>	Proposes statistics as a tool for institutional and territorial analysis of the state.	Applied statistics, territorial method, institutional analysis	Anticipates integrated approaches to legal-territorial studies
1943	<i>Legal Foundations of the Transformation of States</i>	Criticizes expansionist doctrines and classical geopolitics; defends the right to self-determination.	Natural borders, nationality, geodeterminism, self-determination	Normative stance against the strategic use of geography in law
1951	<i>Human Geography and General Theory of the State</i>	Integrates State Theory and Human Geography; proposes the state as a territorialized institution.	Territorialization, spatial organization, geography and state	Methodological foundation for linking state formation and geographic space
1952	<i>UN: State, Proto-State or Super-State?</i>	Analyzes the legal nature of the UN; proposes a reading of it as an emerging supranational structure.	Superstate, confederation, global governance	Introduces geojuridical reasoning into the postwar international order debate
1954	<i>Foundations of Legal Geography</i>	Systematizes Legal Geography as a scientific discipline, distinct from the Geography of Law.	Causality, coordination, extension, reversibility, purpose	Foundational work of the geojuridical project, establishing theoretical bases
1955	<i>Comparative Law and Legal Geography</i>	Rejects decontextualized legal transplants; affirms the link between legal norm, territory, and culture.	Comparative law, legal transplantation, legal landscape	Brings Comparative Law closer to the geojuridical perspective
1956	<i>The Migrations of Law</i>	Analyzes the circulation of law as a process mediated by geographic and cultural contexts.	Legal translation, normative circulation, spatial conditioning	Consolidates the thesis of law as a rooted and territorially conditioned phenomenon

Source: Elaborated by the authors

### III. THE *THEMISPHERE*: FOUNDATIONAL CONCEPT OF A SPATIALIZED NORMATIVITY

The concept of the *Themisphere* did not emerge abruptly or in isolation. Rather, it is the result of an intellectual trajectory that began in the 1940s, traversing multiple disciplines—from statistics to political geography—and gaining systematic coherence by the 1950s, when Santos consolidated his proposal for a *Legal Geography*. His thinking evolved progressively, beginning with an initial effort to institutionally measure state territory, and ultimately culminating in an original and comprehensive formulation of legal spatiality as a constitutive dimension of the norm.

Table 2 – Evolution of the Concept of *Themisphere* in José Nicolau dos Santos.

Year	Work	Contribution to the Concept of <i>Themisphere</i>	Conceptual Status	Conceptual Remarks
1940	<i>Elements of Methodological and Applied Statistics</i>	Introduces the idea of territorial measurement of state reality	Latent	Seeks a legally quantifiable and spatially identifiable layer
1943	<i>Legal Foundations of the Transformation of States</i>	Promotes the legal reorganization of space amid shifting borders	Implicit	Points toward a territorialized normative field, though unnamed
1951	<i>Human Geography and General Theory of the State</i>	Integrates geography and law in analyzing the state as a territorial entity	In formation	Establishes epistemological foundations for a spatial normative layer
1952	<i>UN: State, Proto-State or Super-State?</i>	Outlines the idea of emerging supranational normativity	Proto-concept	Suggests an incipient “global themisphere,” not yet defined as such
1954	<i>Foundations of Legal Geography</i>	Explicitly defines the <i>Themisphere</i> as the normative layer of the planet	Foundational concept	Presents the <i>Themisphere</i> as a sphere analogous to the lithosphere/atmosphere, endowed with its own rationality
1955	<i>Comparative Law and Legal Geography</i>	Refines the concept as a limit to normative universalization without territorial grounding	Critical consolidation	The <i>Themisphere</i> becomes an epistemological criterion: every legal norm is geographically conditioned
1956	<i>The Migrations of Law</i>	Applies the concept to intercultural legal circulation; the <i>Themisphere</i> becomes an analytical tool	Instrumentalization	The <i>Themisphere</i> is used to understand how law adapts and transforms as it migrates between territorial contexts

Source: Elaborated by the authors

The image below offers a visual translation of the notion of the *Themisphere*, as developed by José Nicolau dos Santos between the 1940s and 1950s. The concept results from a progressive theoretical process, beginning with the institutional quantification of state territory and culminating in an original formulation of legal spatiality as the planet’s normative layer. It represents a theoretical proposal that conceives law not as an abstract structure, but as a territorially situated phenomenon—shaped by geographic, social, and historical dynamics.

