

C.2 OASIS searchRetrieve APD Mapping (Non-normative)

The table below compares the abstract elements from the searchRetrieve Abstract Protocol Definition (APD) [OR1], with the OpenSearch actual elements [NR4] and the elements proposed in the current specification, with corresponding elements in the same row.

<i>Abstract Element from APD [OR1]</i>	<i>OpenSearch Element [NR4]</i>	<i>JSON Element</i>
<numberOfItems>	<totalResults>	<code>\$.totalResults</code>
<numberOfGroups>	(none)	
<resultSetId>	(none)	
<item>	Defined by the response schema, for example an <entry> in ATOM 1.0.	<code>\$.features[*]</code> (GeoJSON Feature).
<nextPosition>	<u>In page mode:</u> find the <link> element where the value of the ‘rel’ attribute is “next”. Within the corresponding query (‘href’ attribute) the value of the parameter corresponding to startPage is the number of the next page. <u>In stream mode:</u> <startIndex> + <itemsPerPage> - 1.	
<nextGroup>	(none)	
<diagnostics>	(none)	
<echoedRequest>	the value of the ‘href’ attribute for the <link> element where the value of the ‘rel’ attribute is “self”.	<code>\$.id</code> <code>\$.queries.request</code>
(none)	startIndex	<code>\$.startIndex</code>
(none)	itemsPerPage	<code>\$.itemsPerPage</code>
(none)	Query	<code>\$.queries</code>

Annex D: ENCODING EXAMPLES (NON-NORMATIVE)

Extracts of the following examples were used in the body of the document. The current Annex includes the complete examples in their original XML format and in the proposed encodings.

The following tools were very useful to improve readability and check the examples:

- XMLSpy (<http://www.altova.com>)
- <http://json-ld.org/playground/> (JSON-LD 1.0).
- <http://jsonld.biothings.io/> (JSON-LD 1.1).
- <http://www.markus-lanthaler.com/jsonld/playground/> (JSON-LD 1.1)
- <http://rdf-translator.appspot.com/>
- <http://geojsonlint.com/>
- <http://jsonpath.com/>
- <https://www.freeformatter.com/xpath-tester.html>

D.1 Nominal Response Examples

D.1.1 Example 1: EO Collections (OGC 14-055r2)

D.1.1.1 Atom

```
<?xml version="1.0" encoding="UTF-8"?>
<feed xmlns="http://www.w3.org/2005/Atom"
  xmlns:csw="http://www.opengis.net/cat/csw/2.0.2"
  xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:fn="http://www.w3.org/2005/xpath-
  functions" xmlns:geo="http://a9.com/-/opensearch/extensions/geo/1.0/"
  xmlns:georss="http://www.georss.org/georss" xmlns:gml="http://www.opengis.net/gml"
  xmlns:os="http://a9.com/-/spec/opensearch/1.1/" xmlns:rims="urn:oasis:names:tc:ebxml-
  regrep:xsd:rims:3.0" xmlns:semantic="http://a9.com/-
  /opensearch/extensions/semantic/1.0/" xmlns:sru="http://a9.com/-
  /opensearch/extensions/sru/2.0/" xmlns:time="http://a9.com/-
  /opensearch/extensions/time/1.0/" xmlns:wrs="http://www.opengis.net/cat/wrs/1.0"
  xmlns:xlink="http://www.w3.org/1999/xlink">
  <author>
    <name>FEDEO Clearinghouse</name>
    <email>eohelp@eo.esa.int</email>
  </author>
  <generator>FEDEO Clearinghouse</generator>
  <id>http://fedeo.esa.int/opensearch/request</id>
  <rights>Copyright 2016-2017, European Space Agency</rights>
  <title>FEDEO Clearinghouse - Search Response</title>
  <updated>2017-09-26T11:23:52Z</updated>
  <link
    href="http://fedeo.esa.int/opensearch/request?startRecord=1&maximumRecords=10&
    query=ESA%20LDS&httpAccept=application/atom%2Bxml&platform=landsat&status=
    2,0" hreflang="en" rel="self" type="application/atom+xml"/>
    <link href="http://fedeo.esa.int/opensearch/FedEO_OSGW_Service.xml"
    rel="describedby" type="application/xml"/>
    <link
      href="http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20L
      DS&httpAccept=application/atom%2Bxml&platform=landsat&startRecord=1&st
      atus=2,0" rel="first" type="application/atom+xml"/>
    <link
      href="http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20L
      DS&httpAccept=application/atom%2Bxml&platform=landsat&startRecord=1&st
      atus=2,0" rel="last" type="application/atom+xml"/>
```

```

<link href="http://fedeo.esa.int/opensearch/description.xml" hreflang="en"
rel="search" type="application/opensearchdescription+xml"/>
<os:totalResults>2</os:totalResults>
<os:startIndex>1</os:startIndex>
<os:itemsPerPage>10</os:itemsPerPage>
<os:Query xmlns:eo="http://a9.com/-/opensearch/extensions/eo/1.0/"
dc:type="collection" eo:platform="landsat" os:count="10" os:searchTerms="ESA LDS"
os:startIndex="1" role="request"/>
<entry>
<category label="Geology"
term="http://www.eionet.europa.eu/gemet/concept/3650"/>
<category label="Science Keywords &gt; Earth Science &gt; Spectral/Engineering
&gt; Visible Wavelengths &gt; Visible Imagery"
term="http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-04a7-4ef8-8ec0-
3c2266510815"/>
<category label="LANDSAT-7"
term="http://gcmdservices.gsfc.nasa.gov/kms/concept/c7a09e9f-3c99-4b31-a521-
313c379ba2b4"/>
<id>http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC</id>
<link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC"
rel="alternate" title="Atom format" type="application/atom+xml"/>
<link
href="http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.ETM.GTC&sensorType=OPTICAL&startDate=1999-07-01T00:00:00Z&endDate=2003-12-31T00:00:00Z" hreflang="en" rel="search"
type="application/opensearchdescription+xml"/>
<link href="https://earth.esa.int/web/guest/data-access/browse-data-products/-/asset_publisher/y8Qb/content/landsat-7-etm-enhanced-thematic-mapper-plus-geolocated-terrain-corrected-systematic-processing-over-kiruna-and-masplomas" rel="describedby"
type="text/html"/>
<link href="http://fedeo.esa.int/opensearch/images/esa.png" rel="icon"
type="image/png"/>
<link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSchema=iso19139-2" rel="alternate" title="ISO 19139-2 metadata"
type="application/vnd.iso.19139-2+xml"/>

<summary type="html"><![CDATA[<table xmlns="">
...
</table>]]></summary>
<title>LANDSAT 7 ETM+ (Enhanced Thematic Mapper Plus) Geolocated Terrain
Corrected Systematic processing (LANDSAT.ETM.GTC)</title>
<updated>1999-07-01T00:00:00Z</updated>
<dc:identifier>LANDSAT.ETM.GTC</dc:identifier>
<dc:date>1999-07-01T00:00:00Z/2003-12-31T00:00:00Z</dc:date>
<georss:polygon>-90 -180 -90 180 90 180 90 -180 -90 -180</georss:polygon>
</entry>
<entry>
<category label="Geology"
term="http://www.eionet.europa.eu/gemet/concept/3650"/>
<category label="Science Keywords &gt; Earth Science &gt; Spectral/Engineering
&gt; Visible Wavelengths &gt; Visible Imagery"
term="http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-04a7-4ef8-8ec0-
3c2266510815"/>
<category label="LANDSAT-5"
term="http://gcmdservices.gsfc.nasa.gov/kms/concept/fe920fff-7852-42cf-b1dc-
b223b24cf2e"/>

<id>http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=LANDSAT.TM.GTC</id>
<link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=LANDSAT.TM.GTC"
rel="alternate" title="Atom format" type="application/atom+xml"/>
<link
href="http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.TM.GTC&sensorType=OPTICAL&startDate=1985-01-01T00:00:00Z&endDate=2003-08-31T00:00:00Z" hreflang="en" rel="search"
type="application/opensearchdescription+xml"/>

```

```

<link href="https://earth.esa.int/web/guest/data-access/browse-data-products/-
/asset_publisher/y8Qb/content/landsat-5-thematic-mapper-geolocated-terrain-corrected-
systematic-processing-over-kiruna" rel="describedby" type="text/html"/>
<link href="http://fedeo.esa.int/opensearch/images/esa.png" rel="icon"
type="image/png"/>
<link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-
2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=LANDSAT.TM.GTC&am
p;recordSchema=iso19139-2" rel="alternate" title="ISO 19139-2 metadata"
type="application/vnd.iso.19139-2+xml"/>

<summary type="html"><![CDATA[<table xmlns="">
...
</table>]]></summary>
<title>LANDSAT 5 Thematic Mapper Geolocated Terrain Corrected Systematic
processing (LANDSAT.TM.GTC)</title>
<updated>1985-01-01T00:00:00Z</updated>
<dc:identifier>LANDSAT.TM.GTC</dc:identifier>
<dc:date>1985-01-01T00:00:00Z/2003-08-31T00:00:00Z</dc:date>
<georss:polygon>-90 -180 -90 180 90 180 90 -180 -90 -180</georss:polygon>
</entry>
</feed>

```

D.1.1.2 GeoJSON

```

{
  "type": "FeatureCollection",
  "id":
"http://fedeo.esa.int/opensearch/request?startRecord=1&maximumRecords=10&query=ESA%20L
DS&httpAccept=application/geo%2Bjson&platform=landsat",
  "totalResults": 2,
  "startIndex": 1,
  "itemsPerPage": 10,
  "queries": {
    "request": [
      {
        "dc:type": "collection",
        "eo:platform": "landsat"
        "count": 10,
        "searchTerms": "ESA LDS",
        "startIndex": 1,
        "sru:recordSchema": "server-choice"
      }
    ]
  },
  "properties": {
    "title": "FEDEO Clearinghouse - Search Response",
    "creator": "FEDEO Clearinghouse",
    "authors": [
      {
        "type": "Agent",
        "name": "FEDEO Clearinghouse",
        "email": "eohelp@eo.esa.int"
      }
    ],
    "updated": "2017-09-26T11:27:19Z",
    "lang": "en",
    "rights": "Copyright 2016-2017, European Space Agency",
    "links": {
      "profiles": [
        {
          "href": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
        },
        {
          "href": "http://www.opengis.net/spec/os-geojson/1.0/req/core"
        }
      ],
      "first": [
        {
          "href":
"http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept
=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
          "type": "application/geo+json",

```

```

        "title": "first results"
    }
},
"last": [
    {
        "href":
"http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept
=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
        "type": "application/geo+json",
        "title": "last results"
    }
],
"search": [
    {
        "href": "http://fedeo.esa.int/opensearch/description.xml",
        "type": "application/opensearchdescription+xml",
        "title": "search"
    }
]
}
},
"features": [
    {
        "type": "Feature",
        "id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIden
tifier=EOP%3AESA%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC",
        "geometry": {
            "type": "Polygon",
            "coordinates": [
                [
                    [
                        -180,
                        -90
                    ],
                    [
                        180,
                        -90
                    ],
                    [
                        180,
                        90
                    ],
                    [
                        -180,
                        90
                    ],
                    [
                        -180,
                        -90
                    ]
                ]
            ]
        },
        "properties": {
            "title": "LANDSAT 7 ETM+ (Enhanced Thematic Mapper Plus) Geolocated
Terrain Corrected Systematic processing (LANDSAT.ETM.GTC)",
            "identifier": "LANDSAT.ETM.GTC",
            "abstract": "This dataset contains all the Landsat 7 Enhanced Thematic
Mapper high-quality ortho-rectified L1T dataset over Kiruna, Maspalomas and Matera
visibility masks. The Landsat 7 ETM+ scenes typically covers 185 x 170 km. A standard
full scene is nominally centred on the intersection between a Path and Row (the actual
image centre can vary by up to 100m). Each band requires 50MB (uncompressed), and Band
8 requires 200MB (panchromatic band with resolution of 15m opposed to 30m).",
            "date": "1999-07-01T00:00:00Z/2003-12-31T00:00:00Z",
            "updated": "1999-07-01T00:00:00Z",
            "categories": [
                {
                    "term": "http://www.eionet.europa.eu/gemet/concept/3650",
                    "label": "Geology"
                },
                {
                    "term": "http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-
04a7-4ef8-8ec0-3c2266510815",

```

```

        "label": "Science Keywords > Earth Science > Spectral/Engineering >
Visible Wavelengths > Visible Imagery"
    },
    {
        "term": "http://gcmdservices.gsfc.nasa.gov/kms/concept/c7a09e9f-
3c99-4b31-a521-313c379ba2b4",
        "label": "LANDSAT-7"
    }
],
    "links": {
        "alternates": [
            {
                "href":
"http://fedeo.esa.int/openserach/request/?httpAccept=application/atom%2Bxml&parentIden
tifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSchema=server-
choice",
                "type": "application/atom+xml",
                "title": "Atom format"
            },
            {
                "href":
"http://fedeo.esa.int/openserach/request/?httpAccept=application/vnd.iso.19139-
2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSch
ema=iso19139-2",
                "type": "application/vnd.iso.19139-2+xml",
                "title": "ISO 19139-2 metadata"
            }
        ],
        "describedby": [
            {
                "href": "https://earth.esa.int/web/guest/data-access/browse-data-
products/-/asset_publisher/y8Qb/content/landsat-7-etm-enhanced-thematic-mapper-plus-
geolocated-terrain-corrected-systematic-processing-over-kiruna-and-masplomas",
                "type": "text/html",
                "title": "Described by"
            }
        ],
        "search": [
            {
                "href":
"http://fedeo.esa.int/openserach/description.xml?parentIdentifier=LANDSAT.ETM.GTC&sens
orType=OPTICAL&startDate=1999-07-01T00:00:00Z&endDate=2003-12-31T00:00:00Z",
                "type": "application/openserachdescription+xml"
            }
        ],
        "previews": [
            {
                "href": "http://fedeo.esa.int/openserach/images/esa.png",
                "type": "image/png",
                "title": "Quicklook"
            }
        ]
    }
}
},
{
    "type": "Feature",
    "id":
"http://fedeo.esa.int/openserach/request/?httpAccept=application/geo%2Bjson&parentIden
tifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.TM.GTC",
    "geometry": {
        "type": "Polygon",
        "coordinates": [
            [
                [
                    -180,
                    -90
                ],
                [
                    180,
                    -90
                ],
                [
                    180,

