

# ISO 19123-1:2023-06 (E)

## Geographic information - Schema for coverage geometry and functions - Part 1: Fundamentals

---

<b>Contents</b>		<b>Page</b>
	Foreword.....	v
	Introduction.....	vii
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms, definitions, abbreviated terms and notation</b> .....	<b>1</b>
	3.1 Terms and definitions.....	1
	3.2 Abbreviated terms.....	8
<b>4</b>	<b>Conformance</b> .....	<b>8</b>
	4.1 Notation.....	8
	4.2 Interoperability and conformance testing.....	9
	4.3 Organization.....	9
<b>5</b>	<b>Coverages</b> .....	<b>10</b>
	5.1 Overview.....	10
	5.2 Coverage packages.....	11
	5.3 Probing coverages: evaluate() function.....	12
	5.4 Domain of a coverage.....	12
	5.4.1 Concept.....	12
	5.4.2 Coordinates.....	13
	5.4.3 Mathematical versus physical coordinates.....	14
	5.4.4 Coordinate reference systems and axes.....	14
	5.4.5 Coverage classification along topological dimensions.....	16
	5.5 Range of a coverage.....	16
	5.6 Interpolation.....	17
	5.6.1 Concept.....	17
	5.6.2 Discrete and continuous coverages.....	18
	5.7 Common point rule.....	19
	5.8 Realization variants.....	19
	5.8.1 Overview.....	19
	5.8.2 Geometry/value pair view.....	19
	5.8.3 Domain/range view.....	20
	5.8.4 Partitioned view.....	21
	5.8.5 Functional view.....	21
	5.9 Envelope.....	21
<b>6</b>	<b>Multi-point coverages</b> .....	<b>22</b>
<b>7</b>	<b>Grid coverages</b> .....	<b>23</b>
	7.1 Overview.....	23
	7.2 Grids.....	24
	7.2.1 Grid definition.....	24
	7.2.2 Grid axis types.....	27
	7.3 Rectified and referenceable grid coverages.....	30
	7.4 Grid cells.....	31
	7.4.1 Grid cell concept.....	31
	7.4.2 Pixel-in-centre, pixel-in-corner.....	32
	7.5 Grid coverage.....	32
	7.6 Further grid coverage types.....	33
<b>8</b>	<b>Multi-curve coverages</b> .....	<b>34</b>

8.1	Overview .....	34
8.2	General multi-curve coverages .....	35
8.3	Segmented curve coverages .....	35
<b>9</b>	<b>Multi-surface coverages .....</b>	<b>36</b>
9.1	Overview .....	36
9.2	General multi-surface coverages .....	36
9.3	Further surface coverages .....	37
9.3.1	General .....	37
9.3.2	Thiessen polygon coverages .....	37
9.3.3	Triangulated irregular networks (TINs) .....	38
<b>10</b>	<b>Multi-solid coverages .....</b>	<b>39</b>
<b>Annex A (normative) Conformance tests .....</b>		<b>41</b>
<b>Annex B (informative) Interpolation methods .....</b>		<b>45</b>
<b>Annex C (informative) Sequential enumeration .....</b>		<b>49</b>
<b>Annex D (normative) Legacy data-centric coverage specification .....</b>		<b>60</b>
<b>Bibliography .....</b>		<b>77</b>