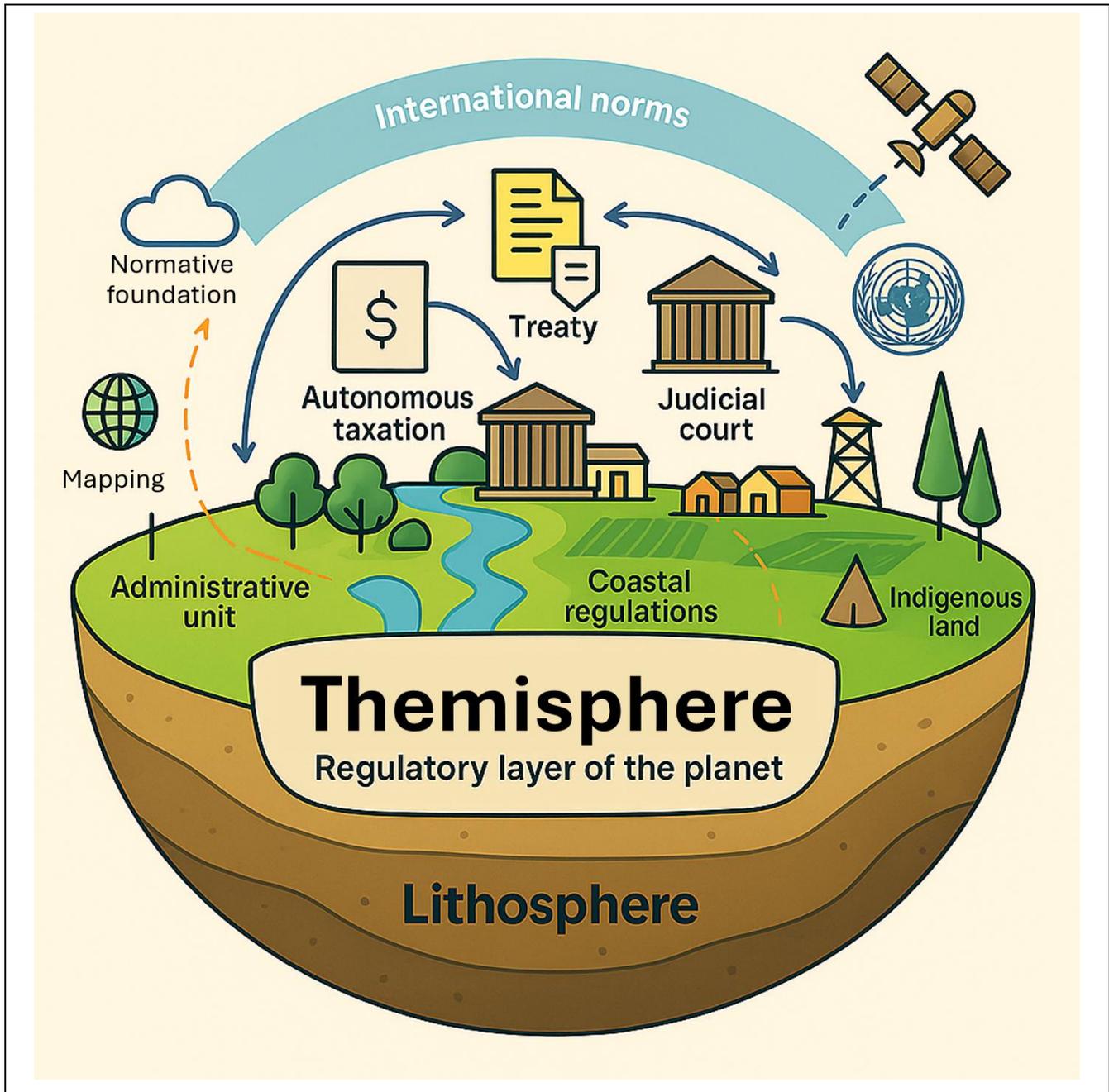


Figure 1 – Graphic representation of the themisphere based on dos santos (1954). Source: elaboration by the authors.

The *Themisphere* embodies a profound critique of the way law has historically been produced, applied, and legitimized from a statist and homogenizing perspective. Through this normative layer—one that circulates across and imposes itself upon diverse territories—it becomes possible to visualize how law operates selectively, recognizing certain subjects while erasing others, based on their territorial, ethnic, or cultural affiliations.