```

```

    90
  ],
  [
    -180,
    90
  ],
  [
    -180,
    -90
  ]
]
]
},
"properties": {
  "title": "LANDSAT 5 Thematic Mapper Geolocated Terrain Corrected
Systematic processing (LANDSAT.TM.GTC)",
  "identifier": "LANDSAT.TM.GTC",
  "abstract": "The Thematic Mapper (TM) is one of the instruments aboard the
Landsat-4, Landsat-5 satellites. Landsat's Global Survey Mission is to establish and
execute a data acquisition strategy that ensures repetitive acquisition of
observations over the Earth's land mass, coastal boundaries, and coral reefs. From
this collection you may order products of the following types: - LANDSAT 4/5 TM Raw
Products (LANDSAT.TM.RAW) - LANDSAT 4/5 Thematic Mapper (TM) System Corrected Pre-
Flight Radiometric Correction and Cubic Convolution resampling Product
(LANDSAT.TM.SCPGCC) - LANDSAT 4/5 Thematic Mapper System Corrected Pre-Flight
Radiometric Correction and Nearest neighbour resampling product (LANDSAT.TM.SCPRNN).",
  "date": "1985-01-01T00:00:00Z/2003-08-31T00:00:00Z",
  "updated": "1985-01-01T00:00:00Z",
  "categories": [
    {
      "term": "http://www.eionet.europa.eu/gemet/concept/3650",
      "label": "Geology"
    },
    {
      "term": "http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-
04a7-4ef8-8ec0-3c2266510815",
      "label": "Science Keywords > Earth Science > Spectral/Engineering >
Visible Wavelengths > Visible Imagery"
    },
    {
      "term": "http://gcmdservices.gsfc.nasa.gov/kms/concept/fe920fff-
7852-42cf-b1dc-b2223b24cf2e",
      "label": "LANDSAT-5"
    }
  ],
  "links": {
    "alternates": [
      {
        "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIden-
tifier=EOP%3AESA%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.TM.GTC&recordSchema=server-choice",
        "type": "application/atom+xml",
        "title": "Atom format"
      },
      {
        "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-
2%2Bxml&parentIdentifier=EOP%3AESA%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.TM.GTC&recordSche-
ma=isol19139-2",
        "type": "application/vnd.iso.19139-2+xml",
        "title": "ISO 19139-2 metadata"
      }
    ],
    "describedby": [
      {
        "href": "https://earth.esa.int/web/guest/data-access/browse-data-
products/-/asset_publisher/y8Qb/content/landsat-5-thematic-mapper-geolocated-terrain-
corrected-systematic-processing-over-kiruna",
        "type": "text/html",
        "title": "Described by"
      }
    ],
    "search": [

```



```

        "os:startIndex": {
            "@type": "xsd:nonNegativeInteger",
            "@value": 1
        },
        "dc:type": "collection"
    },
    },
    "os:startIndex": {
        "@type": "xsd:nonNegativeInteger",
        "@value": 1
    },
    "os:totalResults": {
        "@type": "xsd:nonNegativeInteger",
        "@value": 2
    },
    "dct:creator": [
        {
            "@type": "foaf:Agent",
            "foaf:mbox": "eohelp@eo.esa.int",
            "foaf:name": "FEDEO Clearinghouse"
        },
        "FEDEO Clearinghouse"
    ],
    "dct:language": {
        "@id": "http://id.loc.gov/vocabulary/iso639-1/en"
    },
    "dct:modified": "2017-09-26T11:27:19Z",
    "dct:rights": "Copyright 2016-2017, European Space Agency",
    "dct:title": "FEDEO Clearinghouse - Search Response",
    "owc:links": {
        "iana:first": {
            "@id":
"http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept
=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
            "dct:title": "first results",
            "atom:type": "application/geo+json"
        },
        "iana:last": {
            "@id":
"http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept
=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
            "dct:title": "last results",
            "atom:type": "application/geo+json"
        },
        "iana:profile": [
            {
                "@id": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
            },
            {
                "@id": "http://www.opengis.net/spec/os-geojson/1.0/req/core"
            }
        ],
        "iana:search": {
            "@id": "http://fedeo.esa.int/opensearch/description.xml",
            "dct:title": "search",
            "atom:type": "application/opensearchdescription+xml"
        }
    },
    "gj:features": [
        {
            "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIden
tifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC",
            "@type": "gj:Feature",
            "dct:date": "1999-07-01T00:00:00Z/2003-12-31T00:00:00Z",
            "dct:description": "This dataset contains all the Landsat 7 Enhanced Thematic
Mapper high-quality ortho-rectified L1T dataset over Kiruna, Maspalomas and Matera
visibility masks. The Landsat 7 ETM+ scenes typically covers 185 x 170 km. A standard
full scene is nominally centred on the intersection between a Path and Row (the actual
image centre can vary by up to 100m). Each band requires 50MB (uncompressed), and Band
8 requires 200MB (panchromatic band with resolution of 15m opposed to 30m).",
            "dct:identifier": "LANDSAT.ETM.GTC",
            "dct:modified": "1999-07-01T00:00:00Z",
            "dct:title": "LANDSAT 7 ETM+ (Enhanced Thematic Mapper Plus) Geolocated
Terrain Corrected Systematic processing (LANDSAT.ETM.GTC)",

```

```

      "owc:links": {
        "iana:alternate": [
          {
            "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSchema=server-choice",
            "dct:title": "Atom format",
            "atom:type": "application/atom+xml"
          },
          {
            "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSchema=iso19139-2",
            "dct:title": "ISO 19139-2 metadata",
            "atom:type": "application/vnd.iso.19139-2+xml"
          }
        ],
        "iana:describedby": {
          "@id": "https://earth.esa.int/web/guest/data-access/browse-data-products/-/asset_publisher/y8Qb/content/landsat-7-etm-enhanced-thematic-mapper-plus-geolocated-terrain-corrected-systematic-processing-over-kiruna-and-masplomas",
          "dct:title": "Described by",
          "atom:type": "text/html"
        },
        "iana:icon": {
          "@id": "http://fedeo.esa.int/opensearch/images/esa.png",
          "dct:title": "Quicklook",
          "atom:type": "image/png"
        },
        "iana:search": {
          "@id":
"http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.ETM.GTC&sensorType=OPTICAL&startDate=1999-07-01T00:00:00Z&endDate=2003-12-31T00:00:00Z",
          "atom:type": "application/opensearchdescription+xml"
        }
      },
      "dcat:theme": [
        {
          "@id": "http://www.eionet.europa.eu/gemet/concept/3650",
          "skos:prefLabel": "Geology"
        },
        {
          "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-04a7-4ef8-8ec0-3c2266510815",
          "skos:prefLabel": "Science Keywords > Earth Science > Spectral/Engineering > Visible Wavelengths > Visible Imagery"
        },
        {
          "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/c7a09e9f-3c99-4b31-a521-313c379ba2b4",
          "skos:prefLabel": "LANDSAT-7"
        }
      ],
      "gj:geometry": {
        "@type": "gj:Polygon",
        "gj:coordinates": [
          -180,
          -90,
          180,
          -90,
          180,
          90,
          -180,
          90,
          -180,
          -90
        ]
      }
    },
    {
      "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.TM.GTC",

```

```

    "@type": "gjj:Feature",
    "dct:date": "1985-01-01T00:00:00Z/2003-08-31T00:00:00Z",
    "dct:description": "The Thematic Mapper (TM) is one of the instruments aboard
the Landsat-4, Landsat-5 satellites. Landsat's Global Survey Mission is to establish
and execute a data acquisition strategy that ensures repetitive acquisition of
observations over the Earth's land mass, coastal boundaries, and coral reefs. From
this collection you may order products of the following types: - LANDSAT 4/5 TM Raw
Products (LANDSAT.TM.RAW) - LANDSAT 4/5 Thematic Mapper (TM) System Corrected Pre-
Flight Radiometric Correction and Cubic Convolution resampling Product
(LANDSAT.TM.SCPGCC) - LANDSAT 4/5 Thematic Mapper System Corrected Pre-Flight
Radiometric Correction and Nearest neighbour resampling product (LANDSAT.TM.SCPRNN).",
    "dct:identifier": "LANDSAT.TM.GTC",
    "dct:modified": "1985-01-01T00:00:00Z",
    "dct:title": "LANDSAT 5 Thematic Mapper Geolocated Terrain Corrected
Systematic processing (LANDSAT.TM.GTC)",
    "owc:links": {
      "iana:alternate": [
        {
          "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.TM.GTC&recordSchema=server-choice",
          "dct:title": "Atom format",
          "atom:type": "application/atom+xml"
        },
        {
          "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.TM.GTC&recordSchema=iso19139-2",
          "dct:title": "ISO 19139-2 metadata",
          "atom:type": "application/vnd.iso.19139-2+xml"
        }
      ],
      "iana:describedby": {
        "@id": "https://earth.esa.int/web/guest/data-access/browse-data-products/-/asset_publisher/y8Qb/content/landsat-5-thematic-mapper-geolocated-terrain-corrected-systematic-processing-over-kiruna",
        "dct:title": "Described by",
        "atom:type": "text/html"
      },
      "iana:icon": {
        "@id": "http://fedeo.esa.int/opensearch/images/esa.png",
        "dct:title": "Quicklook",
        "atom:type": "image/png"
      },
      "iana:search": {
        "@id":
"http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.TM.GTC&sensortype=OPTICAL&startDate=1985-01-01T00:00:00Z&endDate=2003-08-31T00:00:00Z",
        "atom:type": "application/opensearchdescription+xml"
      }
    },
    "dcat:theme": [
      {
        "@id": "http://www.eionet.europa.eu/gemet/concept/3650",
        "skos:prefLabel": "Geology"
      },
      {
        "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-04a7-4ef8-8ec0-3c2266510815",
        "skos:prefLabel": "Science Keywords > Earth Science > Spectral/Engineering > Visible Wavelengths > Visible Imagery"
      },
      {
        "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/fe920fff-7852-42cf-b1dc-b2223b24cf2e",
        "skos:prefLabel": "LANDSAT-5"
      }
    ],
    "gjj:geometry": {
      "@type": "gjj:Polygon",
      "gjj:coordinates": [
        -180,
        -90,
        180,

```

```

    -90,
    180,
    90,
    -180,
    90,
    -180,
    -90
  ]
}

```

```

<entry>

  <id>http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4</id>

  <link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4" rel="alternate" title="Atom format"
type="application/atom+xml"/>
  <link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&uid=LANDSAT.ETM.GTC&recordSchema=iso" rel="up" title="Up"
type="application/atom+xml"/>
  <link href="http://landsat-
ds.eo.esa.int/products/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4.ZIP" rel="enclosure" title="Download"
type="application/x-binary"/>
  <link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4&recordSchema=om10" rel="alternate" title="O&M metadata" type="application/gml+xml;profile=http://www.opengis.net/spec/EOMPOM/1.0"/>
  <link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4&recordSchema=om" rel="alternate" title="O&M 1.1 metadata" type="application/gml+xml;profile=http://www.opengis.net/spec/EOMPOM/1.1"/>
  <link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/rdf%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4" rel="alternate" title="RDF/XML format"
type="application/rdf+xml"/>
  <link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=application/ld%2Bjson&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4" rel="alternate" title="JSON-LD format"
type="application/ld+json"/>
  <link
href="http://fedeo.esa.int/opensearch/request/?httpAccept=text/turtle&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4" rel="alternate" title="Turtle format" type="text/turtle"/>
  <link href="http://landsat-
ds.eo.esa.int/metadata/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4.BP.PNG" rel="icon" title="Quicklook"
type="image/png"/>
  <summary type="html"><![CDATA[<table xmlns=""
xmlns:eop="http://www.opengis.net/eop/2.1" xmlns:om="http://www.opengis.net/om/2.0">
...
</table>]]></summary>

  <title>LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4</title>
  <updated>2017-09-26T08:40:59Z</updated>

  <dc:identifier>LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4</dc:identifier>
  <dc:date>2000-01-20T12:16:02Z/2000-01-20T12:16:31Z</dc:date>
  <georss:polygon>58.3046 -21.7987 58.2695 -17.901 56.2923 -18.063 56.3248 -
21.7569 58.3046 -21.7987</georss:polygon>
  <georss:box>56.2923 -21.7987 58.3046 -17.901</georss:box>
  <media:group>
    <media:content medium="image" type="image/png" url="http://landsat-
ds.eo.esa.int/metadata/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4.BP.PNG">
      <media:category
scheme="http://www.opengis.net/spec/EOMPOM/1.1">QUICKLOOK</media:category>
    </media:content>
  </media:group>
</entry>
</feed>