In this sense, the *Themisphere* makes visible that which the traditional legal order has rendered invisible. Indigenous and Quilombola territories, for example—whose ties to land long predate the state—have often been disregarded by codified law, either through omission or normative conflict. These communities have been—and often still are—treated as foreign bodies within the national legal system, while their own normative systems, grounded in distinct worldviews, continue to be delegitimized (Anjos, 2022).

By recognizing such territories as legitimate components of Brazil's normative landscape, the *Themisphere* functions as both a critical and reparative category. It not only exposes the historical failures of territorial ordering processes, but also enables the proposal of new forms of legal integration that respect the plurality of subjects, normative cultures, and ways of inhabiting space. In this regard, the *Themisphere* is not neutral: it is traversed by power struggles, by resistance, and by attempts to reconfigure the legal field from the margins (Blomley, 1994; Braverman, 2007).

However, the value of this concept is not confined to the recognition of historical inequalities. It also offers conceptual tools to address contemporary normative challenges: the proliferation of overlapping legal zones (such as Indigenous territories within conservation units or mineral exploration areas); the fragmentation of state authority; the pressure for interoperability between spatial and legal data; the judicialization of territorial management; and the digitalization of public decision-making, which increasingly shifts the locus of normativity toward automated and technobureaucratic systems (Janssen; Scott, 2018).

It is precisely at this juncture that José Nicolau dos Santos' proposal reveals its visionary character. By presenting a spatialized normative layer, this critical instrument can be reconfigured to address the challenges of the present: normative fragmentation, the multiplication of jurisdictions, data governance, the dematerialization of public decisions, and the overlapping of legalities across environmental, territorial, and digital regimes. In this new context, the *Themisphere* becomes a fertile starting point for rethinking Geographic Administrative Law, its algorithmic rationalities, and its new modes of territorial presence.

#### **IV. SYNTHESIS OF THE STATE OF THE ART IN INTERDISCIPLINARY SCHOOLS OF LAW AND GEOGRAPHY**

In recent decades, various academic traditions have developed conceptual models which, although they do not employ the term *Themisphere*, converge toward an understanding of law as a spatial, normative, and territorialized phenomenon. These proposals, arising from distinct geopolitical and epistemological contexts, offer critical reinterpretations of the relationship between norm and territory and provide important

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contributions to the contemporary expansion of the conceptual framework formulated by José Nicolau dos Santos.

Table 3 synthesizes six of these interdisciplinary schools, which may be interpreted as guiding threads in the consolidation of a theoretical field in which the spatiality of law becomes operative. The German school, with roots in territorial determinism and *Geojurisprudenz*, offers a historical example of how normativity may be instrumentalized for purposes of domination and expansion—a cautionary note regarding the axiological risks inherent in any project of normative territorialization.

The French tradition of *géographie du droit*, in turn, articulates a juridical possibilism attentive to the normative plurality of territories, offering a framework compatible with the idea of the *Themisphere* as a field of coexistence among legal orders. This reading is critically and politically developed within the Anglophone tradition, where scholars such as Blomley and Delaney conceptualize law as a producer of spatialities and identity-based disputes—an approach that directly resonates with the proposition of interpreting legal norms as *geotechnology*. In their view, law does not merely regulate space: it fabricates, contests, and performs it. This conception finds a direct echo in the proposal to understand legal normativity as *geotechnology*—that is, as a technical device for territorial ordering, capable of materializing legal decisions through spatial languages such as maps, land registries, infrastructures, and georeferenced data, and of operating as an instrument of both power and resistance within contemporary dynamics of governance.

Italian and Hispanic contributions to the Law–Geography interface reveal critical approaches that expand the notion of normativity beyond conventional state structures. The Italian tradition—particularly through the concept of *Geodiritto*—questions the mercantile logic that enables the selective manipulation of legal systems by global actors, such as transnational corporations, emphasizing territory as a limit and condition for normative validity. The Hispanic tradition, strongly influenced by Critical Geography and Latin American legal pluralism, places value on local territorialities and autonomous normative systems emerging from Indigenous, peasant, and popular urban communities. Though following different trajectories, both traditions converge in asserting that legal legitimacy must arise from territorial rootedness and from the recognition of multiple sovereignties, thereby challenging the state's monopoly over legal production. In this sense, they provide a powerful theoretical basis for conceiving the *Themisphere* not as a homogeneous layer of normativity, but as a dynamic field of tensions, resistances, and juridical reinventions grounded in territory.