```

D.1.2.2 GeoJSON

```
{
  "type": "FeatureCollection",
  "id":
  "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM
  .GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
  31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson",
  "totalResults": 1329,
  "startIndex": 1,
  "itemsPerPage": 1,
  "queries": {
    "request": [
      {
        "eo:cloudCover": "10]",
        "eo:parentIdentifier": "LANDSAT.ETM.GTC",
        "count": 1,
        "time:end": "2000-01-31T00:00:00Z",
        "time:start": "2000-01-01T00:00:00Z"
      }
    ]
  },
  "properties": {
    "title": "FEDEO Clearinghouse - Search Response",
    "creator": "FEDEO Clearinghouse",
    "authors": [
      {
        "type": "Agent",
        "name": "FEDEO Clearinghouse",
        "email": "eohelp@eo.esa.int"
      }
    ],
    "updated": "2017-09-26T08:37:28Z",
    "lang": "en",
    "rights": "Copyright 2016-2017, European Space Agency",
    "links": {
      "profiles": [
        {
          "href": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
        },
        {
          "href": "http://www.opengis.net/spec/os-geojson/1.0/req/core"
        }
      ],
      "first": [
        {
          "href":
          "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM
          .GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
          31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson&startRecord=1",
          "type": "application/geo+json",
          "title": "first results"
        }
      ],
      "next": [
        {
          "href":
          "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM
          .GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
          31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson&startRecord=2",
          "type": "application/geo+json",
          "title": "next results"
        }
      ],
      "last": [
        {
          "href":
          "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM
          .GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
          31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson&startRecord=1329",
          "type": "application/geo+json",
```

```

        "title": "last results"
    }
  ],
  "search": [
    {
      "href":
"http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.ETM.GTC",
      "type": "application/opensearchdescription+xml",
      "title": "search"
    }
  ]
},
"features": [
  {
    "type": "Feature",
    "id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4",
    "bbox": [
      -21.7987,
      56.2923,
      -17.901,
      58.3046
    ],
    "geometry": {
      "type": "Polygon",
      "coordinates": [
        [
          [
            -21.7987,
            58.3046
          ],
          [
            -21.7569,
            56.3248
          ],
          [
            -18.063,
            56.2923
          ],
          [
            -17.901,
            58.2695
          ],
          [
            -21.7987,
            58.3046
          ]
        ]
      ]
    },
    "properties": {
      "status": "ARCHIVED",
      "parentIdentifier": "LANDSAT.ETM.GTC",
      "title":
"LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4",
      "identifier":
"LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4",
      "date": "2000-01-20T12:16:02Z/2000-01-20T12:16:31Z",
      "updated": "2017-09-26T08:35:52Z",
      "links": {
        "alternates": [
          {
            "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4&recordSchema=server-choice",
            "type": "application/atom+xml",
            "title": "Atom format"
          },
          {
            "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxml&parentIdent

```

```

ifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_
0216_0020_E2A4&recordSchema=oml0",
    "type":
"application/gml+xml;profile=http://www.opengis.net/spec/EOMPOM/1.0",
    "title": "O&M metadata"
  },
  {
    "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxml&parentIdent
ifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_
0216_0020_E2A4&recordSchema=om",
    "type":
"application/gml+xml;profile=http://www.opengis.net/spec/EOMPOM/1.1",
    "title": "O&M 1.1 metadata"
  }
],
"data": [
  {
    "href": "http://landsat-
ds.eo.esa.int/products/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_200
00120T121631_004076_0216_0020_E2A4.ZIP",
    "type": "application/x-binary",
    "title": "Download"
  }
],
"previews": [
  {
    "href": "http://landsat-
ds.eo.esa.int/metadata/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_200
00120T121631_004076_0216_0020_E2A4.BP.PNG",
    "type": "image/png",
    "title": "Quicklook"
  }
],
"up": [
  {
    "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&uid=LANDSA
T.ETM.GTC&recordSchema=iso",
    "type": "application/atom+xml",
    "title": "Up"
  }
]
},
"acquisitionInformation": [
  {
    "platform": {
      "platformShortName": "Landsat",
      "platformSerialIdentifier": "7"
    },
    "instrument": {
      "instrumentShortName": "ETM",
      "sensorType": "OPTICAL"
    },
    "acquisitionParameters": {
      "operationalMode": "IM",
      "beginningDateTime": "2000-01-20T12:16:02Z",
      "endingDateTime": "2000-01-20T12:16:31Z",
      "orbitDirection": "DESCENDING",
      "orbitNumber": 4076,
      "acquisitionType": "NOMINAL",
      "acquisitionSubType": "DEFAULT",
      "wrsLongitudeGrid": "216",
      "wrsLatitudeGrid": "20"
    }
  }
],
"productInformation": {
  "productType": "ETM_GTC_1P",
  "size": 217432323,
  "availabilityTime": "2000-01-20T12:16:31Z",
  "referenceSystemIdentifier": "epsg:4326",
  "processingMode": "NOMINAL",
  "cloudCover": 6,
  "qualityInformation": {

```



```

    "qualityDegradation": 0
  }
}
]
}

```

D.1.2.3 JSON-LD (Compacted)

In this case a different @context is to be applied to the FeatureCollection and the Feature. This can be done using a scoped context²², or in a simpler way if the contexts contain no conflicting definitions.

```

{
  "@context": [
    "http://schemas.opengis.net/os-geojson/1.0/os-geojson.jsonld",
    {
      "features": {
        "@id": "gj:features",
        "@context": "http://schemas.opengis.net/eo-geojson/1.0/eo-geojson.jsonld"
      }
    }
  ]
}

```

The example below just concatenates the two contexts. The second context may overwrite definitions from the first context, therefore the above method is recommended as more generally applicable.

```

{
  "@context": [
    "http://schemas.opengis.net/os-geojson/1.0/os-geojson.jsonld",
    "http://schemas.opengis.net/eo-geojson/1.0/eo-geojson.jsonld" ],

  "type": "FeatureCollection",

  ... same content as example in previous section ...
}

```

D.1.2.4 JSON-LD (Expanded)

```

{
  "@context": {
    "xsd": "http://www.w3.org/2001/XMLSchema#",
    "dc": "http://purl.org/dc/elements/1.1/",
    "dct": "http://purl.org/dc/terms/",
    "dcat": "http://www.w3.org/ns/dcat#",
    "atom": "http://www.w3.org/2005/Atom/",
    "skos": "http://www.w3.org/2004/02/skos/core#",
    "iana": "http://www.iana.org/assignments/relation/",
    "foaf": "http://xmlns.com/foaf/0.1/",
    "eop": "http://www.opengis.net/ont/eo-geojson/1.0/",
    "owc": "http://www.opengis.net/ont/owc/1.0/",
    "gj": "https://purl.org/geojson/vocab#",
    "gsp": "http://www.opengis.net/ont/geosparql#",
    "os": "http://a9.com/-/spec/opensearch/1.1/",
    "ical": "http://www.w3.org/2002/12/cal/ical#",
    "media": "http://search.yahoo.com/mrss/",
    "eo": "http://a9.com/-/opensearch/extensions/eo/1.0/"
  }
}

```

²² <https://json-ld.org/spec/latest/json-ld/#scoped-contexts>

```

    "sru": "http://a9.com/-/opensearch/extensions/sru/2.0/",
    "geo": "http://a9.com/-/opensearch/extensions/geo/1.0/",
    "time": "http://a9.com/-/opensearch/extensions/time/1.0/"
  },
  "@id":
  "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson",
  "@type": "gjt:FeatureCollection",
  "os:itemsPerPage": {
    "@type": "xsd:nonNegativeInteger",
    "@value": 1
  },
  "os:queries": {
    "os:request": {
      "eo:cloudCover": "10]",
      "eo:parentIdentifier": "LANDSAT.ETM.GTC",
      "time:end": "2000-01-31T00:00:00Z",
      "time:start": "2000-01-01T00:00:00Z",
      "os:count": 1
    }
  },
  "os:startIndex": {
    "@type": "xsd:nonNegativeInteger",
    "@value": 1
  },
  "os:totalResults": {
    "@type": "xsd:nonNegativeInteger",
    "@value": 1329
  },
  "dct:creator": [
    {
      "@type": "foaf:Agent",
      "foaf:mbox": "eoehelp@eo.esa.int",
      "foaf:name": "FEDEO Clearinghouse"
    },
    "FEDEO Clearinghouse"
  ],
  "dct:language": {
    "@id": "http://id.loc.gov/vocabulary/iso639-1/en"
  },
  "dct:modified": "2017-09-26T08:37:28Z",
  "dct:rights": "Copyright 2016-2017, European Space Agency",
  "dct:title": "FEDEO Clearinghouse - Search Response",
  "owc:links": {
    "iana:first": {
      "@id":
      "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson&startRecord=1",
      "dct:title": "first results",
      "atom:type": "application/geo+json"
    },
    "iana:last": {
      "@id":
      "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson&startRecord=1329",
      "dct:title": "last results",
      "atom:type": "application/geo+json"
    },
    "iana:next": {
      "@id":
      "http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifier=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-31T00:00:00Z&cloudCover=10%5D&httpAccept=application/geo%2Bjson&startRecord=2",
      "dct:title": "next results",
      "atom:type": "application/geo+json"
    }
  },
  "iana:profile": [
    {
      "@id": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
    },
    {
      "@id": "http://www.opengis.net/spec/os-geojson/1.0/req/core"
    }
  ]
}

```

```

    },
    "iana:search": {
      "@id":
"http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.ETM.GTC",
      "dct:title": "search",
      "atom:type": "application/opensearchdescription+xml"
    }
  },
  "gj:features": {
    "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4",
    "@type": "gj:Feature",
    "dct:date": "2000-01-20T12:16:02Z/2000-01-20T12:16:31Z",
    "dct:identifier":
"LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4",
    "dct:modified": "2017-09-26T08:35:52Z",
    "dct:title":
"LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4",
    "eop:acquisitionInformation": {
      "eop:acquisitionParameters": {
        "eop:operationalMode": "IM",
        "eop:acquisitionSubType": "DEFAULT",
        "eop:acquisitionType": {
          "@id": "eop:AcquisitionType/NOMINAL"
        },
        "eop:wrsLatitudeGrid": "20",
        "eop:orbitDirection": {
          "@id": "eop:DESCENDING"
        },
        "eop:orbitNumber": 4076,
        "eop:wrsLongitudeGrid": "216",
        "ical:dtend": "2000-01-20T12:16:31Z",
        "ical:dtstart": "2000-01-20T12:16:02Z"
      },
      "eop:instrument": {
        "eop:instrumentShortName": "ETM",
        "eop:sensorType": {
          "@id": "eop:OPTICAL"
        }
      },
      "eop:platform": {
        "eop:platformSerialIdentifier": "7",
        "eop:platformShortName": "Landsat"
      }
    },
    "eop:parentIdentifier": "LANDSAT.ETM.GTC",
    "eop:productInformation": {
      "eop:availabilityTime": "2000-01-20T12:16:31Z",
      "eop:cloudCover": 6,
      "eop:processingMode": "NOMINAL",
      "eop:productType": "ETM_GTC_1P",
      "eop:qualityInformation": {
        "eop:qualityDegradation": 0
      },
      "eop:referenceSystemIdentifier": "epsg:4326",
      "eop:size": 217432323
    },
    "eop:status": {
      "@id": "eop:ARCHIVED"
    },
    "owc:links": {
      "iana:alternate": [
        {
          "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4&recordSchema=server-choice",
          "dct:title": "Atom format",
          "atom:type": "application/atom+xml"
        }
      ]
    }
  }
}

```

```

        "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4&recordSchema=oml0",
        "dct:title": "O&M metadata",
        "atom:type":
"application/gml+xml;profile=http://www.opengis.net/spec/EOMPOM/1.0"
    },
    {
        "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2A4&recordSchema=om",
        "dct:title": "O&M 1.1 metadata",
        "atom:type":
"application/gml+xml;profile=http://www.opengis.net/spec/EOMPOM/1.1"
    }
],
"iana:enclosure": {
    "@id": "http://landsat-
ds.eo.esa.int/products/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_2000120T121631_004076_0216_0020_E2A4.ZIP",
    "dct:title": "Download",
    "atom:type": "application/x-binary"
},
"iana:icon": {
    "@id": "http://landsat-
ds.eo.esa.int/metadata/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_2000120T121631_004076_0216_0020_E2A4.BP.PNG",
    "dct:title": "Quicklook",
    "atom:type": "image/png"
},
"iana:up": {
    "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&uid=LANDSAT.ETM.GTC&recordSchema=iso",
    "dct:title": "Up",
    "atom:type": "application/atom+xml"
}
},
"gj:bbox": {
    "@list": [
        -21.7987,
        56.2923,
        -17.901,
        58.3046
    ]
},
"gj:geometry": {
    "@type": "gj:Polygon",
    "gj:coordinates": [
        -21.7987,
        58.3046,
        -21.7569,
        56.3248,
        -18.063,
        56.2923,
        -17.901,
        58.2695,
        -21.7987,
        58.3046
    ]
}
}
}
}
}