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Table 3 – Synthesis of the State of the Art in Interdisciplinary Schools of Law and Geography.

School / Tradition	Key Authors / Representatives	Core Characteristics	Examples / Applications and Emphases
German	Haushofer, Ratzel, Langhans-Ratzeburg, Benda-Beckmann	Territorial determinism, <i>Geojurisprudenz</i> , state science linked to space and race	Strong phenomenological emphasis: focus on borders, sovereignty, expansion. Hierarchical axiological emphasis: affirmation of normative superiority. Applications in imperial policies, strategic international law, and contemporary critiques of geodeterminism.
French ( <i>Géographie du Droit</i> )	Vidal de La Blache, Sorre, Dessentaux, David, Forest, Allemand & Dantonel-Cor	Possibilism, legal diversity, comparative law grounded in territoriality	Emphasis on normative coexistence and institutional analysis of local legal systems. Applications in legal regionalization, legal pluralism, and dialogue between cultural geography and legal systems.
Anglophone ( <i>Law and Geography</i> )	Blomley, Delaney, Ford, Osofsky, Holder & Harrison, Braverman et al.	Critical theory, co-production of space and norm, spatialization of power and identities	Very high axiological emphasis (spatial justice, critique of legal neutrality). Relational rather than phenomenological emphasis. Applications in environmental justice, human rights, urbanism, global governance, and spatial marginalization.
Italian ( <i>Geodiritto</i> )	Irti, Losano, Carloni	Law as territorial expression of power, critique of the legal order marketplace	Critical axiological emphasis: territory as a constraint on legal manipulation. Applications in critique of constitutional “shopping” by transnational corporations, international law, and normative geopolitics.
Hispanic / Ibero-American	M.V. Castro, Limón López, Julio Cruz, Beltramino	Dialogue with Critical Geography, local legal territorialities, normative pluralism	Emphasis on the articulation between territory, sovereignty, and legal identities. Applications in urban regulation, international boundary disputes, ICJ jurisprudence, and legal colonialism.
Luso-Brazilian	Boaventura de Sousa Santos, Milton Santos, Ricardo Mendes Antas Jr., Alexandra Aragão, Luiz Ugeda	Epistemological critique, territorialized normativity, mapping as legal language, normative and technical geojuridicality	Very high axiological emphasis (spatial justice, normative mediation, cartographic legality). Refined phenomenological emphasis: norms as the material content of territory. Applications in critical legal cartography, judicial zoning, energy transition, regulatory geoinformation, and law as a spatial structure of governance.

Source: Elaborated by the authors

Unlike other traditions that retain the relationship between law and space at a symbolic or analytical level, the Luso-Brazilian school is committed to the concrete transformation of legal structures through the spatialization of normative data, the territorial accountability of the state, and the mediation between formal legal systems and autonomous forms of territoriality. Drawing on the work of scholars such as Boaventura de Sousa Santos, Milton Santos, and contemporary thinkers of data-driven regulation, this school not only recovers the conceptual foundations of José Nicolau dos Santos but expands them by incorporating contemporary

technological and political processes—such as geoinformation systems, normative interoperability, and debates on cartographic sovereignty. In doing so, the *Themisphere* is no longer merely a twentieth-century theoretical representation; it is consolidated as an operative category for the twenty-first century, particularly in the context of shaping a Geographic Administrative Law oriented toward transparency, normative plurality, and territory-based public governance.

## **V. FROM THE *THEMISPHERE* TO DATA INFRASTRUCTURE: GEOGRAPHIC ADMINISTRATIVE LAW IN THE TWENTY-FIRST CENTURY**

The formalization of the *Themisphere* as the institutional expression of spatial normativity in Brazil finds a decisive inflection point in the text of the 1988 Federal Constitution—specifically, in Article 21, item XV, which assigns to the Union the authority to “organize and maintain the official services of statistics, geography, geology, and cartography at the national level.” This provision gives legal expression to what José Nicolau dos Santos had theorized decades earlier: the recognition that space is an object of the State’s normative power, and that its official production requires organization, technical precision, and institutional centrality.

The constitutional insertion of this mandate is not merely administrative; it inaugurates what may be called the legal-infrastructure dimension of the *Themisphere*, by determining that the public authority must not only regulate but also materially structure the means by which territory is represented and normatively configured. Cartography, statistics, and geography thus come to be understood as responsibilities of the administrative state, articulated with planning, regulation (Antas Junior, 2005), and the control of both public and private territorialities.

This understanding leads us to the core of a contemporary proposal: the constitution of a *Geographic Administrative Law* (Ugeda, 2017), grounded in the interaction between normative sovereignty, institutional spatiality, and data and service infrastructure, in alignment with the guidelines of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). Legal scholars and practitioners such as Greg Scott (2020) and Paul Janssen (2018), members of the UN-GGIM High-Level Group, have emphasized that national legal and institutional systems must incorporate the geospatial dimension as a fundamental infrastructure for territorial governance, identifying geographic information as an “essential enabler” for the implementation of public policies and for achieving the goals of the 2030 Agenda.

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The point of departure for this emerging field is not merely the legality of administrative acts per se, but the ways in which the state configures, territorializes, and rationalizes space through norms, administrative decisions, spatial plans, and interoperable and institutionalized information systems.

If, within French geopolitical thought, Yves Lacoste once stated that “geography is, above all, used for waging war” (Lacoste, 1976), this provocation—far from glorifying conflict—reveals that the production of geographic knowledge has always been entwined with strategies of power. For Lacoste, the control of cartography and geoinformation is a structural component of state sovereignty. Article 21, item XV, of the 1988 Brazilian Federal Constitution affirms this thesis by constitutionalizing the centralization of official spatial production by the Brazilian state. Beyond its potential for war, this knowledge also serves to mediate peace (Ugeda, 2019). Claude Raffestin, in turn, contributes to this debate by advancing a theory of territory production as mediated by power relations and technical devices (Raffestin, 1980). For him, every territory is the result of a territorialization process involving both material and symbolic resources—norms, maps, contracts, data, borders. The state, therefore, does not merely administer people or goods; it administers forms of spatialization and geoinformational services—in other words, it administers the *Themisphere*.

In this framework, the *Themisphere* can be reread as a normative infrastructure of space, composed of geographic information systems, legal frameworks, public registries, territorial plans, and cartographic control mechanisms. By organizing these services, the Union becomes the steward of a juridico-spatial architecture with direct implications for Brazil’s urban, environmental, land, energy, and logistics planning and regulation.

This theoretical shift from the *Themisphere* to territorial infrastructure also converges with the notion of spatial data infrastructure as a sector to be regulated by law. The production of official cartographic bases, multipurpose cadastral systems, environmental databases, land title registries, administrative easement zones, and land-use records constitutes a normative-technical corpus that structures both public and private actions upon the territory.

This dialogue allows for a reinterpretation of Article 21, item XV, of the Federal Constitution not as a technical or merely administrative provision, but as the normative foundation of a territorial sovereignty policy for the Brazilian state, anchored in the legitimate, official production of space. By assigning to the Union the responsibility for organizing and maintaining the official services of geography, cartography, and statistics, the constitutional text acknowledges that the institutional representation of territory is inseparable from the exercise of sovereignty. Within this context, the Union acts as the epistemic guardian of the Brazilian *Themisphere*, monopolizing the means of constructing, validating, and disseminating the legally authorized

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representations of national space. This not only legitimizes but also compels vertical and horizontal coordination among federal entities and private actors in their territorial and regulatory practices.

The table below illustrates this juridico-spatial architecture by presenting examples of Brazilian Spatial Data Infrastructures (SDIs) organized at the federal, state, and municipal levels, with an emphasis on their practical role in materializing the *Themisphere*. Each of these platforms—from INDE, as the national structure for geoinformation integration, to GeoSampa, as a local system for urban management—constitutes an institutional interface in which norms, territories, and technologies are interwoven to enable the coordinated production and use of space. They are concrete expressions of what José Nicolau dos Santos anticipated in theory: the existence of a normative layer of the planet, whose rationality demands legal, technical, and administrative foundations. The table makes visible how different scales of the state operate upon this layer, institutionalizing forms of normative territorialization that articulate property, land use, environmental regulation, urban planning, and land governance. Thus, the *Themisphere* ceases to be merely a theoretical construct and manifests itself, in practice, as a multi-scalar infrastructure for territorial governance.