```

D.1.2.5 RDF/XML

JSON-LD can be deserialised to RDF 1.1 as per section 9.1 of [NR15]. If the optional `@type` property is present for all JSON objects, then the above JSON-LD representation is equivalent to the RDF/XML representation below.

```
<?xml version="1.0" encoding="utf-8"?>
```

```

<rdf:RDF xmlns:eo="http://a9.com/-/opensearch/extensions/eo/1.0/"
xmlns:iana="http://www.iana.org/assignments/relation/"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:time="http://a9.com/-
/opensearch/extensions/time/1.0/" xmlns:owc="http://www.opengis.net/ont/owc/1.0/"
xmlns:vcard="http://www.w3.org/2006/vcard/ns#"
xmlns:foaf="http://xmlns.com/foaf/0.1/"
xmlns:ical="http://www.w3.org/2002/12/cal/ical#"
xmlns:dc="http://www.w3.org/ns/atom#" xmlns:atom="http://www.w3.org/2005/Atom/"
xmlns:dct="http://purl.org/dc/terms/" xmlns:os="http://a9.com/-/spec/opensearch/1.1/"
xmlns:gj="https://purl.org/geojson/vocab#" xmlns:eop="http://www.opengis.net/ont/eo-
geojson/1.0/">
  <gj:FeatureCollection
rdf:about="http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifi
er=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
31T00:00:00Z&cloudCover=10]&httpAccept=application/geo%2Bjson">
    <dc:creator>
      <foaf:Agent rdf:nodeID="N11f395db1ccc4f00adac6b3a674c705a">
        <foaf:name>FEDEO Clearinghouse</foaf:name>
        <foaf:mbox>eohelp@eo.esa.int</foaf:mbox>
      </foaf:Agent>
    </dc:creator>
    <dc:title>FEDEO Clearinghouse - Search Response</dc:title>
    <dc:creator>FEDEO Clearinghouse</dc:creator>
    <gj:features>
      <gj:Feature
rdf:about="http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&
parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_2000
0120T121631_004076_0216_0020_E2A4">
        <gj:geometry>
          <gj:Polygon rdf:nodeID="N8e837a9e98a747fd9dde563883322a49">
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">58.3046</gj:coordinates>
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">-21.7569</gj:coordinates>
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">58.2695</gj:coordinates>
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">56.2923</gj:coordinates>
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">-17.901</gj:coordinates>
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">-18.063</gj:coordinates>
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">56.3248</gj:coordinates>
            <gj:coordinates
rdf:datatype="http://www.w3.org/2001/XMLSchema#double">-21.7987</gj:coordinates>
          </gj:Polygon>
        </gj:geometry>
        <eop:acquisitionInformation>
          <eop:AcquisitionInformation
rdf:nodeID="N633eb92bea874d899f299d2b740b21c9">
            <eop:acquisitionParameters>
              <eop:AcquisitionParameters
rdf:nodeID="N5bea649a00fd413ca4b86269b6172362">
                <eop:acquisitionType
rdf:resource="http://www.opengis.net/ont/eo-geojson/1.0/NOMINAL"/>
                <ical:dtstart>2000-01-20T12:16:02Z</ical:dtstart>
                <eop:wrsLatitudeGrid>20</eop:wrsLatitudeGrid>
                <ical:dtend>2000-01-20T12:16:31Z</ical:dtend>
                <eop:wrsLongitudeGrid>216</eop:wrsLongitudeGrid>
                <eop:acquisitionSubType>DEFAULT</eop:acquisitionSubType>
                <eop:orbitDirection
rdf:resource="http://www.opengis.net/ont/eo-geojson/1.0/DESCENDING"/>
                <eop:orbitNumber
rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">4076</eop:orbitNumber>
                <eop:operationalMode>IM</eop:operationalMode>
              </eop:AcquisitionParameters>
            </eop:acquisitionParameters>
          </eop:AcquisitionInformation>
          <eop:platform>
            <eop:Platform rdf:nodeID="N48e52fa97a754dcb92adfa4cd086df41">
              <eop:platformShortName>Landsat</eop:platformShortName>
              <eop:platformSerialIdentifier>7</eop:platformSerialIdentifier>
            </eop:Platform>
          </eop:platform>
          <eop:instrument>

```

```

        <eop:Instrument rdf:nodeID="Nc0679558a290427e8546142d93de41af">
        <eop:sensorType rdf:resource="http://www.opengis.net/ont/eo-
geojson/1.0/OPTICAL"/>

        <eop:instrumentShortName>ETM</eop:instrumentShortName>
        </eop:Instrument>
        </eop:instrument>
        </eop:AcquisitionInformation>
        </eop:acquisitionInformation>

        < dct:title>LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631_004076_0216_0020_E2
A4</dct:title>
        <eop:parentIdentifier>LANDSAT.ETM.GTC</eop:parentIdentifier>
        <eop:productInformation>
        <eop:ProductInformation rdf:nodeID="Nfbb4f28cc0644d8ab18fd716f99f930e">
        <eop:productType>ETM_GTC_1P</eop:productType>
        <eop:processingMode>NOMINAL</eop:processingMode>
        <eop:availabilityTime>2000-01-20T12:16:31Z</eop:availabilityTime>
        <eop:qualityInformation>
        <eop:QualityInformation
rdf:nodeID="Nabff1654d2bb49b2a1d4e3c802d5ca48">
        <eop:qualityDegradation
rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">0</eop:qualityDegradation>
        </eop:QualityInformation>
        </eop:qualityInformation>
        <eop:size
rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">217432323</eop:size>

        <eop:referenceSystemIdentifier>epsg:4326</eop:referenceSystemIdentifier>
        <eop:cloudCover
rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">6</eop:cloudCover>
        </eop:ProductInformation>
        </eop:productInformation>
        < dct:modified>2017-09-26T08:35:52Z</dct:modified>
        < gj:bbox rdf:parseType="Collection">
        <rdf:Description rdf:about="-21.7987"/>
        <rdf:Description rdf:about="56.2923"/>
        <rdf:Description rdf:about="-17.901"/>
        <rdf:Description rdf:about="58.3046"/>
        </gj:bbox>
        < dct:date>2000-01-20T12:16:02Z/2000-01-20T12:16:31Z</dct:date>
        <eop:status rdf:resource="http://www.opengis.net/ont/eo-
geojson/1.0/ARCHIVED"/>
        <owc:links>
        <owc:Links rdf:nodeID="N6e721a68acdb4d3f9b9584acb11c00fa">
        <iana:alternate
rdf:resource="http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxm
l&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20
000120T121631_004076_0216_0020_E2A4&recordSchema=om10"/>
        <iana:icon rdf:resource="http://landsat-
ds.eo.esa.int/metadata/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_200
00120T121631_004076_0216_0020_E2A4.BP.PNG"/>
        <iana:alternate
rdf:resource="http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bx
ml&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_2
0000120T121631_004076_0216_0020_E2A4&recordSchema=server-choice"/>
        <iana:enclosure rdf:resource="http://landsat-
ds.eo.esa.int/products/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_200
00120T121631_004076_0216_0020_E2A4.ZIP"/>
        <iana:alternate
rdf:resource="http://fedeo.esa.int/opensearch/request/?httpAccept=application/gml%2Bxm
l&parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20
000120T121631_004076_0216_0020_E2A4&recordSchema=om"/>
        <iana:up
rdf:resource="http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bx
ml&uid=LANDSAT.ETM.GTC&recordSchema=iso"/>
        </owc:Links>
        </owc:links>
        </gj:Feature>
        </gj:features>
        < dct:modified>2017-09-26T08:37:28Z</dct:modified>
        <owc:links>
        <owc:Links rdf:nodeID="N944a7208125a4dd4ae0f34cafbcb0d24">
        <iana:last
rdf:resource="http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdent

```

```

ifier=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
31T00:00:00Z&cloudCover=10]&httpAccept=application/geo%2Bjson&startRecord=
1329"/>
    <iana:first
rdf:resource="http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdent
ifier=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
31T00:00:00Z&cloudCover=10]&httpAccept=application/geo%2Bjson&startRecord=
1"/>
    <iana:profile rdf:resource="http://www.opengis.net/spec/owc-
geojson/1.0/req/core"/>
    <iana:search
rdf:resource="http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT
.ETM.GTC"/>
    <iana:next
rdf:resource="http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdent
ifier=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
31T00:00:00Z&cloudCover=10]&httpAccept=application/geo%2Bjson&startRecord=
2"/>
    </owc:Links>
  </owc:links>
  <os:totalResults
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1329</os:totalResul
ts>
  <os:itemsPerPage
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</os:itemsPerPage>
  <os:startIndex
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</os:startIndex>
  < dct:rights>Copyright 2016-2017, European Space Agency</dct:rights>
  < dct:language rdf:resource="http://id.loc.gov/vocabulary/iso639-1/en"/>
  <os:queries>
    <os:Queries rdf:nodeID="Nc7ec882f3a2e43c8a08002d99678b83a">
      <os:request>
        <os:Query rdf:nodeID="Nae3f7a79336e45f3bb0f2d85c0244fbb">
          <eo:cloudCover>10</eo:cloudCover>
          <time:start>2000-01-01T00:00:00Z</time:start>
          <eo:parentIdentifier>LANDSAT.ETM.GTC</eo:parentIdentifier>
          <os:count>1</os:count>
          <time:end>2000-01-31T00:00:00Z</time:end>
        </os:Query>
      </os:request>
    </os:Queries>
  </os:queries>
  </gj:FeatureCollection>
  <atom:Link
rdf:about="http://fedeo.esa.int/opensearch/request?maximumRecords=1&parentIdentifi
er=LANDSAT.ETM.GTC&startDate=2000-01-01T00:00:00Z&endDate=2000-01-
31T00:00:00Z&cloudCover=10]&httpAccept=application/geo%2Bjson&startRecord=
2">
    < dct:title>next results</dct:title>
    < atom:type>application/geo+json</atom:type>
  </atom:Link>
  <atom:Link
rdf:about="http://fedeo.esa.int/opensearch/request/?httpAccept=application/ld%2Bjson&a
mp;parentIdentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000
120T121631_004076_0216_0020_E2A4&recordSchema=server-choice">
    < dct:title>JSON-LD format</dct:title>
    < atom:type>application/ld+json</atom:type>
  </atom:Link>
  <atom:Link rdf:about="http://landsat-
ds.eo.esa.int/products/LANDSAT_ETM/2000/01/20/LS07_RNSG_ETM_GTC_1P_20000120T121602_200
00120T121631_004076_0216_0020_E2A4.ZIP">
    < atom:type>application/x-binary</atom:type>
    < dct:title>Download</dct:title>
  </atom:Link>
  <atom:Link
rdf:about="http://fedeo.esa.int/opensearch/request/?httpAccept=text/turtle&parentI
dentifier=LANDSAT.ETM.GTC&uid=LS07_RNSG_ETM_GTC_1P_20000120T121602_20000120T121631
_004076_0216_0020_E2A4&recordSchema=server-choice">
    < dct:title>Turtle format</dct:title>
    < atom:type>text/turtle</atom:type>
  </atom:Link>
  <atom:Link
rdf:about="http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.ET
M.GTC">
    < atom:type>application/opensearchdescription+xml</atom:type>

```

```

    < dct: title >search</ dct: title >
  </ atom: Link >
  < atom: Link
rdf: about = "http:// fedeo. esa. int/ opensearch/ request/? httpAccept= application/ atom% 2Bxml&
amp; uid= LANDSAT. ETM. GTC& amp; recordSchema= iso">
    < atom: type >application/ atom+xml</ atom: type >
    < dct: title >Up</ dct: title >
  </ atom: Link >
  < atom: Link
rdf: about = "http:// fedeo. esa. int/ opensearch/ request/? httpAccept= application/ gml% 2Bxml& a
mp; parentIdentifier= LANDSAT. ETM. GTC& amp; uid= LS07_ RNSG_ ETM_ GTC_ 1P_ 20000120T121602_ 20000
120T121631_ 004076_ 0216_ 0020_ E2A4& amp; recordSchema= om10">
    < dct: title >O& amp; M metadata</ dct: title >

    < atom: type >application/ gml+xml; profile= http:// www. opengis. net/ spec/ EOMPOM/ 1.0</ atom
: type >
  </ atom: Link >
  < atom: Link
rdf: about = "http:// fedeo. esa. int/ opensearch/ request/? httpAccept= application/ rdf% 2Bxml& a
mp; parentIdentifier= LANDSAT. ETM. GTC& amp; uid= LS07_ RNSG_ ETM_ GTC_ 1P_ 20000120T121602_ 20000
120T121631_ 004076_ 0216_ 0020_ E2A4& amp; recordSchema= server-choice">
    < dct: title >RDF/ XML format</ dct: title >
    < atom: type >application/ rdf+xml</ atom: type >
  </ atom: Link >
  < atom: Link rdf: about = "http:// landsat-
ds. eo. esa. int/ metadata/ LANDSAT_ ETM/ 2000/ 01/ 20/ LS07_ RNSG_ ETM_ GTC_ 1P_ 20000120T121602_ 200
00120T121631_ 004076_ 0216_ 0020_ E2A4. BP. PNG">
    < atom: type >image/ png</ atom: type >
    < dct: title >Quicklook</ dct: title >
  </ atom: Link >
  < atom: Link
rdf: about = "http:// fedeo. esa. int/ opensearch/ request/? httpAccept= application/ atom% 2Bxml&
amp; parentIdentifier= LANDSAT. ETM. GTC& amp; uid= LS07_ RNSG_ ETM_ GTC_ 1P_ 20000120T121602_ 2000
0120T121631_ 004076_ 0216_ 0020_ E2A4& amp; recordSchema= server-choice">
    < dct: title >Atom format</ dct: title >
    < atom: type >application/ atom+xml</ atom: type >
  </ atom: Link >
  < atom: Link
rdf: about = "http:// fedeo. esa. int/ opensearch/ request? maximumRecords= 1& amp; parentIdentifi
er= LANDSAT. ETM. GTC& amp; startDate= 2000- 01- 01T00: 00: 00Z& amp; endDate= 2000- 01-
31T00: 00: 00Z& amp; cloudCover= 10] & amp; httpAccept= application/ geo% 2Bjson& amp; startRecord=
1329">
    < atom: type >application/ geo+json</ atom: type >
    < dct: title >last results</ dct: title >
  </ atom: Link >
  < atom: Link
rdf: about = "http:// fedeo. esa. int/ opensearch/ request/? httpAccept= application/ gml% 2Bxml& a
mp; parentIdentifier= LANDSAT. ETM. GTC& amp; uid= LS07_ RNSG_ ETM_ GTC_ 1P_ 20000120T121602_ 20000
120T121631_ 004076_ 0216_ 0020_ E2A4& amp; recordSchema= om">
    < dct: title >O& amp; M 1.1 metadata</ dct: title >

    < atom: type >application/ gml+xml; profile= http:// www. opengis. net/ spec/ EOMPOM/ 1.1</ atom
: type >
  </ atom: Link >
  < atom: Link
rdf: about = "http:// fedeo. esa. int/ opensearch/ request? maximumRecords= 1& amp; parentIdentifi
er= LANDSAT. ETM. GTC& amp; startDate= 2000- 01- 01T00: 00: 00Z& amp; endDate= 2000- 01-
31T00: 00: 00Z& amp; cloudCover= 10] & amp; httpAccept= application/ geo% 2Bjson& amp; startRecord=
1">
    < dct: title >first results</ dct: title >
    < atom: type >application/ geo+json</ atom: type >
  </ atom: Link >
  < atom: Link rdf: about = "http:// www. opengis. net/ spec/ owc- geojson/ 1.0/ req/ core"/>
</ rdf: RDF >

```

D.1.3 Example 3: EO Collections (OGC 14-055r2 and OGC 17-003r2)

The examples in the current section return "features" which have properties defined in OGC 14-055r2 and OGC 17-003r2 simultaneously. Properties from these two specifications combined allow representing the mandatory properties of Earth Observation collections as required by the NASA UMM-C (Unified Metadata Model for Collections).