From this convergence, *Geographic Administrative Law* emerges as the field most suited to operationalizing this reading of the *Themisphere* in the current historical moment, as it incorporates not only traditional legal principles but also those arising from technological systems—such as interoperability, data reuse, traceability, information openness, algorithmic responsiveness, and networked governance. These principles not only expand the state’s capacity to represent territory with precision but also require it to reorganize its normative practices through digital and geospatial architectures, which demand infrastructure, standardization, and transparency. In this sense, *Geographic Administrative Law* acts as a mediator between new technical rationalities and constitutional requirements, enabling the exercise of public authority on an informational basis that is structured, continuously updatable, and territorially responsive.

Table 4 – Interfaces between Spatial Data and the Concept of the *Themisphere* in Brazil.

IDE / Platform Name	Managing Entity	Scope / Purpose	Level	Applications of the <i>Themisphere</i>
INDE – National Spatial Data Infrastructure	IBGE (Management)	National integration of spatial data	Federal	Establishes the official territorial representation base, structuring federal spatial normativity.
SIGEF – Land Management System	INCRA	Georeferenced cadastral registry of rural properties	Federal	Juridically territorializes rural possession and ownership, defining land boundaries within the state’s <i>Themisphere</i> .
SNCR / CAR – National Rural Registry System	MMA / IBAMA / SFB	Environmental rural cadastre and regularization	Federal	Regulates rural land use according to environmental parameters, integrating nature and territorial normativity.

SINTER – National System for Territorial Information Management	Brazilian Federal Revenue Service	Integration of cadastral, fiscal, and land data	Federal	Connects legal-administrative land layers, enabling normative interoperability of space.
SNIRH – National Water Resources Information System	ANA	Water management and usage rights	Federal	Integrates watercourses into territorial normativity, defining spatial uses and restrictions over water domains.
IDE-SP – São Paulo Spatial Data Infrastructure	IMESP – Government of São Paulo	State cartographic base and geographic data	State	Expresses the state’s legal competence to represent and regulate its territory under its normative jurisdiction.
IEDE-RS – State Spatial Data Infrastructure of Rio Grande do Sul	SEPLAG – Government of RS	Territorial planning and management	State	Integrates geospatial data into the planning and implementation of territorial public policies.
IDE-BA – Bahia Spatial Data Infrastructure	SEI – Government of Bahia	Geoinformation applied to Bahia’s territorial planning	State	Supports control and normative application over state territory in areas such as mobility and environment.
IDE-SC – Santa Catarina Spatial Data Infrastructure	CIASC – Government of SC	State spatial data platform	State	Technically supports the state’s normative function over physical-administrative space.
GeoSampa	São Paulo City Hall	Interactive map and urban geospatial data	Municipal	Democratizes access to urban spatial normativity, expanding the visibility of municipal legal ordering.
GeoCuritiba	IPPUC – Curitiba	Urban planning and mobility	Municipal	Translates the master plan into normative and spatial layers, territorializing urban policy directives.
GeoRio	Rio de Janeiro City Hall	Integrated urban geoinformation	Municipal	Provides technical support for spatial regulation in the city, linking infrastructure and legal normativity.
Filipeia	João Pessoa City Hall	Local urban mapping and management	Municipal	Territorializes public policies and regulates space use in accordance with municipal legislation.
GeoFloripa	Florianópolis City Hall	Municipal spatial data infrastructure	Municipal	Reorganizes and makes urban territory available through a normative, visual, and functional logic.

Source: Elaborated by the authors

As Friedrich Ratzel (2012) pointed out, all political power is spatial power, and the organization of the state depends on the rationalization of its territorial extent. However, while Ratzel viewed space primarily as a vector of expansion, contemporary scholarship—represented by authors such as Irus Braverman (2007) and Mariana Valverde (2005)—has proposed reconceiving space as a regulated field, shaped by variable scales and competing legal norms. In this sense, territory is simultaneously a physical substrate and a juridical arena where cadastral records, land registries, master plans, administrative easements, protection zones, property titles, and official maps intersect—all concrete expressions of the *Themisphere*, with significant implications for *Geographic Administrative Law* and its application to open data as intangible public goods.

This perspective is particularly evident in land administration. Systems such as SIGEF, CAR, SINTER, and various municipal geoinformation platforms, as illustrated in Table 1, demonstrate how the Brazilian state attempts to integrate legal and spatial databases—transforming data into norm, and norm into data. When scholars such as Alexandra Dobrowolsky (2004) and Andrea Brighenti (2010) discuss how legal norms become embodied in fences, walls, signs, and use restrictions, they are—albeit implicitly—engaging with the conception articulated by José Nicolau dos Santos (1954), who already envisioned the *Themisphere* as an institutionalized expression of normative power over land. Within this context, *Geographic Administrative Law* operates as a modulator of normative infrastructure, organizing how space is visualized, governed, and operationalized by public authority. This has direct implications for the "mapping of norms," as observed, for example, when specific spatial layers are analyzed via metadata according to locational proximity to Indigenous lands (Figure 2), allowing the cross-referencing of agrarian, environmental, and Indigenous datasets to inform legal balancing judgments concerning the regulatory regimes projected by those geometries.

Water resource management, urban planning, land regularization, and the deployment of critical infrastructure—such as transmission lines, highways, or railways—are examples in which the *Themisphere* is enacted through the intersection of planning and normativity, and which demand a legal-geographic lens. Watersheds as regulatory units (e.g., within SNIRH), cartographically integrated master plans (as in GeoSampa or GeoCuritiba), and georeferenced land registries (via SIGEF and SINTER) reveal that contemporary governance operates over complex normative spatial layers, which in turn require legally grounded instruments that are territorially sensitive.