D.1.3.1 GeoJSON

```
{
  "type": "FeatureCollection",
  "id":
  "http://fedeo.esa.int/opensearch/request?startRecord=1&maximumRecords=10&query=ESA%20LDS&httpAccept=application/geo%2Bjson&platform=landsat",
  "totalResults": 1,
  "startIndex": 1,
  "itemsPerPage": 10,
  "queries": {
    "request": [
      {
        "dc:type": "collection",
        "eo:platform": "landsat",
        "count": 10,
        "searchTerms": "ESA LDS",
        "startIndex": 1,
        "sru:recordSchema": "server-choice"
      }
    ]
  },
  "properties": {
    "title": "FEDEO Clearinghouse - Search Response",
    "creator": "FEDEO Clearinghouse",
    "authors": [
      {
        "type": "Agent",
        "name": "FEDEO Clearinghouse",
        "email": "eohelp@eo.esa.int"
      }
    ],
    "updated": "2017-09-26T11:27:19Z",
    "lang": "en",
    "rights": "Copyright 2016-2017, European Space Agency",
    "links": {
      "profiles": [
        {
          "href": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
        },
        {
          "href": "http://www.opengis.net/spec/eo-geojson/1.0/req/core"
        },
        {
          "href": "http://www.opengis.net/spec/os-geojson/1.0/req/core"
        }
      ],
      "first": [
        {
          "href":
          "http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
          "type": "application/geo+json",
          "title": "first results"
        }
      ],
      "last": [
        {
          "href":
          "http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
          "type": "application/geo+json",
          "title": "last results"
        }
      ],
      "search": [
        {
          "href": "http://fedeo.esa.int/opensearch/description.xml",
          "type": "application/opensearchdescription+xml",
          "title": "search"
        }
      ]
    }
  },
  "features": [
```

```

{
  "type": "Feature",
  "id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC",
  "geometry": {
    "type": "Polygon",
    "coordinates": [
      [
        [
          -180,
          -90
        ],
        [
          180,
          -90
        ],
        [
          180,
          90
        ],
        [
          -180,
          90
        ],
        [
          -180,
          -90
        ]
      ]
    ]
  },
  "properties": {
    "title": "LANDSAT 7 ETM+ (Enhanced Thematic Mapper Plus) Geolocated Terrain Corrected Systematic processing (LANDSAT.ETM.GTC)",
    "identifier": "LANDSAT.ETM.GTC",
    "abstract": "This dataset contains all the Landsat 7 Enhanced Thematic Mapper high-quality ortho-rectified L1T dataset over Kiruna, Maspalomas and Matera visibility masks. The Landsat 7 ETM+ scenes typically covers 185 x 170 km. A standard full scene is nominally centred on the intersection between a Path and Row (the actual image centre can vary by up to 100m). Each band requires 50MB (uncompressed), and Band 8 requires 200MB (panchromatic band with resolution of 15m opposed to 30m).",
    "date": "1999-07-01T00:00:00Z/2003-12-31T00:00:00Z",
    "updated": "1999-07-01T00:00:00Z",
    "status": "ARCHIVED",
    "categories": [
      {
        "term": "http://www.eionet.europa.eu/gemet/concept/3650",
        "label": "Geology"
      },
      {
        "term": "http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-04a7-4ef8-8ec0-3c2266510815",
        "label": "Science Keywords > Earth Science > Spectral/Engineering > Visible Wavelengths > Visible Imagery"
      },
      {
        "term": "http://gcmdservices.gsfc.nasa.gov/kms/concept/c7a09e9f-3c99-4b31-a521-313c379ba2b4",
        "label": "LANDSAT-7"
      }
    ],
    "links": {
      "alternates": [
        {
          "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSchema=server-choice",
          "type": "application/atom+xml",
          "title": "Atom format"
        },
        {
          "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-

```

```

2%2Bxml&parentIdentifier=EOP%3AES%3AFED%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSch
ema=iso19139-2",
    "type": "application/vnd.iso.19139-2+xml",
    "title": "ISO 19139-2 metadata"
  },
  "describedby": [
    {
      "href": "https://earth.esa.int/web/guest/data-access/browse-data-
products/-/asset_publisher/y8Qb/content/landsat-7-etm-enhanced-thematic-mapper-plus-
geolocated-terrain-corrected-systematic-processing-over-kiruna-and-masplomas",
      "type": "text/html",
      "title": "Described by"
    }
  ],
  "search": [
    {
      "href":
"http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=LANDSAT.ETM.GTC&sens
orType=OPTICAL&startDate=1999-07-01T00:00:00Z&endDate=2003-12-31T00:00:00Z",
      "type": "application/opensearchdescription+xml"
    }
  ],
  "previews": [
    {
      "href": "http://fedeo.esa.int/opensearch/images/esa.png",
      "type": "image/png",
      "title": "Quicklook"
    }
  ],
  "acquisitionInformation": [
    {
      "platform": {
        "id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/c7a09e9f-
3c99-4b31-a521-313c379ba2b4",
        "platformShortName": "Landsat",
        "platformSerialIdentifier": "7"
      },
      "instrument": {
        "id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/4dbe7764-
a2ea-4a19-b754-696c35ac3205",
        "instrumentShortName": "ETM",
        "sensorType": "OPTICAL"
      }
    }
  ],
  "productInformation": {
    "availabilityTime": "2004-01-07T11:12:58Z",
    "version": "C001",
    "processingCenter": "PDS",
    "processingLevel": "2",
    "referenceSystemIdentifier": "4326"
  }
}

```

D.1.3.2 JSON-LD (Compacted)

The example below is identical to the example in the previous section, only a `@context` property is added.

```

{
  "@context": [
    "http://schemas.opengis.net/os-geojson/1.0/os-geojson.jsonld",
    {
      "features": {
        "@id": "gj:features",
        "@context": "http://schemas.opengis.net/eo-geojson/1.0/eo-geojson.jsonld"
      }
    }
  ]
}

```

```

    }
  },
  "type": "FeatureCollection",
  ... same content as example in previous section ...
}

```

D.1.3.3 JSON-LD (Expanded)

```

{
  "@context": {
    "xsd": "http://www.w3.org/2001/XMLSchema#",
    "dc": "http://purl.org/dc/elements/1.1/",
    "dct": "http://purl.org/dc/terms/",
    "dcat": "http://www.w3.org/ns/dcat#",
    "atom": "http://www.w3.org/2005/Atom/",
    "skos": "http://www.w3.org/2004/02/skos/core#",
    "iana": "http://www.iana.org/assignments/relation/",
    "foaf": "http://xmlns.com/foaf/0.1/",
    "eop": "http://www.opengis.net/ont/eo-geojson/1.0/",
    "owc": "http://www.opengis.net/ont/owc/1.0/",
    "gj": "https://purl.org/geojson/vocab#",
    "gsp": "http://www.opengis.net/ont/geosparql#",
    "os": "http://a9.com/-/spec/opensearch/1.1/",
    "ical": "http://www.w3.org/2002/12/cal/ical#",
    "media": "http://search.yahoo.com/mrss/",
    "eo": "http://a9.com/-/opensearch/extensions/eo/1.0/",
    "sru": "http://a9.com/-/opensearch/extensions/sru/2.0/",
    "geo": "http://a9.com/-/opensearch/extensions/geo/1.0/",
    "time": "http://a9.com/-/opensearch/extensions/time/1.0/"
  },
  "@id":
  "http://fedeo.esa.int/opensearch/request?startRecord=1&maximumRecords=10&query=ESA%20LDS&httpAccept=application/geo%2Bjson&platform=landsat",
  "@type": "gj:FeatureCollection",
  "os:itemsPerPage": {
    "@type": "xsd:nonNegativeInteger",
    "@value": 10
  },
  "os:queries": {
    "os:request": {
      "eo:platform": "landsat",
      "sru:recordSchema": "server-choice",
      "os:count": 10,
      "os:searchTerms": "ESA LDS",
      "os:startIndex": {
        "@type": "xsd:nonNegativeInteger",
        "@value": 1
      },
      "dc:type": "collection"
    },
  },
  "os:startIndex": {
    "@type": "xsd:nonNegativeInteger",
    "@value": 1
  },
  "os:totalResults": {
    "@type": "xsd:nonNegativeInteger",
    "@value": 1
  },
  "dct:creator": [
    {
      "@type": "foaf:Agent",
      "foaf:mbox": "eohelp@eo.esa.int",
      "foaf:name": "FEDEO Clearinghouse"
    },
    "FEDEO Clearinghouse"
  ]
}

```

```

    },
    "dct:language": {
      "@id": "http://id.loc.gov/vocabulary/iso639-1/en"
    },
    "dct:modified": "2017-09-26T11:27:19Z",
    "dct:rights": "Copyright 2016-2017, European Space Agency",
    "dct:title": "FEDEO Clearinghouse - Search Response",
    "owc:links": {
      "iana:first": {
        "@id":
"http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
        "dct:title": "first results",
        "atom:type": "application/geo+json"
      },
      "iana:last": {
        "@id":
"http://fedeo.esa.int/opensearch/request?&maximumRecords=10&query=ESA%20LDS&httpAccept=application/geo%2Bjson&platform=landsat&startRecord=1&status=2,0",
        "dct:title": "last results",
        "atom:type": "application/geo+json"
      },
      "iana:profile": [
        {
          "@id": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
        },
        {
          "@id": "http://www.opengis.net/spec/eo-geojson/1.0/req/core"
        },
        {
          "@id": "http://www.opengis.net/spec/os-geojson/1.0/req/core"
        }
      ],
      "iana:search": {
        "@id": "http://fedeo.esa.int/opensearch/description.xml",
        "dct:title": "search",
        "atom:type": "application/opensearchdescription+xml"
      }
    },
    "gj:features": {
      "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIdentifier=EOP%3AES%3AFED%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC",
      "@type": "gj:Feature",
      "dct:date": "1999-07-01T00:00:00Z/2003-12-31T00:00:00Z",
      "dct:description": "This dataset contains all the Landsat 7 Enhanced Thematic Mapper high-quality ortho-rectified L1T dataset over Kiruna, Maspalomas and Matera visibility masks. The Landsat 7 ETM+ scenes typically covers 185 x 170 km. A standard full scene is nominally centred on the intersection between a Path and Row (the actual image centre can vary by up to 100m). Each band requires 50MB (uncompressed), and Band 8 requires 200MB (panchromatic band with resolution of 15m opposed to 30m).",
      "dct:identifier": "LANDSAT.ETM.GTC",
      "dct:modified": "1999-07-01T00:00:00Z",
      "dct:title": "LANDSAT 7 ETM+ (Enhanced Thematic Mapper Plus) Geolocated Terrain Corrected Systematic processing (LANDSAT.ETM.GTC)",
      "eop:acquisitionInformation": {
        "eop:instrument": {
          "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/4dbe7764-a2ea-4a19-b754-696c35ac3205",
          "eop:instrumentShortName": "ETM",
          "eop:sensorType": {
            "@id": "eop:OPTICAL"
          }
        },
        "eop:platform": {
          "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/c7a09e9f-3c99-4b31-a521-313c379ba2b4",
          "eop:platformSerialIdentifier": "7",
          "eop:platformShortName": "Landsat"
        }
      },
      "eop:productInformation": {
        "eop:availabilityTime": "2004-01-07T11:12:58Z",
        "eop:processingCenter": "PDS",
        "eop:processingLevel": "2",

```

```

        "eop:referenceSystemIdentifier": "4326",
        "eop:version": "C001"
    },
    "eop:status": {
        "@id": "eop:ARCHIVED"
    },
    "owc:links": {
        "iana:alternate": [
            {
                "@id":
"http://fedeo.esa.int/openserch/request/?httpAccept=application/atom%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSchema=server-choice",
                "dct:title": "Atom format",
                "atom:type": "application/atom+xml"
            },
            {
                "@id":
"http://fedeo.esa.int/openserch/request/?httpAccept=application/vnd.iso.19139-2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=LANDSAT.ETM.GTC&recordSchema=iso19139-2",
                "dct:title": "ISO 19139-2 metadata",
                "atom:type": "application/vnd.iso.19139-2+xml"
            }
        ],
        "iana:describedby": {
            "@id": "https://earth.esa.int/web/guest/data-access/browse-data-products/-/asset_publisher/y8Qb/content/landsat-7-etm-enhanced-thematic-mapper-plus-geolocated-terrain-corrected-systematic-processing-over-kiruna-and-masplomas",
            "dct:title": "Described by",
            "atom:type": "text/html"
        },
        "iana:icon": {
            "@id": "http://fedeo.esa.int/openserch/images/esa.png",
            "dct:title": "Quicklook",
            "atom:type": "image/png"
        },
        "iana:search": {
            "@id":
"http://fedeo.esa.int/openserch/description.xml?parentIdentifier=LANDSAT.ETM.GTC&sensorType=OPTICAL&startDate=1999-07-01T00:00:00Z&endDate=2003-12-31T00:00:00Z",
            "atom:type": "application/openserchdescription+xml"
        }
    },
    "dcat:theme": [
        {
            "@id": "http://www.eionet.europa.eu/gemet/concept/3650",
            "skos:prefLabel": "Geology"
        },
        {
            "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/03f0c0a3-04a7-4ef8-8ec0-3c2266510815",
            "skos:prefLabel": "Science Keywords > Earth Science > Spectral/Engineering > Visible Wavelengths > Visible Imagery"
        },
        {
            "@id": "http://gcmdservices.gsfc.nasa.gov/kms/concept/c7a09e9f-3c99-4b31-a521-313c379ba2b4",
            "skos:prefLabel": "LANDSAT-7"
        }
    ],
    "gjs:geometry": {
        "@type": "gjs:Polygon",
        "gjs:coordinates": [
            -180,
            -90,
            180,
            -90,
            180,
            90,
            -180,
            90,
            -180,
            -90
        ]
    }
]