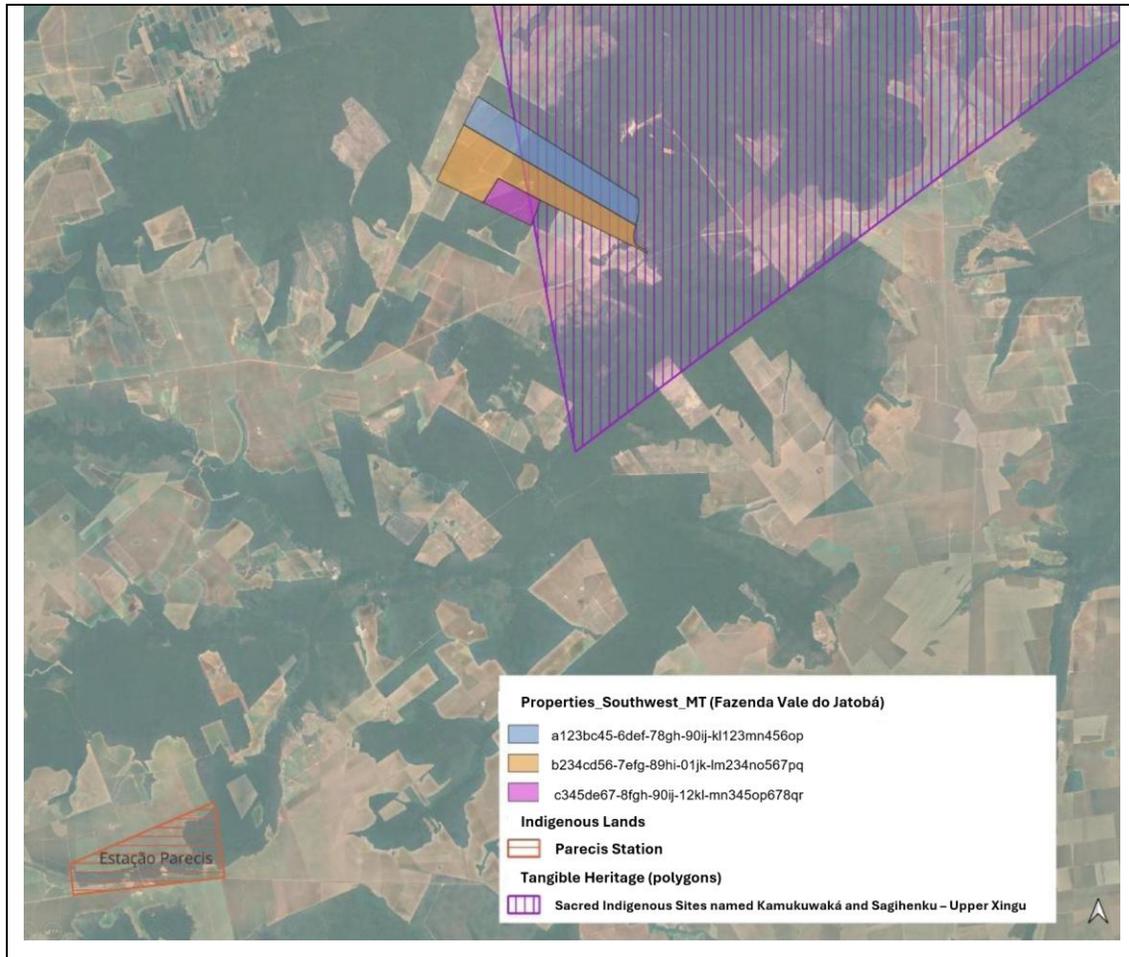


Figure 2 – Example of locational identification of Indigenous land based on overlap with Rural Environmental Registry (CAR) areas. Source: elaboration by the authors.<sup>1</sup>

By integrating contributions from classical Human Geography to leading voices in Legal Geographies, *Geographic Administrative Law* acquires both theoretical depth and transformative capacity. It enables not only the application of law to space but also the construction of normativity from space—reframing the *Themisphere* as a strategic field of regulation, justice, and multiscalar governance. What José Nicolau dos Santos (1954) once foresaw as an emergent science now takes on institutional form and a contemporary vocabulary, becoming key to understanding territory as a juridical infrastructure under dispute.

## VI. FINAL CONSIDERATIONS

The renewed appreciation of José Nicolau dos Santos' thought through the lens of *Geographic Administrative Law* is not merely a tribute to a pioneer, but a concrete opportunity to critically reassess the

<sup>1</sup> The data presented are for illustrative purposes only. The identifiers shown do not correspond to actual territorial or property metadata. Anonymization was carried out in accordance with the Brazilian general data protection law (Law no. 13.709/2018, lgpd), ensuring the protection of sensitive data.

foundations of territorial normativity in contemporary Brazil. His formulations anticipated, with remarkable clarity, the complexity of the national legal space—characterized by multiple layers of legality, overlapping land titles, institutional fragmentation, and historical asymmetries in the recognition of both formal and informal legitimate territories.

By proposing the notion of the *Themisphere* as the planet's normative layer, Santos offers a theoretical framework that enables an understanding of how distinct legal orders coexist, collide, and mutually shape one another within the territory. This perspective is especially valuable for analyzing the persistent difficulty faced by the Brazilian state in recognizing, with legal certainty and institutional legitimacy, the legitimacy of territories historically occupied by Indigenous peoples, Quilombola communities, and other territorialities rooted in African diasporic traditions—as well as informal urban settlements, areas of social interest, riverine territories, and other spatial forms that challenge conventional paradigms of land ownership. These communities have always existed, yet have often been rendered invisible by a state logic grounded in exclusionary notions of property and sovereignty.

In this regard, the *Themisphere* functions as both a critical and integrative tool. It exposes the cumulative failures of territorial ordering processes—not only at the legal level, but also across technical, institutional, and cultural domains—and simultaneously points toward pathways for a more just, plural, and territorially responsive normative reconstruction. This requires adopting methodological premises that reflect contemporary complexity, integrating insights from law, geography, data science, and situated social practices.

Institutionalizing such interdisciplinarity demands coordinated action on multiple fronts: curricular reform in universities, the creation of interdisciplinary centers focused on territorial governance, the strengthening of public geospatial intelligence infrastructures, and the development of platforms that integrate legal, technical, and cultural data in an interoperable manner. Only on such a foundation will it be possible to consolidate a *Geographic Administrative Law* capable of addressing the challenges of the twenty-first century—including the digitalization of public decision-making, the demand for territorial transparency, the protection of diffuse rights, and the management of land conflicts in contexts of rapid socio-spatial transformation.

The legacy of José Nicolau dos Santos allows us to envision the possibility of an “algorithmic *Themisphere*”: a multiscalar normative environment in which legal regulation is entangled with digital infrastructures, geoinformation systems, and emerging forms of territorial power. This projection does not deny historical fragilities; on the contrary, it takes them as a starting point for rethinking the role of law in mediating

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lived and governed spaces. Within this horizon, territorial justice ceases to be a mere normative abstraction and asserts itself as an institutional, technical, and ethical imperative for contemporary Brazil.

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