```

```

    }
  }
}

```

D.2 Exception Response Examples

D.2.1 Example 1: Fatal Exceptions

D.2.1.1 GeoJSON

```

{
  "type": "ExceptionReport",
  "exceptions": [
    {
      "type": "Exception",
      "exceptionCode": "http://www.opengis.net/ows/2.0#InvalidParameterValue",
      "exceptionText": "Media type application//geo+json is not supported for
collection RSAT2_NRT",
      "locator": "httpAccept parameter"
    },
    {
      "type": "Exception",
      "exceptionCode": "http://www.opengis.net/ows/2.0#InvalidParameterValue",
      "exceptionText": "{time:end} must be later than {time:start}.",
      "locator": "{time:end} parameter"
    }
  ]
}

```

D.2.1.2 GeoJSON-LD (Compacted)

```

{
  "@context": "http://schemas.opengis.net/os-geojson/1.0/os-geojson-11.jsonld",
  "type": "ExceptionReport",
  "exceptions": [
    {
      "type": "Exception",
      "exceptionCode": "http://www.opengis.net/ows/2.0#InvalidParameterValue",
      "exceptionText": "Media type application//geo+json is not supported for
collection RSAT2_NRT",
      "locator": "httpAccept parameter"
    },
    {
      "type": "Exception",
      "exceptionCode": "http://www.opengis.net/ows/2.0#InvalidParameterValue",
      "exceptionText": "{time:end} must be later than {time:start}.",
      "locator": "{time:end} parameter"
    }
  ]
}

```

D.2.1.3 GeoJSON-LD (Expanded)

```

{
  "@context": {
    "sru": "http://docs.oasis-open.org/ns/search-ws/sruResponse/"
  },
  "@type": "sru:Diagnostics",
  "sru:diagnostics": [
    {
      "@type": "sru:Diagnostic",
      "sru:details": "httpAccept parameter",

```

```

    "sru:message": "Media type application//geo+json is not supported for
collection RSAT2_NRT",
    "sru:uri": "http://www.opengis.net/ows/2.0#InvalidParameterValue"
  },
  {
    "@type": "sru:Diagnostic",
    "sru:details": "{time:end} parameter",
    "sru:message": "{time:end} must be later than {time:start}.",
    "sru:uri": "http://www.opengis.net/ows/2.0#InvalidParameterValue"
  }
]
}

```

D.2.2 Example 2: Non-Fatal Exceptions

D.2.2.1 GeoJSON

```

{
  "type": "FeatureCollection",
  "id":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO",
  "totalResults": 56,
  "startIndex": 1,
  "itemsPerPage": 1,
  "queries": {
    "request": [
      {
        "eo:organisationName": "VITO",
        "count": 1,
        "sru:recordSchema": "server-choice"
      }
    ]
  },
  "properties": {
    "title": "FEDEO Clearinghouse - Search Response",
    "authors": [
      {
        "type": "Agent",
        "name": "FEDEO Clearinghouse",
        "email": "eohelp@eo.esa.int"
      }
    ],
    "updated": "2017-12-21T09:20:42Z",
    "lang": "en",
    "rights": "Copyright 2016-2017, European Space Agency",
    "links": {
      "profiles": [
        {
          "href": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
        }
      ],
      "first": [
        {
          "href":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO&startRecord=1&status=56,0",
          "type": "application/geo+json",
          "title": "first results"
        }
      ],
      "next": [
        {
          "href":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO&startRecord=2&status=56,0",
          "type": "application/geo+json",
          "title": "next results"
        }
      ]
    }
  }
}

```



```

        "last": [
            {
                "href":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO&startRecord=56&status=56,0",
                "type": "application/geo+json",
                "title": "last results"
            }
        ],
        "search": [
            {
                "href": "http://fedeo.esa.int/opensearch/description.xml",
                "type": "application/opensearchdescription+xml",
                "title": "search"
            }
        ]
    },
    "features": [
        {
            "type": "Feature",
            "id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIden
tifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=EOP%3AVITO%3APROBAV_S10-TOC_333M_V001",
            "geometry": {
                "type": "Polygon",
                "coordinates": [
                    [
                        [
                            -180,
                            -56
                        ],
                        [
                            180,
                            -56
                        ],
                        [
                            180,
                            75
                        ],
                        [
                            -180,
                            75
                        ],
                        [
                            -180,
                            -56
                        ]
                    ]
                ]
            },
            "properties": {
                "title": "PROBA-V S10 TOC 300 m: Decadal synthesis of S1's as Maximum
Value Compositing (MVC)",
                "identifier": "EOP:VITO:PROBAV_S10-TOC_333M_V001",
                "abstract": "Level 3 data products are variables mapped on uniform space-
time grid scales and are the result of combining multiple scenes (e.g., S1/S10) to
cover the user's region of interest.",
                "date": "2013-10-16T00:00:00Z/2018-12-31T00:00:00Z",
                "updated": "2013-10-16T00:00:00Z",
                "links": {
                    "alternates": [
                        {
                            "href":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-
2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDeo%3ACOLLECTIONS&uid=EOP%3AVITO%3APROBAV_S10-
TOC_333M_V001&recordSchema=iso19139-2",
                            "type": "application/vnd.iso.19139-2+xml",
                            "title": "ISO 19139-2 metadata"
                        }
                    ],
                    "search": [
                        {

```

```

        "href":
"http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=EOP:VITO:PROBAV_S10-
TOC_333M_V001&startDate=2013-10-16T00:00:00&endDate=2018-12-31T00:00:00",
        "type": "application/opensearchdescription+xml"
    }
    ]
    },
    "exceptions": [
    {
        "type": "Exception",
        "exceptionCode": "http://www.opengis.net/ows/2.0#OptionNotSupported",
        "exceptionText": "Search by {eo:organisationName} is not supported by
CMR endpoint. Only FedEO results returned.",
        "locator": "{eo:organisationName} parameter"
    }
    ]
    }
    ]
}

```

D.2.2.2 GeoJSON-LD (Compacted)

The example below is identical to the example in the previous section, only a `@context` property is added.

```

{
  "@context": "http://schemas.opengis.net/os-geojson/1.0/os-geojson.jsonld",
  "type": "FeatureCollection",
  ... same content as example in previous section ...
}

```

D.2.2.3 GeoJSON-LD (Expanded)

```

{
  "@context": {
    "dct": "http://purl.org/dc/terms/",
    "atom": "http://www.w3.org/2005/Atom/",
    "iana": "http://www.iana.org/assignments/relation/",
    "os": "http://a9.com/-/spec/opensearch/1.1/",
    "owc": "http://www.opengis.net/ont/owc/1.0/",
    "gj": "https://purl.org/geojson/vocab#",
    "gsp": "http://www.opengis.net/ont/geosparql#",
    "vcard": "http://www.w3.org/2006/vcard/ns#",
    "foaf": "http://xmlns.com/foaf/0.1/",
    "skos": "http://www.w3.org/2004/02/skos/core#",
    "dcat": "http://www.w3.org/ns/dcat#",
    "xsd": "http://www.w3.org/2001/XMLSchema#",
    "sru": "http://docs.oasis-open.org/ns/search-ws/sruResponse/",
    "dc": "http://purl.org/dc/elements/1.1/",
    "eo": "http://a9.com/-/opensearch/extensions/eo/1.0/",
    "geo": "http://a9.com/-/opensearch/extensions/geo/1.0/",
    "time": "http://a9.com/-/opensearch/extensions/time/1.0/"
  },
  "@id":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO",
  "@type": "gj:FeatureCollection",
  "os:itemsPerPage": {
    "@type": "xsd:nonNegativeInteger",
    "@value": 1
  },
  "os:queries": {
    "os:request": {
      "eo:organisationName": "VITO",

```

```

        "http://a9.com/-/opensearch/extensions/sru/2.0/recordSchema": "server-
choice",
        "os:count": 1
    },
    },
    "os:startIndex": {
        "@type": "xsd:nonNegativeInteger",
        "@value": 1
    },
    "os:totalResults": {
        "@type": "xsd:nonNegativeInteger",
        "@value": 56
    },
    "dct:creator": {
        "@type": "foaf:Agent",
        "foaf:mbox": "eohelp@eo.esa.int",
        "foaf:name": "FEDEO Clearinghouse"
    },
    "dct:language": {
        "@id": "http://id.loc.gov/vocabulary/iso639-1/en"
    },
    "dct:modified": "2017-12-21T09:20:42Z",
    "dct:rights": "Copyright 2016-2017, European Space Agency",
    "dct:title": "FEDEO Clearinghouse - Search Response",
    "owc:links": {
        "iana:first": {
            "@id":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO&startRecord=1&status=56,0",
            "dct:title": "first results",
            "atom:type": "application/geo+json"
        },
        "iana:last": {
            "@id":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO&startRecord=56&status=56,0",
            "dct:title": "last results",
            "atom:type": "application/geo+json"
        },
        "iana:next": {
            "@id":
"http://fedeo.esa.int/opensearch/request?maximumRecords=1&httpAccept=application/geo%2
Bjson&organisationName=VITO&startRecord=2&status=56,0",
            "dct:title": "next results",
            "atom:type": "application/geo+json"
        },
        "iana:profile": {
            "@id": "http://www.opengis.net/spec/owc-geojson/1.0/req/core"
        },
        "iana:search": {
            "@id": "http://fedeo.esa.int/opensearch/description.xml",
            "dct:title": "search",
            "atom:type": "application/opensearchdescription+xml"
        }
    },
    "gj:features": {
        "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/geo%2Bjson&parentIden
tifier=EOP%3AESA%3AFEDEO%3ACOLLECTIONS&uid=EOP%3AVITO%3APROBAV_S10-TOC_333M_V001",
        "@type": "gj:Feature",
        "sru:diagnostics": {
            "@type": "sru:Diagnostic",
            "sru:details": "{eo:organisationName} parameter",
            "sru:message": "Search by {eo:organisationName} is not supported by CMR
endpoint. Only FedEO results returned.",
            "sru:uri": "http://www.opengis.net/ows/2.0#OptionNotSupported"
        },
        "dct:date": "2013-10-16T00:00:00Z/2018-12-31T00:00:00Z",
        "dct:description": "Level 3 data products are variables mapped on uniform space-
time grid scales and are the result of combining multiple scenes (e.g., S1/S10) to
cover the user's region of interest.",
        "dct:identifier": "EOP:VITO:PROBAV_S10-TOC_333M_V001",
        "dct:modified": "2013-10-16T00:00:00Z",
        "dct:title": "PROBA-V S10 TOC 300 m: Decadal synthesis of S1's as Maximum Value
Compositing (MVC)",
    },

```

```

        "owc:links": {
          "iana:alternate": {
            "@id":
"http://fedeo.esa.int/opensearch/request/?httpAccept=application/vnd.iso.19139-2%2Bxml&parentIdentifier=EOP%3AESAS%3AFEDEO%3ACOLLECTIONS&uid=EOP%3AVITO%3APROBAV_S10-TOC_333M_V001&recordSchema=iso19139-2",
            "dct:title": "ISO 19139-2 metadata",
            "atom:type": "application/vnd.iso.19139-2+xml"
          },
          "iana:search": {
            "@id":
"http://fedeo.esa.int/opensearch/description.xml?parentIdentifier=EOP:VITO:PROBAV_S10-TOC_333M_V001&startDate=2013-10-16T00:00:00&endDate=2018-12-31T00:00:00",
            "atom:type": "application/opensearchdescription+xml"
          }
        },
        "gjs:geometry": {
          "@type": "gjs:Polygon",
          "gjs:coordinates": [
            -180,
            -56,
            180,
            -56,
            180,
            75,
            -180,
            75,
            -180,
            -56
          ]
        }
      }
    }
  }
}

```

Annex E: JSON SCHEMAS (NORMATIVE)

E.1 Schemas for GeoJSON validation

JSON Schema [OR24] representation (Draft 04) is used to define the schemas. This specification is supported by several tools (including Altova XML Spy 2016, JSONBuddy 3.5 and also Web-based tools²³) and is also used to define data types in the OpenAPI specification²⁴. It does not allow to easily model composition of schemas or inheritance without relaxing the schemas. Therefore, the property **"additionalProperties"** is set to **true** in some schema definitions to allow using the **"allOf"** operator to model inheritance.

The schemas below assume that numbers are not surrounded by double quotes as per the JSON Style Guidelines [OR16].

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "title": "GeoJSON encoding of OpenSearch Response",
  "description": "Definition of document with OpenSearch Response in GeoJSON encoding. Note that numbers in the instance should not be surrounded by double-quotes to validate against this schema. ",
  "$ref": "#/definitions/FeatureCollection",
  "definitions": {
```

E.1.1 Definitions/Links

```
    "Links": {
      "title": "Links",
      "description": "OGC 14-055r2",
      "type": "object",
      "properties": {
        "type": {
          "type": "string",
          "enum": [
            "Links"
          ]
        }
      },
      "patternProperties": {
        "^(profiles|alternates|via|related)$": {
          "description": "OGC 14-055r2",
          "type": "array",
          "minItems": 1,
          "items": {
            "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-schema.json#/definitions/Link"
          }
        },
        "^(first|last|previous|next)$": {
          "type": "array",
          "minItems": 1,
          "items": {
            "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-schema.json#/definitions/Link"
          }
        },
        "^(search|describedby)$": {
          "type": "array",
```

²³ E.g., <https://jsonschemalint.com/#/version/draft-04/markup/json> or <http://www.jsonschemavalidator.net/>

²⁴ <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>

```

        "minItems": 1,
        "items": {
          "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-
schema.json#/definitions/Link"
        }
      },
      "additionalProperties": {
        "type": "array",
        "minItems": 1,
        "items": {
          "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-
schema.json#/definitions/Link"
        }
      }
    },
  },

```

E.1.2 Definitions/Properties

```

"Properties": {
  "title": "Properties",
  "type": "object",
  "allOf": [
    {
      "type": "object",
      "properties": {
        "lang": {
          "description": "OGC 14-055r2",
          "type": "string",
          "minLength": 2
        },
        "subtitle": {
          "description": "OGC 14-055r2",
          "type": "string"
        },
        "creator": {
          "description": "OGC 14-055r2",
          "type": "string"
        },
        "links": {
          "$ref": "#/definitions/Links"
        },
        "generator": {
          "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-
schema.json#/definitions/Agent"
        }
      },
      "required": [
        "lang",
        "links"
      ]
    },
    {
      "$ref": "#/definitions/CommonProperties"
    }
  ]
},

```

E.1.3 Definitions/Feature

```

"Feature": {
  "description": "GeoJSON Feature",
  "type": "object",
  "properties": {
    "type": {
      "title": "type",
      "type": "string",
      "enum": [
        "Feature"
      ]
    },
    "id": {

```

```

        "type": "string",
        "format": "uri"
    },
    "geometry": {
        "oneOf": [
            {
                "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-
schema.json#/definitions/Geometry"
            },
            {
                "type": "null"
            }
        ]
    },
    "bbox": {
        "type": "array",
        "minItems": 4,
        "maxItems": 4,
        "items": {
            "type": "number"
        }
    },
    "properties": {
        "$ref": "#/definitions/Properties_"
    }
},
"required": [
    "type",
    "id",
    "properties"
]
},

```

E.1.4 Definitions/FeatureCollection

```

"FeatureCollection": {
    "description": "GeoJSON FeatureCollection",
    "type": "object",
    "allOf": [
        {
            "type": "object",
            "properties": {
                "@context": {
                    "type": "string"
                },
                "type": {
                    "description": "OGC 14-055r2",
                    "type": "string",
                    "enum": [
                        "FeatureCollection"
                    ]
                },
                "id": {
                    "description": "OGC 14-055r2",
                    "type": "string",
                    "format": "uri"
                },
                "bbox": {
                    "type": "array"
                },
                "properties": {
                    "$ref": "#/definitions/Properties"
                },
                "features": {
                    "type": "array",
                    "minItems": 0,
                    "items": {
                        "$ref": "#/definitions/Feature"
                    }
                },
                "exceptions": {
                    "type": "array",
                    "minItems": 1,
                    "items": {

```

```

        "$ref": "#/definitions/Exception"
    }
    },
    "required": [
        "type",
        "id",
        "features"
    ]
},
{
    "$ref": "#/definitions/ControlInformation"
}
]
},

```

E.1.5 Definitions/Queries

```

"Queries": {
    "description": "Object with queries grouped by \"role\". See also
http://www.opensearch.org/Specifications/OpenSearch/1.1#OpenSearch_Query_element",
    "type": "object",
    "properties": {
        "@context": {
            "type": "object"
        },
        "type": {
            "type": "string",
            "enum": [
                "Queries"
            ]
        }
    },
    "patternProperties": {
        "^(request|example|correction|related|superset|subset)$": {
            "description": "OpenSearch predefined role values.",
            "type": "array",
            "minItems": 1,
            "items": {
                "$ref": "#/definitions/Query"
            }
        }
    },
    "additionalProperties": {
        "description": "Additional role values as per
http://www.opensearch.org/Specifications/OpenSearch/1.1#Role_values.",
        "type": "array",
        "minItems": 1,
        "items": {
            "$ref": "#/definitions/Query"
        }
    }
},

```

E.1.6 Definitions/Query

```

"Query": {
    "description": "OpenSearch Query element as defined at
http://www.opensearch.org/Specifications/OpenSearch/1.1#OpenSearch_Query_element.",
    "type": "object",
    "properties": {
        "type": {
            "type": "string",
            "enum": [
                "Query"
            ]
        },
        "title": {
            "type": "string"
        },
        "totalResults": {

```



```

        "type": "integer",
        "minimum": 0
    },
    "searchTerms": {
        "type": "string"
    },
    "count": {
        "type": "integer",
        "minimum": 0
    },
    "startIndex": {
        "type": "integer",
        "minimum": 0
    },
    "startPage": {
        "type": "integer",
        "minimum": 0
    },
    "language": {
        "type": "string"
    },
    "inputEncoding": {
        "type": "string"
    },
    "outputEncoding": {
        "type": "string"
    }
},
"additionalProperties": {
    "title": "Search parameter",
    "description": "Remaining OpenSearch query parameters and their values.",
    "type": [
        "string",
        "number"
    ]
}
},

```

E.1.7 Definitions/ControlInformation

```

"ControlInformation": {
    "type": "object",
    "properties": {
        "totalResults": {
            "type": "integer",
            "minimum": 0
        },
        "startIndex": {
            "type": "integer",
            "minimum": 0
        },
        "itemsPerPage": {
            "type": "integer",
            "minimum": 0
        },
        "queries": {
            "$ref": "#/definitions/Queries"
        }
    },
    "required": [
        "totalResults",
        "startIndex",
        "itemsPerPage"
    ]
},

```

E.1.8 Definitions/Properties

```

"Properties": {
    "type": "object",
    "allOf": [
        {

```

```

        "type": "object",
        "properties": {
            "identifier": {
                "type": "string"
            },
            "kind": {
                "description": "dct:type",
                "type": "string",
                "format": "uri"
            },
            "abstract": {
                "description": "OGC 14-055r2",
                "type": "string"
            },
            "links": {
                "$ref": "#/definitions/Links"
            }
        },
        "required": [
            "identifier"
        ]
    },
    {
        "$ref": "#/definitions/CommonProperties"
    }
]
},

```

E.1.9 Definitions/CommonProperties

```

"CommonProperties": {
    "type": "object",
    "properties": {
        "type": {
            "type": "string",
            "enum": [
                "Properties"
            ]
        },
        "title": {
            "description": "OGC 14-055r2",
            "type": "string"
        },
        "updated": {
            "description": "OGC 14-055r2",
            "type": "string",
            "format": "date-time"
        },
        "date": {
            "description": "OGC 14-055r2",
            "type": "string"
        },
        "publisher": {
            "description": "OGC 14-055r2",
            "type": "string"
        },
        "rights": {
            "description": "OGC 14-055r2",
            "type": "string"
        },
        "authors": {
            "description": "OGC 14-055r2",
            "type": "array",
            "minItems": 1,
            "items": {
                "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-schema.json#/definitions/Agent"
            }
        },
        "categories": {
            "description": "OGC 14-055r2",
            "type": "array",
            "minItems": 1,
            "items": {

```

```

        "$ref": "http://schemas.opengis.net/os-geojson/1.0/owc-geojson-
schema.json#/definitions/Category"
    }
},
"required": [
    "title",
    "updated"
]
},

```

E.1.10 Definitions/Exception

```

"Exception": {
    "description": "OGC 06-121r9",
    "type": "object",
    "properties": {
        "exceptionCode": {
            "description": "Represents ows:exceptionCode",
            "type": "string",
            "format": "uri"
        },
        "exceptionText": {
            "description": "Represents ows:exceptionText",
            "type": "string"
        },
        "locator": {
            "description": "Represents ows:locator.",
            "type": "string"
        }
    },
    "required": [
        "exceptionCode"
    ],
    "additionalProperties": false
},

```

E.1.11 Definitions/ExceptionReport

```

"ExceptionReport": {
    "description": "OGC 06-121r9",
    "type": "object",
    "properties": {
        "type": {
            "type": "string",
            "enum": [
                "ExceptionReport"
            ]
        },
        "exceptions": {
            "type": "array",
            "items": {
                "$ref": "#/definitions/Exception"
            }
        }
    }
}

```

E.2 Schemas for OWC GeoJSON validation

The JSON schema definitions in the current section are “imported” by the schemas presented in the previous section. They represent a JSON Schema encoding of selected OGC 14-055r2 resources which are reused by the OGC 17-047 GeoJSON encoding without modification.

The file is available at <http://schemas.opengis.net/os-geojson/1.0/owc-geojson-schema.json> (See Annex G:).

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "title": "GeoJSON encoding of OGC 14-055r2 subset required by OGC 17-047 JSON
Schema",
  "description": "Definition of OGC 14-055r2 and GeoJSON elements required by GeoJSON
encoding of EO Dataset Metadata. Note that numbers in the instance should not be
surrounded by double-quotes to validate against this schema. ",
  "definitions": {
```

E.2.1 Definitions/Geometry

```
    "Point": {
      "title": "Point",
      "type": "object",
      "properties": {
        "coordinates": {
          "title": "gj:coordinates",
          "description": "One position (longitude, latitude)",
          "type": "array",
          "minItems": 2,
          "maxItems": 2,
          "items": {
            "type": "number"
          }
        },
        "type": {
          "type": "string",
          "enum": [
            "Point"
          ]
        }
      },
      "required": [
        "coordinates",
        "type"
      ],
      "additionalProperties": false
    },
    "MultiPoint": {
      "title": "point",
      "type": "object",
      "properties": {
        "coordinates": {
          "title": "gj:coordinates",
          "description": "Array of positions",
          "type": "array",
          "minItems": 1,
          "items": [
            {
              "description": "One position",
              "type": "array",
              "minItems": 2,
              "maxItems": 2,
              "items": {
                "type": "number"
              }
            }
          ]
        },
        "additionalItems": false
      },
      "type": {
        "type": "string",
        "enum": [
          "MultiPoint"
        ]
      }
    },
    "required": [
      "coordinates",
      "type"
    ],
  },
```

```

    "additionalProperties": false
  },
  "LineString": {
    "title": "LineString",
    "type": "object",
    "properties": {
      "coordinates": {
        "title": "coordinates",
        "description": "Array of positions",
        "type": "array",
        "minItems": 2,
        "items": {
          "description": "One position",
          "type": "array",
          "minItems": 2,
          "maxItems": 2,
          "items": {
            "type": "number"
          }
        }
      },
      "type": {
        "type": "string",
        "enum": [
          "LineString"
        ]
      }
    },
    "required": [
      "coordinates",
      "type"
    ],
    "additionalProperties": false
  },
  "MultiLineString": {
    "title": "MultiLineString",
    "type": "object",
    "properties": {
      "coordinates": {
        "title": "coordinates",
        "description": "Array of linestring",
        "type": "array",
        "minItems": 1,
        "items": {
          "description": "Linestring, i.e., array of positions",
          "type": "array",
          "minItems": 2,
          "items": {
            "description": "Position (longitude, latitude)",
            "type": "array",
            "minItems": 2,
            "maxItems": 2,
            "items": {
              "type": "number"
            }
          }
        }
      },
      "type": {
        "type": "string",
        "enum": [
          "MultiLineString"
        ]
      }
    },
    "required": [
      "coordinates",
      "type"
    ],
    "additionalProperties": false
  },
  "Polygon": {
    "title": "Polygon",
    "type": "object",
    "properties": {

```

```

        "coordinates": {
            "title": "coordinates",
            "description": "Array of linestrings",
            "type": "array",
            "minItems": 1,
            "items": {
                "description": "Linear ring, i.e., linestring or array of
positions",
                "type": "array",
                "minItems": 1,
                "items": {
                    "description": "One position",
                    "type": "array",
                    "minItems": 2,
                    "maxItems": 2,
                    "items": {
                        "type": "number"
                    }
                }
            }
        },
        "type": {
            "type": "string",
            "enum": [
                "Polygon"
            ]
        }
    },
    "required": [
        "coordinates",
        "type"
    ],
    "additionalProperties": false
},
"MultiPolygon": {
    "title": "MultiPolygon",
    "type": "object",
    "properties": {
        "coordinates": {
            "title": "coordinates",
            "description": "Array of Polygons",
            "type": "array",
            "minItems": 1,
            "items": {
                "description": "Array of linestrings",
                "type": "array",
                "minItems": 1,
                "items": {
                    "description": "Linear ring, i.e., linestring or array of
positions",
                    "type": "array",
                    "items": {
                        "description": "One position",
                        "type": "array",
                        "minItems": 2,
                        "maxItems": 2,
                        "items": {
                            "type": "number"
                        }
                    }
                }
            }
        }
    },
    "type": {
        "type": "string",
        "enum": [
            "MultiPolygon"
        ]
    }
},
    "required": [
        "coordinates",
        "type"
    ],
    "additionalProperties": false
}

```

```

    },
    "Geometry": {
      "title": "Geometry",
      "type": "object",
      "oneOf": [
        {
          "$ref": "#/definitions/Point"
        },
        {
          "$ref": "#/definitions/MultiPoint"
        },
        {
          "$ref": "#/definitions/LineString"
        },
        {
          "$ref": "#/definitions/MultiLineString"
        },
        {
          "$ref": "#/definitions/Polygon"
        },
        {
          "$ref": "#/definitions/MultiPolygon"
        }
      ]
    }
  ],
},

```

E.2.2 Definitions/Agent

```

"Agent": {
  "description": "RFC4287 §3.2 and OGC 14-055r2 §7.1.1.7, §7.1.8",
  "type": "object",
  "minProperties": 1,
  "properties": {
    "type": {
      "type": "string",
      "enum": [
        "Agent",
        "Person",
        "Organization"
      ]
    },
    "name": {
      "type": "string"
    },
    "email": {
      "type": "string",
      "format": "email"
    },
    "uri": {
      "type": "string",
      "format": "uri"
    },
    "title": {
      "description": "OGC 14-055r2 §7.1.8",
      "type": "string"
    },
    "version": {
      "description": "OGC 14-055r2 §7.1.8",
      "type": "string"
    }
  }
},

```

E.2.3 Definitions/Category

```

"Category": {
  "description": "OGC 14-055r2 §7.1.1.15",
  "type": "object",

```

```

    "properties": {
      "type": {
        "type": "string",
        "enum": [
          "Category"
        ]
      },
      "scheme": {
        "type": "string",
        "format": "uri"
      },
      "term": {
        "type": "string"
      },
      "label": {
        "type": "string"
      }
    },
    "required": [
      "term"
    ],
    "additionalProperties": false
  },

```

E.2.4 Definitions/Link

```

  "Link": {
    "description": "OGC 14-055r2",
    "type": "object",
    "properties": {
      "href": {
        "type": "string",
        "format": "uri"
      },
      "type": {
        "description": "MIME type",
        "type": "string"
      },
      "title": {
        "type": "string"
      },
      "length": {
        "type": "integer",
        "minimum": 0,
        "exclusiveMinimum": true
      },
      "lang": {
        "description": "RFC-3066",
        "type": "string"
      }
    },
    "required": [
      "href"
    ]
  }
}

```


Annex F: OGC 13-026R9 TO JSON MAPPING

The table below maps the search parameters defined in OGC 13-026r9 [OR20] to the JSON properties defined in OGC 17-003r2 and OGC 17-084.

OpenSearch Parameter	OGC 17-084	OGC 17-003r2
eo:abstract	\$.properties.abstract	
eo:accessConstraint	\$.properties.distribution.accessRights[*].label \$.properties.accessRights[*].label	
eo:accessedFrom		
eo:acquisitionStation		\$.acquisitionParameters.acquisitionStation
eo:acquisitionSubType		\$.acquisitionParameters.acquisitionSubType
eo:acquisitionType		\$.acquisitionParameters.acquisitionType
eo:antennaLookDirection		\$.acquisitionParameters.antennaLookDirection
eo:archivingCenter		\$.properties.productInformation.archivingCenter
eo:availabilityDate		\$.properties.available
eo:classification		
eo:cloudCover		\$.properties.productInformation.cloudCover
eo:completionTimeFromAscendingNode		\$.acquisitionParameters.completionTimeFromAscendingNode
eo:compositeType		\$.properties.productInformation.compositeType
eo:creationDate		\$.properties.creationDate
eo:degree	\$.properties.wasUsedBy[*].generated	
eo:denominator (Resolution)		
eo:dissemination		
eo:distanceUOM (Resolution)		
eo:distanceValue (Resolution)		
eo:doi	\$.properties.doi	\$.properties.doi
eo:dopplerFrequency		\$.acquisitionInformation[*].acquisitionParameters.dopplerFrequency
eo:hasSecurityConstraints		
eo:highestLocation		\$.properties.acquisitionInformation[*].acquisitionParameters.highestLocation
eo:illuminationAzimuthAngle		\$.acquisitionAngles.illuminationAzimuthAngle

eo:illuminationElevationAngle		\$.acquisitionAngles.illuminationElevationAngle
eo:illuminationZenithAngle		\$.acquisitionAngles.illuminationZenithAngle
eo:incidenceAngleVariation		\$.acquisitionAngles.incidenceAngleVariation
eo:instrument	\$.acquisitionInformation[*].instrument.instrumentShortName	\$.acquisitionInformation[*].instrument.instrumentShortName
eo:keyword	\$.properties.categories \$.properties.keyword	
eo:lastOrbitDirection		\$.properties.acquisitionInformation[*].acquisitionParameters.lastOrbitDirection
eo:lineage	\$.properties.provenance	
eo:locationUnit		\$.properties.acquisitionInformation[*].acquisitionParameters.locationUnit
eo:lowestLocation		\$.properties.acquisitionInformation[*].acquisitionParameters.lowestLocation
eo:maximumIncidenceAngle		\$.acquisitionAngles.maximumIncidenceAngle
eo:minimumIncidenceAngle		\$.acquisitionAngles.minimumIncidenceAngle
eo:modificationDate	\$.properties.updated	\$.properties.updated
eo:orbitDirection		\$.properties.acquisitionInformation[*].acquisitionParameters.orbitDirection
eo:orbitNumber		\$.acquisitionInformation[*].acquisitionParameters.orbitNumber
eo:orbitType	\$.acquisitionInformation[*].platform.orbitType	\$.acquisitionInformation[*].platform.orbitType
eo:organisationName	\$.properties.contactPoint[*].name \$.properties.qualifiedAttribution[*].agent[*].name	
eo:organisationRole	\$.properties.qualifiedAttribution[*].agent[*].role	
eo:otherConstraint		
eo:parentIdentifier		\$.properties.parentIdentifier
eo:platform	\$.acquisitionInformation[*].platform.platformShortName	\$.acquisitionInformation[*].platform.platformShortName
eo:platformSerialIdentifier	\$.acquisitionInformation[*].platform.platformSerialIdentifier	\$.acquisitionInformation[*].platform.platformSerialIdentifier
eo:polarisationChannels		\$.acquisitionInformation[*].acquisitionParameters.polarisationChannels

eo:polarisationMode		\$.acquisitionInformation[*].acquisitionParameters.polarisationMode
eo:processingCenter		\$.properties.productInformation.processingCenter
eo:processingDate		\$.properties.productInformation.processingDate
eo:processingLevel	\$.properties.productInformation.processingLevel	\$.properties.productInformation.processingLevel
eo:processingMode		\$.properties.productInformation.processingMode
eo:processorName		\$.properties.productInformation.processorName
eo:productionStatus		\$.properties.status
eo:productQualityDegradationTag		\$.qualityInformation.qualityDegradationTag
eo:productQualityStatus		\$.qualityInformation.qualityStatus
eo:productType		\$.properties.productInformation.productType
eo:productVersion		\$.properties.productInformation.productVersion
eo:publicationDate	\$.properties.published	\$.properties.published
eo:relativeOrbitNumber		\$.acquisitionParameters.relativeOrbitNumber
eo:resolution		\$.acquisitionInformation[*].acquisitionParameters.resolution
eo:sensorMode		\$.acquisitionInformation[*].acquisitionParameters.optionalMode
eo:sensorType	\$.acquisitionInformation[*].instrument.sensorType	\$.acquisitionInformation[*].instrument.sensorType
eo:snowCover		\$.properties.productInformation.snowCover
eo:specificationDate	\$.properties.wasUsedBy[*].qualifiedAssociation.hadPlan.wasDerivedFrom.issued	
eo:specificationDateType	\$.properties.wasUsedBy[*].qualifiedAssociation.hadPlan.wasDerivedFrom	
eo:specificationTitle	\$.properties.wasUsedBy[*].qualifiedAssociation.hadPlan.wasDerivedFrom.title	
eo:spectralRange		\$.wavelengths[*].spectralRange
eo:startTimeFromAscendingNode		\$.acquisitionParameters.startTimeFromAscendingNode
eo:swathIdentifier		\$.acquisitionInformation[*].acquisitionParameters.swathIdentifier
eo:tileId		\$.acquisitionParameters.tileId

eo:timeliness	\$.properties.productInformation.timeliness	\$.properties.productInformation.timeliness
eo:title	\$.properties.title	\$.properties.title
eo:topicCategory	\$.properties.subject	
eo:useLimitation	\$.properties.distribution.license[*].label \$.properties.license[*].label	
eo:wavelength		\$.wavelengths[*].discreteWavelengths
eo:wrsLatitudeGrid		\$.acquisitionParameters.wrsLatitudeGrid
eo:wrsLongitudeGrid		\$.acquisitionParameters.wrsLongitudeGrid
geo:box	\$.geometry	\$.geometry
geo:name		
geo:uid	\$.properties.identifier	\$.properties.identifier
os:language	\$.properties.lang	\$.properties.lang
os:searchTerms	\$.properties.abstract \$.properties.title \$.properties.categories \$.properties.keyword \$.properties.contactPoint[*].name	
time:end	\$.properties.date \$.acquisitionInformation[*].acquisitionParameters.endingDateTime \$.properties.temporal.endingDateTime	\$.properties.date \$.acquisitionInformation[*].acquisitionParameters.endingDateTime
time:start	\$.properties.date \$.acquisitionInformation[*].acquisitionParameters.beginningDateTime \$.properties.temporal.beginningDateTime	\$.properties.date \$.acquisitionInformation[*].acquisitionParameters.beginningDateTime

Annex G: SCHEMAS AND EXAMPLES

The following schemas and context files are provided in the OGC schema repository:

- `os-geojson-schema-standalone.json`
- `os-geojson-schema.json`
- `owc-geojson-schema.json`
- `os-geojson.jsonld`
- `example-1-eo-collections.json`
- `example-1-eo-collections.jsonld`
- `example-2-eo-products.json`
- `example-2-eo-products.jsonld`
- `example-3-eo-collections.json`
- `example-3-eo-collections.jsonld`
- `example-1-fatal-exceptions.json`
- `example-1-fatal-exceptions.jsonld`
- `example-2-non-fatal-exceptions.json`
- `example-2-non-fatal-exceptions.jsonld`

They are available at <http://schemas.opengis.net/os-geojson/1.0>.

Annex H: REVISION HISTORY

Date	Version	Editor	Sections modified	Description
12/06/2017	0.0.0-0.1.0	U. Voges	All	Initial version uploaded on OGC SWG Portal pages (JSON information extracted from original OGC 13-026r9 draft which covered both Atom and GeoJSON(-LD) responses).
20/10/2017	0.2.0 Draft D6	Y. Coene	All	Major revision. Information presented as in OGC 17-003. JSON Schema diagrams and appendices added, tables revised. Examples added.
27/10/2017	0.4.0 Draft D7	Y. Coene	All	Examples in Annex D: shortened. http://schemas.opengis.net/os-geojson/1.0 used as location of .jsonld files in all examples. Requirements /req/feature/eo-series and /req/feature/eo-dataset added with reference to OGC 17-084 and OGC 17-003. "iana:describedby" link corrected in some examples.
21/12/2017	0.5.0 Draft D8	Y. Coene	All	Comments AD1, AD2, AD4, AD5 and AD6 from Allan Doyle received on 30/11/2017 addressed after discussion at WGISS SLT telco on 7/12/2017. Issue AD7 with not-allowed "properties" member at GeoJSON FeatureCollection level kept unchanged until OGC 14-055r2 defines the new encoding.
			Section 7.2.4 Annex B.2.2	Author class renamed into Agent. foaf vocabulary used instead of vcard to encode its properties to be consistent with GeoDCAT-AP v1.0.1 (Page 68) and OGC 17-084 encoding of same information.
			Section 7.2.1	"generator" property added in table and example.
			Section 7.2.4	Properties from Table 8 of OGC 14-055r2 (CreatorApplication) added to Agent class. Example of "generator" added.
			Annex A	Missing conformance classes added. Figure 15 updated.
			Section 2.2	exception-report conformance class added.

Date	Version	Editor	Sections modified	Description
			7.4.1, Annex D.1.1	Example corrected: Links object moved inside Properties object. Same issue fixed in Annex D.1.1 example.
			Annex D.2.2	Examples with non-fatal exceptions added.
24/10/2018	1.0.0 Draft D9	Y. Coene	All §7.2 §7.2.5 All	Integrated comments from OAB and Public Comments: - Carl Reed (OAB Review) - AA-5 - VITO-3 - OGC-2: http://www.opengis.net/owc/1.0/ and http://www.opengis.net/eo-geojson/1.0/ ontology namespaces renamed into http://www.opengis.net/ont/owc/1.0/ and http://www.opengis.net/ont/eo-geojson/1.0/ as per OGC 12-081. Remain to be done: - AA-6 (no action) - VITO-1 (no action) - VITO-4 (no action)
12/11/2018	1.0.0 Draft D10	Y. Coene	All	- Annex E updated with latest version of JSON schemas. - Examples aligned with current OGC 17-003 (instrument/instrumentParameters). - DLR-11: JSON-LD 1.0 @context removed. - List of files added to Annex F.
07/02/2019	1.0.0 Draft D11	Y. Coene	All	- OGC 17-003 and OGC 17-084 added as reference documents. - OR20 and OR21 references updated for OGC 13-026r9 and JSON-LD 1.1. - Annex F with mapping to OpenSearch parameters added. - instrumentParameters moved to acquisitionParameters. - track/frame replaced by wrsLongitudeGrid and wrsLatitudeGrid.

Date	Version	Editor	Sections modified	Description
19/03/2019	1.0.0 Draft D12	Y. Coene	§ 7.4.1, B.2.2, E.1.8, C.1	- “kind” property added as equivalent of dc:type from OGC 13-026r9 for which mapping was missing.
31/07/2019	1.0.0 r1	Y. Coene	Section 3.2 Annex B.2.1 Annex F All	Reference [OR21] updated to latest version. JSON-LD encoding for “kind” (URI) corrected. Section number B.2.1 corrected (was B.2.2). OGC 17-084 column updated according to latest version of OGC 17-084. References to OGC 17-003 replaced by OGC 17-003r2.